PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

25 November 2003

The General Manager
Customer Service
Pittwater Council
PO Box 882,
Unit 1, Vuko Place
Warriewood 2120

Dear Sir/Madam

1148-1152 BARRENJOEY RD, PALM BEACH
DEVELOPMENT APPLICATION NO. DA1228/00
CONSTRUCTION CERTIFICATE NO. 22375

City Plan Services have issued a Construction Certificate under Part 4A of the Environmental Planning and Assessment Act 1979 for the above premises.

Please find enclosed the following documentation:

- Construction Certificate No. CC 22375
- Copy of application for Construction Certificate.
- Documentation used to determine the application for the Construction Certificate as detailed in Schedule 1 of the certificate.
- Notice of Appointment of Principal Certifying Authority.
- Cheque for Council's registration fee.

Our client has been advised of the necessity to submit to Council the notice of commencement of building works 48 hours prior to the commencement of works.

Should you need to discuss any issues, please do not hesitate to contact the Project Building Surveyor Brendan Bennett on 8270-3500.

Yours Sincerely

Brendan Bennett
Director
encl

TELEPHONE 8270 3500
FACSIMILE 8270 3501
LEVEL 1 364 KENT STREET
SYDNEY NSW 2000
WWW.CITYPLAN.COM.AU
ABN 30 075 223 353

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

NOTICE OF APPOINTMENT OF PRINCIPAL CERTIFYING AUTHORITY

Made under Part 4 of the Environmental Planning and Assessment Act 1979
Sections 81A(2) & 86(1)(a)(ii) & (1)(b)

PROPOSAL	
Address of Development:	**1148-1152 Barrenjoey Rd, Palm Beach**
Scope of building works covered by this Notice:	**Subdivision 3-4 Lots Road Construction Demolition existing cottage.**
APPLICANT	
Name:	**Darren Leete –Raypond Pty Ltd**
Address:	**P.O Box 1364, Dee Why**
Contact Details:	**Phone: 0412 226 044 Fax: 9944 0316**

The applicant has appointed Brendan Bennett as the Principal Certifying Authority as stated in the Construction Certificate Application lodged with City Plan Services for the building works identified in this Notice.

RELEVANT CONSENTS	
Development Consent No:	**DA1228/00**
Date of Development Consent:	**27.12.01**
Construction Certificate No:	**CC 22375**
Date of Construction Certificate:	**25.11.03**
CERTIFYING AUTHORITY	Brendan Bennett for and on behalf of City Plan Services
ACCREDITATION BODY	**Planning Institute Australia NSW Accreditation Scheme** Registration No. 3004

That I, Brendan Bennett, as the certifying authority, on behalf of City Plan Services Pty Ltd certify that the work if completed in accordance with the plans and specifications identified in Schedule 1(with such modifications verified by the certifying authority as may be shown on that documentation) will comply with the requirements of the Environmental Planning & Assessment Regulation 2000 as referred to in section 81A(5) of the Environmental Planning and Assessment Act 1979.

DATED THIS **25th** **day of** **November** **2003**

Brendan Bennett
Director

TELEPHONE 8270 3500
FACSIMILE 8270 3501
LEVEL 1 364 KENT STREET
SYDNEY NSW 2000
WWW.CITYPLAN.COM.AU
ABN 30 075 223 353

Pittwater Council

ABN: 61340837871

TAX INVOICE
OFFICIAL RECEIPT

26/11/2003 Receipt No 130335

To CITY PLAN SERVICES

LEVEL 1
364 KENT ST
SYDNEY

Qty/ Applic	Reference	Amount
1 GL Rec	RMIC-Rcrd 1 X N1228/00	$27.27
GL Rec	BST	$2.73
	To GL Receipt:	

Total Amount:	$30.00
Includes BST of:	$2.73

Amounts Tendered

Cheque	$30.00
Total	$30.00
Rounding	$0.00
Change	$0.00
Nett	$30.00

Printed 26/11/2003 3:44:55 PM
Cashier RLindsay1

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

1148-1152 Barrenjoey Rd, Palm Beach
Construction Certificate No. 22375

TELEPHONE 8270 3500
FACSIMILE 8270 3501

LEVEL 1 364 KENT STREET
SYDNEY NSW 2000

WWW.CITYPLAN.COM.AU
ABN 30 075 223 353

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

CONSTRUCTION CERTIFICATE NO. 22375

Issued under Part 4A of the Environmental Planning and Assessment Act 1979
Sections 109C and 81A(5)

APPLICANT	
Name:	**Darren Leete –Raypond Pty Ltd**
Address:	**P.O Box 1364, Dee Why**
Contact Details:	**Phone: 0412 226 044 Fax: 9944 0316**
OWNER	
Name:	**Darren Leete –Raypond Pty Ltd**
Address:	**P.O Box 1364, Dee Why**
Contact Details:	**Phone: 0412 226 044 Fax: 9944 0316**
DEVELOPMENT CONSENT	
Consent Authority/Local Government Area:	**Pittwater Council**
Development Consent No:	**DA1228/00 & S96 Modification**
Date of Development Consent:	**27.12.01**
PROPOSAL	
Address of Development:	**1148-1152 Barrenjoey Rd, Palm Beach**
Building Classification:	**Class 10a**
Type of Construction:	**N/A**
Scope of building works covered by this Notice:	**Civil works for construction of roadway and associated retaining works for subdivision and demolition**
Value of Construction Certificate (Incl GST):	**$**
Plans and Specifications approved:	**Schedule 1**
Fire Safety Schedule:	**Nil**
Exclusions:	**Nil**
Conditions (Clause 187 or 188 of the Environmental Planning & Assessment Regulation 2000):	**Nil**
PROJECT BUILDING SURVEYOR	Please contact **Brendan Bennett** for any inquiries
CERTIFYING AUTHORITY	**Brendan Bennett** for and on behalf of **City Plan Services Pty Ltd**
ACCREDITATION BODY	**Planning Institute Australia NSW Accreditation Scheme** Registration No. 3004

That I, Brendan Bennett, as the certifying authority, certify that the work if completed in accordance with the plans and specifications identified in Schedule 1(with such modifications verified by the certifying authority as may be shown on that documentation) will comply with the requirements of the Environmental Planning & Assessment Regulation 2000 as referred to in section 81A(5) of the Environmental Planning and Assessment Act 1979.

DATED THIS **25th day of November 2003**

Brendan Bennett
Director

NB: Prior to the commencement of work S81A (2) (b) and (c) of the Environment Planning and Assessment Act 1979 must be satisfied.

M:\PROJECTS\CP2002\22-375\Construction Certificate.doc

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

SCHEDULE 1
APPROVED PLANS AND SPECIFICATIONS

1. Endorsed architectural plans prepared by Crone Nation Architects

Plan Title	Drawing No	Revision	Date
Sub Division Site Setout – Key Plan	S0006	4	12.11.02
Site Works Sheet 1	S0007	4	12.11.02
Site Works Sheet 2	S0008	4	12.11.02
Site Setout Sheet 1	S0010	4	12.11.02
Site Setout Sheet 2	S0011	4	12.11.02
Sub Division Driveway Cross Sections	S3001	2	12.11.02
Stair Garbage bins and Letter Boxes entry Driveway Retaining wall	S3002	3	12.11.02
Howard's Garage Site Plan ground/roof Plan Elevation Section	51001	4	12.11.02
Howard's Garage Site Plan ground/roof Plan Elevation Section	51002	4	12.11.02

2. Endorsed structural and Stormwater Drainage plans prepared by Tierney Consulting Engineers

Plan Title	Drawing No	Revision	Date
Stormwater Drainage Plan	C1	2	24.10.03
Structural and Civil Notes	C1	4	18.11.02
General Arrangement	C2	4	18.11.02
Earthworks Plan	C3	4	18.11.02
Earthworks Cross Sections	C4	2	18.11.02
Driveway Layout and Details	C5	4	18.11.02
Suspended Driveway Plan Details	C6	4	18.11.02
Retaining Wall Details Sheet 1	C7	4	18.11.02
Retaining Wall Details Sheet 2	C8	4	18.11.02
Drainage Plan	C9	5	18.11.02
On Site Detention Tank and Drainage Details	C10	4	18.11.02
External Roadworks Plan and Details	C11	4	18.11.02
Sediment and Erosion Control Plan	C13	5	18.11.02
Sediment and Erosion Details	C14	5	18.11.02
Onsite Detention tank DT4 Plan and Sections and House 1 Slab Plan, Sections	C15	2	18.11.02
Retaining Wall Details Sheet 3	C16	2	18.11.02
Driveway Elevations Sheet 1	C17	2	18.11.02
Driveway Elevations Sheet 2	C18	2	18.11.02

3. Endorsed hydraulic plans prepared by Crone Nation Architects

Plan Title	Drawing No	Revision	Date
Site water and Gas Supply	H1.01	C	19.11.02

4. Endorsed electrical plans prepared by Crone Nation Architects

Plan Title	Drawing No	Revision	Date
Site Electrical and Comms Schematics	E2.01	C	19.11.02
Site Electrical and communications Plan	E1.01	C	19.11.02

5. Endorsed Landscape plans prepared by PSB

Plan Title	Drawing No	Revision	Date
Landscape Plan Subdivision (House 3)	L03	B	19.11.02
Landscape Plan Subdivision (House 4)	L04	B	12.11.02
Landscape Plan Subdivision (House 1)	L05	B	15.11.02
Landscape Plan Subdivision (House 2)	L06	B	18.11.02
Landscape Plan Entry Drive	L07	B	18.11.02
Landscape Details	L08	A	18.11.02
Tree Protection Plan House 3	TP10	A	15.11.02
Tree Protection Plan House 4	TP11	A	15.11.02
Tree Protection Plan House 1	TP12	A	17.10.02
Tree Protection Plan House 2	TP13	A	15.11.02
Tree Protection Plan Entry Drive	TP14	A	15.11.02

6. Endorsed Landscape works specification prepared by Pittendrigh Skinfield & Bruce Pty Ltd on 26.06.01 & 18.11.02

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

7. Other documents relied upon

Title	Prepared By	Reference	Date
Construction Certificate Application Form	City Plan Services		12.10.03
Modification of Development Consent	Pittwater Council		24.04.03
Assessment of vehicular access arrangements	John Hewitt Traffic Planning associates	00151	16.10.03
Intended Maintenance Contract	Birds Design		15.10.03
Construction Management Plan Approval	'Stet'		02.04.03
Documentation Compliance Certificate (Landscaping)	PSB	AQ-2-07(2)/L	09.10.03
Consent Condition B29 (Engineerers Certificate)	Tierney Opus		08.10.03
Consent Condition B19 & B20 (Engineerers Certificate)	Tierney Opus		08.10.03
Bushland Management Plan approval (email)	Pittwater Council Natural Resources Officer		08.10.03
Bushland Management Plan	GIS Environmental Consultants		May 2003
Acceptance of VENM at Belrose	Waste Services NSW		04.06.03
Proposed Works at the Intersection	RTA		21.05.03
Development Agreement	Blake Dawson Waldron Lawyers	BMC 1283-4115	
Confirmation of driveway details	Raypond		15.10.03
Pre Construction Tree/Vegetation Report	PSB	QA.2-08(2)/K	10.04.03
Construction Management Plan	City Plan Services		19.11.02

12375

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

CONSTRUCTION CERTIFICATE APPLICATION

Made under the *Environmental Planning and Assessment Act 1979*
Sections 81A(2), 109C(1)(b)

IDENTIFICATION OF BUILDING

Address 1148-1152 BARRENJOEY RD

Lot, DP/MPS etc LOT 17 DP 651978 LOT 16 DP 6746 LOT 181 DP 534139

Suburb or town PALM BEACH Post Code 2107

DESCRIPTION OF DEVELOPMENT

Detailed Description:

SUBDIVISION 3-4 LOTS
ROAD CONSTRUCTION DEMOLITION
EXISTING COTTAGE

APPLICANT

Name D. Leete Company RAYMOND P/

Address C/- P.O BOX 1364

Suburb or town DEE WHY Post Code 2099

Phone B/H _____ Fax No 9944 0316

Mobile 0412 226049 Email darrenleete@optusnet.com.au

As the applicant, I/we hereby;

1. *Submit this Construction Certificate Application under the Environmental Planning & Assessment Act 1979, with City Plan Services Pty Ltd.*
2. *Appoint Brendan Bennett of City Plan Services Pty Ltd as the Principal Certifying Authority for the building work identified in this application.*

Signature of applicant: Sign _____ Date 17/10/03

CONSENT TO ALL OWNER(S)

See attached consent.

Name D. Leete Company RAYMOND

Address C/- P.O. BOX 1364

Suburb or town DEE WHY Post Code 2099

Phone B/H _____ Fax No _____

Mobile _____ Email _____

As the owner of the above property, I/we consent to this application

Signature of Owner Sign _____ Date 17/10/03

TELEPHONE 8270 3500
FACSIMILE 8270 3501
LEVEL 1 364 KENT STREET
SYDNEY NSW 2000
WWW.CITYPLAN.COM.AU
ABN 30 075 223 353

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

VALUE OF WORK

Estimated Cost of work: $

GST: $

For developments over $5 million, a Quantity Surveyors Certificate verifying the cost must be submitted on lodgement of the application.

DEVELOPMENT CONSENT

Development Consent No No. 1228/00

Date of Determination Date 27/2/01

BUILDING CODE OF AUSTRALIA BUILDING CLASSIFICATION

Nominated on the Development Consent Class

RESIDENTIAL BUILDING WORK

Relevant only to residential building work

Owner-builder Permit No.

or

Name of Builder

Address

Telephone Fax

Contractor License No.

REQUIRED ATTACHMENTS

- Note 1 details the information that must be submitted with an application for a construction certificate for proposed building works
- Note 2 details the additional information that may be submitted with an application for a construction certificate for proposed residential building work.

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

Schedule 1 information to be
Collected for ABS Particulars of the proposal

DESCRIPTION

What is the area of the land (m^2)

Gross floor area of existing building (m^2)
What are the current uses of all or parts of the building(s)/land?

(If vacant state vacant)

Location	Use

Does the site contain a dual occupancy?
What is the gross floor area of the proposed addition or new building (m^2)
What are the proposed uses of all parts of the building(s)/land?

Location	Use

Number of pre-existing dwellings

Number of dwellings to be demolished

How many dwellings are proposed?

How many storeys will the building consist of?

MATERIALS TO BE USED

Walls	Code		Roof	Code	
Brick veneer	12		Aluminium	70	
Full brick	11		Concrete	20	
Single brick	11		Concrete tile	10	
Concrete block	11		Fibrous cement	30	
Concrete/ masonary	20		fibreglass	80	
Concrete	20		Masonry/terracotta shingle tiles	10	
Steel	60		Slate	20	
Fibrous cement	30		Steel	60	
Hardiplank	30		Terracotta tile	10	
Timber/weatherboard	40		Other	80	
Cladding aluminium	70		Unknown	90	
Curtain glass	50				
Other					
Unknown	90				

Floor	Code		Frame	Code	
Concrete	20		Timber	40	
Timber	10		Steel	60	
Other	80		Other	80	
Unknown	90		Unknown	90	

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

Schedule 2 – Existing Essential Fire Safety Measures
Part 1 of 2

Item No.	Existing Measure	Is this measure Installed in the Building? Yes / No	If yes, enter the current standard of performance (eg: ORD 70 Clause 19.2 or BCA Clause E1.5 & AS 2118.1-1999)
1	Access Panels, doors and hoppers to fire resisting shaft		
2	Automatic fail safe devices		
3	Automatic fire detection and alarm system		
4	Automatic fire suppression system (sprinkler)		
5	Automatic fire suppression system (others – specify)		
6	Emergency lighting		
7	Emergency lifts		
8	Emergency warning and intercommunication system		
9	Exit signs		
10	Fire control centres and rooms		
11	Fire dampers		
12	Fire doors		
13	Fire hydrant systems		
14	Fire seals (protecting openings in fire resisting components of the building)		
15	Fire shutters		
16	Fire windows		
17	Hose reel system		
18	Light weight construction		
19	Mechanical air handling systems		
20	Paths of travel stairways passageways or ramps		
21	Perimeter vehicle access for emergency vehicles		
22	Portable fire extinguishers		
23	Pressurising system		
24	Required (automatic) exit doors		
25	Safety curtains in proscenium openings		
26	Smoke and Heat Vents		
27	Smoke Control System		
28	Smoke dampers		
29	Smoke detectors and heat detectors		
30	Smoke doors		
31	Solid-Core doors		
32	Stand-By Power Systems		
33	Wall wetting sprinkler and drencher systems		
34	Warning and operational signs		
35	OTHERS - Specify		

This is an accurate statement of all existing Fire Safety Measures implemented in the whole building.

Signed ..... (Owner/ Agent) Name ..... Date .....

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

Schedule 3 – Proposed Essential Fire Safety Measures
Part 2 of 2

Item No.	Proposed New Measure	Is this measure Installed in the Building? Yes or No	If yes, enter the current standard of performance (eg: BCA Clause E1.5 & AS2118.1-1999)
1	Access Panels, doors and hoppers to fire resisting shaft		
2	Automatic fail safe devices		
3	Automatic fire detection and alarm system		
4	Automatic fire suppression system (sprinkler)		
5	Automatic fire suppression system (others – specify)		
6	Emergency lighting		
7	Emergency lifts		
8	Emergency warning and intercommunication system		
9	Exit signs		
10	Fire control centres and rooms		
11	Fire dampers		
12	Fire doors		
13	Fire hydrant systems		
14	Fire seals (protecting openings in fire resisting components of the building)		
15	Fire shutters		
16	Fire windows		
17	Hose reel system		
18	Light weight construction		
19	Mechanical air handling systems		
20	Paths of travel stairways passageways or ramps		
21	Perimeter vehicle access for emergency vehicles		
22	Portable fire extinguishers		
23	Pressurising system		
24	Required (automatic) exit doors		
25	Safety curtains in proscenium openings		
26	Smoke and Heat Vents		
27	Smoke Control System		
28	Smoke dampers		
29	Smoke detectors and heat detectors		
30	Smoke doors		
31	Solid-Core doors		
32	Stand-By Power Systems		
33	Wall wetting sprinkler and drencher systems		
34	Warning and operational signs		
35	OTHERS - Specify		

This is an accurate statement of all proposed Fire Safety Measures to be installed/ modified in the whole building.

Signed ..... (Owner/ Agent) Name ..... Date .....

PLANNING
BUILDING
HERITAGE
LANDSCAPE
URBAN DESIGN

CITY PLAN SERVICES

NOTES
For Completing Construction Certificate Application

Note 1

The following information must accompany applications for a construction certificate for building and subdivision work.

Building Work

In the case of an application for a construction certificate for **building work**:

a) Copies of compliance certificates relied upon

b) Four (4) copies of detailed plans and specifications

The plan for the building 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 a plan of each elevation of the building
- show the levels of the lowest floor and of any yard or unbuilt on area belonging to that floor and the levels of the adjacent ground
- indicate the height, design, construction and provision for fire safety and fire resistance (if any).

Where the proposed building work involves any alteration or addition to, or rebuilding of, an existing building the general plan is to be coloured or otherwise marked to the satisfaction of the certifying authority to adequately distinguish the proposed alteration, addition or rebuilding.

Where the proposed building work involves a modification to previously approved plans and specification the general plans must be coloured or otherwise marked to the satisfaction of the certifying authority to adequately distinguish the modification.

The specification is:

- to describe the construction and materials of which the building is to be built and the method of drainage, sewerage and water supply
- state whether the materials proposed to be used are new or second hand and give particulars of any second-hand and give particulars of any second-hand materials to be used.

c) Where the application involves an alternative solution to meet the performance requirements of the BCA, the application must also be accompanied by:

- details of the performance requirements that the alternative solution is intended to meet, and
- details of the assessment methods used to establish compliance with those performance requirements.

d) Evidence of any accredited component, process or design sought to be relied upon.

e) Except in the case of an application for, or in respect of, a class 1a or class 10 building:

- a list of any fire safety measures that are proposed to be implemented in the building or on the land on which the building is situated; and
- if the application relates to a proposal to carry out any alteration or rebuilding of, or addition to, an existing building, a separate list of such of those measures as are currently implemented in the building or on the land on which the building is situated.

The list must describe the extent, capacity and basis of design of each of the measures concerned.

Note 2

Home Building Act Requirements

In the case of an application for a construction certificate for residential building work (within the meaning of the *Home Building Act 1989*) attach the following:

a) In the case of work by a licensee under that Act:
   (i) a statement detailing the licensee's name and contractor licence number, and
   (ii) documentary evidence that the licensee has complied with the applicable requirements of that Act*, or

b) In the case of work done by any other person:
   (i) a statement detailing the person's name and owner-builder permit number, or
   (ii) a declaration signed by the owner of the land, to the effect that the reasonable market cost of the labour and materials involved in the work is less than the amount prescribed for the purposes of the definition of ***owner-builder work*** in section 29 of that Act.
   (iii)

*A certificate purporting to be issued by an approved insurer under Part 6 of the *Home Building Act 1989* to the effect that a person is the holder of an insurance contract issued for the purposes of that Part, is sufficient evidence that the person has complied with the requirements of that Part.

FAXEPond 22375

FACSIMILE TRANSMITTAL SHEET

TO: Brendon bennet	FROM: Darren Leete
COMPANY: City plan	DATE: 18/08/2003
FAX NUMBER: 8270-3501	TOTAL NO. OF PAGES INCLUDING COVER: 20
PHONE NUMBER: 8270-3500	SENDER'S REFERENCE NUMBER:
RE: Traffic Management	YOUR REFERENCE NUMBER:

☐ URGENT ☑ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Dear Brendon

Your Review was based on the wrong document. I have attached the right version of the DA could amend your review.

Regards

Darren Leete

RAYPOND PTY LTD
A.C.N. 090 921 314
P.O.BOX 1364, DEE WHY NSW 2099 – TELEPHONE (02) 0412-226-044 FACSIMILE (02) 9944-0316

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

Business Hours:
8.00am to 6.00pm, Monday to Thursday
8.00am to 5.00pm, Friday

DA No: N01228/00

24 April 2003

RAYPOND P/L
PO BOX 1364 DEE WHY
NSW 2099

Dear Sir/Madam

Modification of Development Consent N1228/00 for Subdivision of three lots into four lots, driveway construction and demolition of existing cottage at 1148-1152 Barrenjoey Road, Palm Beach, NSW 2108.

Your request for modification has been considered by Council and it has been agreed to modify the Consent.

Please find attached the consent as modified.

If there are any matters that require further clarification, please do not hesitate to contact me.

Yours faithfully

John Raven
DEVELOPMENT OFFICER

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

MODIFICATION OF CONSENT of 2003

Modification of Development Consent No: N1228/00

ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979 (AS AMENDED)

NOTICE TO APPLICANT OF DETERMINATION

OF A DEVELOPMENT APPLICATION

Applicant's Name and Address:
RAYPOND P/L, PO BOX 1364 DEE WHY, NSW 2099

Being the applicant in respect of Development Application No N1228/00

Pursuant to section 80(1) of the Act, notice is hereby given of the determination by Pittwater Council, as the consent authority, of Development Application No N1228/00 for:

Modification of Development Consent N1228/00 for subdivision of three lots into four lots, driveway construction and demolition of existing cottage
At:
Lot 17 DP 651978
Lot 16 DP 6746
Lot 181 DP 534139

1148-1152 BARRENJOEY ROAD PALM BEACH NSW 2108

Decision:

The Development Application has been determined by the granting of consent in accordance with:

- Plans numbered ADAS0001B, dated 28.11.00, ADAS0002D, dated 19.9.01, ADAS0003C, dated 29.6.01, ADAS3000B, dated 28.11.00 and ADAS3001, dated 28.11.00
- Plans numbered 20006/ASK101A (Pedestrian Stair Detail), dated 29.3.01; 31764/02, Sheet 1, Rev D (Subdivision Plan), dated 4.12.00; 6727/C1, Rev 2 (Stormwater Drainage Plan), dated Oct 00, PSBJOB00137/TPO1 (Tree Location Plan), dated 20.11.00; 00137/L01A (Landscape Planting Plan), dated 8.11.00 **and PSB/TP10A-14A (Tree Protection Plans), all dated 15.11.02,** as amended in red (shown clouded) or as modified by any conditions of this consent.

In accordance with Part A3 "Classification of Buildings and Structures" of the Building Code of Australia, it has been determined that the building or part subject of this consent has a Class n/a Classification.

The reason for the imposition of the attached conditions is to ensure that the development consented to is carried out in such a manner as to achieve the objectives of the Environmental Planning and Assessment Act 1979 (as amended), pursuant to section 5(a) of the Act, having regard to the relevant matters for consideration contained in section 79C of the Act and the Environmental Planning Instruments applying to the land, as well as section 80A of the Act which authorises the imposing of the consent conditions.

Note: For ease of reference, all of the previous conditions have been re-listed. Those conditions amended or deleted have been highlighted.

Endorsement of date of consent:: **27 December 2001**
Angus Gordon
GENERAL MANAGER
Per:

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

CONDITIONS OF DEVELOPMENT CONSENT

This Consent is not an approval to commence building work. The works associated with this consent can only commence following the issue of the Construction Certificate.

A. PRESCRIBED CONDITIONS

A1. The proposed works are to be carried out in accordance with the provisions of Clauses 78 A-I of the Environmental Planning and Assessment (Amendment) Regulation, 1998.

A2. **Compliance with the Building Code of Australia**

1. All works are to be carried out in accordance with the requirements of the Building Code of Australia.

2. In the case of residential building work for which the Home Building Act 1989 requires there to be a contract of insurance in force in accordance with Part 6 of that Act, there is to be such a contract in force.

A3. **Excavations and backfilling**

1. All excavations and backfilling associated with the erection or demolition of a building must be executed safely and in accordance with appropriate professional standards.

2. All excavations associated with the erection or demolition of a building must be property guarded and protected to prevent them from being dangerous to life or property.

A4. **Retaining walls and drainage**

If the soil conditions require it:

1. retaining walls associated with the erection or demolition of a building or other approved methods of preventing movement of the soil must be provided, and

2. adequate provision must be made for drainage.

A5. **Support for neighbouring buildings**

Where excavations extend below the level of the base of the footings of a building on an adjoining allotment of land, the person causing the excavation must preserve and protect the building from damage and, if necessary, underpin and support the adjoining building in an approved manner. The person causing the excavation must give the owner of the adjoining property at least seven (7) days written notice of its intention to excavate below the level of the base of the footing. The person must also furnish the adjoining property owner with particulars of the proposed work.

A6. **Protection of public places**

1. If the work involved in the erection or demolition of a building:

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwatercga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

a. is likely to cause pedestrian or vehicular traffic in a public place to be obstructed or rendered inconveniently, or

b. building involves the enclosure of a public place,

a hoarding or fence must be erected between the work site and the public place.

2. If necessary, an awning or other structure is to be erected, sufficient to prevent any substance from, or in connection with, the work falling into the public place.

3. The work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place.

4. Any such hoarding, fence or awning is to be removed when the work has been completed.

NOTE: Hoardings and temporary awnings erected on or over public places are required to be subject to a separate approval from Council.

A7. **Signs to be erected on building and demolition sites**

A sign must be erected in a prominent position on any work site on which work involved in the erection or demolition of a building is to be carried out other than when work is carried out inside an existing building or where the premises is to be continuously occupied (both during and outside working hours):

1. stating that unauthorised entry to the work site is prohibited, and
2. showing the name of the person in charge of the work site and a telephone number at which that person may be contacted outside working hours.

A8. **Toilet facilities**

Toilet facilities are to be provided, at or in the vicinity of the work site in accordance with section 78I of the Environmental Planning and Assessment (Amendment) Regulation 1998.

B. MATTERS TO BE SATISFIED PRIOR TO ISSUE OF CONSTRUCTION CERTIFICATE

NOTE: All outstanding matters referred to in this section are to be submitted together. Incomplete Construction Certificate applications/details will not be accepted.

B1. A detailed Construction Works Management Plan detailing the following matters is to be submitted for Council approval prior to the issue of the Construction Certificate."

1. Staging;

2. Materials handling;

3. Appropriate levels of site supervision of operations, works, vegetation clearing and replacement (including the nomination of appropriate persons,

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

eg. a project manager, structural and a geotechnical engineer and an arborist);

4. Arrangements for appropriate safety procedures both for the workers and the public);

5 Equipment, workers facilities, storage locations, crane location, truck standing for loading and unloading, traffic safety supervision at the Palm Beach Road access and other arrangements necessary to carrying out the approved subdivision works, including demolition of the existing house on proposed Lot 4, earthworks (including approved excavation, filling or retaining structures), driveway, services and drainage construction;

6. Due operational regard to the exposed, steep and vegetated character of the site, maintenance of convenient major traffic flows on Barrenjoey Road main road, access convenience to residents/users of Palm Beach Road and the need to take precautions for possible adverse weather conditions.

7. The Construction Works Management Plan is to be approved in writing as satisfactory on behalf of Council by the General Manager, or his nominee, prior to the issue of the Construction Certificate.

8. Construction of and drainage of building platform.

B2 (formerly B2(b)) Provide a detailed Arborist Report (prepared by a qualified practising Arborist) in accordance with the Landscape and Vegetation Management Development Control Plan 23. The Arborist report is to specifically assess potential impacts for each native tree (over 3 metres) located within 5 metres of the proposed driveways, turning bays and any other area proposed to be developed at subdivision stage. This is also to include assessing impacts on native vegetation by connection of services, connection of sewer, stormwater, landscaping, pathways, patios and stairs.

B3. The finished construction materials, including colours and texture of any surface, shall blend with surrounding natural materials and shall be non-glare. The access is to be provided with a skid resistant corrugated driveway surface suitably coloured and /or treated to reduce its reflectivity and scenic impact. Details are to be provided with the Construction Certificate application.

B4. A legal agreement with Hedwin P/L for the construction of access to Lots 1, 2, 3 and 4 by means of a reciprocal Right of Carriageway over No 54 Palm Beach Road, Palm Beach, is to be entered into and provided to Council prior to the issue of the Construction Certificate.

B5. The following works are to be carried out to the reasonable satisfaction of the Roads and Traffic Authority of NSW, following the submission of plans and related documentation for the approval of the Authority:

(a) A 5.4m long mountable island to replace the BB line commencing at Barrenjoey Road. The island is to be painted with white reflective paint and will be fully mountable with reflectors on the perimeter.

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

(b) An SF kerb is to be constructed on the NE corner of the intersection of Barrenjoey Road and Palm Beach Road.

(c) The loading and unloading of building materials is not to be undertaken on Barrenjoey Road.

The above design requirements are to be addressed and the consent of the Roads and Traffic Authority of NSW to the above construction details are to be provided to Council in the form of a letter or certificate with the plans submitted for the issue of the Construction Certificate.

B6. That at the entry to the site all walls are to be faced in natural sandstone. The remainder of the civil works on the site are to be faced with natural or reconstituted sandstone where visible from a public place and all concrete likely to be exposed to view is to be integrally coloured dark green or brown.

B7. Details of the intended disposal at an approved landfill site of all excavated material not approved to be re-used on site are to be provided with the Construction Certificate application.

B15. Three copies of a detailed Bushland Management Plan covering the regeneration/ revegetation/ restoration of the site are to be submitted prior to the release of the Construction Certificate. The Bushland Management Plan is to be accompanied by a certification by an appropriately qualified and experienced Bushland Management Consultant stating that the Bushland Management Plan is consistent with Department of Urban Affairs and Planning's Urban Bushland Management Guidelines, the Conservation of Biodiversity DCP, the Management Plan for Threatened Fauna and Flora in Pittwater and any relevant requirements.

B15a. In particular, the following matters are to be provided:

1. Define each project task to be undertaken during regeneration/ revegetation/ restoration; how each task will be done; the duration of each task; the priority order for each task; and who will be responsible for undertaking each task.

2. Prepare a timeframe for all tasks involved.

3. Local native species only to be planted in regeneration and revegetation areas, except for established natives required to achieve screening of the development in the short term. Established natives may be sourced from the Sydney Basin, provided the local native plant stock source is identified.

4. Prepare maps/ diagrams and plant species lists including existing vegetation, site constraints and trees, vegetation, habitat, bush rock and other natural features to be retained.

5. Prepare maps/ diagrams including proposed vegetation (species/ communities), density of planting, size of plants (virocells, longstems, tubestock, etc), sediment and erosion control to protect the vegetation, etc.

6. Prepare maps/ diagrams including zonation from water to land, or zonation from retained bushland to fire protection zone, areas for wastewater disposal, or corridors/ linkages, etc.

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

7. Specify techniques to be used for domestic and feral animal control.

8. Specify fire prescriptions that will be applied to maintain the ecology of the site.

9. Detail site preparation, including:
   a. Protection of trees, vegetation, habitat, bush rock or other natural features to be retained
   b. Installation of sediment and erosion control devices
   c. Completion of any site works (if any)
   d. Weed control prior to site disturbance (techniques and sequences of removal)
   e. Weed control immediately following completion of site works (techniques and sequences of removal)
   f. Application of herbicides (if any) prior to site disturbance
   g. Application of herbicides (if any) immediately following completion of site works
   h. Top soil/ litter layer storage
   i. Soil remediation
   j. Surface preparation (including levelling, deep ripping, scarifying, mulching)
   k. Surface stabilisation (must be suitable for the site vegetation) – matters including erosion matting, mulch, brush matting, sterile cover crops, binding sprays
   l. Site drainage.

10. Planting program and method including installation of weed matting, mulch, stakes and ties, tree guards, use of fertiliser and type (including justification of use of fertiliser), use of water retaining crystals.

11. Details of intended contractual arrangements for professional site vegetation maintenance on all four lots, including sediment and erosion controls, weeding, watering, plant replacement, plant disease and insect control, staking and mulch for a period of 5 years commencing at registration of subdivision.

    Details of intended contractual arrangements for professional monitoring to ensure adequate levels of site vegetation maintenance in landscaped and bush regenerated areas on all four lots, including sediment and erosion controls, weeding, watering, plant replacement, plant disease and insect control, staking and mulch for a period of 5 years commencing at registration of subdivision.

12. Site management to prevent the placement of soil or storage of any materials in the drip line of trees or native vegetation or habitat to be retained on the site.

13. Monitoring and review (develop method for performance evaluation, replacement of plant losses and other relevant matters).

14. Other issues including public safety, signage, relevant legislation, planning instruments/ guidelines, OH&S, community involvement, liaison with Department of Land and Water Conservation and other government departments, how other areas of the property and adjacent areas can be managed to complement the vegetation strategy (weed control, drainage, planting of indigenous canopy)

15. Detail the enhancement and regeneration of retained remnants. Where thickets of

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

noxious or environmental weeds are to be removed, such removal is to be gradual and staged to prevent a sudden complete loss of habitat.

16. Identification of protection of trees, vegetation, habitat, bush rock or other natural features, prior to works commencing on the site to prevent damage or injury during development

17. Materials, stockpiles and vehicle stockpile areas are to be located on already cleared and disturbed land well away from creek line, trees, vegetation, habitat, bush rock or other natural features.

B19. Three sets of Drainage details showing on-site stormwater detention facilities, are to be submitted prior to release of the Construction Certificate. Such details are to be accompanied by a certification by a qualified practicing Civil Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or who is eligible to become a Corporate member and has appropriate experience and competence in the related field, confirming that the plans/details comply with Council's Policy and Guidelines for the on-site detention of stormwater- Feb 1996. The details shall include disposal of the site stormwater from the OSD facility to a public drainage system (i.e. kerb and gutter or natural watercourse.)

B20. Three sets of Drainage details showing site stormwater management are to be submitted prior to the release of the Construction Certificate. Such details are to be accompanied by a certificate from either a Licensed plumber or qualified practicing Civil Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or who is eligible to become a Corporate member and has appropriate experience and competence in the related field, that the site stormwater management system complies with the requirements of section 3.1.2 "Drainage" of the Building Code of Australia Housing Provision and AS/NZS 3500.3.2 - Stormwater Drainage. The details shall include disposal of site stormwater to a public system (if the site is in a known slip area the stormwater disposal system must comply with the recommendations of a Civil (Geotechnical) Engineer's report).

B25. A Certificate is to be submitted by a qualified Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or who is eligible to become a Corporate member and have appropriate experience and competence in the related field. Architect or Surveyor confirming to the satisfaction of Council or the accredited certifier that the proposed means of driveway access to and within the site complies with the requirements of Council's policy DCP No. E3 "Driveways and Internal Roadways" and AS 2890.1 - 1993: Parking Facilities - Off-street Car Parking.

NOTE: Prior to the submission of the Construction Certificate, a crossing application with appropriate fees is to be made to Council for the levels required for the construction of the concrete footpath and gutter crossing. The levels provided by Council are to be incorporated into the design of the internal driveway.

B29. An Erosion and Sediment Management Plan is to be submitted with the Construction Certificate application. Control over discharge of stormwater and containment of run-off and pollutants leaving the site/premises shall be undertaken through the installation of erosion control devices such as catch drains, diversion drains, energy dissipaters, level spreaders and sediment control devices such as hay bale barriers, filter fences, filter dams, sedimentation basins. Such plan is to be a accompanied by a certification from an appropriately qualified person, that the plans/ details have been designed in accordance

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

with the requirements of the N.S.W. Department of Land and Water Conservation's "Urban Erosion and Sediment Control" manual.

B29a. The plan is to include specific details required to remove clay from vehicles leaving the site so as to maintain public roads in a clean condition.

B45. Three sets of detailed landscape working drawings, which comply in all respects with the conditions of development consent, are to be submitted prior to release of the Construction Certificate. Each plan/sheet is to be certified by a qualified landscape architect, landscape designer/environmental designer or horticulturist, confirming that the plans/details provide for the works to be carried out in accordance with Development Control Plan No 23 – Landscape and Vegetation Management.

B51. During site excavation, topsoil which is to be used in later landscape works is to be stockpiled on site and stabilised during construction works. Stockpiles are to be stored outside of hazard areas and not located within the dripline of existing trees which are to be retained. Erosion controls are to be maintained around the stockpile, with full details being provided in the soil erosion and drainage management strategy to be submitted with the Construction Certificate details.

B52. DELETED

B60. Three sets of driveway and on site detention system Structural Engineering details relating to the are to be submitted prior to release of the Construction Certificate. Each plan/sheet is to be signed by a qualified practising Structural Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or is eligible to become a corporate member and has appropriate experience and competence in the related field.

B60a. As the site is located in a slip liable area, the driveway and on site detention system structural details are to be endorsed by a qualified practising Geotechnical Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or is eligible to become a corporate member and has appropriate experience and competence in the related field.

B61a. As the site is located in a slip liable area, the retaining wall structural details are to be endorsed by a qualified practising Geotechnical Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or is eligible to become a corporate member and has appropriate experience and competence in the related field.

B71. That the Bushland Management Plan be submitted and approved by Council prior to issue of a Construction Certificate.

B73. That details be provided with the subdivision works Construction Certification application of the location of fencing and safety balustrades for pedestrians and vehicles as necessary to meet relevant Australian Standards and to leave the site in a safe condition prior to dwelling house construction.

C. MATTERS TO BE SATISFIED PRIOR TO COMMENCEMENT OF WORK

NOTE: It is an offence to commence works prior to issue of a Construction Certificate.

C1. ***(former condition B2a with amended wording)***

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

In order to ensure retention of significant trees, bush regeneration areas and natural features, a bank guarantee bond for the subdivision works of $100,000 is to be lodged with Council prior to the Commencement of Work. This bond is in respect of the following identified features:

> ***(i) 70 trees, bonded at not more than $10,000 for the first tree and not more than $1000 per tree thereafter, up to a maximum of $76,000.***
>
> ***(ii) regeneration areas, bonded at $10/sqm to regenerate any area to its pre-damaged state, capped at a maximum of $9,000.***
>
> ***(iii) 3 identified rock features, to be bonded at $5,000 per feature to a maximum of $15,000.***

Trees and other features to be included in the bond are shown in the approved annotated plan in the Pre-construction Tree Vegetation Report for Observation Point, dated November 2002, by Pittendrigh Shinkfield and Bruce, as follows:

> ***(a) Trees to be retained, protected and bonded for the subdivision: House 1 – T45, T42 and T44; House 2 – T199, T200, T201, T202, T182, T104 and T103; House 3 – T153, T154, T149, T156, T157, T144, T143, T146, T147, T123, T225, T226 and T204; House 4 – T18, T389 and T702.***
>
> ***(b) Trees to be retained and bonded which are within 5 metres of the proposed dwellings: House 1 – T61, T514, T489 and T44; House 2 – T48, T35, T47, T459, T466, T461, T462, T463, T102, T41, T488, T23 ,T97, T33, T481, T482, T480 and T477; House 3 – T317, T302, T298, T299, T297, T31, T310, T293, T292, T290, T287, T286 and T285; House 4 – T14, T16, T106, T107, T413, T418, T419, T399 and T398. (Note: these trees are specified in the individual house consents.)***
>
> ***(c) Trees T141 and T90 require an Arborist's report outlining protection methods against driveway impact.***

The bank guarantee bond is to be held by Council for a period not exceeding 12 months from the date of issue of the Subdivision Certificate or the issue of the last Occupation Certificate for the houses, whichever is the later.

The subdivider's bank guarantee bond may be replaced by an equivalent bond to be lodged by the owner(s) of each of the subdivision lots, where so required under a development consent for the erection of a house on each lot and are to be lodged with Council prior to the Commencement of Work relating to the house consent.

These replacement individual bank guarantee bonds, which have been determined as relative to the significance of the identified features located on each lot, shall be to the value of $7,000 for Lot 1, $25,000 for Lot 2, $20,000 for Lot 3 and $16,000 for Lot 4.

A request for release of either the original or a replacement bank guarantee bond is to be accompanied by a report prepared by a practising qualified Arborist certifying

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

that the bonded trees on the site are in a safe and healthy condition or that dead or damaged trees were not damaged through the undertaking of the development. Completion of bush regeneration works shall be certified by a qualified experienced Bushland Management Consultant.

Council's Natural Resources Manager, in consultation with the applicant's qualified Bushland Management Consultant, is to determine the extent of damage to any natural feature or regeneration area on the site caused through undertaking the development. In the absence of agreement, the matter shall be referred to the Council for determination of the appropriate bond forfeit amount.

C2. Prior to commencement of site works, a qualified experienced bushland management consultant is to certify that they have been engaged to conduct a Bushland Management program covering the regeneration/ revegetation/ restoration of the site. All details of the Bushland Management Program are to be in accordance with the Bushland Management Strategy approved and/or nominated on the Construction Certificate.

C2a. In particular, the following matters are to be certified as being completed prior to commencement of works in accordance with the Bushland Management Plan/Strategy approved prior to Construction Certificate:

(i). A qualified ecologist is to certify that protective fencing has been installed around the trees, vegetation, habitat, bush rock or other natural features to be retained.

(ii). The Site Manager is to certify that sediment and erosion control devices have been installed.

(iii). A qualified experienced bushland management consultant is to certify that the weed control required prior to disturbance of the site has been completed in accordance with the techniques and sequences of removal weed control.

(iv). A qualified experienced bushland management consultant is to certify that application of herbicides required prior to disturbance of the site has been completed.

(v). The Project Manager is to certify that other issues including public safety, signage, relevant legislation, planning instruments/ guidelines, OH&S, community involvement, liaison with Department of Land and Water Conservation and other government departments, how other areas of the property and adjacent areas can be managed to complement the vegetation strategy (weed control, drainage, planting of indigenous canopy) have been addressed.

(vi). The Site Manager is to certify that materials stockpiles and vehicle storage areas are located on already cleared and disturbed land well away from creek line, trees, vegetation, habitat, bush rock or other natural features.

C6. A certificate prepared by an appropriate qualified person is to be submitted for the following building components, certifying to the satisfaction of Council or the Accredited Certifier that the nominated works have been carried out in accordance with the Building Code of Australia, relevant Australian Standards and any conditions of Development Consent. Works are not to progress past this point until Council or the Accredited Certifier has confirmed that this condition has been satisfied (see copy of form attached).

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

Where this confirmation of compliance is issued by a private certifier, for the purposes of keeping a public record, a copy of the letter is to be forwarded to Council within 5 working days of the date of issue.

C6a. Building setout BS-1

C6b. Erosion Controls ER-1

C6c. Protection fencing (landscaping) PF-1

C9 The Construction Works Management Plan is to be approved as satisfactory by Council's Manager, Planning and Assessment prior to any commencement of works.

C10. So as to achieve safe and proper means of disposal of asbestos materials from buildings, only depots and contractors authorised by the Waste Services Authority are to be utilised. Approval must be obtained from the Service before disposal of any asbestos materials.

C14. Prior to commencement of work, the applicant is to supply Council/Accredited Certifier and relevant adjoining property owners with a Dilapidation Report on such properties in Sunrise Road, Palm Beach Road and Barrenjoey Road as are likely to be impacted by earthworks or geotechnical activity on the development site.

C18. Prior to commencement of site works, the project manager is to submit evidence of a preorder for the supply of the plant material shown on the approved landscape working drawing, to Council or the accredited certifier. Where the project is being supervised by a private certifier, for the purposes of keeping a public record, a copy of the preorder is to be forwarded by the certifier to Council within 5 working days of the date of issue.

C19. Prior to commencement of site works, a qualified arborist, horticulturist or landscape architect is to certify that protective fencing consisting of 2.1m high steel star pickets, driven 0.4m into the ground and attached to ring lock wire mesh and orange safety mesh to form a protective fence l areas on the site where the topography allows access into non-disturbance areas has been provided, a minimum distance of 1 metre outside of the dripline of those trees or landscaped areas shown on the approved landscape working drawing as to be retained. No further site works are to take place until this certification has been obtained and a copy forwarded to the accredited certifier or Council (see copy of form TP-1 attached). Where the project is being supervised by a private certifier, for the purposes of keeping a public record, a copy of the certification is to be forwarded by the certifier to Council within 5 working days of the date of issue. Further, the project manager is to erect signs advising all contractors and visitors to the site that no works or storage are to take place within the dripline of existing trees.

C20. Relocation of nominated palm species is to be carried out by a qualified contractor with proven experience in this area. Further, the contractor is to supply the project manager with a maintenance strategy for a 12 month re-establishment period. This strategy is to address maintenance issues such as irrigation, soil testing, weeding, plant staking, fertilising, pest and disease control, remedial pruning and the like. Further, provision is to be made for the contractor to visit the site on a 3 monthly basis from the date of the relocation. After the inspection, the contractor is to issue a report to the project manager certifying that the palms are healthy and performing to expectation. A copy of this report is to be forwarded to Council or the accredited certifier. Where the project is being supervised by a private certifier, for the purposes of keeping a public record, a copy of the letter of confirmation is to be forwarded by the certifier to Council within 5 working days of

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

the date of issue.

D. CONDITIONS TO MINIMISE THE IMPACT OF THE DEVELOPMENT ON THE NATURAL AND BUILT ENVIRONMENT

D1 Compliance with the recommendations in pages 18 to 22 of the Geotechnical Report dated 18.12.00 by Shirley Consulting Engineers P/Land any additional related geotechnical engineering requirements specified pursuant to further detailed investigation of the site.

D2 The development is to comply with any relevant noise impact criteria and noise attenuation requirements specified in the EPA "Environmental Criteria for Road Traffic Noise, May 1999".

D3. All vehicular traffic is to enter and leave the site in a forward direction.

D6. A qualified ecologist is to certify that site works have been completed.

D7. A qualified practising Arborist is to be present during the installation of protective fencing as detailed in the approved plan prior to issue of subdivision certificate which is to consist of a minimum of 1.5 metres high chain wire fencing, with steel pipe support posts and is to be located a minimum of 1.5metres outside the drip dripline of all trees to be retained.

D9. The Site Manager is to certify that:

(a) the top soil/ litter layer storage has been completed;

(b) the soil remediation has been completed;

(c)the surface preparation has been completed.

D10. A qualified experienced bushland management consultant is to certify that:

(a) surface stabilisation suitable for the site vegetation has been completed;

(b) site drainage has been completed;

(c) no soil or storage of any materials has been placed in the drip line of trees or native vegetation or habitat to be retained on the site.

(d) the thickets of noxious or environmental weeds have been removed gradually and in stages to prevent a sudden complete loss of habitat.

D11. Any proposed demolition works shall be carried out in accordance with the requirements of AS2601-1991 "The Demolition of Structures". Amongst others, precautions to be taken shall include compliance with the requirements of the WorkCover Authority of New South Wales, including but not limited to:

1. Protection of site workers and the general public.
2. Erection of hoardings where appropriate.
3. Asbestos handling and disposal where applicable.
4. Any disused service connections shall be capped off.

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater.council@pittwater.nsw.gov.au

Council is to be given 48 hours written notice of the destination/s of any excavation or demolition material. The disposal of refuse is to be to an approved waste disposal depot.

D12. In order to ensure safe handling of asbestos materials, the re-use or sale of asbestos building materials is prohibited.

D76. A stamped copy of the approved plans is to be kept on the site at all times, during construction.

D89. The hours of construction are restricted to between the hours of 7.00am and 5.00pm Monday – Friday and 7.00am to 1.00pm on Saturdays. No works are to be carried out on Sundays or Public Holidays. Internal building work may be carried out at any time outside these hours, subject to noise emissions from the building or works not being audible at any adjoining boundary.

D105. The landscaping is to be maintained for the life of the development.

D106. No storage of building materials, waste, excavated fill or topsoil storage is to occur within the dripline of trees shown on the approved landscape working drawing(s) as being retained or within protective fenced areas.

D107. All natural landscape features, including natural rock outcrops, natural vegetation, soil and watercourses, are to remain undisturbed except where affected by necessary works detailed on approved plans. Details of proposed protection measures are to be detailed on the landscape working drawing or associated documentation.

D108. In accordance with Pittwater Council's Tree Preservation and Management Order, all existing trees as indicated on the submitted Tree Location Survey Plan shall be retained except where Council's prior written consent for their specific removal has been obtained, or trees stand within the envelope of approved buildings, or within the alignment of approved permanent paved vehicular access roads and parking areas approved by the relevant Construction Certificate.

D143. If any Aboriginal Engravings or Relics are unearthed during construction all work is to cease immediately and the Metropolitan Local Aboriginal Land Council (M.L.A.L.C) and National Parks and Wildlife Service (N.P.W.S) are to be notified.

D164. All stormwater is to be piped to the Council street drainage system in Barrenjoey Road or Palm Beach Road.

D196. Tree guards or barrier fences are to be provided around native vegetation as identified/ nominated on the approved plans. The guards or fences are to be installed prior to the commencement of any work on the site. Any works, including utility installations (eg water, sewer, telephone, drainage), are not to be undertaken within 4 metres of the trunk of any such trees. The tree guards shall be a minimum 1200mm high at least four (4) metres from the base of the nominated tree/s and constructed from timber posts and rails or posts and suitable plywood panels.

D198. The developer or contractor will take all measures to prevent damage to trees and root systems during site works and construction activities including provision of water, sewerage and stormwater drainage services. In particular, works, erection of structures, excavation or changes to soil levels within 5 metres of the trunks of trees to be retained are not permitted unless part of the development as approved, and the storage of spoil, building materials, soils or the driving or parking of any vehicle or machinery within 5

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

metres of the trunk of a tree to be retained, is not permitted.

NOTE: Trees that are part of an Endangered Ecological Community or are habitat for threatened species and endangered populations must comply with the requirements of the Threatened Species Conservation Act, 1995. Failure to do so may result in a penalty up to a maximum of $250,000.00 and jail sentences. Failure to comply with the requirements of the Pittwater Council Tree Preservation and Management Order may result in a penalty up to a maximum of $20,000.00.

D199. All works within 5 metres of the existing trees to be retained including pruning, demolition, excavation, civil works, fencing and the like must be carried out by hand under the supervision of an experienced and qualified Arborist. Should roots larger than 50mm be encountered all excavation works are to cease immediately and a qualified Arborist is to advise on the impacts of the roots removal on the tree's survival and report to Council's Landscape Architect. If tree roots are present a pier and beam method of footing construction is to be adopted so as to bridge/span any identified lateral roots.

D200. When working within the drip line of trees, hand digging is to occur in sensitive areas. Liaison on a daily basis is to be maintained during the excavation works between the Builder and Arborist. No filling or compaction shall occur over tree roots within the area defined by the outer drip line of the crown. Root protection/ compaction mitigation in the form of planks or metal decking supported clear of the ground fixed to scaffolding is to be installed as required.

D201. The project manager is to erect suitably placed signs warning contractors and visitors to the site of the purpose of the tree/native vegetation/habitat protection/exclusion fencing installed in accordance with this consent and that no works or storage are to take place within the dripline of existing trees.

D202. All street trees are to be planted at a minimum 100Litre in size and to be protected by a permanent tree guard of either metal or timber to facilitate establishment. Timber guards to consist of a minimum of 4 x 95mm square posts and rails at two heights a minimum of 150 x 50mm. Timber is to be stained or painted an approved colour. Street trees, guards and planting works as approved are to be maintained for a period of 12 months.

D203. Drainage is to be arranged such that fill, building materials or contaminants are not washed into protective fenced areas.

D204. Construction access to the property is to be via the approved driveway only.

E. MATTERS TO BE SATISFIED PRIOR TO ISSUE OF OCCUPATION CERTIFICATE

NOTE: It is an offence to occupy a building prior to issue of an Occupation Certificate.

Nil

F. MATTERS TO BE SATISFIED PRIOR TO ISSUE OF SUBDIVISION CERTIFICATE

F1(a). A contribution of $4906 is to be made to Cashier Code Account No SPB pursuant to Section 94 of the Environmental Planning and Assessment Act, 1979 (as amended), for open space in accordance with Section 94 Contributions Plan No 2. The Contributions Plan may be inspected at Pittwater Council, Unit 11, No 5 Vuko Place, Warriewood. The

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

Section 94 contribution is to be paid prior to issue of the Construction Certificate or Subdivision Certificate, where relevant.

F1(b). A contribution of $277 is to be made to Cashier Code Account No SLEL pursuant to Section 94 of the Environmental Planning and Assessment Act, 1979 (as amended), for library services in accordance with Section 94 Contributions Plan No 3. The Contributions Plan may be inspected at Pittwater Council, Unit 11, No 5 Vuko Place, Warriewood. The Section 94 contribution is to be paid prior to issue of the Construction Certificate or Subdivision Certificate, where relevant.

F1(c). A contribution of $605.80 is to be made to Cashier Code Account No SWCO pursuant to Section 94 of the Environmental Planning and Assessment Act, 1979 (as amended), for community facilities in accordance with Section 94 Contributions Plan No 18. The Contributions Plan may be inspected at Pittwater Council, Unit 11, No 5 Vuko Place, Warriewood. The Section 94 contribution is to be paid prior to issue of the Construction Certificate or Subdivision Certificate, where relevant.

F5. ***A total contribution of $10,000 as off-site compensation is to be made to Council prior to the issue of a Subdivision Certificate for works at Dark Gully Reserve, Palm Beach, or a similar bushland reserve containing Littoral Rainforest Community. The contribution shall be used for the conservation of a Littoral Rainforest Community and, more specifically, for restoration works aimed at ensuring the ongoing viability of the Littoral Rainforest Community in the immediate area. The sum of $10,000 shall be applied to the restoration works within a five year period.***

The development consent for each house on the proposed lots is to provide for an additional off-site contribution to be made by the future owners of Lots 1-4 over a five year period, as a contribution to the ongoing maintenance works of the nominated reserve.

Full details of expenditure are to be supplied to the owners on an annual basis and at the conclusion of the five year period, any moneys not expended for the purpose set out in this condition by the conclusion of the five year period shall be refunded to the owners within 28 days.

F6. A plan showing details of the location of separate services to each lot for water, sewerage, electricity and telephone is to be submitted to Council, prior to release of the Subdivision Certificate.

F7. At least 32 Black Plums are be planted on the site, with a minimum of 6 trees in each proposed planting area as detailed in the map provided by GIS Environmental Constancy 2001.
Investigate whether the proposed planting location (north-western boundary) will be highly altered due to the proposed driveway. If so an alternative planting area is to be agreed by Natural Resources.
Provide maps/plans detailing the number of Black Plums to be planted in the proposed locations on the subject site as detailed in the *Assessment of Appropriate Site Conditions for Black Plums* prepared by GIS Environmental Consultants undated. The Black Plums are to be propagated from seed only and should be collected from the existing Black Plums on the subject site. This is to be carried out by a qualified practising ecologist/bush regenerator with proven experience in the propagation of Black Plums.

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

The subject site contains many juvenile regenerating native plants including ground covers, shrubs and trees. Juvenile native plants located within any areas proposed for disturbance are to be assessed for transplanting. Plants suitable for transplanting will be tagged with blue tape by a qualified practising ecologist prior to issue of the construction certificate.

The species and number of juvenile plants is to be identified prior to issue of the construction certificate and is to be submitted to Council. A site inspection is to be carried out by a Council Officer.

F10. Appropriate easements are to be created where service lines or drainage lines pass through private property other than the lot which they benefit. Full details in this regard are to be submitted to Council, prior to release of the Subdivision Certificate.

F11. Appropriate Rights of Way and Rights of Carriageway are to be created over the common driveway burdening and benefiting the proposed lots, to provide for suitable legal pedestrian access to the dwellings and appropriate vehicular access and manoeuvring to the parking areas on both lots. Full details in this regard are to be submitted to Council, prior to release of the Subdivision Certificate.

F16 *(a)*. A Restriction on Use of Land is to be created, burdening Lots 1, 2, 3 and 4 the terms of which restrict the location of buildings within Lots 1, 2, 3 and 4 to the building area/s shown on the approved plans. Full details in this regard are to be submitted to Council on the final plan of Subdivision/in the Section 88B instrument, prior to release of the Subdivision Certificate.

F16 *(b)*.A Restriction on Use of Land is to be created, burdening Lots 1, 2, 3 and 4, the terms of which generally restrict the height of buildings within Lots 1, 2, 3 to a height of 8.5 metres above natural ground level except as otherwise granted development consent by Pittwater Council. Full details in this regard are to be submitted to Council on the final plan of Subdivision/in the Section 88B instrument, prior to release of the Subdivision Certificate.

F16 *(c)*.A Restriction on Use of Land is to be created, burdening Lot 4, the terms of which restrict the height of buildings within Lot 4 to a height not exceeding RL 63.77m AHD. Full details in this regard are to be submitted to Council on the final plan of Subdivision/in the Section 88B instrument, prior to release of the Subdivision Certificate.

F17. Prior to issue of the subdivision certificate, a geotechnical engineer is to certify that the site and road reserve adjoining the site, are stable.

F18. A Certificate is to be submitted by a qualified practicing Civil Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or who is eligible to become a Corporate member and have appropriate experience and competence in the related field confirming to the satisfaction of Council or the accredited certifier that the on site stormwater detention has been constructed in accordance with the plans nominated on the Development Consent and relevant conditions of Development Consent. The Subdivision Certificate will not be released until this certification has been submitted and Council or the accredited certifier has confirmed that this condition has been satisfied (see copy of form OSD-1 attached).

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

F19. A Certificate is to be submitted by a qualified Engineer practicing Civil Engineer with corporate membership of the Institute of Engineers Australia (M.I.E), or who is eligible to become a Corporate member and have appropriate experience and competence in the related field confirming to the satisfaction of Council or the accredited certifier that the driveway has been constructed in accordance with the approved plans and /or Council's DCP-E3and/or AS 2890.1-1993 and relevant conditions of Development Consent. The Subdivision Certificate will not be released until this certification has been submitted and Council or the accredited certifier has confirmed that this condition has been satisfied (see copy of form DW-1 attached).

F20. A copy of the Section 73 Compliance Certificate issued under the provisions of the Sydney Water Act, 1994, is to be forwarded to Council or the accredited certifier, prior to release of the Subdivision Certificate.

F21. The applicant is to lodge an application for a Subdivision Certificate with Council or an accredited certifier. The Subdivision Certificate is to be obtained prior to lodgement of the plans with the Land Titles Office.

F25. That a geotechnical engineer certify that the site and road reserve adjoining the site, are stable. The certificate being issued prior to issue of the subdivision certificate.

F26. (former condition E36) Screen planting is to be provided which, after three years, will in conjunction with the canopy planting screen 50% of the built form when viewed from the street. Species selection is to incorporate the dominant species growing in the area or locally indigenous species.

G. ADVICE

G15. House numbering can only be authorised by Council. Before proceeding to number each lot/occupancy in your development, approval must be sought from Council's Planning and Assessment Business Unit.

G23. Failure to comply with the relevant provisions of the Environmental Planning and Assessment Act, 1979 (as amended) and/or the conditions of this Development Consent may result in the serving of penalty notices (on-the-spot fines) under the summary offences provisions of the above legislation or legal action through the Land and Environment Court, again pursuant to the above legislation.

G24. The applicant is also advised to contact the various supply and utility authorities, i.e. Sydney water, Sydney electricity, Telstra etc. to enquire whether there are any underground utility services within the proposed excavation area.

G25. It is the Project Manager's responsibility to ensure that all of the Component Certificates/certification issued during the course of the project are lodged with Council. Failure to comply with the conditions of approval or lodge the Component Certificates/certification will prevent Council from issuing the Occupation Certificate or the Building Certificate.

G26. In accordance with Section 80A(1)(d) and (e) of the Act, any consent given shall be void if the development to which it refers is not commenced within two (2) years after the date of approval, provided that Council may, if good cause be shown, grant an extension of renewal of such consent beyond such period.

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

NOTE: Council may be prepared to consider an extension of this Consent period for a further 12 months, however, the request for extension would have to be received during the initial 2 year period.

G27. To ascertain the date upon which the determination becomes effective, refer to Section 83 of the Environmental Planning and Assessment Act, 1979 (as amended).

G28. Should any of the determination not be acceptable, you are entitled to request reconsideration under Section 82A of the Environmental Planning and Assessment Act, 1979. Such request to Council must be made in writing together with a $500 fee, within 28 days from the date of determination.

G29. If you are dissatisfied with this decision, Section 97 of the Environmental Planning and Assessment Act, 1979, gives you a right of appeal to the Land and Environment Court within 12 months of the date of endorsement of this Consent.

crone nation 364 kent street
sydney new south wales 2000 australia
tel + 61 2 8295 5300 fax + 61 2 8295 5301
syd@cronenation.com

facsimile

company	Raypond Developments City Plan Services
attention	Darren Leete Brendan Bennett
fax no.	9944 0316 9262 2584
from	Simon Thorne
project	Observation Point – Palm Beach
subject	Traffic Engineer's Statement
cc-	

cc fax no.-	qa form no. CAQF
project no. 20006	file no. 3.01 & 10.27
total/pages 3	date 17 October 2003

Darren | Brendan,

Please find attached traffic engineer's statement of compliance for subdivision construction certificate.

Regards,

pp. Simon Thorne
Associate

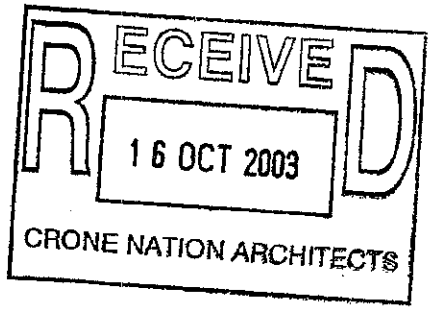
att.

The information contained in this facsimile message is confidential and may be legally privileged. If the reader of the message is not the intended recipient you are hereby notified that any use, dissemination, distribution or reproduction of this message by you or at your instigation is prohibited. If you have received this message in error please notify us immediately and return the original message to us. Thank you.

JOHN HEWITT
TRAFFIC PLANNING ASSOCIATES PTY LTD
ABN 64 078 276 008

16th October 2003

Ref: 00151



Mr. Simon Thorne
Crone Nation Pty Ltd
Level 2, 364 Kent Street
SYDNEY NSW 2000

Dear Sir

'OBSERVATION POINT' - 1148-1152 BARRENJOEY ROAD, PALM BEACH
ASSESSMENT OF VEHICULAR ACCESS ARRANGEMENTS

Introduction

Crone Nation Pty Ltd has commissioned this statement, on behalf of Mr Darren Leete, the owner of the subject property, to address condition B25 of the Development Consent issued by Pittwater Council.

Condition B25 of that consent requires that '*A Certificate is to be submitted by a qualified Engineer with corporate membership of the Institute of Engineers Australia (M.I.E.), or who is eligible to become a Corporate member and have appropriate experience and competence in the related field, Architect or Surveyor confirming to the satisfaction of Council or the accredited certifier that the proposed means of access to and within the site complies with the requirements of Council's policy DCP No. E3 "Driveways and Internal Roadways" and AS 2890.1 – 1993: Parking Facilities – Off-street Car Parking.*

> *NOTE: Prior to the submission of the Construction Certificate, a crossing application with appropriate fees is to be made to Council for the levels required for the construction of the concrete footpath and gutter crossing. The levels provided by Council are to be incorporated into the design of the internal driveway.'*

In accordance with these requirements a crossing application was made to Pittwater Council. Council issued levels for the Multiple Access/Subdivision on 16th October 2003 based on the 'Maximum High Level Skew' profile. It is noted that whilst the proposed driveway does not exceed the requirements of the issued design, in most respects it has been designed to conform with Council's

JOHN HEWITT TRAFFIC PLANNING ASSOCIATES PTY LTD

DCP No. E3 "Driveways and Internal Roadways" and the requirements from meetings with Council Officers and the Roads and Traffic Authority whichever have the higher standard.

Assessment

I inspected the site on a number of occasions during the preparation of the Application and I have examined the following relevant plans:

- ADD 20006 SUBDIVISION / SITE SET OUT KEY - PLAN
- ADD 20010 SITE SET OUT SHEET 1
- ADD 20011 SITE SET OUT SHEET 2

It is noted that the proposed driveway has:

- a maximum 20% grade within the road reserve and further into the site a maximum grade of 25% where the number of Lots served is three or less, which complies with Council's standards
- the minimum clear width of the driveway is 3.5m with passing bays and opportunities provided at spacing of not less 40m of travel

Conclusion

I am a practicing Traffic and Transport Consultant with in excess of 35 years experience in traffic engineering and management, a fellow of the Australian Institute of Traffic Planning and Management and an accredited Road Safety Auditor Level 3 (Institute of Municipal Engineering Australia).

I have considered the design and grading of the proposed driveway to be constructed on the northern side of Palm Beach Road easterly of Barrenjoey Road against the provisions contained in Council's Development Control Plan 2 and E3 and AS 2890.1-1993. I certify that the design complies with those standards and will be safe and practical for the proposed multi lot residential use.

Should clarification be required of any aspect of this advice be required, please do not hesitate to contact the undersigned.

Yours faithfully

JOHN HEWITT F.A.I.T.P.M.
DIRECTOR

BIRDS

Glenn Bird 0438 892 634 Martyne Bird 0419 992 634
birds@birdsdesign.com.au fax: 02 4573 6937
www.birdsdesign.com.au
PO Box 3054, Rouse Hill, NSW, 2155 ABN 68 092 912 368

● Project Management ● Consultancy ● Design

15 October, 2003

Raypond Pty.Ltd.
PO Box 1364
DEE WHY NSW 2099

Attention: Mr. Darren Leete

Dear Sir,

RE : PROPOSED DEVELOPMENT AT 1148 – 1152 BARRENJOEY ROAD, 56 PALM BEACH ROAD, PALM BEACH

We wish to confirm our discussion at our meeting at which you indicated your intention to contract our company to provide the following services for the above mentioned project:

1. Subcontracting vegetation management of all lots, including sediment control, weeding, watering and insect and disease control for a period of 5 years.
2. Project management and inspection/monitoring of all landscaping, site revegetation, bush regeneration and associated maintenance for a period of 5 years.
3. Project management and monitoring of all tree protection measures in accordance with Pittendrigh Shinkfield Bruce Pre Construction Tree/Vegetation Report.
4. Project Management and inspection monitoring or the implementation of the Bushland Management Plan.

We look forward to working with you on this project and will await your instructions regarding a commencement date.

Please give me a call on 0438 892 634 should you have any further questions.

Yours faithfully,

Glenn Bird
Director

Pittwater Council ABN 61 340 837 871
All Correspondence to be addressed to General Manager

Units 9, 11 & 12/ 5 Vuko Place
WARRIEWOOD NSW 2102
Avalon Customer Service Centre
59A Old Barrenjoey Road, AVALON 2107

Postal Address
P.O. Box 882
MONA VALE NSW 1660
DX 9018 MONA VALE

Telephone (02) 9970 1111
Facsimile (02) 9970 7150
Internet www.pittwaterlga.com.au
Email: pittwater_council@pittwater.nsw.gov.au

John Raven, Development Officer
8am to 6pm Mon - Thurs, 8am to 5pm Fri
Phone 9970 1158 Mobile 0419 629 967

2 April 2003

Raypond P/L
PO Box 1364
DEE WHY
NSW 2099

Dear Sir

Re: -Construction Management Plan for the Observation Point development

I refer to your submission of a Construction Management Plan (CMP) as required pursuant to condition *B1* of Development Consent N1228/00 granted for the subdivision of 1148-1152 Barrenjoey Road and 56 Palm Beach Road, Palm Beach and for the subsequent erection of four dwellings pursuant to related consents, N1229/00, N1230/00, N1233/00 and N1232/00. I have consulted Mr L Dyce, Manager, Planning & Assessment in regard to the document.

On the basis that "the Construction Management Plan is provided to satisfy the requirements relating to the subdivision works as approved in Consent N1228/00 and, as stated in the CMP, *a further more detailed Construction Management Plan shall be developed by the appointed building contractor*, the submitted Construction Management Plan is satisfactory Council for the purposes of condition *B1*.

I add comments in regard to the Plan, which may assist:

3.1/6.2.5 Safety cleaning of the road surface outside the site will be of particular concern given the steep turn and grade on Palm Beach Road.

3.2 Refer to any requirement for on site supervision by Arborist.

3.3 Note the garages are only available for storage as part of the house works as not now to be constructed as part of the subdivision works.

3.4 A copy set of all of the approved consent plans, etc should be kept available for reference on site.

Further to our recent conversation about possible need for a Modification to consider removal of trees T285 (Cheese Tree) and T430 (Black Plum), I note that the latter does not appear to be a tree listed for retention.

Yours faithfully

John Raven
DEVELOPMENT OFFICER

Pittendrigh Shinkfield Bruce Pty Ltd
360 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 **Fax** 02 9906 4479 **Email** psb@psb.com.au

PSB

QA.2-07(2)/L

DOCUMENTATION COMPLIANCE CERTIFICATE

To City Plan Services

Company
Raypond
Developments
Darren Leete
Fax – 9944 0316

Attention Brenden Bennett

From Angus Bruce

Date 09 October 2003

Project Observation Point, Palm Beach

Project No 00137

Certificate
Pittendrigh Shinkfield Bruce are qualified Landscape Architects / Horticulturalists holding the necessary qualifications and industry association to certify that the documentation as prepared by these offices complies with the relevant Australian Standards and Conditions of Development Consent.

Documentation

- Plans:
  - L03-8 (Doc Set), and
  - TP10-14 (Tree Plan).
- Specification:
  - 28.06.01 Landscape Works, and
  - 18.11.02 Vegetation Protection and Removal
- Detail Sheet:
  - L08,
  - D01 A & B, and
  - D02 A & B.

Principal Certifying Authority:
City Plan Services
364 Kent St Sydney

Compliance Authority
Pittendrigh Shinkfield Bruce Pty Ltd
360 Pacific Highway, Crows Nest NSW 2065
Ph (02) 9906 4500 Fax (02) 9906 4479

Development Consent
DA No. N01228/00

PITTENDRIGH SHINKFIELD BRUCE PTY LTD

Angus Bruce

Angus Bruce

PITTENDRIGH SHINKFIELD BRUCE

WASTE SERVICE NSW

FACSIMILE

Waste Service NSW
Level 4, Zenith Centre
821 Pacific Highway
CHATSWOOD NSW 2067

PO Box 699, CHATSWOOD NSW 2057

General Enquiries
AUSTRALIA
Tel: 02 9934 7000 *Fax:* 02 9934 7185
INTERNATIONAL
Tel: 61 2 9934 7000 *Fax:* 61 2 9934 7185
Email: info@wasteservice.nsw.gov.au

NOTICE : This facsimile contains information intended only for the use of the addressee named below. If you are not the intended recipient of this facsimile you are hereby notified that you must not disseminate, copy or take any action in reliance on it. If you have received this facsimile in error please notify Waste Service NSW immediately and either shred the document or return it to the shown address.

To: **Darren Lette**

Of:

Fax: **+61299440316**

From: **Peter Lansdown** 0419 753 0

Email: **@wasteservice.nsw.gov.au** *Phone:*

Date: **4 June 2003** *Fax:*

No. of Pages: **2** *(including this sheet)*

Subject: **Acceptance of VENM at Belrose**

This is to confirm today's agreement to accept up to 4000 t of VENM, made up of sandstone/shale material, from your site at Palm Beach at a price of $3.50 per tonne plus GST. The job is understood to be starting in approximately 8 weeks and will continue slowly due to site extraction conditions.

You will need to contact our customer service centre to arrange a booking number and other details before the job commences.

Peter Lansdown
Centre Manager

TIERNEY OPUS
CONSULTING ENGINEERS

Date 08 October 2003

Raypond Pty Ltd
PO Box 1364
DEE WHY NSW 2099

Dear Sir/Madam

Re: Observation Point, Palm Beach

DA No.: N1228/00

Consent Condition B29

Tierney and Partners Drawings 7531-C1/4, C2/4, C3/4, C4/2, C5/4, C6/4, C7/4, C8/4, C9/5, C10/4, C11/4, C12/4, C13/5, C14/5, C15/2, C16/2, C17/2, C18/2, C19/1.
Project_Number:7531

Consent Condition B29.

This is to certify that the Erosion and Sediment Control Plan for the above subdivision and driveway works has been designed in accordance with the requirements of the NSW DLWC's "Urban Erosion and Sediment Control" manual.

Yours sincerely
TIERNEY OPUS

James Park

Doc Ref. ObservationPt50

Opus International Consultants (NSW) Pty Ltd
*Trading as **Tierney Opus***
ACN 001 184 694
Sydney Office

Website www.tierneyopus.com.au

Level 5, 411 Victoria Avenue, Chatswood NSW 2067
PO Box 5340, West Chatswood NSW 1515
Australia

Telephone +61-2-9904 6555
Facsimile +61-2-9904 6777

TIERNEY OPUS
CONSULTING ENGINEERS

Date 08 October 2003

Raypond Pty Ltd
PO Box 1364
DEE WHY NSW 2099

Dear Sir/Madam

Re: Observation Point, Palm Beach

DA No.: N1228/00

Consent Conditions B19 & B20

Tierney and Partners Drawings 7531-C1/4, C2/4, C3/4, C4/2, C5/4, C6/4, C7/4, C8/4, C9/5, C10/4, C11/4, C12/4, C13/5, C14/5, C15/2, C16/2, C17/2, C18/2, C19/1.
Project_Number:7531

Consent Condition B19.

This is to certify that the On-Site Stormwater Detention facilities for the above subdivision and driveway works comply with the Pittwater Council's Policy and Guidelines for the on-site detention of stormwater-Feb 1996.

Consent Condition B20.

This is also to certify that the site stormwater management system complies with the requirements of the "Drainage" section of the BCA-Housing Provisions as they may apply to the subdivision and driveway works and AS/NZS 3500.3.2-Stormwater Drainage.

Yours sincerely
TIERNEY OPUS

James Park

Doc Ref. ObservationPt49

Opus International Consultants (NSW) Pty Ltd
*Trading as **Tierney Opus***
ACN 001 184 694
Sydney Office

Website www.tierneyopus.com.au

Level 5, 411 Victoria Avenue, Chatswood NSW 2067
PO Box 5340, West Chatswood NSW 1515
Australia

Telephone +61-2-9904 6555
Facsimile +61-2-9904 6777

OPUS

Darren Leete

From: <Mark_Beharrell/Pittwater_Council@pittwater.nsw.gov.au>
To: <darrenleete@ozemail.com.au>
Sent: Friday, 8 August 2003 12:04 PM
Attach: Document5.doc
Subject: RE: Acceptence of the bushland managment plan

To: darrenleete@ozemail.com.au
Cc:

Approval of bushland managment plan

This email and any materials contained or attached to it ("Contents") may contain confidential information. If you are not the intended recipient contact the sender immediately, delete the communication from your system and destroy any copies.
The contents may also be subject to copyright. Any unauthorised copying, disclosure or distribution of the contents is strictly prohibited.
Any views expressed in the contents are those of the individual sender, except where the sender specifically states them to be the views of Pittwater Council. Pittwater Council makes no implied or express warranty that the integrity of this communication has been maintained. The contents may contain errors, computer viruses or have been subject to interference in transmission.
Pittwater Council
www.pittwaterlga.com.au

Mark Beharrell, Natural Resources Officer
8am to 6pm Mon - Thurs, 8am to 5pm Fri
Phone 9970 1368 Mobile 0438 265 769

8 August 2003

Darren Leete
Raypond
PO Box 1364
Dee Why
NSW 2099

Dear Sir

Re: Bushland Management Plan

I have reviewed you bushland management plan for the subdivision at 1148 – 1152 Barrenjoey rd Palm Beach, N1228/01, prepared by GIS Environmental Consultants. The plan is satisfactory and contains the amendments previously requested by Council. The document provides a framework for the remediation of the site. Council looks forward to the implementation of the plan as detailed and a successful result for Council, the Environment and yourself.

Yours faithfully

Mark Beharrell
NATURAL RESOURCES OFFICER

Our Reference: *ID 01/377*
Contact: *Mr Allen Chan*
Telephone: *8814 2154*
Facsimile: *8814 2146*



Roads and Traffic Authority
www.rta.nsw.gov.au
ABN 64 480 155 255
Traffic Projects Sectic
85 Flushcombe Road
Blacktown NSW 2148
Telephone (02) 8814 21
Facsimile (02) 8814 214
PO Box 558
Blacktown NSW 2148
DX 8120 Blacktown

21st May 2003

Steve Drew
Tierny & Partners P/L
PO Box 5340
West Chatswood
NSW 1515

RE: Proposed road works at the intersection of Barrenjoey Road and Palm Beach Road, Palm Beach.

Dear Sir,

I refer to your letters dated 26 November 2002 and 4 February 2003 regarding the subject work.

1. **Plan Approval and Release**

The drawing no.7531.C11.5 is acceptable. The stamped plans will be release on receipt and acceptance of the required submissions as detailed below.

Work within the road reserve must be done in accordance with plans that have been approved and stamped by the RTA which are to be kept on site and used as the construction reference document.

No work may commence until the stamped plans have been released.

In addition, the developer is to note the following:

- The existing barrier line on the approach to the proposed median in Palm Beach Road should be modified as shown in red ink on the Developer's drawing.

2. **The Developer**

The developer or representative is responsible for the Bond, Deed of Indemnity and payment of the associated fees as detailed below for the release of the stamped plans.

3. **Fees**

The RTA fees for plan checking, civil works inspections and project management for this project have been calculated at $1,182.50 including $107.50 GST. A tax invoice will be prepared once the relevant contact details have been provided.

The fees payable are based on the work being carried out during daytime hours. If works inspections need be carried out on weekends or at night an additional charge of $400 per night or weekend will be charged.

4. Performance Bond

A Performance Bond must be lodged, by the Developer, in favour of the Roads and Traffic Authority in an amount equal to 100% of the value of the work in the road reserve. It is preferred that the Bond be in the form of an unconditional bank guarantee without an expiry date.

The Bond will be retained by the Authority for the Defects Liability Period of 6 months commencing from the written agreed date of practical completion of the works.

At the end of the Defects Liability period the Developer should arrange for a final inspection to be carried out. Subject to no further restoration or remedial works being required and subject to the Authority's receipt of Works-as-Executed Plans, the Bond will be released.

The amount of the Performance Bond for the subject work is agreed to be $8,900.00.

5. Traffic Management

A Traffic Management Plan (TMP) must be prepared and submitted by the contractor for acceptance. Construction plans will not be released until the TMP is accepted. The TMP must:

* Be drawn in accordance with AS1742.3 and the RTA Traffic Control at Work Sites Manual 1998.

* Include a traffic control plan (TCPs) for the proposed work. TCP must be on scaled drawings of the affected section of road including lane widths, sign spacings and traffic control devices proposed.

  If temporary pavement marking changes are proposed then a TCP is required for that pavement marking also. The designer should visit the site to ensure that the proposed location of signage is suitable and practical.

6. Road Occupancy Approval

The developer must obtain approval for road occupancy from the RTA's Transport Management Centre (TMC) (phone 8396-1439) for any and all proposed lane closures required for the works.

Road occupancy approval is separate and additional to the approval for the traffic management plan and the traffic control plans.

7. Construction program

The Developer or contractor must submit a dated construction program so that the RTA can plan timely inspections.

8. Public Liability Insurance

The Developer shall take out or ensure to be taken out public liability insurance for an amount of twenty million dollars ($20,000,000) for any one occurrence which names the Authority, the Developer and any contractor or subcontractor of the Authority or the Developer in respect of the Works. This risk should be insured from the date of physical commencement of the works in the State Road reserve and remain in force until the expiration of the defects liability period (6 months from the date of practical completion).

The Developer is to forward a copy of the Certificate of Currency (COC) for its Public Liability insurance to the Authority prior to the agreed date of commencement of works in the State road.

9. Indemnity

The developer must indemnify the RTA and its employees from and against all actions, claims, costs, expenses and damages in respect of loss or of damage to property or personal injury to any person arising out of or by reason of anything done or omitted intentionally or negligently by the Developer or by any agent or contractor to the Developer. A copy of a Deed of Indemnity is enclosed for the Developer.

10. Specifications

All works carried out on State Roads shall be done in accordance with RTA QA Specifications which are available in pdf format from the RTA web site - www.rta.nsw.gov.au.

11. Construction Inspections

The RTA shall carry out inspections of the work. The developer / consultant / contractor must contact the Authority's network inspector for the area, whose details will be provided at the time of plan release, to arrange a pre-construction meeting at which time the timing and frequency of staged inspections should be agreed upon.

Yours faithfully

Allen Chan
Project Manager, Traffic
Traffic Projects Section

DEED OF INDEMNITY

THIS DEED made the day of 2003

BETWEEN: ABN

of
in the state of (hereafter called "the Developer")

AND: **ROADS AND TRAFFIC AUTHORITY** of 83 Flushcombe Road, Blacktown in the state of New South Wales (hereinafter called "the Authority")

WHEREAS:

A. The Developer proposes to undertake on the land known as hereinafter called "the Works".

NOW THIS DEED WITNESSETH:

1. The Developer hereby indemnifies the Authority and its officers, employees, contractors and agents from and against all actions, claims, costs, expenses and damages (the "Claims") in respect of loss or damage to property or personal injury to any person resulting from the Works whether arising out of or by reason of anything done or omitted intentionally or negligently by the Developer or by any agent to the Developer.
2. The Developers liability to indemnify the Authority and its officers, employees, contractors and agents under Clause 1 will be reduced proportionally to the extent that a negligent or wilful act or omission of the Authority or its officers, employees, contractors and agents has contributed to the Claims.
3. The Developer shall take out or ensure to be taken out public liability insurance, for an amount of twenty million dollars ($20,000,000) for any one occurrence and unlimited in the aggregate as to the number of occurrences, that names the Authority, the Developer and any contractor or subcontractor of the Authority or the Developer in respect of the Works.
4. The Developer undertakes to complete all works in accordance with Authority conditions of approval including approved drawings and specifications.
5. The Developer undertakes to rectify all defects (excluding fair wear and tear) arising during the Defects Liability period at no cost to the Authority.
6. The provisions of this deed apply from the commencement of the Works until the end of the Defects Liability Period which is 6 months from the date of practical completion.

IN WITNESS THEREOF the parties hereunto set their hands and seals on the day and year first hereinbefore written.

THE COMMON SEAL of)
)
) .....

In the presence of:

.....

EXECUTED BY ROADS AND TRAFFIC AUTHORITY OF NEW SOUTH WALES .....

Raypond

15th October 2003

Attention: Brendon Bennet
City Plan Services
Level1, 364 Kent Street
Sydney NSW 2000

Dear Brendon

Subdivision consent for 1148 - 1152 Barrenjoey Road, Palm Beach NSW 2108. Condition B3.

We confirm that we intend to colour the driveway brown or green, which will reduce the scenic impact and reflectivity should it be required.

Yours faithfully
Raypond Pty Ltd

Darren Leete
Director

RAYPOND PTY LTD
A.B.N. 92 090 921 314
P.O.BOX 1364, DEE WHY NSW 2099 – TELEPHONE (0412) 226-044 FACSIMILE (02) 9944 0316

PSB

OBSERVATION POINT
1148 – 1152 Barrenjoey Road
56 Palm Beach Road
PALM BEACH NSW 2108

PRE CONSTRUCTION TREE/VEGETATION REPORT

SUBDIVISION WORKS

This report to be read in conjunction with:

- PSB Tree Plans TP10, TP11, TP12, TP13, TP14,
- PSB Landscape Plans L03, L04, L05, L06, L07, L08.
- PSB Vegetation Protection and Removal Specification, dated 18/11/02

Prepared for
Raypond Pty Ltd

Pittendrigh Shinkfield Bruce Pty Limited
Landscape Architecture

10 April 2003

PSB 00137B

QA.2-08(2)/K

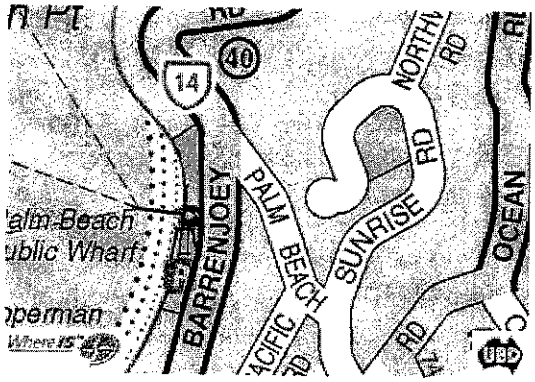
PITTENDRIGH SHINKFIELD BRUCE

Introduction

This report is prepared by the firm Pittendrigh Shinkfield and Bruce Pty Limited, 360 Pacific Highway, Crows Nest, NSW, 2065. The report is based upon the observations and details recorded at the times of inspection.

The Site

The site is known as 1148 – 1152 Barrenjoey Road and 56 Palm Beach Road, Palm Beach. Refer plan of details and contours over Lot 16 DP 6746, Lot 17 DP 651978 and Lot 18 DP 534139 prepared by Bowdens Group and TP01, TP10, TP11, TP12, TP13, TP14 – Tree Location Plans prepared by Pittendrigh Shinkfield and Bruce Pty Ltd consulting Arborists/Landscape Architects.



Description of the Site

The subject property is comprised of three irregular shaped allotments situated north east of Barrenjoey Road, Palm Beach and adjacent to the intersection of Palm Beach Road. The site rises from the Barrenjoey Road boundary some 40 metres towards the east. Remnants of the indigenous vegetation typical of those species found on the protected shores of Pittwater form a soft edge to the western elevation of the subject site. Species included in this buffer planting are Coastal Banksia (*Banksia integrifolia*) Black She Oak (*Allocasuarina littoralis*) Native Daphne (*Pittosporum undulatum*) young Smooth Bark Apple (*Angophora costata*), Mat Rush (*Lomandra longifolia*), Native Cherry (*Exocarpos cuppressiformis*) and Blue Berry Ash (*Elaeocarpus reticulatus*). Various introduced weed species have invaded this perimeter planting, species include Lantana, Croftonweed, Convolvulus (Morning glory vine) Privet, Shake vine (*Cissus antartica*) and introduced grass. Vegetation along the Barrenjoey Road alignment has been extensively and continually lopped so as to clear the overhead power lines.

Where the site is dry and exposed there exists scattered trees throughout the slopes. Species include 3 Moreton Bay Figs, Casuarinas, Diospyros, Eucalyptus, Banksia and Acacia, Glochidion, Ligustrum (Privet) and Backhousia regrowth. In the sheltered moist situations of the site, small rain forest trees exist including Glochidion, Pittosporum, Livistonia palms, Lomandra, Mesic Herbs and Ferns. Many of the trees throughout the site are displaying signs of dieback and decline in vigour due to storm damage, age and atmospheric pollution.

Numerous rock outcrops of Hawkesbury sandstone exist throughout the site either as insitu bedrock or surface floaters. Generally the site surfaces appear to be natural except for some modification to the landform by cutting and filling to the south east end of the subject site.

A pair of overhead power lines currently crosses a section of Part Lot 16, adjacent to the southern boundary. Rough stone steps traverse the slope west to east, to provide pedestrian access to the existing dwelling which is located on the ridgeline of Lot 16.

Site Vegetation

The following table details in broad terms the major tree species presently growing on the site, their physical dimensions, condition and recommendations with regard to removal, retention or transplanting.
Note: * indicates tree names altered in accordance with advice from GIS Environmental Consultants

Note 1: Addendum 13 August 2002: Trees assessed with relation to impact by construction of subdivision driveways. Native trees over 3m were assessed. **T180, T179, T178, T182, T183, T199, T200, T201, T202, T203, T204, T205, T225, T226, T313, T309, T31, T310, T311, T163, T150, T165, T161, T162, T153, t152, T151, T148, T147, T154, T149, T146, T155, T157, T156, T144, T143, T141, T119, T2, T130, T117, T116, T115, T114, T113, T132, T16, T14, T18, T389, T98, T418, T106, T107, T126, T124, T123, T169, T285, T286, T104, T42, T45, T419, T3.**
Note 2: Information given in final column (subdivision CC) over-ride previous comments/action.
Note 3:
Trees identified to be under some impact from subdivision driveway construction. To be retained and protected.

Tree No	Botanical Name Common Name	Age Class	Height m	Spread m	Trunk DBH mm	CONDITION / ACTION / COMMENTS	Subdivision Construction – comments / action on trees within 5 metres of disturbance line
1	Acacia maidenii Maiden's Wattle	Mature	6	7	230	Average to poor condition shape and form. Poor past pruning, insect attack and decayed wood. Remove to accommodate construction.	
2*	Acacia parramattensis Green Wattle	Mature	9	8	180	Good condition, with structure and form typical of the species. Retain.	Remove.
3*	Eucalyptus botryoides Bangalay	Young	7	5	180	Good condition, with structure and form typical of the species. Natural deadwood throughout canopy. Retain.	Remove.
4	DEAD						
5	Pittosporum undulatum Sweet Pittosporum	Mature	6	5	1x180 1<50	Average condition, shape and from. Poor past pruning. Deadwood throughout canopy. Retain.	
6	Pittosporum undulatum Sweet Pittosporum	Mature	4	4	1x100 4<50	Good condition, with structure and form typical of the species. Retain.	
7	Ligustrum lucidum Broad Leaf Privet	Mature	7	5	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
8	Ligustrum lucidum Broad Leaf Privet	Mature	6	4	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
9	Ligustrum lucidum Broad Leaf Privet	Mature	7	4	75	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	

10	Pittosporum undulatum Sweet Pittosporum	Mature	5	4	Multi stem Bole 300	Poor condition, shape and form. Decayed wood throughout canopy. Epicormic growth. Remove to accommodate construction.	
11	Banksia integrifolia Coastal Banksia	Mature	11	5	300	Good condition, with structure and form typical of the species. Natural deadwood throughout canopy. Remove.	
12	DEAD						
13	Allocasuarina torulosa Forest Oak	Mature	10	6	1x250 1x150	Average to poor condition, shape and form. Dieback throughout canopy. Remove.	
14	Allocasuarina torulosa Forest Oak	Mature	7	2	2x50	Average to poor condition, shape and form. Dieback throughout canopy. Vine growing on tree. Retain.	Impacts. Retain and protect. (Bond for House CC)
15	Pittosporum undulatum Sweet Pittosporum	Mature	5	5	1x180 1x200	Poor condition, shape and form. Borer attack on middle trunk. Epicormic growth. Remove	
16	Allocasuarina torulosa Forest Oak	Mature	10	6	1x100 1x180	Average condition. Storm damage. Dieback throughout canopy. Retain.	No impact. (Bond for House CC)
17	Pittosporum undulatum Sweet Pittosporum	Mature	5	4	75	Good condition, with structure and form typical of the species. Remove	
18	Allocasuarina torulosa Forest Oak	Mature	10	6	250	Good to average condition shape and form. Natural deadwood throughout canopy. Minor storm damage. Retain.	Impacts. Retain and protect. (Bond for sub CC)
19	Pittosporum undulatum Sweet Pittosporum	Mature	6	5	1x75 2<50	Good condition, with structure and form typical of the species. Remove.	
20	Allocasuarina torulosa Forest Oak	Mature	7	3	180	Good condition, with structure and form typical of the species. Remove to accommodate construction.	
21	Glochidion ferdinandi Cheese Tree	Mature	6	3	50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
22	Glochidion ferdinandi Cheese Tree	Mature	6	4	200	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
23	Eucalyptus botryoides Bangalay	Mature	22	12	650	Average to poor condition, dieback deadwood and storm damage evident throughout canopy. Structure and form open and sprawling. Typical of the species. Retain.	Tree in decline. Epicormic growth. Hazard reduction necessary. No impact. (Bond for House CC)
24	Ligustrum sp Small Leaf Privet	Mature	5	5	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
25	Glochidion ferdinandi Cheese Tree	Mature	6	6	180	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
26	Banksia integrifolia Coastal Banksia	Mature	10	3	250	Good condition, with structure and form typical of the species. Remove to accommodate construction.	Retain
27	Pittosporum undulatum Sweet Pittosporum	Mature	5	4	200	Good condition, with structure and form typical of the species. Remove to accommodate construction.	Retain
28	Allocasuarina torulosa Forest Oak	Mature	5	0.5	300	Poor condition, shape and form. Tree almost dead. Storm damage, thin canopy. Remove to accommodate construction.	Retain

29	Allocasuarina torulosa Forest Oak	Mature	8	2	200	Good to average condition shape and form. Minor storm damage. Deadwood throughout canopy. Remove to accommodate construction.	Retain
30	Allocasuarina torulosa Forest Oak	Mature	6	5	200	Good to average condition shape and form. Minor storm damage. Deadwood throughout canopy. Remove to accommodate construction.	Retain
31	Allocasuarina torulosa Forest Oak	Mature	8	4	150	Good to average condition shape and form. Minor storm damage. Deadwood throughout canopy. Retain.	No impact. (Bond for House CC)
32	Allocasuarina torulosa Forest Oak	Mature	10	4	250	Average condition, shape and form. Remove to accommodate construction.	
33	Allocasuarina torulosa Forest Oak	Mature	9	5	250	Good condition, with structure and form typical of the species. Storm damage, regrowth from damage. Healthy canopy. Prune north west crown. Retain.	(Bond for House CC)
34	Glochidion ferdinandi Cheese Tree	Mature	6	5	200	Average condition, shape and form. Thin canopy. Tree plant competition. Remove to accommodate construction.	Retain
35	Glochidion ferdinandi Cheese Tree	Mature	6	5	250	Good condition, with structure and form typical of the species. Retain if contours not altered.	(Bond for House CC)
36	Brachychiton acerifolium Illawarra Flame Tree	Young	7	8	50	Good condition, with structure and form typical of the species. Remove to accommodate construction.	
37	Ligustrum lucidum Broad Leaf Privet	Mature	6	6	Multi Stem	Good to average condition, shape and form. Noxious weed, invasive of bushland, open space and gardens. Remove.	
38	Allocasuarina torulosa Forest Oak	Mature	7	4	230	Good condition, with structure and form typical of the species. Storm damage. Regrowth from damage. Healthy canopy. Remove to accommodate construction.	Retain
39	Livistona australis Cabbage Tree Palm	Mature	8	6	400	Good condition, healthy palm with structure and form typical of the species. Palm to be retained.	
40	Ficus rubiginosa Port Jackson	Over Mature	18	14	1000 Multi Stem	Tree in poor condition approaching over maturity. Tree in decline. Extensive epicormic growth. Dieback and deadwood throughout the canopy. Structural defects. Retain.	
41	Allocasuarina torulosa Forest Oak	Mature	7	7	Multi Stem	Average to poor condition. Storm damage. Deadwood throughout canopy. Retain.	(Bond for House CC)
42	Diospyros australis Black Plum	Mature	6	5	180	Good condition, with structure and form typical of the species. Retain.	No impact. Retain and protect. (Bond for sub CC)
43	Ligustrum lucidum Broad Leaf Privet	Mature	7	7	300	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open space and gardens. Remove.	
44	Glochidion ferdinandi Cheese Tree	Mature	9	5	2x250 Bole 450	Average to poor condition shape and form. Dieback throughout canopy. Retain.	Retain and protect. (Bond for sub CC)
45	Diospyros australis Black Plum	Mature	7	4	200	Good condition, with structure and form typical of the species. Retain.	Impacts. Retain and protect. (Bond for sub CC)
46	Ligustrum lucidum Broad Leaf Privet	Mature	9	7	1x230 1x75 Bole 250	Good condition, with structure and form typical of the species. Strong union between branches. Noxious weed, invasive of bushland, open space and gardens. Remove.	
47	Diospyros australis Black Plum	Mature	7	3	100	Good condition, with structure and form typical of the species. Retain.	(Bond for House CC)

48	Glochidion ferdinandi Cheese Tree	Mature	7	3	150	Average condition, shape and form. Dieback throughout canopy. Retain if contours not altered.	(Bond for House CC)
49	Pittosporum undulatum Sweet Pittosporum	Mature	7	7	1<50 1x100 1x150	Average condition, shape and form. Borer attack. Remove to accommodate construction	
50	Allocasuarina torulosa Forest Oak	Mature	9	6	250	Average condition, shape and form. Storm damage. Regrowth from damage, healthy foliage. Remove to accommodate construction	Retain
51	Allocasuarina torulosa Forest Oak	Mature	8	4	250	Average condition, shape and form. Storm damage. Regrowth from damage, healthy foliage. Remove to accommodate construction	Retain
52	Elaeocarpus reticulatus Blueberry Ash	Semi Mature	6	3	75	Good condition, with structure and form typical of the species. Retain.	
53	Glochidion ferdinandi Cheese Tree	Mature	6	5	2x125 Bole 200	Average condition, shape and form. Severe dieback on half of canopy. Vine growing on the tree. Retain.	
54	Acmena smithii Lilly Pilly	Mature	7	6	3x150 Bole 200	Average condition, shape and form. Decay along trunk. Vine growing on the tree. Retain.	
55	Pittosporum undulatum Sweet Pittosporum	Mature	5	4	2x150 2>50	Average condition, shape and form. Dieback throughout canopy. Vine growing on tree. Remove.	
56	Acmena smithii Lilly Pilly	Mature	7	6	250	Good condition, with structure and form typical of the species. Retain.	
57	Acmena smithii Lilly Pilly	Mature	6	6	200	Good condition, with structure and form typical of the species. Retain.	
58	Pittosporum undulatum Sweet Pittosporum	Mature	5	4	100	Good condition, with structure and form typical of the species. Remove	
59	Ligustrum lucidum Broad Leaf Privet	Mature	8	6	400	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
60	Ligustrum lucidum Broad Leaf Privet	Mature	8	5	175	Good condition, structure and form typical of the species. Natural dieback throughout canopy. Noxious weed, invasive of bushland, open space and gardens. Remove.	
61	Glochidion ferdinandi Cheese Tree	Mature	7	4	100	Good condition, structure and form typical of the species. Natural dieback throughout canopy. Retain.	(Bond for House CC)
62	Ligustrum lucidum Broad Leaf Privet	Mature	8	5	175	Average condition, shape and form. Dieback throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
63	Pittosporum undulatum Sweet Pittosporum	Mature	3.5	5	2x150	Average to poor condition. Storm damage. Deadwood throughout canopy. Decayed trunk. Remove.	
64	Pittosporum undulatum Sweet Pittosporum	Mature	4	5	250	Average to poor condition. Storm damage. Deadwood throughout canopy. Decayed trunk. Poor past pruning. Remove to accommodate construction	
65	Pittosporum undulatum Sweet Pittosporum	Mature	6	4	100	Good condition, with structure and form typical of the species. Remove to accommodate construction	
66	Ligustrum lucidum Broad Leaf Privet	Mature	9	8	250	Good condition, structure and form typical of the species. natural dieback throughout canopy. Noxious weed, invasive of bushland, open space and gardens. Remove.	
67	Ligustrum lucidum Broad Leaf Privet	Mature	9	6	1x100 1x200	Good condition, with structure and form typical of the species. noxious weed, invasive of bushland, open spaces and gardens. Remove.	

68	Pittosporum undulatum Sweet Pittosporum	Mature	7	5	1x200 1x50	Average condition, shape and form. Storm damage. Regrowth from damage. Healthy foliage. Remove to accommodate construction	
69	Ligustrum lucidum Broad Leaf Privet	Mature	6	5	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
70	Ligustrum lucidum Broad Leaf Privet	Mature	7	5	125	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
71	Pittosporum undulatum Sweet Pittosporum	Mature	7	4	125	Average to poor condition. Storm damage. Deadwood throughout canopy. Decayed trunk. Remove.	
72	Ligustrum lucidum Broad Leaf Privet	Mature	8	5	2x100 1<50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
73	Cassine australis Var. australis Red-fruited Olive Plum	Mature	7	5	3x150	Good condition, with structure and form typical of the species. Remove to accommodate construction	
74	Diospyros australis Black Plum	Mature	6	3	150	Good condition, with structure and form typical of the species. Remove to accommodate construction	
75	Ligustrum lucidum Broad Leaf Privet	Mature	6	5	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Natural deadwood throughout canopy. Remove.	
76*	Cassine australis Red-fruited Olive Plum	Mature	6	6	200	Average condition, shape and form. Storm damage. Deadwood throughout canopy. Remove	
77	Diospyros australis Black Plum	Mature	7	4	75	Good condition, with structure and form typical of the species. Remove to accommodate construction	
78	Ligustrum lucidum Broad Leaf Privet	Mature	8	4	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
79	Pittosporum undulatum Sweet Pittosporum	Mature	7	5	200	Average condition, shape and form. Storm damage. Deadwood throughout canopy. Remove to accommodate construction	
80	Ligustrum lucidum Broad Leaf Privet	Mature	8	4	2x150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
81	Ligustrum lucidum Broad Leaf Privet	Mature	7	4	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
82	Ligustrum lucidum Broad Leaf Privet	Mature	8	4	200	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
83	Ligustrum lucidum Broad Leaf Privet	Mature	8	6	1x150 2x75	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Natural deadwood throughout canopy. Remove.	
84	Ligustrum lucidum Broad Leaf Privet	Mature	9	5	1x250 1x100	Average condition, shape and form. Epicormic growth. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	

85	Ligustrum lucidum Broad Leaf Privet	Mature	8	5	1x150 1x50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
86	Pittosporum undulatum Sweet Pittosporum	Mature	8	5	150	Good condition, with structure and form typical of the species. Remove to accommodate construction	
87	Pittosporum undulatum Sweet Pittosporum	Mature	8	5	150	Good condition, with structure and form typical of the species. Remove to accommodate construction	
88	Pittosporum undulatum Sweet Pittosporum	Mature	8	5	1x150 1x75	Average condition, shape and from. Storm damage on one side of main trunk. Regrowth. Remove to accommodate construction	
89	Pittosporum undulatum Sweet Pittosporum	Mature	7	5	250	Good condition, with structure and form typical of the species. Remove.	Retain and protect
90	Allocasuarina torulosa Forest Oak	Mature	12	6	350	Good to average condition shape and form. Natural deadwood throughout canopy. Minor storm damage. Retain.	Impact. Retain and protect. Provide Arborist Report. No Bond.
91	Allocasuarina torulosa Forest Oak	Mature	6	4	1x150 1x75	Good condition, with structure and form typical of the species. Natural deadwood throughout canopy. Remove to accommodate construction	
92	Allocasuarina torulosa Forest Oak	Mature	5	4	175	Poor condition. Storm damage to main trunk. Remove to accommodate construction.	
93	Phoenix canariensis Date Palm	Mature	7	8	1000	Good condition, with structure and form typical of the species. Tree competing with other plants. Retain.	
94	Pittosporum undulatum Sweet Pittosporum	Mature	8	10	500	Average to poor condition. dieback throughout canopy. Exposed root system. Remove.	
95	Phoenix canariensis Date Palm	Mature	10	8	900	Good condition, with structure and form typical of the species. Remove to accommodate construction.	Retain.
96	Allocasuarina torulosa Forest Oak	Mature	12	6	700	Good condition, with structure and form typical of the species. Retain.	
97	Ficus rubiginosa Port Jackson Fig	Over Mature	11	11	900	Average to poor condition. Tree in decline with moderate vigour. Small branch and twig dieback throughout canopy. Retain.	(Bond for House CC).
98	Banksia integrifolia Coastal Banksia	Mature	10	6	400	Good condition, with structure and form typical of the species. Natural deadwood throughout canopy. Retain.	Significant tree. Soils must not be allowed to slump during excavation. Retain.
99	Glochidion ferdinandi Cheese Tree	Mature	7	6	300	Good condition, with structure and form typical of the species. Retain.	Impact. Retain and protect.
100	Allocasuarina torulosa Forest Oak	Mature	6	5	150	Good condition, average shape and form. Tree growing on angle. Natural deadwood throughout canopy. Retain.	
101*	Eucalyptus botryoides Bangalay	Mature	12	10	1x400 1x300 Bole 600	Average condition, shape and form. Tree growing on angle. Deadwood and minor twig dieback throughout canopy. Retain.	No impact.
102	Diospyros australis Black Plum	Semi Mature	4	3	1x75 1x50	Good condition, with structure and form typical of the species. Retain.	(Bond for House CC)
103	Diospyros australis Black Plum	Mature	4	2	1x100	Average condition, shape and form. Deadwood and minor twig dieback throughout canopy. Retain.	No impact. Retain and protect. (Bond for sub CC).
104	Diospyros australis Black Plum	Mature	3	2	100	Average condition, shape and form. Deadwood and minor twig dieback throughout canopy. Retain.	Impacts. Retain and protect. (Bond for sub CC).

105	Diospyros australis Black Plum	Mature	8	4	150	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
106*	Diospyros australis Black Plum	Mature	4	3	100	Average condition, shape and form. Minor deadwood throughout canopy. Retain.	Impacts. Retain and protect. (Bond for House CC)
107	Diospyros australis Black Plum	Semi Mature	3	2	2x36	Good condition, with structure and form typical of the species. Vine growing on tree. Retain.	Impact. Significant tree. (Bond for House CC)
108	Ficus rubiginosa Port Jackson Fig	Mature	18	20	Multi stem	Good condition, with structure and form typical of the species. Natural deadwood throughout canopy. Tree growing in the crevice in the rock. Retain.	
109	Grevillea robusta Silky Oak	Mature	16	14	1x400 1x200	Fair condition, with structure and form typical of the species. Sparse canopy and minor deadwood and twig dieback throughout canopy. Retain.	
110	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	8	Multi stem	Good condition, with structure and form typical of the species. Remove.	
111	Pittosporum undulatum Native Daphne	Mature	5	3	50	Good condition, with structure and form typical of the species. Remove	
112	DEAD					Remove to accommodate proposed development.	
113*	Acacia parramattensis Green Wattle	Young	4	1	25	Good condition, with structure and form typical of the species. Retain.	No impact.
114*	Acacia parramattensis Green Wattle	Young	4	2	25	Good condition, with structure and form typical of the species. Retain.	No impact.
115*	Acacia parramattensis Green Wattle	Young	5	3	40	Good condition, with structure and form typical of the species. Retain.	No impact.
116*	Acacia parramattensis Green Wattle	Young	4	2	40	Good condition, with structure and form typical of the species. Retain.	No impact.
117	Acacia maidenii Maiden's Wattle	Young	4	2	25	Good condition, with structure and form typical of the species. Retain.	No impact.
118	DEAD						
119*	Acacia parramattensis Green Wattle	Young	4	2	25	Poor condition, shape and form. Minor deadwood throughout canopy. Vine growing on tree canopy.	Remove.
120	DEAD						
121	Angophora floribunda Rough-barked Apple	Over Mature	4	4	100	Poor condition, shape and form. Remove to accommodate proposed development.	
122	Acacia maidenii Maiden's Wattle	Mature	9	8	300	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Epicormic growth. Remove to accommodate proposed development.	
123	Elaeocarpus reticulatus Blueberry Ash	Mature	5	3	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Epicormic growth.	No impact. Retain and protect. (Bond for sub CC).
124	Acacia maidenii Maiden's Wattle	Young	4	1	40	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	No impact.
125	Pittosporum undulatum Native Daphne	Mature	4	3	60	Good condition, with structure and form typical of the species. Remove	
126*	Acacia implexa Hickory	Young	5	1	25	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Epicormic growth.	Remove.

127*	Acacia implexa Hickory	Mature	10	9	2x350	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Epicormic growth. Tree growing on edge of retaining wall. Remove to accommodate proposed development.	
128	Eucalyptus botryoides Bangalay	Mature	15	8	3x400 1x150	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
129*	Acacia implexa Hickory	Mature	10	8	300	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
130	Ficus rubiginosa Port Jackson	Mature	10	10	Multi Stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Tree growing on rock.	Significant tree. No impact.
131	Pittosporum undulatum Native Daphne	Mature	5	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
132	Pittosporum undulatum Native Daphne	Mature	5	6	Multi stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Tree growing on rock. Remove	Do not remove. Root interlocked with Fig Tree No. 130
133	Ficus rubiginosa Port Jackson Fig	Young	4	2	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
134*	Acacia implexa Hickory	Young	3	1	50	Poor condition, shape and form. Remove to accommodate proposed development.	
135*	Acacia implexa Hickory	6	4	1	50	Poor condition, shape and form. Remove to accommodate proposed development.	
136	Acmena smithii Lilly Pilly	Young	5	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
137	Glochidion ferdinandi Cheese Tree	Young	6	3	50	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Epicormic growth. Remove to accommodate proposed development.	
138	Glochidion ferdinandi Cheese Tree	Young	5	1	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
139*	Acacia implexa Hickory	Mature	12	4	30	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
140	Lophostemon confertus Brush Box	Mature	13	10	400	Good condition, with structure and form typical of the species. Tree growing on edge of retaining wall. Remove to accommodate proposed development.	
141	Banksia integrifolia Coastal Banksia	Mature	10	4	1x150 1x200	Average condition, shape and form. Deadwood and twig dieback throughout canopy..	Impacts. Retain and protect. Provide Arborist Report. No Bond.
142	Pittosporum undulatum Native Daphne	Young	5	1	50	Good condition, with structure and form typical of the species. Remove	

143	Glochidion ferdinandi Cheese Tree	Young	5	2	50	Good condition, with structure and form typical of the species.	No impact. Retain and protect. (Bond for sub CC)
144	Eucalyptus maculata Spotted Gum	Mature	14	9	200	Good condition, with structure and form typical of the species. Retain.	Impacts. Retain and protect. (Bond for sub CC).
145	Ligustrum lucidum Broad Leaf Privet	Mature	5	3	2x75	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
146	Eucalyptus maculata Spotted Gum	Mature	12	4	200	Good condition, with structure and form typical of the species.	Impacts. Retain and protect. (Bond for sub CC). Significant tree.
147	Elaeocarpus reticulatus Blueberry Ash	Mature	6	4	100	Average condition, shape and form. Deadwood and insect attack throughout canopy..	No impact. Retain and protect. (Bond for sub CC).
148	Acmena smithii Lilly Pilly	Mature	4	2	50	Average condition, shape and form. Deadwood and twig dieback throughout canopy..	Impacts. Retain and protect.
149	Glochidion ferdinandi Cheese Tree	Mature	6	4	100	Good condition, with structure and form typical of the species.	Impacts. Retain and protect. (Bond for sub CC)
150	Banksia integrifolia Coastal Banksia	Mature	6	4	200	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Tree growing horizontally.	Remove.
151	Banksia integrifolia Coastal Banksia	Mature	10	5	1x300 1x150	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	Impacts. Retain and protect.
152	Glochidion ferdinandi Cheese Tree	Mature	6	3	2x75	Good condition, with structure and form typical of the species. Natural dead wood.	Impacts. Retain and protect. (Bond for sub CC).
153	Glochidion ferdinandi Cheese Tree	Mature	6	5	2x75	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	Impacts. Retain and protect. (Bond for sub CC).
154	Banksia integrifolia Coastal Banksia	Mature	10	4	200	Good condition, with structure and form typical of the species. Natural dead wood.	Impacts. Retain and protect. (Bond for sub CC).
155	Banksia integrifolia Coastal Banksia	Mature	12	5	200	Good condition, with structure and form typical of the species. Natural dead wood.	Remove for development
156	Acmena smithii Lilly Pilly	Mature	6	3	Multi stem	Good condition, with structure and form typical of the species. Natural dead wood. Retain.	Impacts. Retain and protect. (Bond for sub CC).
157	Glochidion ferdinandi Cheese Tree	Mature	6	3	50	Good condition, with structure and form typical of the species. Natural dead wood.	Impacts. Retain and protect. (Bond for sub CC).
158	Banksia integrifolia Coastal Banksia	Mature	8	3	75	Good condition, with structure and form typical of the species. Natural dead wood. Remove to accommodate proposed development.	
159	Acacia longifolia Sydney Golden Wattle	Young	6	2	50	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
160	Acacia sp Wattle	Mature	12	5	150	Average condition, shape and form. Natural deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	

161	Banksia integrifolia Coastal Banksia	Mature	15	4	250	Good condition, typical of the species. Retain..	Remove.
162	Elaeocarpus reticulatus Blueberry Ash	Mature	8	4	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Retain.	Remove.
163	Glochidion ferdinandi Cheese Tree	Mature	10	6	150	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Vine growing on tree canopy.	Remove.
164	Pittosporum undulatum Native Daphne	Mature	5	1	50	Poor condition, shape and form. Remove.	
165	Elaeocarpus reticulatus Blueberry Ash	Mature	3	1	25	Poor condition, shape and form.	Remove.
166	Elaeocarpus reticulatus Blueberry Ash	Mature	5	2	25	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	Remove.
167	Glochidion ferdinandi Cheese Tree	Mature	6	2	50	Good condition, with structure and form typical of the species.	No impact.
168	Glochidion ferdinandi Cheese Tree	Mature	8	2	50	Good condition, with structure and form typical of the species.	No impact.
169	Glochidion ferdinandi Cheese Tree	Mature	10	6	1x75 2x100	Good condition, with structure and form typical of the species.	Remove.
170	Ligustrum lucidum Broad Leaf Privet	Mature	5	3	2x50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
171*	Acacia parramattensis Green Wattle	Mature	5	2	25	Good condition, with structure and form typical of the species.	Remove.
172	Allocasuarina torulosa Forest Oak	Mature	8	4	200	Average condition, shape and form. Deadwood throughout canopy. Storm damage.	
173	Elaeocarpus reticulatus Blueberry Ash	Mature	6	3	100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Large dead branch.	
174	Banksia integrifolia Coastal Banksia	Mature	4	5	400	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Tree growing on an angle.	
175	Pittosporum undulatum Native Daphne	Mature	3	3	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove	
176	Banksia integrifolia Coastal Banksia	Mature	7	1	75	Good condition, with structure and form typical of the species.	
177	Elaeocarpus reticulatus Blueberry Ash	Mature	3	1	<25	Good condition, with structure and form typical of the species.	
178	Allocasuarina torulosa Forest Oak	Mature	4	1	75	Poor condition, shape and form. Tree almost dead. Retain.	No impact.
179	Elaeocarpus reticulatus Blueberry Ash	Mature	3	1	50	Poor condition, shape and form. Retain	No impact.
180	Banksia integrifolia Coastal Banksia	Mature	1	2	200 150	As at 13.08.02, severely pruned to 1.0m above ground level to clear overhead powerlines. Form and structure destroyed. Tree growing on an angle.	No impact.
181	Glochidion ferdinandi Cheese Tree	Mature	4	3	Multi stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	
182	Diospyros australis Black Plum	Mature	9	7	200	Good condition, with structure and form typical of the species.	No impact. Retain and protect. (Bond for sub CC).
183	Glochidion ferdinandi Cheese Tree	Mature	9	8	1x50 1x200 1x250	Good condition, with structure and form typical of the species.	Significant tree. No impact if careful excavation. Will require canopy prune. Retain and protect.

184	Allocasuarina torulosa Forest Oak	Mature	7	3	250	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Storm damage. Remove to accommodate proposed development.	
185	Pittosporum undulatum Native Daphne	Mature	4	2	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Storm damage. Remove to accommodate proposed development.	
186	Pittosporum undulatum Native Daphne	Mature	3	2	25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
187	Elaeocarpus reticulatus Blueberry Ash	Mature	3	2	50	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Tree growing on an angle. Remove to accommodate proposed development.	
188	DEAD					Remove to accommodate proposed development.	
189	Allocasuarina torulosa Forest Oak	Mature	3	2	75	Poor condition, shape and form. Remove to accommodate proposed development.	
190	Allocasuarina torulosa Forest Oak	Mature	6	4	100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Vine growing on tree canopy. Storm damage. Remove to accommodate proposed development.	
191	Elaeocarpus reticulatus Blueberry Ash	Mature	3	3	50	Poor condition, shape and form. Remove to accommodate proposed development.	
192	Pittosporum undulatum Native Daphne	Mature	5	1	20	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
193	Allocasuarina torulosa Forest Oak	Mature	5	3	3x50	Poor condition, shape and form. Remove to accommodate proposed development.	
194	Glochidion ferdinandi Cheese Tree	Mature	6	4	1x25 1x50	Average condition, shape and form. Deadwood and Insect attack throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	
195	Pittosporum undulatum Native Daphne	Mature	7	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
196	DEAD					Remove to accommodate proposed development.	
197	Pittosporum undulatum Native Daphne	Mature	5	4	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
198	Allocasuarina torulosa Forest Oak	Mature	15	8	350	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Storm damage. Remove to accommodate proposed development.	
199	Acmena smithii Lilly Pilly	Mature	8	8	75 100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Dense vine growing on tree canopy.	Impacts. Retain and protect. (Bond for sub CC).

200	Syzygium oleosum Blue Lilly Pilly	Mature	10	6	175	Good condition, with structure and form typical of the species.	Single sided impact to low side of tree. No changes to drainage patterns. Retain and protect. (Bond for sub CC).
201	Acmena smithii Lilly Pilly	Mature	8	8	100 75	Good condition, with structure and form typical of the species. Retain.	Impact. Retain and protect. (Bond for sub CC).
202	Glochidion ferdinandi Cheese Tree	Young	4	2	25	Good condition, with structure and form typical of the species.	No impact. (Bond for sub CC).
203	Acmena smithii Lilly Pilly	Young	3	1	10	Good condition, with structure and form typical of the species.	No impact. Retain and protect. (Bond for sub CC).
204	Acmena smithii Lilly Pilly	Young	4	2	5x10	Good condition, with structure and form typical of the species.	No impact. (Bond for sub CC).
205	Allocasuarina torulosa Forest Oak	Young	6	2	2x25	Good condition, with structure and form typical of the species. Retain.	Remove
206	Pittosporum undulatum Native Daphne	Mature	5	2	50	Poor condition, shape and form. Remove to accommodate proposed development.	
207	Acmena smithii Lilly Pilly	Mature	10	5	100 50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
208	Acmena smithii Lilly Pilly	Mature	5	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
209	Elaeocarpus reticulatus Blueberry Ash	Mature	12	6	1x200 1x100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	
210	Elaeocarpus reticulatus Blueberry Ash	Mature	6	3	65	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
211	Eucalyptus sp Gum Tree	Mature	12	6	200	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
212	Notelaea longifolia Mock-olive	Young	4	1	25	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
213	Syzygium oleosum Blue Lilly Pilly	Young	4	2	25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
214	Cotoneaster sp Cotoneaster	Mature	3	4	1x100 1x50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
215	Acmena smithii Lilly Pilly	Mature	5	1	25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
216	Elaeocarpus reticulatus Blueberry Ash	Mature	8	5	75 100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
217	Acmena smithii Lilly Pilly	Young	4	2	20	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	

218	Acmena smithii Lilly Pilly	Mature	8	3	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
219	Pittosporum undulatum Native Daphne	Mature	5	4	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
220	Elaeocarpus reticulatus Blueberry Ash	Young	4	1	3x<10	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
221	Elaeocarpus reticulatus Blueberry Ash	Young	4	1	<10	Average condition, shape and form. Deadwood throughout crown. Vine growing on tree canopy. Remove to accommodate proposed development.	
222	Elaeocarpus reticulatus Blueberry Ash	Young	4	1	80	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
223	Elaeocarpus reticulatus Blueberry Ash	Young	5	1	20	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
224	Acmena smithii Lilly Pilly	Young	5	1	20	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
225	Allocasuarina torulosa Forest Oak	Mature	8	3	200	Poor condition, shape and form.	No impact. Retain and protect. (Bond for sub CC).
226	Acmena smithii Lilly Pilly	Young	4	1	25	Poor condition, shape and form. Retain	No impact. Retain and protect. (Bond for sub CC).
227	Cinnamomum camphora Camphor Laurel	Young	4	2	25	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
228	Banksia integrifolia Coastal Banksia	Mature	8	2	75	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
229	Acmena smithii Lilly Pilly	Mature	8	3	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
230	Acmena smithii Lilly Pilly	Mature	10	4	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
231	Acmena smithii Lilly Pilly	Young	5	2	1x25 3x10	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
232	Acmena smithii Lilly Pilly	Mature	8	3	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
233	Glochidion ferdinandi Cheese Tree	Mature	6	4	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
234	Acmena smithii Lilly Pilly	Mature	3	1	20	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
235	Acmena smithii Lilly Pilly	Mature	7	4	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	

236	Acmena smithii Lilly Pilly	Mature	6	6	1x50 2x25	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Tree growing on an angle. Remove to accommodate proposed development.	
237	Acmena smithii Lilly Pilly	Mature	6	3	2x50	Good condition. Typical of the species. Remove to accommodate proposed development.	
238	Glochidion ferdinandi Cheese Tree	Mature	12	8	300	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
239	Grove of 5 Acmena smithii Lilly Pilly	Mature	7	6	4x75 1x100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Dense vine growing on tree canopy. Remove to accommodate proposed development.	
240	Pittosporum undulatum Native Daphne	Mature	6	6	Multi stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
241	Acacia sp Wattle	Mature	6	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
242*	Elaeocarpus reticulatus Blue Berry Ash	Mature	5	3	75	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	
243*	Kunzea ambigua Tick Bush	Mature	5	2	50	Average condition, shape and form. Deadwood throughout canopy. Sparse crown. Remove to accommodate proposed development.	
244	Banksia integrifolia Coastal Banksia	Young	6	1	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
245	Elaeocarpus reticulatus Blueberry Ash	Young	5	1	25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
246	Elaeocarpus reticulatus Blueberry Ash	Mature	6	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
247	Allocasuarina torulosa Forest Oak	Mature	5	2	100	Poor condition, shape and form. Remove to accommodate proposed development.	
247b*	Kunzea ambigua Tick Bush						
248	Angophora costata Smooth Barked Apple	Mature	6	3	150	Good condition, with structure and form typical of the species. Remove to accommodate proposed development	
249	Banksia integrifolia Coastal Banksia	Mature	5	6	1x100 1x500	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	Impacts. Retain and protect.
250	Pittosporum undulatum Native Daphne	Mature	7	6	Multi stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove.	
251	Diospyros australis Black Plum	Mature	9	5	200	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	No impact.
252	Strelitzia nicholii Giant Bird of Paradise.	Mature	3	3	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	

253	Hakea propinqua Hakea	Mature	6	3	1x50 1x25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
254	Hakea propinqua Hakea	Mature	7	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
255	Elaeocarpus reticulatus Blueberry Ash	Mature	8	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
256*	Eucalyptus botryoides Bangalay	Mature	9	5	150	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
257	Acacia linearifolia Wattle	Mature	7	4	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
258	Allocasuarina torulosa Forest Oak	Young	5	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
259	Banksia integrifolia Coastal Banksia	Mature	6	4	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
260*	Angophora floribunda Rough-barked Apple	Young	4	2	50	Good condition, with structure and form typical of the species. Remove.	
261	Banksia integrifolia Coastal Banksia	Young	5	1	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
262	Pittosporum undulatum Native Daphne	Mature	4	4	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
263	Eriobotrya japonica Loquat	Mature	8	4	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
264	Pittosporum undulatum Native Daphne	Mature	8	4	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
265	Pittosporum undulatum Native Daphne	Mature	7	1	50	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
266	Pittosporum undulatum Native Daphne	Mature	4	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
267	Pittosporum undulatum Native Daphne	Mature	5	4	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
268	Diospyros australis Black Plum	Mature	10	5	1x150 2x50	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	Retain.
269	Acmena smithii Lilly Pilly	Mature	7	3	1x75 1x25	Poor condition, shape and form. Remove to accommodate proposed development.	
270	Acmena smithii Lilly Pilly	Mature	12	6	1x200 1x100 1x150	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Termite attack. Remove to accommodate proposed development.	Retain.

271	Notelaea longifolia Mock-olive	Young	5	1	25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	Retain.
272	Pittosporum undulatum Native Daphne	Young	5	3	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
273	Banksia integrifolia Coastal Banksia	Mature	15	8	300	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	Retain.
274	Elaeocarpus reticulatus Blueberry Ash	Mature	7	2	100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	Retain.
275	Pittosporum undulatum Native Daphne	Mature	5	3	73	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove to accommodate proposed development.	
276	Ligustrum lucidum Broad Leaf Privet	Mature	5	1	25	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
277	Pittosporum undulatum Native Daphne	Mature	6	4	450	Poor condition, shape and form. Remove to accommodate proposed development.	Retain.
278	Pittosporum undulatum Native Daphne	Mature	6	4	460	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	Retain.
279*	Acmena smithii LilyPilly	Mature	7	5	Multi stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove.	
280	Pittosporum undulatum Native Daphne	Mature	3	3	Multi stem	Poor condition, shape and form. Remove to accommodate proposed development.	
281	Acmena smithii Lilly Pilly	Mature	9	4	75	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	Retain.
282	Elaeocarpus reticulatus Blueberry Ash	Mature	7	2	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	Retain.
283	Strelitzia nicholii Giant Bird of Paradise.	Mature	6	2	200	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
284	Pittosporum undulatum Native Daphne	Mature	5	5	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
285	Glochidion ferdinandi Cheese Tree	Mature	6	2	75	Average condition, shape and form. Deadwood throughout canopy. Retain..	Retain. (Bond for sub CC).
286	Banksia integrifolia Coastal Banksia	Mature	6	2	75	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	(Bond for House CC).
287	Allocasuarina torulosa Forest Oak	Mature	78	3	150	Good condition, with structure and form typical of the species.	(Bond for House CC).
288	Banksia integrifolia Coastal Banksia	Mature	7	1	75	Average condition, shape and form. Deadwood throughout canopy.	
289	Pittosporum undulatum Native Daphne	Mature	4	4	1x100	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Remove.	
290	Allocasuarina torulosa Forest Oak	Mature	4	1	75	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).
291	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	4	200	Good condition, with structure and form typical of the species. Remove.	

292	Allocasuarina torulosa Forest Oak	Mature	4	1	75	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).
293	Allocasuarina torulosa Forest Oak	Mature	10	4	200	Good condition, with structure and form typical of the species.	(Bond for House CC).
294	Pittosporum undulatum Native Daphne	Mature	3	2	1x25	Good condition, with structure and form typical of the species. Remove	
295	Pittosporum undulatum Native Daphne	Mature	4	2	50	Good condition, with structure and form typical of the species. Remove	
296	Pittosporum undulatum Native Daphne	Mature	4	3	50	Good condition, with structure and form typical of the species. Remove	
297	Glochidion ferdinandi Cheese Tree	Mature	8	2	100	Poor condition, shape and form.	(Bond for House CC).
298	Notelaea longifolia Mock-olive	Mature	8	1	25	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).
299	Notelaea longifolia Mock-olive	Mature	3	1	10	Good condition, with structure and form typical of the species.	(Bond for House CC).
300	Pittosporum undulatum Native Daphne	Mature	5	2	50	Average condition, shape and form. Deadwood throughout canopy. Remove.	
301	Pittosporum undulatum Native Daphne	Mature	5	4	2x50	Average condition, shape and form. Deadwood throughout canopy. Storm damage. Remove.	
302	Glochidion ferdinandi Cheese Tree	Mature	7	2	1x100 1x75	Poor condition, shape and form.	(Bond for House CC).
303	Pittosporum undulatum Native Daphne	Mature	4	2	50	Good condition, with structure and form typical of the species. Remove.	
304	Pittosporum undulatum Native Daphne	Mature	9	5	150	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
305	Pittosporum undulatum Native Daphne	Mature	5	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
306	Allocasuarina torulosa Forest Oak	Mature	4	1	100	Poor condition, shape and form. Remove to accommodate proposed development.	
307	Pittosporum undulatum Native Daphne	Mature	5	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
308	Allocasuarina torulosa Forest Oak	Mature	8	3	250	Poor condition, shape and form.	
309	Allocasuarina torulosa Forest Oak	Mature	10	5	250	Average condition, shape and form. Deadwood and twig dieback throughout canopy.	No impact.
310	Allocasuarina torulosa Forest Oak	Mature	8	3	100	Poor condition, shape and form.	No impact. (Bond for House CC).
311	Glochidion ferdinandi Cheese Tree	Mature	4	2	50	Average condition, shape and form. Deadwood throughout canopy.	No impact.
312	Grove of 5 Pittosporum undulatum Native Daphne	Mature	4	1	50	Average condition, shape and form. Deadwood throughout canopy. Remove.	
313	Allocasuarina torulosa Forest Oak	Mature	8	1	75	Average condition, shape and form. Deadwood throughout canopy.	No impact.
314	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	4	150	Good condition, with structure and form typical of the species. Remove.	
315	DEAD						
316	Ligustrum lucidum Broad Leaf Privet	Mature	6	5	Multi stem	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
317	Allocasuarina torulosa Forest Oak	Mature	6	1	200	Remove to accommodate proposed development. Retain.	(Bond for House CC).
318	Pittosporum undulatum Native Daphne	Mature	6	4	2x50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	

319	Pittosporum undulatum Native Daphne	Mature	4	2	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
320	Pittosporum undulatum Native Daphne	Mature	6	4	150	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
321	Pittosporum undulatum Native Daphne	Mature	6	4	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
322	Pittosporum undulatum Native Daphne	Mature	6	5	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
323	Pittosporum undulatum Native Daphne	Mature	5	4	50	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	
324	Pittosporum undulatum Native Daphne	Mature	6	4	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
325*	Allocasaurina torulosa Forest Oak					DEAD	
326	Pittosporum undulatum Native Daphne	Mature	4	2	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
327	Pittosporum undulatum Native Daphne	Mature	6	6	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
328	Pittosporum undulatum Native Daphne	Mature	5	2	50	Average condition, shape and form. Deadwood throughout canopy. Storm damage. Remove to accommodate proposed development.	
329	Pittosporum undulatum Native Daphne	Mature	5	4	2x50	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	
330	Pittosporum undulatum Native Daphne	Mature	5	3	50	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	
331	Pittosporum undulatum Native Daphne	Mature	6	4	50x2	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
332	Pittosporum undulatum Native Daphne	Mature	5	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
333	DEAD					Remove to accommodate proposed development.	
334	Allocasuarina torulosa Forest Oak	Mature	12	5	200	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Storm damage. Remove to accommodate proposed development.	
335	Glochidion ferdinandi Cheese Tree	Mature	8	2	100	Poor condition, shape and form. Remove to accommodate proposed development.	
336	Grove of 5 Pittosporum undulatum Native Daphne	Mature	6	3	5	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	

337	Pittosporum undulatum Native Daphne	Mature	7	4	1x25 1x50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
338	Pittosporum undulatum Native Daphne	Mature	6	4	1x50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
339	Pittosporum undulatum Native Daphne	Mature	7	4	1x50 2x25	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
340	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	6	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
341	Pittosporum undulatum Native Daphne	Mature	8	6	1x200 1x100	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
342	Pittosporum undulatum Native Daphne	Mature	7	5	2x100 1x50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
343	DEAD					Remove to accommodate proposed development.	
344	Pittosporum undulatum Native Daphne	Mature	6	3	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
345	Pittosporum undulatum Native Daphne	Mature	3	1	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
346	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	6	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
347	Glochidion ferdinandi Cheese Tree	Mature	8	2	100	Average condition, shape and form. Deadwood throughout canopy. Epicormic growth and storm damage. Remove to accommodate proposed development.	
348	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	4	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
349	Ligustrum lucidum Broad Leaf Privet	Mature	9	5	100 50	Average condition, shape and form. Deadwood throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
350	DEAD					Remove to accommodate proposed development.	
351	Pittosporum undulatum Native Daphne	Mature	4	1	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
352	Pittosporum undulatum Native Daphne	Mature	8	4	150	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
353	Pittosporum undulatum Native Daphne	Mature	7	2	75	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
354	Pittosporum undulatum Native Daphne	Mature	6	1	50	Poor condition, shape and form. Remove to accommodate proposed development.	
355	Pittosporum undulatum Native Daphne	Mature	8	4	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
356*	Allocasaurina torulosa					DEAD	

357	DEAD						
358	DEAD						
359	Strelitzia nicholii Giant Bird of Paradise.	Mature	6	6	Multi stem	Good condition, with structure and form typical of the species. Remove	
360	Glochidion ferdinandi Cheese Tree	Mature	8	4	100	Poor condition, shape and form.	
361	Glochidion ferdinandi Cheese Tree	Mature	8	6	250	Average condition, shape and form. Deadwood throughout canopy.	
362	Pittosporum undulatum Native Daphne	Mature	3	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove	
363	DEAD					Remove to accommodate proposed development.	
364	Pittosporum undulatum Native Daphne	Mature	5	3	25	Good condition, with structure and form typical of the species. Remove	
365	Pittosporum undulatum Native Daphne	Mature	10	6	2x100	Average condition, shape and form. Deadwood throughout canopy. Epicormic growth and storm damage. Remove.	
366	Ligustrum sp Small Leaf Privet	Mature	8	6	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
367	Ligustrum lucidum Broad Leaf Privet	Mature	10	6	200 100	Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
368	Pittosporum undulatum Native Daphne	Mature	6	2	25	Average condition, shape and form. Deadwood throughout canopy. Remove	
369	Pittosporum undulatum Native Daphne	Mature	6	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove	
370	Ligustrum lucidum Broad Leaf Privet	Mature	8	4	100	Average condition, shape and form. Deadwood throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
371	Pittosporum undulatum Native Daphne	Mature	8	4	100	Average condition, shape and form. Deadwood throughout canopy. Remove	
372	Pittosporum undulatum Native Daphne	Mature	7	1	25	Good condition, with structure and form typical of the species. Remove.	
373	Pittosporum undulatum Native Daphne	Mature	6	3	25	Good condition, with structure and form typical of the species. Remove	
374	Glochidion ferdinandi Cheese Tree	Mature	7	3	50	Average condition, shape and form. Deadwood throughout canopy. Leave as is.	Retain.
375	Pittosporum undulatum Native Daphne	Mature	7	5	100	Average condition, shape and form. Deadwood and epicormic growth throughout canopy. Remove	
376	Pittosporum undulatum Native Daphne	Mature	6	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
377	Strelitzia sp	Mature	8	4	200	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
378	Pittosporum undulatum Native Daphne	Mature	6	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
379	Pittosporum undulatum Native Daphne	Mature	6	4	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
380	Exotic fruit tree not identified	Mature	7	5	50	Good condition, with structure and form typical of the species.	
381	Pittosporum undulatum Native Daphne	Mature	6	3	150	Poor condition, shape and form. Remove	
382	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	8	Multi stem	Good condition, with structure and form typical of the species. Remove	

383	Pittosporum undulatum Native Daphne	Mature	8	2	50	Good condition, with structure and form typical of the species. Remove	
384	Pittosporum undulatum Native Daphne	Mature	8	3	100	Good condition, with structure and form typical of the species. Remove	
385	Pittosporum undulatum Native Daphne	Mature	7	3	50	Good condition, with structure and form typical of the species. Remove	
386	Ligustrum lucidum Broad Leaf Privet	Mature	9	4	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
387	Pittosporum undulatum Native Daphne	Mature	8	3	50	Good condition, with structure and form typical of the species. Remove.	
388	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	6	Multi stem	Good condition, with structure and form typical of the species. Remove.	
389	Elaeocarpus reticulatus Blueberry Ash	Mature	8	3	100	Good condition, with structure and form typical of the species.	No impact. (Bond for sub CC)
390	Strelitzia nicholii Giant Bird of Paradise.	Mature	9	4	Multi stem	Good condition, with structure and form typical of the species. Remove.	
391	Pittosporum undulatum Native Daphne	Mature	9	6	2x100	Average condition, shape and form. Deadwood throughout canopy. Storm damage. Remove to accommodate proposed development.	
392	Pittosporum undulatum Native Daphne	Mature	4	2	50	Good condition, with structure and form typical of the species. Remove.	
393	Pittosporum undulatum Native Daphne	Mature	5	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove.	
394	Pittosporum undulatum Native Daphne	Mature	5	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove.	
395	Pittosporum undulatum Native Daphne	Mature	5	3	50	Average condition, shape and form. Deadwood throughout canopy. Remove.	
396	Pittosporum undulatum Native Daphne	Mature	5	4	100	Average condition, shape and form. Deadwood throughout canopy. Remove.	
397	Allocasuarina torulosa Forest Oak	Mature	8	5	200	Average condition, shape and form. Deadwood and twig dieback throughout canopy. Vine growing on tree canopy. Leave in.	Retain.
398	Diospyros australis Black Plum	Mature	4	3	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	(Bond for House CC).
399	Diospyros australis Black Plum	Mature	4	9	2x150	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	(Bond for House CC).
400	Syzygium oleosum Blue Lilly Pilly	Mature	10	8	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	
401	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	10	Multi stem	Good condition, with structure and form typical of the species. Remove.	
402	Diospyros australis Black Plum	Mature	10	4	100	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy. Remove to accommodate proposed development.	Retain.
403	Grove of Strelitzia nicholii Giant Bird of Paradise.	Mature	10	15	Multi stem	Good condition, with structure and form typical of the species. Remove.	
404	Ligustrum lucidum Broad Leaf Privet	Mature	5	5	Multi stem	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	

405	Ligustrum lucidum Broad Leaf Privet	Mature	12	6	1x50 2x100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
406	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
407	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	1x150 1x75	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
408	DEAD						
409	Diospyros australis Black Plum	Mature	8	6	3x75	Good condition, with structure and form typical of the species. Retain.	Remove.
410	Ligustrum lucidum Broad Leaf Privet	Mature	10	6	2x400 1x200	Average condition, shape and form. Deadwood throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
411	Ligustrum lucidum Broad Leaf Privet	Mature	10	6	500	Average condition, shape and form. Deadwood throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove.	
412	Senna coluteoides	Mature		3	1	Good condition, with structure and form typical of the species. Invasive of bushland, open spaces and gardens. Remove.	
413	Diospyros australis Black Plum	Mature	7	3	150	Good condition, with structure and form typical of the species.	Significant tree. No impact. (Bond for House CC).
414	Ligustrum lucidum Broad Leaf Privet	Mature	8	5	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
415	Olea europa ssp africana Wild Olive	Mature	5	10	50	Good condition, with structure and form typical of the species. Invasive of bushland, open spaces and gardens. Remove	
416	Pittosporum undulatum Native Daphne	Mature	6	3	100	Average condition, shape and form. Deadwood throughout canopy. Storm damage. Remove.	
417	Pittosporum undulatum Native Daphne	Mature	10	6	200 2x75	Average condition, shape and form. Deadwood throughout canopy. Remove.	
418	Allocasuarina torulosa Forest Oak	Mature	10	3	150	Poor condition, shape and form.	No impact. (Bond for House CC).
419	Ficus rubiginosa Port Jackson Fig	Mature	8	5	300	Good condition, with structure and form typical of the species.	Significant tree. No impact. Do not remove entwined privet as roots interlock. (Bond for House CC).
420	DEAD					Remove to accommodate proposed development.	
421	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
422	Ligustrum lucidum Broad Leaf Privet	Mature	10	3	65	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	

423	Ligustrum lucidum Broad Leaf Privet	Mature	10	2	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
424	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	2x150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
425	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	1x100 1x150	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
426	Pittosporum undulatum Native Daphne	Mature	8	3	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
427	Ligustrum lucidum Broad Leaf Privet	Mature	8	3	50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
428	Ligustrum lucidum Broad Leaf Privet	Mature	8	3	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
429	Ligustrum lucidum Broad Leaf Privet	Mature	8	3	50	Poor condition, shape and form. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
430	Diospyros australis Black Plum	Mature	10	1	100	Poor condition, shape and form. Remove to accommodate proposed development.	
431	Ligustrum lucidum Broad Leaf Privet	Mature	8	2	25	Average condition, shape and form. Deadwood throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
432	Diospyros australis Black Plum	Mature	6	3	75	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
433	DEAD					Remove to accommodate proposed development.	
434	Acmena smithii Lilly Pilly	Mature	6	2	50	Good condition, with structure and form typical of the species. Remove.	
435	Diospyros australis Black Plum	Mature	7	1	25	Average condition, shape and form. Deadwood throughout canopy. Insect attack. Remove to accommodate proposed development.	
436	Diospyros australis Black Plum	Mature	7	2	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
437*	Rapanea variabilis Brush Muttonwood	Mature	8	1	75	Very poor condition, shape and form.	
438	Grove of 6 Ligustrum lucidum Broad Leaf Privet	Mature	10	5	Varies	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
439	Ligustrum lucidum Broad Leaf Privet	Mature	8	4	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
440	Diospyros australis Black Plum	Mature	5	1	500	Poor condition, shape and form. Remove to accommodate proposed development.	

441	Diospyros australis Black Plum	Mature	10	4	100	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
442	Wilkiea huegliana Wilkiea	Mature	3	1	Multi stem	Very poor condition, shape and form. Remove to accommodate proposed development.	
443	DEAD					Remove to accommodate proposed development.	
444	Ligustrum lucidum Broad Leaf Privet	Mature	5	2	50	Poor condition, shape and form. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
445	Ligustrum lucidum Broad Leaf Privet	Mature	7	3	75	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
446	Pittosporum undulatum Native Daphne	Mature	8	5	100	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
447	Pittosporum undulatum Native Daphne	Mature	6	4	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
448	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	5	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
449	DEAD					Remove to accommodate proposed development.	
450	Pittosporum undulatum Native Daphne	Mature	8	6	200	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	
451	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
452	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	10	Multi stem	Good condition, with structure and form typical of the species. Remove.	
453	Ficus coronata Sandpaper Fig	Mature	6	4	50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
454	Pittosporum undulatum Native Daphne	Mature	7	4	150	Average condition, shape and form. Deadwood throughout canopy. Storm damage. Remove to accommodate proposed development.	
455	Ligustrum lucidum Broad Leaf Privet	Mature	8	5	150	Noxious weed, invasive of bushland, open spaces and gardens. Remove	
456	Notelaea longifolia Mock-olive	Mature	4	1	50	Poor condition, shape and form.	
457	DEAD					Remove.	
458	Grove of 2 Strelitzia nicholii Giant Bird of Paradise	Mature	8	8	Multi stem	Good condition, with structure and form typical of the species. Remove.	
459	Acmena smithii Lilly Pilly	Mature	6	3	50	Good condition, with structure and form typical of the species.	(Bond for House CC).
460	DEAD						
461	Diospyros australis Black Plum	Mature	6	2	50	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).
462	Acmena smithii Lilly Pilly	Mature	4	1	150	Very poor condition, shape and form.	(Bond for House CC).
463	Acmena smithii Lilly Pilly	Mature	7	5	150	Good condition, with structure and form typical of the species. Retain..	(Bond for House CC).
464	Pittosporum undulatum Native Daphne	Mature	5	4	200	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	

465	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	8	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
465b*	Elaeocarpus reticulatus Blue Berry Ash						
466	Wilkiea huegliana Wilkiea	Mature	8	3	50	Good condition, with structure and form typical of the species. Retain..	(Bond for House CC).
467	Pittosporum undulatum Native Daphne	Mature	6	5	150	Good condition, with structure and form typical of the species. Remove.	
468	Banksia integrifolia Coastal Banksia	Mature	12	5	200	Good condition, with structure and form typical of the species.	
469	Ligustrum lucidum Broad Leaf Privet	Mature	8	6	Multi stem	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
470	Allocasuarina torulosa Forest Oak	Mature	6	5	Multi stem	Poor condition, shape and form.	
471	Allocasuarina torulosa Forest Oak	Mature	10	3	200	Average condition, shape and form. Deadwood throughout canopy. Remove.	Retain.
472	Grove of 2 Rapanea variabilis Mutton Wood	Mature	3	1	25	Poor condition, shape and form. Remove.	Retain.
473	Ligustrum lucidum Broad Leaf Privet	Mature	7	4	Multi stem	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
474	Grove of 3 Strelitzia nicholii Giant Bird of Paradise.	Mature	8	8	Multi stem	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
475	Allocasuarina torulosa Forest Oak	Mature	8	2	50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	Retain.
476	Allocasuarina torulosa Forest Oak	Mature	3	1	50	Poor condition, shape and form. Remove to accommodate proposed development.	Retain.
477	Allocasuarina torulosa Forest Oak	Mature	7	2	75	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).
478	Ligustrum lucidum Broad Leaf Privet	Mature	10	5	100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
479	Strelitzia nicholii Giant Bird of Paradise.	Mature	10	6	Multi stem	Good condition, with structure and form typical of the species. Remove.	
480	Acmena smithii Lilly Pilly	Mature	10	5	100	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC)
481	Acmena smithii Lilly Pilly	Mature	10	8	Multi stem	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).
482	Banksia integrifolia Coastal Banksia	Mature	12	5	200	Good condition, with structure and form typical of the species.	(Bond for House CC).
483	Acmena smithii Lilly Pilly	Young	5	2	2x25	Average condition, shape and form. Deadwood throughout canopy.	
484	Pittosporum undulatum Native Daphne	Mature	4	3	50	Good condition, with structure and form typical of the species. Remove.	
485	Acmena smithii Lilly Pilly	Mature	7	4	100	Good condition, with structure and form typical of the species.	
486	Allocasuarina torulosa Forest Oak	Mature	8	2	100	Average condition, shape and form. Deadwood throughout canopy.	
487	Pittosporum undulatum Native Daphne	Mature	5	3	2x50	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
488	Glochidion ferdinandi Cheese Tree	Mature	4	3	Multi stem	Good condition, with structure and form typical of the species. Retain..	(Bond for House GC).
489*	Angophora floribunda Rough-barked Apple	Mature	5	3	50 100	Poor condition, shape and form. Retain..	(Bond for House CC).

490	Ligustrum lucidum Broad Leaf Privet	Mature	5	5	2x100	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
491	DEAD	Mature				Remove to accommodate proposed development.	Retain.
492	Notelaea longifolia Mock-olive	Mature	4	2	2x50	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	Retain.
493	Pittosporum undulatum Native Daphne	Mature	3	3	75	Good condition, with structure and form typical of the species. Remove	
494	Pittosporum undulatum Native Daphne	Mature	3	2	50	Good condition, with structure and form typical of the species. Remove	
495	Pittosporum undulatum Native Daphne	Mature	3	1	50	Poor condition, shape and form. Remove.	
496	Glochidion ferdinandi Cheese Tree	Mature	3	2	75	Poor condition, shape and form.	
497	DEAD						
498	Acmena smithii Lilly Pilly	Mature	6	4	100	Good condition, with structure and form typical of the species.	
499	Pittosporum undulatum Native Daphne	Mature	3	2	50	Average condition, shape and form. Deadwood throughout canopy. Remove.	
500	Pittosporum undulatum Native Daphne	Mature	8	3	50	Good condition, with structure and form typical of the species. Remove.	
501	Pittosporum undulatum Native Daphne	Mature	6	4	100	Good condition, with structure and form typical of the species. Remove.	
502	Pittosporum undulatum Native Daphne	Mature	6	4	75	Good condition, with structure and form typical of the species. Remove to accommodate proposed development.	
503	Malus sp Apple Tree	Mature	3	4	Multi stem	Average condition, shape and form. Deadwood throughout canopy.	
504	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	6	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	Remove.
505	Strelitzia nicholii Giant Bird of Paradise.	Mature	8	6	Multi stem	Average condition, shape and form. Deadwood throughout canopy. Remove to accommodate proposed development.	Remove.
506	DEAD						
507	Ligustrum lucidum Broad Leaf Privet	Mature	4	3	Multi stem	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
508	Ligustrum lucidum Broad Leaf Privet	Mature	5	3	Multi stem	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
NOTE: # indicates not tagged at time of assessment – refer to 600 & 700 series							
509#	Allocasuarina torulosa Forest Oak	Mature	7	3	-	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	
510#	Allocasuarina torulosa Forest Oak	Mature	7	3	-	Average condition, shape and form. Deadwood throughout canopy. Thin and sparse canopy.	
511#	Banksia integrifolia Coastal Banksia	Mature	12	4	250	Average condition, shape and form. Deadwood throughout canopy. Dense vine growth on tree canopy.	
512#	Glochidion ferdinandi Cheese Tree	Mature	7	3	150	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy. Sparse crown.	
513#	Glochidion ferdinandi Cheese Tree	Mature	7	4	150	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	
514	Glochidion ferdinandi Cheese Tree	Mature	4	4	100	Average condition, shape and form. Deadwood throughout canopy.	(Bond for House CC).

515#	DEAD						
516#	DEAD						
517	Banksia integrifolia Coastal Banksia	Mature	9	5	300	Fair condition, structure and form typical of the species.	
518	Notelaea venosa Mock Olive	Mature	4	1	<50	Average condition, shape and form. Deadwood throughout canopy. Minor vine growth on tree canopy.	
519	Pittosporum undulatum Native Daphne	Mature	5	4	100	Good condition, structure and form typical of the species. Remove.	
520#	Allocasuarina torulosa Forest Oak	Mature	7	3	Multi stem	Average condition, shape and form. Deadwood throughout canopy.	
521#	Allocasuarina torulosa Forest Oak	Mature	7	4	-	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	
522#	Ligustrum lucidum Broad Leaf Privet	Mature	5	4	Multi stem	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
523#	Glochidion ferdinandi Cheese Tree	Mature	7	4	50		
524#	Banksia integrifolia Coastal Banksia	Mature	7	2	100	Good condition, with structure and form typical of the species.	
525#	Banksia integrifolia Coastal Banksia	Mature	7	3	100	Average condition, shape and form. Epicormic growth.	
527	DEAD						
528	Ligustrum lucidum Broad Leaf Privet	Mature	3	1	50	Good condition, with structure and form typical of the species. Noxious weed, invasive of bushland, open spaces and gardens. Remove	
529	Banksia integrifolia Coastal Banksia	Mature	3	1	50	Good condition, with structure and form typical of the species.	
530	Banksia integrifolia Coastal Banksia	Mature	3	1	50	Poor condition, shape and form.	
531	Acmena smithii Lilly Pilly	Mature	3	2	50	Average condition, shape and form. Deadwood throughout canopy. Vine growing on tree canopy.	
532	Allocasuarina torulosa Forest Oak	Mature	4	3	100	Poor condition, shape and form. Remove to accommodate proposed development.	
600	Allocasuarina torulosa Forest Oak						
601	Allocasuarina torulosa Forest Oak						
602	Eriobotrya japonica Loquat						
603	Glochidion ferdinandi Cheese Tree						
605	Acacia maidenii Maiden's Wattle						
702	Diospyros australis Black Plum						No impact. Retain and protect. (Bond for sub CC)
703	Diospyros australis Black Plum						
704	Diospyros australis Black Plum						
705	Glochidion ferdinandi Cheese Tree						
706	Glochidion ferdinandi Cheese Tree						
707	Allocasuarina torulosa Forest Oak						
708	Allocasauirna torulosa Forest Oak						
709	Elaeocarpus reticulatus Blue Berry Ash						
710	Phoenix canariensis Canary Island Date Palm						

Trees to be retained | Trees to be removed | Trees with potential impacts identified. To be retained and protected.

The following Arboricultural recommendations are implemented prior to and during site development.

Note: Trees previously assessed by PSB (refer to PSB Pre Development Tree Report dated 13.06.01) were located by survey as shown on TP 01 – Tree Location Plan dated 20.11.00 prepared by PSB.

Additional trees assessed as noted on this pre development tree report were identified and tagged on site by the Consulting Arborist. The location of the recently assessed trees are only approximate.

PSB accepts no warranty or guarantee for the inaccuracies of tree locations.

Arboricultural Recommendations

ARBORICULTURAL RECOMMENDATIONS

The recommendations are intended to minimise the impact of construction on the trees to be retained.

General

The Applicant is advised to engage the services of a qualified and experienced Arborist to fell and grind out stumps of all trees nominated for removal and when working within the dripline of the trees recommended for retention.

Hand digging shall occur in sensitive areas ie within primary root zone. It is inevitable that some damage will occur but this may be kept to a minimum if close liaison on a daily basis is maintained during the excavation and construction works between Builder and Arborist. No filling or compaction shall occur over tree roots within the primary root zone unless approved by the Arborist.

Paving Near Trees

Adopt landscape paving within the primary root zone i.e. paving laid over drainage cell or permeable eco pavers laid on bedding sand so as to retain maximum infiltration of rainfall.

Protective Fencing

Trees and vegetation to be retained throughout the site must be protected by stout fencing or have trunk protection installed, enclosing a sufficient area so as to prevent damage to the critical root zone and trunk. Fencing should be erected before any materials are brought on the site or before any site, civil works or construction is commenced and shall remain for the duration of the building works. The fences should be erected to enclose the primary root zone, **where practicable.** Primary root zone = DCH x 9 (Diameter at Chest Height) expressed as a radius from the trunk.
The fence should comprise:

- 2.1m high steel star pickets, driven 0.4m into the ground.
- Run three strands of fencing wire through top, central and lower positions of pickets.
- Fix ring lock wire mesh to full height of fence (approx 1.7m) to stranded wires already in place through star pickets.
- Fix orange safety mesh to ring lock mesh to full height of fence.
- No storage of building materials, tools, paint, fuel or contaminants shall occur within the fenced area.
- Ropes or ties should not be attached to any part of the trees.

Advise contractors and visitors to the site of the purpose for fencing and protecting the trees by the placement of suitable warning signs on all protective fences throughout the site.

Mulch
Mulch entire ground surface beneath drip line with Forest Blend Organic Mulch to a depth of 100mm.

Trunk Protection
Where space does not permit the placement of protective fencing install trunk protection. Trunk protection shall be by the placement of 2.0 metre lengths of 50 x 100mm hardwood timbers spaced at 150mm centres and secured by 10 gauge wires on steel straps at 300 centres. Place hessian padding to ends of battens to prevent damage to bark. The trunk protection shall be maintained intact until the completion of all work on site.

Ground Protection
Where construction occurs close to or beneath the drip line of trees to be retained it shall be necessary to install protection to avoid compaction of the ground surface, lateral and absorbing roots. This protection can be by way of planks supported clear of the ground fixed to scaffolding.

Where machinery is used close to or beneath the dripline of trees to be retained the ground is to be protected by way of an elevated timber platform support clear of the ground on horizontal timber planks.

Site Services
Underground services/utilities, where possible, should be designed to use common trenches to reduce adverse impact on trees.

Trenching for installation of underground services and the like
Avoid open trenching and excavation within the primary root zone and beneath the dripline of trees to be retained.

To minimise damage to tree roots and to avoid open trenches that expose and damage lateral and feeding roots, adopt directional or thrust boring to achieve invert levels of utility services to be installed.

Excavation associated with the storm water discharge/control pits within the primary root zone shall be hand excavated to minimise any unnecessary adverse impact on tree roots.

No tree(s) to be removed or pruned unless written approval/permit is granted by Council.

Irrigation
Install a temporary irrigation to all trees to be retained so that during periods of little or no rainfall water can be applied at the rate of 30mm per week so as to maintain adequate soil moisture levels.

Site Access and Site Establishment
Site access, site sheds and internal construction access paths shall be placed clear of the dripline of all trees to be retained. Stockpiling and storage of materials shall not be within the dripline of trees to be retained.

Tree Work/Pruning
All felling, pruning and root removal to be carried out in accordance with AS4373 – Pruning of Amenity Trees. Works to be carried out by a fully insured, qualified and experienced Arborist.

No tree(s) to be removed unless written approval/permit is granted by Council.

Selena Hannan MAIH Assoc Dip Appl.Sc (Landscape)
Horticulturist
Landscape Technician

LANDSCAPE WORKS SPECIFICATION

Raypond Development

1148-1152 Barrenjoey Road
PALM BEACH NSW 2108

prepared
for

Raypond Development

Pittendrigh Shinkfield
& Bruce Pty Limited

Landscape Architecture

26 June 2001
PSB 00137

QA.2-09(1)/I

LANDSCAPE WORKS SPECIFICATION

CONTENTS

SUBSECTION 1.00 GENERAL 3
1.01 SCOPE 3
1.02 APPROVED SUPPLIERS 3
1.03 ORDERING 3
1.04 INSPECTION 3
1.05 STANDARDS 3

SUBSECTION 2.00 SITE MANAGEMENT AND SITEWORKS 3
2.01 WORK NEAR TREES 3
2.02 VEGETATION TO BE REMOVED 4
2.03 SITE CLEARING 5
2.04 TREE SURGERY 5
2.05 WEED ERADICATION 5
2.06 SITE SOIL 5
2.07 SPOIL 6
2.08 ROCK WORK 6
2.09 SUBSOIL 6
2.10 SUBSOIL DRAINAGE 7
2.11 TOPSOIL 7
2.12 WEED MAT 8
2.13 REINSTATEMENT 8

SUBSECTION 3.00 MATERIALS AND WORKMANSHIP 9
3.01 FERTILISER 9
3.02 MULCH 9
3.03 PLANTS 9
3.04 STAKES AND TIES 12
3.05 EARTH ANCHORS 12
3.06 SPRAYING 12

SUBSECTION 4.00 EDGING 12
4.01 SAWN TIMBER 12

SUBSECTION 5.00 ANCILLARY STRUCTURES 13
5.01 PLANTER BOXES 13

SUBSECTION 6.00 ESTABLISHMENT 13
6.01 SCOPE 13
6.02 REQUIREMENTS 13
6.03 PLANTING 13
6.04 GARDEN BEDS 14
6.05 WEED MATS 14
6.06 WATERING 14

SUBSECTION 1.00 GENERAL

1.01 SCOPE

SPECIFIED IN THIS SECTION:

- Siteworks, including soil testing and soil amelioration.
- Softworks including plant and other materials, planting works, planting establishment, mulch and edgings.

1.02 APPROVED SUPPLIERS

REQUIREMENT: Select from the following schedule the suppliers of materials.

APPROVED SUPPLIERS SCHEDULE:

Item	Approved firms
Soil	Warringah Gravel and Stone Supplies Crozier Road, Belrose 0425 282 206

1.03 ORDERING

REQUIREMENT: Within 28 days of the date of acceptance of tender, furnish proof of ordering the required materials, and advise immediately if any supply difficulties are encountered. No extension of time or cost variation will be granted if any material or product is not available because of late ordering.

1.04 INSPECTION

NOTICE: Give sufficient notice so that inspection may be made of the following:

- Sub-grades cultivated and/or prepared prior to placing topsoil, paving materials and footings.
- Setting out completed.
- Tree holes excavated and prepared for planting.
- Plant staking and tying completed.
- Upon Practical Completion.
- Upon completion of Plant Establishment work.
- Upon completion of Defects Liability work.

Minimum notice required: Shall be forty-eight (48) hours.

1.05 STANDARDS

REFERENCED DOCUMENTS: The following standards are referred to in this project specification:

- AS 1289 Methods of testing soils for engineering purposes
- AS 1604 (1993) Preservative treatment for sawn timber, veneer and plywood
- AS 1608.1 (1974) Softwood timber
- AS 1744 (1975) Standard alphabets for road signs
- AS 2057 (1986) Chemical treatment of soils.
- AS 2990 (1987) Quality systems for engineering and construction projects
- AS 3705 (1990) Geotextiles – identification, marking and general data
- AS 3798 (1990) Guidelines on earthworks for commercial and residential developments
- AS 4419 (1981) Soils for landscaping and garden use
- AS 4373 (1996) Pruning of amenity trees
- AS 4454 (1997) Composts, soil conditioners and mulches

SUBSECTION 2.00 SITE MANAGEMENT AND SITEWORKS

2.01 WORK NEAR TREES

GENERAL: All existing trees which are to remain undisturbed are indicated on the drawings and shall be adequately protected for the duration of the contract as specified.

REQUIREMENTS: Storage of materials, mixing of materials, vehicle parking, disposal of liquids, machinery repairs and refuelling, site office and sheds, and the lighting of fires, stockpiling of soil, rubble or any debris shall not be carried out within the dripline of existing trees. No excavation or backfilling shall occur within the dripline of existing trees. Trees shall not be removed or lopped unless specific instruction is given in writing by the Superintendent. Should a tree or trees listed for retention, be damaged or removed without prior consent in writing, a penalty will be applied. All tree protection works shall be carried out before excavation, grading and site works commence.
PROTECTION: Protect trees specified or shown to be retained from damage by groundworks with temporary fencing. Take necessary precautions, including the following:

- Harmful materials: Do not store or otherwise place bulk materials and harmful materials under or near trees. Do not place spoil from excavations against tree trunks. Prevent wind-blown materials such as cement from harming trees and plants.
- Damage: Prevent damage to tree bark. Do not attach stays, guys and the like to trees.
- Work under trees: Do not add or remove topsoil within the drip line of trees. If it is necessary to excavate within the drip line, use hand methods such that root systems are preserved intact and undamaged. Open up excavations under tree canopies for as short a period as possible.
- Roots: Do not cut tree roots exceeding 50 mm diameter unless permitted. Where it is necessary to cut tree roots, use means such that the cutting does not unduly disturb the remaining root system. Immediately after cutting, the tree should be watered and treated with a liquid rooting hormone to stimulate production of new roots. Examples include Formula 20 ® or Hormone 20 ®.
- Backfilling: Backfill to excavations around tree roots with a mixture consisting of three parts by volume of topsoil and one part of well rotted compost with a neutral pH value, free from weed growth and harmful materials. Place the backfill layers, each of 300 mm maximum depth, compacted to a dry density similar to that of the original or surrounding soil. Do not backfill around tree trunks to a height greater than 300 mm above the original ground surface. Immediately after backfilling, thoroughly water the root zone surrounding the tree.
- Compacted ground: Avoid compaction of the ground under trees. If compaction nevertheless occurs, for example from the operation of heavy constructional plant, notify the Superintendent and obtain their instructions.

WARNING SIGN: Display a sign in a prominent position at each entrance to the site, warning that trees and plantings are to be protected during the currency of the Contract. Lettering shall be road sign type sans serif letters, 100 mm high, in red or black on a white background, to AS 1744. Remove sign on completion of works.

2.02 VEGETATION TO BE REMOVED

DESCRIPTION: Refer to drawings L03, L04, L05 & L06.
MARKING: Mark trees to be removed with a brightly coloured surveyors ribbon securely fixed to the tree trunk approximately 1000mm above ground level. All other trees are to be retained for the duration of the works.
WORK ON TREES: If it is necessary to perform any work on trees to be retained, notify Superintendent.
REPAIR: Should existing trees to be retained be damaged by the works, make good any damage and undertake tree surgery. All work shall be carried out under the supervision of an approved tree surgeon.
REMOVAL: If repair work is impracticable, or is attempted and is rejected, remove the tree and root system if directed, make good, and either replace the tree with a replacement tree of the same species and similar size, or pay damages.
DAMAGES: If replacement is not approved, pay, for any tree removed pursuant to the above, damages assessed as the cost of replacement. If replacement with a smaller tree is permitted, pay damages assessed as the difference between the replacement costs of the smaller and larger trees up to the limit of: ($) No limit.

2.03 SITE CLEARING

REQUIREMENT: Clear only the site areas to be occupied or affected by the Works.
CLEARING OPERATIONS: Remove everything on or above the site surface, including rubbish, vegetable matter and organic debris, scrub, timber, stumps, boulders, rubble, and the like including:

- Grubbing: Grub out stumps and roots over 75 mm diameter to a minimum depth of 500 mm below subgrade under buildings, embankments, or paving, or 300 mm below finished surface in unpaved areas.
- Old works: Remove old slabs, foundations, pavings, drains, accessholes and the like found on the surface.
- Existing grass: Remove existing grass to a depth just sufficient to include the root zone.

CONTRACTOR'S SITE AREAS: If not included within the areas specified above, clear generally only to the extent necessary for the performance of the Works.
MULCH: Put approved cleared vegetation through a chipper. Reduce to pieces not larger than 75 x 50 x 15 mm and stockpile for re-use as specified in MULCH.

2.04 TREE SURGERY

GENERALLY: Employ a qualified tradesperson skilled in arboricultural techniques to carry out tree surgery work required to maintain trees on site. Carry out all required works in a safe and progressive manner.
NOTICE: Give sufficient notice prior to commencing tree surgery.
REQUIREMENTS: Comply with the recommendations of AS 4373.
OPERATIONS: Remove dead and decayed wood or limbs that have been broken. Make all cuts into live wood. If the trees show signs of deterioration after the work has been done, carry out a program of feeding or soil amelioration such as soil aeration, irrigation or incorporation of organic material. Continue this program until the end of the Planting Establishment Period.
ROOT PRUNING: Do not unduly disturb the remaining root system. Damaged roots shall be cut off cleanly inside the exposed or damaged area. Cover exposed root area with soil immediately. Do not leave roots exposed. Formation of a water collecting basin should be undertaken along with application of rooting hormone "Formula 20 ®" and wetting agent to rootball to ensure wetting and to stimulate new root production.
PRECAUTIONS: Avoid damage to trees being treated or to nearby trees and surroundings. Do not use trees as anchors for winching operations or bracing. Provide bracing as necessary before cutting to prevent uncontrolled breakages and damage to surroundings.
DRESSING: Prevent incursion of rot or disease after cutting.

2.05 WEED ERADICATION

REQUIREMENT: Eradicate weeds to the landscaped areas of the site (bush regeneration and revegetation zones to be weeded as directed by GIS Environmental Consultant's Report) by environmentally acceptable methods using a non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate. Regularly remove, by hand, rubbish and weed growth that may occur or recur throughout grassed, planted and mulched areas. Continue eradication throughout the course of the Works and during the Planting Establishment Period.

2.06 SITE SOIL

REQUIREMENT: Remove site soil suitable for landscape purposes from site areas to be occupied or affected by works such as buildings, paving, excavations, embankments, regrading, and the like.
DEFINITIONS: Site soil shall be soil or rock excavated from the site which when crushed, tested and additives applied can support plant life and be defined as medium to coarse (sandy loam) or equivalent which complies generally with the texture classifications and typical uses of AS 4419 and is free from unwanted matter such as:

- stones over 75mm diameter;
- clay lumps over 75mm diameter;
- weeds and tree roots greater than 75mm in size;

- sticks and rubbish;
- material toxic to plants; and

has been reviewed and analysed by the Contractor to ascertain topsoil quality prior to reuse on site as planting soil medium.
STOCKPILING: Stockpile site soil approved for re-use offsite at a suitable venue to also undertake testing and additive works. Establish stockpiles to sizes and in locations as directed, to heights not exceeding 1.5 m. Provide adequate drainage and erosion protection. Do not burn off or remove plant growth which may occur during storage. Do not allow traffic on stockpiles. Protect stockpile from contamination by other excavated material, weeds and building debris. If a stockpile is to remain for more than four weeks, sow with temporary grass.
TESTING: Geotechnical investigation shall be carried out by the Contractor of site soil at regular 500m intervals in accordance with AS 4419 – Appendix D-I or stockpiled site soil to determine contaminants, nutrient levels, balance of organic matter content and dispersion of existing soils, with reporting to be in accordance with the relevant sections of AS 1289 using only NATA registered laboratories. Do not proceed with works that impact upon the site soils until tests are satisfactorily completed and approval of the Superintendent has been given. Should site soils be found to contain contaminants, have an unbalanced nutrient ratio or to be dispersive, notify the Superintendent and await instruction of site topsoil additive and/or removal works.
CONTAMINATION: Where diesel oil, cement or other phytotoxic material has been spilt on the site topsoil, excavate the contaminated soil, dispose of it off the site.

2.07 SPOIL

OFF SITE DISPOSAL: Remove the following surplus excavated material from the site:

- Excavated material not re-usable as topsoil, filling, mulch, or the like.
- Debris resulting from site clearing.

BURNING: Do not burn on site.

2.08 ROCK WORK

REQUIREMENT: Protect existing rock, rock shelves and rock outcrops from mechanical damage, surface defacement and other works.
PROTECTION: Protect existing rock, cliff faces, rock shelves and rock outcrops from mechanical damage and surface defacement.
BOULDERS: Sandstone rock boulders excavated as part of the works, ranging in size from 500x500mm to 1000x 700mm face dimensions shall be retained onsite for use in landscape wall construction works.
PLANTED TREATMENT: To nominated existing exposed vertical rock faces to house No. 4 allow to fix a heavy duty biodegradable weed mat as detailed.

2.09 SUBSOIL

PREPARATION: Remove all weeds, roots, builder's rubbish and other debris.
EXCAVATION: Excavate to bring subsoil to a minimum of 300 mm below finished design levels. Shape the subsoil to fall to subsoil drains where applicable. Break up the newly excavated subsoil surface to a further depth of 100 mm. Should subsoil base be rock, excavate rock as necessary to ensure adequate drainage.
CULTIVATION: Cultivate non rock subsoil to all planting areas to a depth of 100mm. Do not disturb services or tree roots; if necessary cultivate these areas by hand. During cultivation, thoroughly mix in any materials required to be incorporated into the subsoil. Cultivate manually within 300 mm of paths or structures. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and any weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to the required design levels after cultivation.
TESTING: Geotechnical investigation shall be carried out in accordance with AS 4419 – Appendix D-I to determine contaminants, nutrient levels and dispersion of existing subsoils, with reporting to be in accordance with AS 1289 and using only NATA registered laboratories. Do not proceed with work subject to testing until tests are satisfactorily completed and approval of the Superintendent has been given.

Should subsoils be found to contain contaminants, have an unbalanced nutrient ratio or to be dispersive, allow to incorporate additives, as required for compliance with the relevant geotechnical investigations report test criteria of AS 1289 and earthworks guidelines of AS 3798.
ADDITIVES: Apply additives into the upper 100 mm layer of the subsoil during cultivation and apply at the manufacturer's recommended rates.
CHEMICAL TREATMENTS: Once formed, treated soil barriers should not be bridged by landscape construction and/or planting works. Where such works are intended, or have occurred, action must be taken in accordance with AS 2057 to maintain or restore the chemical barrier.

2.10 SUBSOIL DRAINAGE

REQUIREMENT: Install subsoil drains to rear of all landscape and/or planter box walling to intercept ground water seepage and prevent surface water build up. Connect subsoil drains to surface drains or to stormwater drainage system as applicable.
MATERIALS: For all subsoil drainage the materials shall be:

- Materials:
  - Drainage Line: Shall be perforated plastic piping 100mm diameter. Joints, couplings, elbows, tees and end plugs shall conform to the manufacturer's specification.
  - Sand: Shall be clean, coarse, washed river sand, free from deleterious material including soluble salts or other contaminants. Particle size distribution shall not be more than 30% passing 0.30mm sieve, maximum particle size 4.75mm.
  - Filter fabric: Filter fabrics for use in subsoil drains shall be to AS 3705 and be either:
    - Terram 700 by Nylex Co Pty Ltd
    - Propex 4545 by Humes Concrete
  - Drainage aggregate: Shall be 20mm blue metal.
- Installation:
  - Subsoil trench drains shall be excavated to the required line to a depth as shown on the Drawings or as directed by the Superintendent. Provide adequate clearance for the proper laying and jointing of pipes, plastic piping may be laid in trenches of minimum width of 300mm. The grade of the bottom of the trench shall be minimum 1:100 with pipes laid to the required line and grade, bedded with drainage aggregate, backfilled and connected to stormwater.
  - Trenches shall be backfilled with drainage aggregate and wrapped in filter fabric. The aggregate shall extend from the bottom of the trench to within 300mm of the surface. The top 300mm shall be coarse sand.

2.11 TOPSOIL

GENERALLY: Topsoil shall be either site topsoil raised to the appropriate standard by the use of specified additives or imported topsoil obtained from an approved off-site source and consisting of a mixture of nominated ingredients.
DEFINITIONS:

- Site topsoil: Refer SITE SOIL.
- Imported topsoil: Shall be Benedicts W117.

TESTING: Take samples of all imported topsoils and/or site soils as recommended in AS 4419 and test to the methods in AS 4419 Appendix D-I, or AS 3743 – Appendix D-G, as applicable providing the Superintendent with a certificate noting test results.
PLACING: Eradicate weeds by environmentally acceptable methods prior to placing topsoil, using a non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate. Place the appropriate topsoil on the prepared subsoil. Spread and grade evenly, making the necessary allowances so that the required finished levels and contours may be achieved after light compaction; and

TOPSOIL SCHEDULE:

Location	Type	Composition	Depth
Planting	Site soil	Site topsoil blended with organic admixture as determined by testing results.	300mm
	or		
	Imported topsoil	80% crushed sandstone 20% compost	300mm as necessary to achieve topsoil quantities once site soil has been used.
	or		
	Sub Soil	100% crushed sandstone	Below planting at varied depths

COMPACTION: Prevent areas of excess compaction from being caused by constructional plant. Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and produce a finished topsoil surface which is:
- at design levels;
- smooth and free from stones or lumps of soil;
- graded to drain freely, without ponding, to catchment points;
- graded evenly into adjoining ground surfaces; and
- ready for planting.

CONTAMINATION: Where diesel oil, cement or other phytotoxic material has been spilt on the topsoil, excavate the contaminated soil, dispose of it off the site, and replace it with the appropriate topsoil, as directed, to restore design levels.
SURPLUS TOPSOIL: Dispose of surplus topsoil to designated areas on site, if any; otherwise, dispose off site.

2.12 WEED MAT

MATERIAL:
- Mesh: Biodegradable fibre reinforced with lightweight polymer mesh. Use lightweight material for seeding, medium or heavy weight material for planting.
- Pegs: Shall be u-shape galvanised 10mm diameter steel, minimum 450mm long.
- Laying: Spread 50mm mulch as specified. Lay mesh over mulch. Uphill strips shall overlap lower and adjacent strips by 100mm. Peg in position with pegs as specified. Mesh shall be neatly cut to plant groundcovers and other plant materials. Where the cut hole exceeds 150mm, it is to be stitched with the matching twine to fully constrain the mulch. Top with 25mm mulch.

INSTALLATION: Plant after matting is installed, where planting is required. Peg the matting into 300 x 300 mm anchor trenches at top and bottom using U-shape galvanised steel, at 1000 x 1000 mm intervals generally, 250 mm at overlaps, backfill the trenches with soil and compact.
MATTING OVERLAY SCHEDULE:

Location	Proprietary Item	Type/Weight	Thickness
As indicated on Drawings L03, L04, L05 & L06	'Fibremulch' Weedmat as available from Total Erosion and Pollution Control.	Super heavy coconut fibre matting blanket	18mm

2.13 REINSTATEMENT

REQUIREMENT: Where existing ground surfaces are not required to be varied as part of the Works, restore them to the condition existing at the commencement of the work under the Contract.
BACKFILLING: Backfill to excavations within landscape areas with a mixture consisting of three parts by volume of coarse sand and blacksoil and one part of well rotted compost with a neutral pH value, free from weed growth and harmful materials. Place the backfill layers, each of 300 mm maximum depth, compacted to a dry density similar to that of the original or surrounding soil. Do not backfill around tree trunks to a height greater than 200 mm above the original ground surface. Immediately after backfilling to existing trees, thoroughly water the surrounding root zone.

SUBSECTION 3.00 MATERIALS AND WORKMANSHIP

3.01 FERTILISER

REQUIREMENT: For all planting areas provide proprietary fertilisers, delivered to the site in sealed bags marked to show manufacturer or vendor, weight, fertiliser type, N:P:K ratio, recommended uses and application rates. Use in accordance with the manufacturer's recommendations.

FERTILISER SCHEDULE:

Proprietary Item	N:P:K ratio	Application rate	Location
Aboska Native Plant Food	8:1:5	50g/m²-sand	native plants

3.02 MULCH

GENERALLY: Use mulch to AS 4454 which is free of deleterious and extraneous matter such as soil, weeds, sticks and stones.

PLACING MULCH: Place mulch to the required depth, clear of plant stems, and rake to an even surface flush with the surrounding finished levels. Spread mulch so that after settling, or after rolling, it is:

- smooth and evenly graded between design surface levels;
- flush with adjacent finished levels;
- of the required depths; and
- sloped towards the base of plant stems in plantation beds, but not in contact with the stem (not closer than 50 mm in the case of gravel mulches).

MULCH SCHEDULE:

Type	Description	Location	Depth
Site Mulch	Approved vegetative material (which may include leaf matter and tree loppings from site trees nominated for removal, but not privet, camphor laurel, coral tree, poplar, willow, or noxious weeds), processed through a chipper to pieces not larger than 75 x 50 x 15 mm.	To all planted areas	75mm
Brush Clippings and Leaf Litter	Approved vegetative material (which may include leaf matter and tree loppings from Eucalyptus, Tristania, Pinus or other suitable species, but not privet, camphor laurel, coral tree, poplar, willow, or noxious weeds), processed through a chipper to pieces not larger than 75 x 50 x 15 mm.	To all planted areas	75mm

3.03 PLANTS

GENERALLY: Supply plants which:

- have large healthy root systems, with no evidence of root curl, restriction or damage;
- are true to type;
- have foliage size, texture and colour consistent with that shown in healthy specimens of the species;
- have pests and disease to < 10% of the foliage, such that potential for long term success of the trees is not affected;
- other than tubestock shrubs or small trees are self-supporting unstaked;
- comply with the recommendations of AS 4373;
- are vigorous, well established, free from disease and pests, of good form consistent with the species or variety; and
- are hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site unless required to be multi-stemmed, are trees with a single leading shoot.

PLANT MATERIALS REQUIREMENTS:

- Plant heights to be measured from top of rootball to top of foliage except for palms which shall be measured from top of root ball to underside of first palm fronds.
- Calliper to be measured 200mm above base of rootball top, adjacent to and perpendicular to bole.
- Supply trees with extension growth consistent with that shown in vigorous specimens of the species.
- Maximum variation in crown bulk on opposite sides of stem axis: ±20%.
- Supply trees which have a defined central leader and intact apical bud.

SUBSTITUTIONS: Make no substitutions. Should plant material specified be unavailable then the Contractor shall inform the Superintendent in writing with available substitutions for approval.

LABELLING: Label at least one plant of each species or variety in a batch with a durable, readable botanical tag.

REPLACEMENTS: Order sufficient quantities to allow for plant failures. Using plants of the same type, quality and size, replace any plants which are damaged whilst being transported to the site or during the work under the Contract, or which fail or are rejected.

STORAGE: Deliver plant material to the site on a day to day basis, and plant immediately after delivery. If this is not possible, keep the plants in good condition on the site, adequately protected from frost, wind, sun and vermin by appropriate storage methods, including an on-site nursery of sufficient size, with provision for watering the stock. Before proceeding, submit a site storage proposal. Do not store plants on site unless authorised.

POTTING-ON: Do not carry out potting-on unless authorised.

PLANT CONTAINERS: Supply plants in weed-free containers of the required size. Where appropriate to the species, variety, size, and time of year for planting, trees may be supplied as open rooted stock. If this is intended, submit proposal prior to supply.

PLANT SIZE DEFINITIONS: Nominated plant heights are indicative only and are subject to variation in accordance with the natural growth habit of each species.

- **Groundstock:** Shall be plant materials sourced from locations where these plant species are grown in 'natural' ground conditions i.e. non-containerised nursery stock. All groundstock plant materials are to provide maximum initial impact at time of installation. It shall be the contractors responsibility to source, photograph and secure all such plant material subject to the requirements of this specification and ensure that all nominated groundstock specimens meet the minimum requirements as stipulated in PLANT SCHEDULE. Photographs are to be submitted to the Superintendent for approval prior to placing orders for stock.
- **100 Litre:** Shall be in container sizes minimum 100 litre and shall have a well developed straight clean stem minimum calliper 38mm. Trees shall be well shaped with a densely foliaged crown with an approximate height of three (3) metres.
- **75 Litre:** Shall be in container sizes minimum 75 litre (550 x 500mm pot or equivalent plastic bag) and shall have a well developed straight stem with a minimum calliper of 25mm. Trees shall have an approximate height of two (2) metres.
- **35 Litre:** Shall be in container sizes minimum 35 litre (350 x 380mm pot or equivalent plastic bag) and shall have a well developed straight stem, minimum calliper of 18mm with an approximate height of 1200mm.
- **25 Litre:** Shall be in container sizes minimum 25 litre (305 x 343mm pot or equivalent plastic bag) and shall have a well developed straight stem, minimum calliper 18mm with an approximate height of 1000mm.
- **15 Litre:** Shall be in container sizes minimum 15 litre (300 x 230mm pot or equivalent plastic bag) with an approximate height of 900mm.
- **5 Litre:** Shall be well established container grown plants with a single leading shoot well furnished with buds and leaves with an approximate height of 450mm. Container size shall be 200 x 240mm pots, 203 x 229mm plastic bags or equivalent 5 litre containers.
- **150mm:** Shall have a strong primary shoot with developing secondary shoots.
- **Grow tubes:** Shall be tubes 100mm x 75mm size with a strong leading shoot. Plants shall not be overgrown and leggy.

- **Cell**: Shall be 30 x 30mm, 50 x 50mm or 50 x 70mm size cell with strong root development and strong developing primary and secondary shoots. Sizes of cells shall have a square profile which allows for roots to grow straight down, not to be entwine around the walls of the cell and encourages air trimming. Cells shall be treated with transplant enhancer and hardening off agent and grown to nursery and horticultural standard specifications.

LOCATIONS: Do not vary the plant locations from those required. If it appears necessary to vary the locations and spacings to avoid service lines, or to cover the area uniformly, or for other reasons, apply for directions.

PLANTING CONDITIONS: Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

PLANTINGS: Excavate planting hole twice the diameter of the plant root ball and at least 100 mm deeper than the root ball. Break up the base of the hole to a further depth of 100 mm, and loosen compacted sides of the hole to prevent confinement of root growth.

MASSED PLANTED AREAS:

- Watering: Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress.
- Placing: When the hole is of correct size, and not before, remove the plant from the container with minimum disturbance to the root ball, ensure that the root ball is moist and place it in its final position, in the centre of the hole and plumb, and with the top soil level of the plant root ball level with the finished surface of the surrounding soil.
- Fertilising: In planting beds and individual plantings, place fertiliser pellets around the plants at the time of planting, at the rate recommended by the manufacturer.
- Backfilling: Backfill with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure that topsoil is not placed over the top of the root ball, so that the plant stem remains the same height above ground as it was in the container.
- Containers: Collect empty plant containers daily during planting operations and remove or store on site for later removal if permitted, but ensure they are not able to be scattered by wind or other causes.

CELL PLANTING:

- Description: Grassland areas are to be established by cell planting using cells obtained from a specialist grower which have been treated with 45 Plus growth regulator hardening off agent at least 2 weeks prior to dispatch and no more than 8 weeks prior to dispatch. Further, each cell must be hardened off at least 4 weeks prior to dispatch, treated with AA300 transplant enhancer and pre-fertilised with a mild liquid fertiliser prior to dispatch. All cells must be planted within 10 days of delivery otherwise they must be treated with AA300 again by the supplier.
- Preparation: To cleared areas specified for planting with cell plant material, apply two (2) applications of knockdown residual herbicide as specified in WEED ERADICATION. Two (2) weeks following final herbicide application spray to all areas 'Ronstan' pre-emergent herbicide, in accordance with manufacturers recommendations.
- Planting: Prior to planting, water the entire planting area ensuring it has received a soaking to a depth of 100mm. Using custom made manual or machine planting drills prepare planting holes to nominated centres and plant cell plant material ensuring that neither root ball or shoots are damaged.
- Mulch: To all areas nominated for cell planting lay a 75mm thick mulch layer of composted material or leaf litter as specified.
- Protection: Protect newly planted cell areas against traffic for the full duration of the Plant Establishment Period with temporary fencing as specified in TEMPORARY FENCING.
- Watering: Water the planted area a minimum three (3) times over the first month after planting, ensuring the topsoil is moistened to a minimum depth of 100mm.
- Weeding: Remove weeds that occur in newly planted areas by hand. Where necessary and, with prior approval from Superintendent, spray with a selective herbicide for broad leafed weeds, to manufacturer's recommendations. Do not spray within three months of planting.

- Replanting: Allowance is to be made for continual replanting of bare areas over the entire period of planting establishment.
- Mowing: Slash grassland to a height of 200-250mm once a year in the first week of May, or as directed the Superintendent. Leave cuttings on the ground to break down, form a mulch surface and provide a seed base.

PLANT SCHEDULE: TBA.

3.04 STAKES AND TIES

STAKES: Durable hardwood, straight, free from knots or twists, pointed at one end. Drive stakes into the ground a minimum one third of their length, avoiding damage to the root system.

STAKE SIZES:

- For 100 litre trees or greater provide three 50 x 50 x 2400 mm stakes per plant.
- For 75 litre trees provide two 50 x 50 x 1800 mm stakes per plant.
- For 15-35 litre trees provide one 38 x 38 x 1200 mm stake per plant.

TIES: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant.

TIE TYPES:

- For 100 litre trees or greater provide: Two strands of 2.5 mm galvanised wire neatly twisted together, passed through reinforced rubber or plastic hose, and installed around stake and stem in a figure of eight pattern.
- For 15-75 litre trees provide: 50 mm hessian webbing stapled to the stake.

3.05 EARTH ANCHORS

REQUIREMENT: Provide temporary support to nominated trees and palms using galvanised steel cables attached to proprietary aluminium anchors or drive rods which have been hand or power driven at an angle into the ground and securely fixed. Ensure fixing to tree and palm trunks is both soundly and safely positioned with all due care given to ensuring trunks are protected from future cable damage.

EARTH ANCHOR SCHEDULE:

Species	Proprietary anchor type
Livistona australis 2m and 4m trunks	Duckbill Systems as appropriate for size of palms

3.06 SPRAYING

REPORTING: Immediately report any evidence of insect attack or disease amongst plant material.

SPRAYING: Where required, spray with insecticide, fungicide or both in accordance with the manufacturers' recommendations. Submit proposal and obtain approval before starting this work.

SUBSECTION 4.00 EDGING

4.01 SAWN TIMBER

LOCATION: As shown on drawings L03, L04, L05 & L06.

MATERIAL: Sawn hardwood of Durability Class 1 as defined in Appendix D of AS 1604 or CCA treated softwood.

SIZE: 3000 x 100 x 25mm nominal edgings; 50mm square pegs, 400mm long.

INSTALLATION: Set edgings flush with adjoining surfaces to define planting, grass areas, pathway edges, junction between property planting and Council grassed verge, property boundary or all. Fix to pegs with galvanised nails, two per fixing. Drive pegs into the ground at 1200mm centres on the planting side of the edging and on both sides of joints between boards, with peg tops 15mm below top of edging.

CURVING: Where the timber edge is to be curved, space the pegs to hold it to a uniform curve. Reduce edging thickness to 15mm if required to enable it to be bent.

SUBSECTION 5.00 ANCILLARY STRUCTURES

5.01 PLANTER BOXES

REQUIREMENT: To planter boxes built on top of rock throughout the project as shown on drawings, allow to provide subsoil drainage and topsoil and mulch, as well as plant material as specified.

SUBSECTION 6.00 ESTABLISHMENT

6.01 SCOPE

GENERALLY: Establishment of all works executed under this contract shall include the following items as a minimum. The contractor shall maintain the contract areas for a set period after the date of Practical Completion, with any maintenance of the works prior to the date of Practical Completion not to be included as part of this period.
PRACTICAL COMPLETION: Practical Completion of all works shall include, but not be limited to, the installation and fixing in place of walling works, replacement of plants which have failed and/or died, been damaged or been stolen during the Contract.
PLANTING ESTABLISHMENT PERIOD: 52 weeks.
RECURRENT WORKS: Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, pruning and keeping the site neat and tidy.
DEFECTS LIABILITY PERIOD: The Contractor shall be liable for defects for all works undertaken within this contract for a period of fifty two (52) weeks to run after the date of Practical Completion, to run concurrently with the nominated Plant Establishment Period.

6.02 REQUIREMENTS

MAINTENANCE PROGRAM: Furnish a proposed planting maintenance program, and amend it as required until approved. Comply with the approved program.
MAINTENANCE LOGBOOK: Keep a logbook recording when and what maintenance work has been done and what materials, including toxic materials, have been used. Make the logbook available for inspection on request.
COMPLETION: Notwithstanding anything to the contrary of the Contract, the Superintendent may instruct the Contractor to perform urgent maintenance works. Should the Contractor fail to carry out the work within seven days of such notice, the Superintendent reserves the right to employ others to carry out such urgent and specified work and charge it to the Contractor.
WARRANTY: Submit the supplier's written statement certifying that plants are true to the required species and type, and are free from diseases, pests and weeds.

6.03 PLANTING

PLANTING: Continue to ensure the general appearance and presentation of the landscape and the quality of plant material at date of practical completion is maintained for the full Planting Establishment Period.

- Existing Planting: Where existing planting is within the landscape contract area, maintain it as for the corresponding classifications of new or planting.
- Replacements: Continue to replace failed, dead and/or damaged plants at minimum 2/3 week intervals as necessary throughout the full Plant Establishment Period.
- Pruning: Pruning of shrubs will be required during Spring and may only be necessary on an on the spot basis during the remainder of the year. Pruning should reflect the natural growth flowering and regrowth habit of the individual species. Generally prune shrubs after flowering. Trimming of shrubs must be scheduled at times which will maintain the character and design of any specified hedges or topiaried plants.

Two to three times per season would be expected. Trees are pruned to eliminate diseased or damaged growth, avoid inter-branch contact and thin out crowns in a natural manner. Major tree pruning or lopping should be carried out by a suitably qualified tree surgeon/ arboriculturalist. Generally, ensure that all dead palm fronds and tree branches are removed as soon as noticed.

FERTILISING: Soil testing is to be done on a two year schedule and would include taking samples from planting beds. The fertilisation program shall be based on the soil testing results. Generally a low-phosphorus fertiliser suitable for native plants should be applied at recommended rates. All purpose fertiliser shall be applied to shrubs annually in two bands and cultivated into the soil 100mm deep. Fertilisation of shrubs and trees shall take place in September and March according to seasonal growth requirement.

INSECT AND DISEASE CONTROL: The Contractor shall be responsible for the control of any pest or disease which may affect the plants and turf. Once the problem has been correctly identified, then a suitable form of treatment should be engaged until the problem has been eliminated. If the use of chemical spray is required, strict adherence to the manufacturer's recommended rates and handling is essential. Proper care should be taken to protect both the user and persons likely to be affected or come in contact with the spray. Allowance should be made to carry out such work outside of normal working hours if necessary.

STAKES AND TIES: Adjust stakes and ties where necessary. Where plants are robust with well developed systems and are strong enough to no longer require support, stakes and ties shall be removed. Where plants are unable to be self supported or where stakes are damaged, plants shall be staked or restaked. Remove those not required at the end of the Plant Establishment Period.

6.04 GARDEN BEDS

WEEDING AND CLEARING: Remove all weed growth and re-occurring weed growth by hand or spray with approved herbicide unless otherwise specified throughout all planted and mulched areas. This work shall be executed regularly so that the planted, paved and mulched areas are weed free when observed at bi-weekly intervals. Vigorous ground covers shall be cleared from and maintained 200mm from the base of any shrub or tree.

RUBBISH REMOVAL:

- General: Any bottles, papers, cigarette butts, etc. shall be removed by hand from the site. This work shall be executed regularly so that all areas are free from rubbish when observed at bi-weekly intervals.
- Leaf Litter: Leaf litter shall be removed from all path and lawn areas and spread evenly over the mulched areas.

MULCHED SURFACES: Mulched areas should be inspected monthly to determine mulch requirements. Generally a minimum depth of 75mm cover should be maintained to ensure adequate weed suppression and quality finish. Special care when re-mulching should be given to maintaining original ground levels around the base of plants.

DRAINS: All drainage structures shall be inspected and cleaned out at six monthly intervals to ensure that they are in proper working order.

6.05 WEED MATS

GENERALLY: The Contractor shall maintain mats in a weed free condition and where deemed necessary at the absolute discretion of the Superintendent reinstate missing or damaged mats to the standard previously specified until completion of the maintenance period.

6.06 WATERING

ESTABLISHMENT: All are to receive a minimum three (3) complete waterings (i.e. soaked to a depth of 150mm) at fortnightly intervals for the first 6 weeks of plant establishment irrespective of natural rainfall. It shall be the Contractor's responsibility to co-ordinate water supply.

HAND: Manually water all planting areas so that the soil is soaked to a depth of 300mm for planting. Avoid frequent dampening of the surface. Allow the surface of the soil to partially dry out between waterings. Water as necessary to maintain a vigorous and healthy growth.

.....

Project Landscape Architect

PSB

OBSERVATION POINT
1148 – 1152 Barrenjoey Road
56 Palm Beach Road
PALM BEACH NSW 2108

LANDSCAPE WORKS SPECIFICATION

SUBDIVISION WORKS

This specification to read in conjunction with:

- PSB Tree Plans TP10, TP11, TP12, TP13, TP14
- PSB Landscape Plans L03, L04, L05, L06, L07, L08
- PSB Pre-Construction Tree/Vegetation Report, dated 18/11/02.
- PSB Vegetation Protection & Removal Specification, dated 18/11/02

Prepared for
Raypond Pty Ltd

Pittendrigh Shinkfield Bruce Pty Limited
Landscape Architecture
18 November 2002
PSB 00137B
QA.2-08(2)/K

PITTENDRIGH SHINKFIELD BRUCE

ORIGINAL.
NOTE ADDITIONAL
DRAWINGS IN APPENDIX.

LANDSCAPE WORKS SPECIFICATION

CONTENTS

SUBSECTION 1.00 GENERAL 3
1.01 SCOPE 3
1.02 APPROVED SUPPLIERS 3
1.03 ORDERING 3
1.04 INSPECTION 3
1.05 STANDARDS 3

SUBSECTION 2.00 SITE MANAGEMENT AND SITEWORKS 5
2.01 WEED ERADICATION 5
2.02 SUBSOIL 5
2.03 SUBSOIL DRAINAGE 5
2.04 TOPSOIL 5
2.05 WEED MAT 7
2.06 REINSTATEMENT 7

SUBSECTION 3.00 WALLING 10
3.01 ORNAMENTAL STONE BOULDERS 10
3.02 SANDSTONE FREESTANDING WALL 10

SUBSECTION 4.00 PAVING 12
4.01 PAVING 12
4.02 SLEEPER STEPS WITH DECOMPOSED GRANITE INFILL 13
4.03 CEMENT-STABLISED DECOMPOSED GRANITE 13

SUBSECTION 5.00 MATERIALS AND WORKMANSHIP 15
5.01 FERTILISER 15
5.02 MULCH 15
5.03 PLANTS 15
5.04 STAKES AND TIES 17
5.05 SPRAYING 17

SUBSECTION 6.00 ANCILLARY STRUCTURES 18
6.01 PLANTER BOXES 18
6.02 SIGNAGE ON SANDSTONE WALL 18
6.03 LETTERBOXES 18
6.04 LIGHTS 18

SUBSECTION 7.00 ESTABLISHMENT 19
7.01 SCOPE 19
7.02 REQUIREMENTS 19
7.03 PLANTING 19
7.04 GARDEN BEDS 20
7.05 WEED MATS 20
7.06 WATERING 20

APPENDIX
8.01 PLANT SCHEDULES 18
8.02 PLANT MIX DRAWINGS 22
8.03 BENEDICTS SOIL DATA SHEETS 26
8.04 SIGNAGE DETAIL 28

SUBSECTION 1.00 GENERAL

1.01 SCOPE

SPECIFIED IN THIS SECTION:

- Minor earthworks, ornamental bouldering.
- Softworks including plant and other materials, planting works, planting establishment and mulch.
- Hardworks including sandstone walls at entry, paving, timber sleeper paths, lighting and signage.

1.02 APPROVED SUPPLIERS

REQUIREMENT: Select from the following schedule the suppliers of materials.

APPROVED SUPPLIERS SCHEDULE:

Item	Approved firms
Imported Topsoil and Subsoil	Benedict Sand & Gravel Ph: 9986 3500

1.03 ORDERING

REQUIREMENT: Within 28 days of the date of acceptance of tender, furnish proof of ordering the required materials, and advise immediately if any supply difficulties are encountered. No extension of time or cost variation will be granted if any material or product is not available because of late ordering.

1.04 INSPECTION

NOTICE: Give sufficient notice so that inspection may be made of the following:

- Sub-grades cultivated and/or prepared prior to placing topsoil and paving materials.
- Setting out completed.
- Upon Practical Completion.
- Upon completion of Plant Establishment work.
- Upon completion of Defects Liability work.

Minimum notice required: Shall be forty-eight (48) hours.

1.05 STANDARDS

REFERENCED DOCUMENTS: The following standards are referred to in this project specification:

- AS 010 (1948) Grading rules for railway sleepers - Jarrah, Karri and Wandoo
- AS 097 (1963) Rail track sleepers, lead or crossing timbers and bridge transoms from Eastern Australia hardwoods
- AS 1074 (1989) Steel tubes and tubulars for ordinary service
- AS 1085 Railway permanent way material
- AS 1085.8 (1988) Dogspikes
- AS 1302 (1991) Steel reinforcing bars for concrete
- AS 1304 (1991) Welded cure reinforcing fabric for concrete
- AS 1604 (1993) Preservative treatment for sawn timber, veneer and plywood
- AS 1608.1 (1974) Softwood timber
- AS 1672 (1974) Building Limes
- AS 2057 (1986) Chemical treatment of soils.
- AS 2733 (1984) Concrete and masonry units
- AS 2975 (1987) Accessories for masonry units
- AS 2990 (1987) Quality systems for engineering and construction projects
- AS 3600 (1994) Concrete structures
- AS 3700 (1993) SAA Masonry Code
- AS 3705 (1990) Geotextiles – identification, marking and general data
- AS 3798 (1990) Guidelines on earthworks for commercial and residential developments
- AS 3972 (1991) Portland and blended cements
- AS 4419 (1981) Soils for landscaping and garden use
- AS 4373 (1996) Pruning of amenity trees

- AS 4454 (1997) Composts, soil conditioners and mulches

SUBSECTION 2.00 SITE MANAGEMENT AND SITEWORKS

2.01 WEED ERADICATION

REQUIREMENT: Eradicate weeds to the landscaped areas of the site as defined in Landscape Plans(bush regeneration and revegetation zones to be weeded as directed by GIS Environmental Consultant's Bushland Management Report) by environmentally acceptable methods: Regularly remove, by hand, rubbish and weed growth that may occur or recur throughout planted, and mulched areas. Continue eradication throughout the course of the Works and during the Planting Establishment Period.

2.02 SUBSOIL

GENERAL: Refer Civil Engineer's drawings and excavate where necessary to provide desired levels.
PREPARATION: Remove all weeds, roots, builder's rubbish and other debris.
EXCAVATION: Excavate to bring subsoil to a minimum of 300 mm below finished design levels. Shape the subsoil to fall to subsoil drains where applicable. Break up the newly excavated subsoil surface to a further depth of 100 mm. Should subsoil base be rock, excavate rock as necessary to ensure adequate drainage.
CULTIVATION: Cultivate non rock subsoil to all planting areas to a depth of 100mm. Do not disturb services or tree roots; if necessary cultivate these areas by hand. During cultivation, thoroughly mix in any materials required to be incorporated into the subsoil. Cultivate manually within 300 mm of paths or structures. Remove stones exceeding 25 mm, clods of earth exceeding 50 mm, and any weeds, rubbish or other deleterious material brought to the surface during cultivation. Trim the surface to the required design levels after cultivation.
TESTING: Geotechnical investigation shall be carried out in accordance with AS 4419 – Appendix D-I to determine contaminants, nutrient levels and dispersion of existing subsoils, with reporting to be in accordance with AS 1289 and using only NATA registered laboratories. Do not proceed with work subject to testing until tests are satisfactorily completed and approval of the Superintendent has been given.
Should subsoils be found to contain contaminants, have an unbalanced nutrient ratio or to be dispersive, allow to incorporate additives, as required for compliance with the relevant geotechnical investigations report test criteria of AS 1289 and earthworks guidelines of AS 3798.
ADDITIVES: Apply additives into the upper 100 mm layer of the subsoil during cultivation and apply at the manufacturer's recommended rates.
CHEMICAL TREATMENTS: Once formed, treated soil barriers should not be bridged by landscape construction and/or planting works. Where such works are intended, or have occurred, action must be taken in accordance with AS 2057 to maintain or restore the chemical barrier.

2.03 SUBSOIL DRAINAGE

GENERAL: Refer to Civil Engineer's drawings and specification.
REQUIREMENT: Install subsoil drains to rear of all landscape and/or planter box walling to intercept ground water seepage and prevent surface water build up. Connect subsoil drains to surface drains or to stormwater drainage system as applicable.

2.04 TOPSOIL

GENERALLY: Topsoil shall be imported topsoil obtained from an approved off-site source and consisting of a mixture of nominated ingredients.
TESTING: Take samples of all imported topsoils as recommended in AS 4419 and test to the methods in AS 4419 Appendix D-I, or AS 3743 – Appendix D-G, as applicable providing the Superintendent with a certificate noting test results.
PLACING: Eradicate weeds by environmentally acceptable methods prior to placing topsoil, using a non-residual glyphosate herbicide in any of its registered formulae, at the recommended maximum rate. Place the appropriate topsoil on the prepared

subsoil. Spread and grade evenly, making the necessary allowances so that the required finished levels and contours may be achieved after light compaction.

TOPSOIL SCHEDULE:

Location	Type	Composition	Depth
Planter Boxes	Imported Topsoil	80% crushed sandstone, 20% compost, equivalent to Benedict's Smart Mix No. 6 Native Garden Mix (W117)	300mm
	Subsoil	Loamy sand, with 8-12% passing 75 micron sieve as determined by AS1141 and AS4419, Appendix Table I1, total organic matter <1% (Equivalent to Benedict's W110)	Below topsoil to varying depths
On-grade	Imported topsoil	80% crushed sandstone 20% compost equivalent to Benedict's Smartmix No. 6, Native Garden Mix (W117)	300mm
	Subsoil	Crushed sandstone, organic matter <1%, <10mm graded, silt and clay content max. 15%	Below topsoil to varying depths.

COMPACTION: Prevent areas of excess compaction from being caused by constructional plant. Compact lightly and uniformly in 150 mm layers. Avoid differential subsidence and produce a finished topsoil surface which is:

- at design levels;
- smooth and free from stones or lumps of soil;
- graded to drain freely, without ponding, to catchment points;
- graded evenly into adjoining ground surfaces; and
- ready for planting.

CONTAMINATION: Where diesel oil, cement or other phytotoxic material has been spilt on the topsoil, excavate the contaminated soil, dispose of it off the site, and replace it with the appropriate topsoil, as directed, to restore design levels.

SURPLUS TOPSOIL: Dispose of surplus topsoil to designated areas on site, if any; otherwise, dispose off site.

2.05 WEED MAT

GENERALLY: To be used on all planted areas where slopes greater than 1:4 where particulate mulch is considered unsuitable.

MATERIAL:

- Mesh: Biodegradable fibre without integral plastic mesh. Use heavy weight material for planting.
- Pegs: Shall be u-shape galvanised 10mm diameter steel, minimum 450mm long.
- Laying: Spread 50mm mulch as specified. Lay mesh over mulch. Uphill strips shall overlap lower and adjacent strips by 100mm. Peg in position with pegs as specified. Mesh shall be neatly cut to plant groundcovers and other plant materials. Where the cut hole exceeds 150mm, it is to be stitched with the matching twine to fully constrain the mulch. Top with 25mm mulch.

INSTALLATION: Plant after matting is installed, where planting is required. Peg the matting into 300 x 300 mm anchor trenches at top and bottom using U-shape galvanised steel, at 1000 x 1000 mm intervals generally, 250 mm at overlaps, backfill the trenches with soil and compact.

MATTING OVERLAY SCHEDULE:

Location	Proprietary Item	Type/Weight	Thickness
On slopes greater than 1:4 that are to be planted	Weedmat similar to that available from Total Erosion and Pollution Control.	Super heavy coconut fibre matting blanket	18mm

2.06 REINSTATEMENT

REQUIREMENT: Where existing ground surfaces are not required to be varied as part of the Works, restore them to the condition existing at the commencement of the work under the Contract.

BACKFILLING: Backfill to excavations within landscape areas with a mixture consisting of three parts by volume of coarse sand and blacksoil and one part of well rotted compost with a neutral pH value, free from weed growth and harmful materials. Place the backfill layers, each of 300 mm maximum depth, compacted to a dry density similar to that of the original or surrounding soil. Do not backfill around tree trunks to a height greater than 200 mm above the original ground surface. Immediately after backfilling to existing trees, thoroughly water the surrounding root zone.

SUBSECTION 3.00 WALLING

3.01 ORNAMENTAL STONE BOULDERS

REQUIREMENT: Ornamental boulders shall comprise an important part of the landscaping proposed on the site. The use of rocks shall be as indicated on drawings L03 and L07.

- To form a rough stacked retaining wall with planting pockets in steep sections as documented on plan;
- To soften the end of the retaining wall by appearing as natural rock outcrops.

MATERIALS:

- Boulders shall range in size from 500 x 500 x 500mm up to 1500 x 1500 x 1500mm with several boulders being 2000 x 1500 x 1500 and 2000 x 1000 x 1000mm. Final selection of boulders shall be by the Superintendent.
- Site Boulders: Approved site weathered uncut random sized natural boulders salvaged and stockpiled so that they are accessible to a lifting crane for future placement.

HANDLING: All rocks shall be handled in a manner that minimises chipping and fracturing of the rock surface, at all times. The sub-contractor shall seek the builders advice as to access, stockpiling and programming of stone work in these areas.

INSTALLATION: Boulders are to be selected and transported to the locations from the stockpile by the Contractor. All boulders shall be handled in a manner that minimises chipping or fracturing of the rock surface, at all times.

Place boulders while ground formation work is being carried out. Use approved site boulders, otherwise provide imported boulders. Bury boulders a minimum of one third by volume, with weathered faces exposed. Protect the weathered faces from damage.

- Embankments: Install boulders to form rock slope as shown on drawing L07. The bulk earthworks are to be formed up by the Builder whilst the Contractor shall refine the profiles formed and liaise with the Builder to ensure co-operation during construction. Bench out stable compacted bases and set sandstone boulders to create a firm stable edge, ensuring boulder is buried and compacted to a minimum of a third depth of each boulder. Plant amongst boulders as detailed and documented. Boulders shall vary in size and shape and be selected from a stockpile on site. The builder shall inform the Contractor of the location of the stockpile, and boulders selected from the stockpile shall be approved by the Superintendent before final placement. The number of boulders required to construct the slope shall vary depending on the size of boulders, but the final slope shall be consistent with the intent shown on drawing.

3.02 SANDSTONE FREESTANDING WALL

LOCATION: Construct sandstone walling where shown on the drawings to detail.

GENERALLY: Stone faces should be a minimum width of 300mm and maximum width of 500mm. Flat, well proportioned stones should be used as capstones.

Sandstone shall be of uniform quality, texture and strength, sound and free from defects (including vents, cracks, fissures, foreign material and the like) liable to affect its strength, appearance, durability, or proper functioning under the intended conditions of use.

Obtain stone from an approved source of supply. Provide satisfactory evidence that the source and supplier are capable of providing stone of the type, sizes and quantity and quality required.

Store stone so that it is protected clear of the ground on its natural bed, on supports which do not locally overstress it, and in conditions suitable to promote good seasoning without damage.

Perform the necessary cutting and shaping of stone to profiles generally as shown on the Drawings, and including weathering, jointing, chasing, forming mortises, grooves and drilling for handling, fixing and the like. Work the bed, face and back joints of the stone square and true.

Dimensioned blocks shall be approximately 300mm high, 300mm deep, and up to approximately 500mm long. The width of blocks may vary with the largest stones for the bases of large walls being 500mm to 600mm wide. Stones may vary down to 200mm minimum width.

The ariss of the stone shall be square rather than rounded.

INSTALLATION:
- Concrete Footing: Shall be constructed using materials and methods complying with the relevant requirements of AS 3600 and AS 3610. Concrete footing shall be 600mm x 200mm 20MPa concrete, poured in situ. The footing shall be a minimum of 160mm below the adjacent finished level as per documentation.
- Stone: Pack the stone in horizontal layers to be parallel with surface level. Mortar shall be visible from the front face and back of the wall and shall be jointed flush.

CLEANING: Keep stone faces clean as the work proceeds. Prevent mortar or jointing material from coming into contact with external face of stone. Clean down as necessary leaving stonework clean on completion ensuring all cleaning works and stain removal is undertaken without damage to the stonework.

MORTAR: Mortar materials to AS 3700 clause 2.2, and as follows:
- Cement type: Type A
- Sand: Fine aggregate with a low clay content and free from efflorescing salts.
- Required colour: To match sandstone colour 'as new'.
- Stone aggregate: Fine aggregate complying with the specification for sand may consist partly or wholly of crushed stone made from material of the same type as the stone facing.
- Oxide: The mortar is to contain an approved brown oxide to bring the colour of the mortar to match that of typical 'as new' sandstone colour.
- Additives: Do not use additives unless prior approval has been obtained.
- Mortar classification: To AS 3700 clause 2.2.3 and Table 2.1.

MIXING MORTAR: To AS3700 clause 8.4. Batch by weight and machine mix.
- Generally: Use a mix which has a compressive strength not greater than that of the stone bedded on it, and a permeability equal to or greater than that of the stone.
- Proposed mix provide details of the proposed mix, not less than seven days before commencing brickwork.
- Concrete: Shall conform to the requirements as specified in STONE STEPS.

CONSTRUCTION:
- Pattern or bond: Coursed, squared stone.
- Face finish: rockfaced and sparrow-pecked as detailed.
- Foundation: Excavate to establish and maintain required levels, remove spoil from site and compact subgrade shall be constructed using materials and methods complying with the relevant requirements of AS 3600 and AS 2620. Concrete footing shall be 600 x 300mm poured in situ. The top of the footing shall be 150mm minimum below the adjacent finished level.
- Copings: Coping stone to be rockfaced on edges, with either sawn or sparrow-pecked top. Select stones of reasonably uniform size and finish the top of the wall to a level line, as detailed.
- Weep holes: Install drainage holes in wall at regular intervals of no less than 1000mm.
- Subsoil drainage: Install subsoil drainage line behind section of wall with soil behind. Refer PSB L08 detail for location. Refer Civil Engineers specification for materials.

SUBSECTION 4.00 PAVING

4.01 PAVING

GENERALLY: Pavement to be laid on sand bed over excavated rock with sand filled in joints. Pavers on stairs to be mortared on concrete formwork, with mortared joints.
LOCATION: As shown on drawings.
DEFINITION: The term "unit paving" refers to clay paving units and shall conform to the approved sample panels. Paving units of clay shall be purpose-made for use as paving and shall include paving accessories such as step treads, where required.
REQUIREMENT:
- Minimum compressive strength for clay units shall be 10Mpa when tested to S1225.

INSPECTION: Give notice of minimum of forty-eight (48) hours so that inspection may be made at the following stages:
- completion of trial set out for unit paving

GUARANTEES: Provide guarantees:
- dimensional stability and manufacturing tolerances
- receive written acceptance of the material prior to any paving installations.
- against defective materials and techniques of the paving specified in this Section for a period of one (1) year from the Date of Practical Completion.

QUALITY ASSURANCE: Before installation commences, obtain and submit in writing statements from the supplier or suppliers of paving materials, giving, where applicable:
- Manufacturer's data: The paving material manufacturer's published product data including:
  . technical specifications;
  . recommendations for laying; and
  . type test or factory test data.
- Testing authority's reports: Test reports certified by an independent testing authority showing compliance with the criteria of specified tests.
- Product warranties: The manufacturer's written statement certifying that the product complies with the specification and is suitable for the intended use.
- Approval of installer: If the installation is not by the manufacturer, and the manufacturer's warranty is conditional on their approval of the installer, the manufacturer's written approval of the specialist installing firm.
- Acceptance of substrate: The installing firm's written statement certifying that the substrate is satisfactory for receiving the installation.
- Delivery: The manufacturer is to confirm in writing product availability, true to specified type, colour, size and finish to the quantities nominated and the time frame required.

SAMPLES: Submit samples of the specified paving finishes, showing the full range of texture and colour of the specified material.
BEDDING COURSE:
- Materials:
  . Bedding Sand: Use clean coarse sand, free from deleterious material including soluble salts or other contaminates liable to cause efflorescence or reduced skid resistance and excessive or non-uniform moisture content. Maximum particle size 4.75mm not more than 30% passing a 0.3mm sieve.
  . Joint filling sand: The joint-filling sand shall be dry sand-cement mix swept between pavers.
  . Mortar: To AS 3700 with mix proportions of 1:3 (cement:sand).
- Placing:
  . Sand: Over the base course lay bedding sand screeded to a uniform thickness not exceeding 20mm, and to the required levels and falls. Do not disturb the screeded surface before the units are laid.
  . Mortar: Over the concrete slab formwork for stairs lay bedding mortar screeded to a uniform thickness not exceeding 20mm, and to the required levels and falls. Do not disturb the screeded surface before the units are laid.

CONTROL JOINTS
- Generally: Form 10mm wide expansion joints to pavements on mortar bedding course on-slab immediately above joints in concrete base slab.
- Edge of joints: Arris in toppings and the like to 5mm radius.

LAYING UNITS AND JOINTING

- Pavers on sand bedding course:
  - Laying and Jointing: Lay pavers in over screeded bedding course pattern and with joints as specified in PAVING TYPE SCHEDULE and as detailed.
  - On completion: Fill all open joints with sand, well broomed into joints. Finish paving evenly to grades and profiles detailed.
  - Tamping: After laying and paving, tamp the units into the bedding course with a mechanical tamper, making final adjustments to falls and levels.
- Pavers on mortar bedding course:
  - Laying and Jointing: Lay pavers over screeded bedding course in pattern and with joints as specified in PAVING TYPE SCHEDULE and as detailed.
  - Finish: Finish paving evenly to grades and profiles detailed or required. After mortar has cured clean down the whole of the unit paving.

UNIT PAVING PATTERNS:

- Unit Paving Patterns: Lay the units in accordance with the PAVING TYPE SCHEDULE and as detailed.
- Trial Set-out: Install sample pattern panels for each paving type. Adjust and rectify sample until approved. All further paving work to conform to the approved sample panel. Obtain approval of trial set-out for each area before proceeding. If it appears that minor variations to joint widths will obviate cutting, refer for approval. Do not vary unless approved.

CUTTING UNITS: Cut paving units so as to maintain sharp arrises and accurate joints and margins.

EDGE RESTRAINT: Provide a 20MPa concrete haunch to contain the edge of unit paving as shown on drawings and as detailed.

CLEANING: Leave paving finish clean on completion. Cleaning of unit paving is to be carried out in accordance with the recommendations of the individual paving manufacturer. Progressively remove all mortar stains and splashes from all parts of the paving by sponging with clean water. No acid wash is to be used.

PAVING TYPE SCHEDULE:

Type 1	
. Location:	ENTRY, refer drawing L07
. Manufacturer:	Austral
. Product Name:	Sorrento
. Manufacturing Dimensions:	300x300x45mm
. Colour:	Pisa
. Surface Finish Requirements:	N/A
. Pattern:	Stretcherbond with headercourse
. Joints:	5-7mm mortar joints
. Bedding Course:	Mortar

4.02 SLEEPER STEPS WITH DECOMPOSED GRANITE INFILL

LOCATION: Construct paths of sleeper steps with decomposed granite infill where shown on drawings. Paths are on grade and on slab. Refer detail L08 and landscape drawings.

MATERIAL: Timber shall be sawn CCA treated pine approximately 200 x 100mm in section.

INSTALLATION: Excavate for steps, trim and consolidate subgrade to provide solid footing for slopes. Lay as detailed and fix structure as detailed to achieve a firm structure prior to backfilling. Backfill with compacted subgrade and install CEMENT-STABLISED DECOMPOSED GRANITE as specified.

4.03 CEMENT-STABLISED DECOMPOSED GRANITE

SOURCE: Obtain decomposed granite gravel from an approved source and provide a 5kg representative sample for approval.

MATERIAL: Gravel shall be graded 5-20mm minus with fines of a cream colour.

Should the decomposed granite surface area require greater stability then the granite particle size shall conform to the following tolerances:

- 5mm - 10mm 40%
- 10mm - 20mm 60%

with the fines screened out and replaced with 1 part off-white cement to 20 parts decomposed granite.

INSTALLATION: Decomposed granite gravel shall be laid over 50mm consolidated thickness of fine crushed rock, compacted to 95% medium dry density. Lay decomposed granite as a blended dry mix at 100mm thickness compacted to a minimum of 90% of maximum dry density when tested to AS 1289. Grade the surface evenly to design levels and to a clean even and neat appearance with stones exceeding 25mm being discarded at the compaction stage. Do not 'water in' surface material but instead allow the natural groundwater to rise and stabilise the mixture.

SUBSECTION 5.00 MATERIALS AND WORKMANSHIP

5.01 FERTILISER

REQUIREMENT: For all planting areas provide proprietary fertilisers, delivered to the site in sealed bags marked to show manufacturer or vendor, weight, fertiliser type, N:P:K ratio, recommended uses and application rates. Use in accordance with the manufacturer's recommendations.

FERTILISER SCHEDULE:

Proprietary Item	N:P:K ratio	Application rate	Location
Aboska Native Plant Food	8:1:5	50g/m²-sand	native plants

5.02 MULCH

GENERALLY: Use mulch to AS 4454 which is free of deleterious and extraneous matter such as soil, weeds, sticks and stones.

PLACING MULCH: Place mulch to the required depth, clear of plant stems, and rake to an even surface flush with the surrounding finished levels. Spread mulch so that after settling, or after rolling, it is:

- smooth and evenly graded between design surface levels;
- flush with adjacent finished levels;
- of the required depths; and
- sloped towards the base of plant stems in plantation beds, but not in contact with the stem (not closer than 50 mm in the case of gravel mulches).

MULCH SCHEDULE:

Type	Description	Location	Depth
Site Mulch	Approved vegetative material (which may include leaf matter and tree loppings from site trees nominated for removal, but not privet, camphor laurel, coral tree, poplar, willow, or noxious weeds), processed through a chipper to pieces not larger than 75 x 50 x 15 mm.	To all planted areas	75mm
Brush Clippings and Leaf Litter	Approved vegetative material (which may include leaf matter and tree loppings from Eucalyptus, Tristania, Pinus or other suitable species, but not privet, camphor laurel, coral tree, poplar, willow, or noxious weeds), processed through a chipper to pieces not larger than 75 x 50 x 15 mm.	To all planted areas	75mm

5.03 PLANTS

REFER APPENDIX FOR PLANT SCHEDULES AND PLANT MIX DRAWINGS

GENERALLY: Supply plants which:

- have large healthy root systems, with no evidence of root curl, restriction or damage;
- are true to type;
- have foliage size, texture and colour consistent with that shown in healthy specimens of the species;
- have pests and disease to < 10% of the foliage, such that potential for long term success of the trees is not affected;
- other than tubestock shrubs or small trees are self-supporting unstaked;
- comply with the recommendations of AS 4373;
- are vigorous, well established, free from disease and pests, of good form consistent with the species or variety; and
- are hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site unless required to be multi-stemmed, are trees with a single leading shoot.

PLANT MATERIALS REQUIREMENTS:

- Plant heights to be measured from top of rootball to top of foliage except for palms which shall be measured from top-of root ball to underside of first palm fronds.
- Calliper to be measured 200mm above base of rootball top, adjacent to and perpendicular to bole.
- Supply trees with extension growth consistent with that shown in vigorous specimens of the species.
- Maximum variation in crown bulk on opposite sides of stem axis: ±20%.
- Supply trees which have a defined central leader and intact apical bud.

SUBSTITUTIONS: Make no substitutions. Should plant material specified be unavailable then the Contractor shall inform the Superintendent in writing with available substitutions for approval.

LABELLING: Label at least one plant of each species or variety in a batch with a durable, readable botanical tag.

REPLACEMENTS: Order sufficient quantities to allow for plant failures. Using plants of the same type, quality and size, replace any plants which are damaged whilst being transported to the site or during the work under the Contract, or which fail or are rejected.

STORAGE: Deliver plant material to the site on a day to day basis, and plant immediately after delivery. If this is not possible, keep the plants in good condition on the site, adequately protected from frost, wind, sun and vermin by appropriate storage methods, including an on-site nursery of sufficient size, with provision for watering the stock. Before proceeding, submit a site storage proposal. Do not store plants on site unless authorised.

POTTING-ON: Do not carry out potting-on unless authorised.

PLANT CONTAINERS: Supply plants in weed-free containers of the required size. Where appropriate to the species, variety, size, and time of year for planting, trees may be supplied as open rooted stock. If this is intended, submit proposal prior to supply.

PLANT SIZE DEFINITIONS: Nominated plant heights are indicative only and are subject to variation in accordance with the natural growth habit of each species.

- **100 Litre:** Shall be in container sizes minimum 100 litre and shall have a well developed straight clean stem minimum calliper 38mm. Trees shall be well shaped with a densely foliaged crown with an approximate height of three (3) metres.
- **75 Litre:** Shall be in container sizes minimum 75 litre (550 x 500mm pot or equivalent plastic bag) and shall have a well developed straight stem with a minimum calliper of 25mm. Trees shall have an approximate height of two (2) metres.
- **35 Litre:** Shall be in container sizes minimum 35 litre (350 x 380mm pot or equivalent plastic bag) and shall have a well developed straight stem, minimum calliper of 18mm with an approximate height of 1200mm.
- **25 Litre:** Shall be in container sizes minimum 25 litre (305 x 343mm pot or equivalent plastic bag) and shall have a well developed straight stem, minimum calliper 18mm with an approximate height of 1000mm.
- **15 Litre:** Shall be in container sizes minimum 15 litre (300 x 230mm pot or equivalent plastic bag) with an approximate height of 900mm.
- **5 Litre:** Shall be well established container grown plants with a single leading shoot well furnished with buds and leaves with an approximate height of 450mm. Container size shall be 200 x 240mm pots, 203 x 229mm plastic bags or equivalent 5 litre containers.
- **150mm:** Shall have a strong primary shoot with developing secondary shoots.
- **Grow tubes:** Shall be tubes 100mm x 75mm size with a strong leading shoot. Plants shall not be overgrown and leggy.

LOCATIONS: Do not vary the plant locations from those required. If it appears necessary to vary the locations and spacings to avoid service lines, or to cover the area uniformly, or for other reasons, apply for directions.

PLANTING CONDITIONS: Do not plant in unsuitable weather conditions such as extreme heat, cold, wind or rain. In other than sandy soils, suspend excavation when the soil is wet, or during frost periods.

PLANTINGS: Excavate planting hole twice the diameter of the plant root ball and at least 100 mm deeper than the root ball. Break up the base of the hole to a further

depth of 100 mm, and loosen compacted sides of the hole to prevent confinement of root growth.

MASSED PLANTED AREAS:

- Watering: Thoroughly water the plants before planting, immediately after planting, and as required to maintain growth rates free of stress.
- Placing: When the hole is of correct size, and not before, remove the plant from the container with minimum disturbance to the root ball, ensure that the root ball is moist and place it in its final position, in the centre of the hole and plumb, and with the top soil level of the plant root ball level with the finished surface of the surrounding soil.
- Fertilising: In planting beds and individual plantings, place fertiliser pellets around the plants at the time of planting, at the rate recommended by the manufacturer.
- Backfilling: Backfill with topsoil mixture. Lightly tamp and water to eliminate air pockets. Ensure that topsoil is not placed over the top of the root ball, so that the plant stem remains the same height above ground as it was in the container.
- Containers: Collect empty plant containers daily during planting operations and remove or store on site for later removal if permitted, but ensure they are not able to be scattered by wind or other causes.

5.04 STAKES AND TIES

STAKES: Durable hardwood, straight, free from knots or twists, pointed at one end. Drive stakes into the ground a minimum one third of their length, avoiding damage to the root system.

STAKE SIZES:

- For 100 litre trees or greater provide three 50 x 50 x 2400 mm stakes per plant.
- For 75 litre trees provide two 50 x 50 x 1800 mm stakes per plant.
- For 15-35 litre trees provide one 38 x 38 x 1200 mm stake per plant.

TIES: Provide ties fixed securely to the stakes, one tie at half the height of the main stem, others as necessary to stabilise the plant.

TIE TYPES:

- For 100 litre trees or greater provide: Two strands of 2.5 mm galvanised wire neatly twisted together, passed through reinforced rubber or plastic hose, and installed around stake and stem in a figure of eight pattern.
- For 15-75 litre trees provide: 50 mm hessian webbing stapled to the stake.

5.05 SPRAYING

REPORTING: Immediately report any evidence of insect attack or disease amongst plant material.

SPRAYING: Where required, spray with insecticide, fungicide or both in accordance with the manufacturers' recommendations. Submit proposal and obtain approval before starting this work.

SUBSECTION 6.00 ANCILLARY STRUCTURES

6.01 PLANTER BOXES

REQUIREMENT: To planter boxes built on top of rock throughout the project as shown on drawings, allow to provide subsoil drainage (as specified by Civil Engineer's) and topsoil and mulch, as well as plant material as specified.

6.02 SIGNAGE ON SANDSTONE WALL

LOCATION: As indicated on detail drawing L08. Refer Appendix for detail.
MATERIALS: 12mm thick aluminium letters secret stud fixed on threaded rods chemset direct to stone. Letter colour to be black. Type face, lettering size as indicated on detail.

6.03 LETTERBOXES

LOCATION: As indicated on detail drawing L08.
Five (5) front-opening, key-lockable letterboxes to be mounted into sandstone wall. Black powder-coated aluminium 'Mailsafe' style APR3 with engraved numbers to be advised. Mailsafe supplier (07) 3268 5922.

6.04 LIGHTS

LOCATION: To be located on timber steps as shown on details. Refer lighting consultants drawings for locations.
MATERIALS:
- Fittings; Shall be border light with sheild as supplied by WE-EF, item GTX 159.
- Conduits: Shall be as provided by the Electrical Contractor.

INSTALLATION: Location of light poles as shown on drawings. Installation shall be co-ordinated by the Contractor and entirely carried out by suitably qualified subcontractors. Power supply is to be as documented by lighting consultants. Ensure the lighting fixtures are securely bolted to the step.

SUBSECTION 7.00 ESTABLISHMENT

7.01 SCOPE

GENERALLY: Establishment of all works executed under this contract shall include the following items as a minimum. The contractor shall maintain the contract areas for a set period after the date of Practical Completion, with any maintenance of the works prior to the date of Practical Completion not to be included as part of this period.
PRACTICAL COMPLETION: Practical Completion of all works shall include, but not be limited to, the installation and fixing in place of walling works, replacement of plants which have failed and/or died, been damaged or been stolen during the Contract.
PLANTING ESTABLISHMENT PERIOD: 52 weeks.
RECURRENT WORKS: Throughout the Planting Establishment Period, continue to carry out recurrent works of a maintenance nature including, but not limited to, watering, weeding, rubbish removal, fertilising, pest and disease control, staking and tying, replanting, pruning and keeping the site neat and tidy.
DEFECTS LIABILITY PERIOD: The Contractor shall be liable for defects for all works undertaken within this contract for a period of fifty two (52) weeks to run after the date of Practical Completion, to run concurrently with the nominated Plant Establishment Period.

7.02 REQUIREMENTS

MAINTENANCE PROGRAM: Furnish a proposed planting maintenance program, and amend it as required until approved. Comply with the approved program.
MAINTENANCE LOGBOOK: Keep a logbook recording when and what maintenance work has been done and what materials, including toxic materials, have been used. Make the logbook available for inspection on request.
COMPLETION: Notwithstanding anything to the contrary of the Contract, the Superintendent may instruct the Contractor to perform urgent maintenance works. Should the Contractor fail to carry out the work within seven days of such notice, the Superintendent reserves the right to employ others to carry out such urgent and specified work and charge it to the Contractor.
WARRANTY: Submit the supplier's written statement certifying that plants are true to the required species and type, and are free from diseases, pests and weeds.

7.03 PLANTING

PLANTING: Continue to ensure the general appearance and presentation of the landscape and the quality of plant material at date of practical completion is maintained for the full Planting Establishment Period.

- Existing Planting: Where existing planting is within the landscape contract area, maintain it as for the corresponding classifications of new or planting.
- Replacements: Continue to replace failed, dead and/or damaged plants at minimum 2/3 week intervals as necessary throughout the full Plant Establishment Period.
- Pruning: Pruning of shrubs will be required during Spring and may only be necessary on an on the spot basis during the remainder of the year. Pruning should reflect the natural growth flowering and regrowth habit of the individual species. Generally prune shrubs after flowering. Trimming of shrubs must be scheduled at times which will maintain the character and design of any specified hedges.
  Two to three times per season would be expected. Trees are pruned to eliminate diseased or damaged growth, avoid inter-branch contact and thin out crowns in a natural manner. Major tree pruning should be carried out by a suitably qualified tree surgeon/ arboriculturalist. Generally, ensure that all dead palm fronds and tree branches are removed as soon as noticed.

FERTILISING: Soil testing is to be done on a two year schedule and would include taking samples from planting beds. The fertilisation program shall be based on the soil testing results. Generally a low-phosphorus fertiliser suitable for native plants should be applied at recommended rates. All purpose fertiliser shall be applied to shrubs annually in two bands and cultivated into the soil 100mm deep. Fertilisation of shrubs and trees shall take place in September and March according to seasonal growth requirement.

INSECT AND DISEASE CONTROL: The Contractor shall be responsible for the control of any pest or disease which may affect the plants. Once the problem has been correctly identified, then a suitable form of treatment should be engaged until the problem has been eliminated. If the use of chemical spray is required, strict adherence to the manufacturer's recommended rates and handling is essential. Proper care should be taken to protect both the user and persons likely to be affected or come in contact with the spray. Allowance should be made to carry out such work outside of normal working hours if necessary.
STAKES AND TIES: Adjust stakes and ties where necessary. Where plants are robust with well developed systems and are strong enough to no longer require support, stakes and ties shall be removed. Where plants are unable to be self supported or where stakes are damaged, plants shall be staked or restaked. Remove those not required at the end of the Plant Establishment Period.

7.04 GARDEN BEDS

WEEDING AND CLEARING: Remove all weed growth and re-occurring weed growth by hand or spray with approved herbicide unless otherwise specified throughout all planted and mulched areas. This work shall be executed regularly so that the planted, paved and mulched areas are weed free when observed at bi-weekly intervals. Vigorous ground covers shall be cleared from and maintained 200mm from the base of any shrub or tree.
RUBBISH REMOVAL:

- General: Any bottles, papers, cigarette butts, etc. shall be removed by hand from the site. This work shall be executed regularly so that all areas are free from rubbish when observed at bi-weekly intervals.
- Leaf Litter: Leaf litter shall be removed from all path areas and spread evenly over the mulched areas.

MULCHED SURFACES: Mulched areas should be inspected monthly to determine mulch requirements. Generally a minimum depth of 75mm cover should be maintained to ensure adequate weed suppression and quality finish. Special care when re-mulching should be given to maintaining original ground levels around the base of plants.
DRAINS: All drainage structures shall be inspected and cleaned out at six monthly intervals to ensure that they are in proper working order.

7.05 WEED MATS

GENERALLY: The Contractor shall maintain mats in a weed free condition and where deemed necessary at the absolute discretion of the Superintendent reinstate missing or damaged mats to the standard previously specified until completion of the maintenance period.

7.06 WATERING

ESTABLISHMENT: All newly planted areas are to receive a minimum three (3) complete waterings (i.e. soaked to a depth of 150mm) at fortnightly intervals for the first 3 months of plant establishment irrespective of natural rainfall. It shall be the Contractor's responsibility to co-ordinate water supply.
HAND: Mechanically water (watercart) all planted areas with spray for minimal impact. Water all newly planted areas so that the soil is soaked to a depth of 300mm for planting. Avoid frequent dampening of the surface to avoid runoff due to excess water. Allow the surface of the soil to partially dry out between waterings. Water as necessary to maintain a vigorous and healthy growth.

.....
Project Landscape Architect

8.01 PLANT MIX DRAWINGS

- **PLANT MIX B**
- **PLANT MIX C**
- **PLANT MIX E**
- **PLANT MIX F**

8.02 PLANT SCHEDULES

ENTRY PLANTING – refer to drawing L07 for location

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m²	QTY *Total Area
TREES					
Livistona australis	Cabbage Palm	2-metre trunk	8.0 x 3.0		1
SHRUBS & GROUNDCOVERS					
Alpinia caerulea	Native Ginger	5L	2.0 x 1.0		7
Cordyline terminalis 'Rubra'	Red Cordyline	15L	2.0 x 0.6		7
Cordyline stricta	Palm Lily	15L	3.0 x 1.0		7
Liriope muscari 'Evergreen Giant'	Turf Lily	150mm	0.7 x 0.4		25
Syzygium australe 'Dwarf Form'	Dwarf Lillypilly	25L	3.0 x 1.5		7

PLANT MIX A, *Total area based on calculations from drawings L03, L04, L05, L06, L07 - Issue B (68m2)

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m²	QTY *Total Area
Lomandra longifolia Plant at 500mm spacings	Spiny Mat Rush	Tube	1.0 x 1.0	40	272

PLANT MIX B: *Total area based on calculations from drawings L03, L04, L05, L06, L07 - Issue B (48m2)

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m²	QTY *Total Area
TREES					
Acacia longifolia	Coastal Wattle	5L	6.0 x 4.0	1	5
Allocasuarina torulosa	Forest She Oak	5L	6.0 x 4.0	2	10
Banksia serrata	Old Man Banksia	5L	8.0 x 4.0	2	10
Elaeocarpus reticulatus	Blueberry Ash	5L	8.0 X 4.0	1	5
SHRUBS					
Acacia sophorae	Prostrate Coastal Wattle	150mm	2.0 x 2.0	2	10
Banksia spinulosa	Hairpin Banksia	150mm	1.5 x 1.5	2	10
Leptospermum polygalifolium	Weeping Tea Tree	150mm	1.0 x 1.0	1	5
Callistemon citrinus	Red Bottlebrush	150mm	2.0 x 1.0	2	10
GROUNDCOVERS & CLIMBERS					
Dianella caerulea	Flax Lily	Tube	0.6 x 0.6	40	200
Hardenbergia violacea	Native Sarsparilla	150mm	2.0 x 1.0	5	25
Pandorea pandorana	Wonga Wonga Vine	150mm	3.0 x 1.0	5	25

PLANT MIX C: *Total area based on calculations from drawings L03, L04, L05, L06, L07 - Issue B (55m2

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m²	QTY *Total Area
Banksia spinulosa	Hairpin Banksia	150mm	1.5 x 1.5	1	6
Cordyline stricta	Palm Lily	150mm	2.0 x 0.8	3	16
Diospyros australis	Black Plum	150mm	4.0 x 2.0	1	6
Synoum glandulosm	Rosewood	150mm	3.0 x 2.0	1	6
Syzygium australe 'Dwarf Form'	Dwarf Lillypilly	150mm	3.0 x 2.0	3	16
Cordyline stricta	Palm Lily	150mm	2.0 x 0.8	5	28
GROUNDCOVERS					
Doodia aspera	Rasp Fern	150mm	0.3 x 0.4	30	165
Imperata cylindrica	Blady Grass	Tube	0.5 x 0.4	30	165

PLANT MIX D: *Total area based on calculations from drawings L03, L04, L05, L06, L07 - Issue B (65 lineal metres, @ 100mm wide)

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m, 100mm wide strip	QTY *Total Area
Isolepis nodosa	Knobby Club Rush	Tube	0.5 x 0.2	25	165
Imperata cylindrica,	Blady Grass	Tube	0.4 x 0.2	25	165

Plant at 200mm spacings, in groups of 5 – 10

PLANT MIX E: *Total area based on calculations from drawings L03, L04, L05, L06, L07 - Issue B (65m2)

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m²	QTY *Total Area
TREES					
Acmena smithii	Lillypilly	15L	6.0 x 4.0	1	7
Banksia integrifolia	Coastal Banksia	15L	8.0 x4.0	1	7
Cyathea cooperi	Tree Fern	15L	6.0 x 3.0	1	7
Elaeocarpus reticulatus	Blueberry Ash	15L	6.0 x 3.0	1	7
Livistona australis	Cabbage Palm	45L	6.0 x 3.0	1	7
SHRUBS & GROUNDCOVERS					
Catochlaena dubia	False Bracken Fern	150mm	0.8 x 0.6	10	65
Commelina cyanea	Native Wandering Jew	Tube		10	65
Dianella caerulea	Flax Lily	150mm	0.6 x 0.6	10	65
Dodonaea triquetra	Hop Bush	150mm	2.0 x 2.0	3	20
Lomandra longifolia	Mat Rush	150mm	1.0 x 1.0	8	52
Smilax glyciphylla	Native Sarsparilla	150mm	3.0 x 1.0	10	65
Viola hederacea	Native Violet	Tube	0.1 x 0.1	10	65

PLANT MIX F: *Total Area based on calculations from drawings L03, L04, L05, L06, L07 – Issue B (25m2)

BOTANICAL NAME	COMMON NAME	SIZE	HEIGHT & SPREAD AT MATURITY	QTY per 10m²	QTY *Total Area
TREES AND SHRUBS					
Cordyline stricta	Palm Lily	3.0 x 0.8	150mm	6	15

Alpinia caerulea	Native Ginger	2.0 x 1.0	5L	9	23
Catochlaena dubia	False Bracken Fern	0.8 x 0.6	Tube	12	30
Cyathea cooperi	Tree Fern	6.0 x 3.0	15L	3	8
Banksia integrifolia	Coastal Banksia	8.0 x 4.0	15L	1	3

GROUNDCOVERS AND CLIMBERS					
Commelina cyanea	Native Wandering Jew	0.2 x 1.0	Tube	10	25
Viola hederacea	Native Violet	0.1 x 1.0	Tube	10	25
Pandorea pandorana	Wanga WongaVine	3.0 x 1.0	150mm	10	25

APPENDIX

REVEGETATION MIX: *Total Area based on calculations from drawings L03, L04, L05, L06, L07 – Issue B (317m2)

BOTANICAL NAME	COMMON NAME	HEIGHT X SPREAD (M)	PLANT SPACING (M)	QTY PER 20m²	TOTAL QTY
TREES					
Acmena smithii	Lilly Pilly	6.0 x 4.0	2	1	16
Allocasuarina torulosa	Forest She-Oak	6.0 x 4.0	2	1	16
Backhousia myrtifolia	Grey Myrtle	4.0 x 3.0	2	1	16
Banksia serrata	Old Man Banksia	6.0 x 4.0	2	1	16
Diospyros australis	Black Plum	4.0 x 3.0	2	1	16
Ficus coronata	Sandpaper Fig	5.0 x 4.0	2	1	16
Guioa semiglauca	Guioa	6.0 x 4.0	2	1	16
Synoum glandulosum	Rosewood	6.0 x 4.0	2	1	16
SHRUBS					
Acacia longifolia var. sophorae	Prostrate Coastal Acacia	2.0 x 2.0	1 - 1.5	2	32
Alpinia caerulea	Native Ginger	2.0 x 0.6	1 - 1.5	2	32
Banksia spinulosa	Hairpin Banksia	1.5 x 1.5	1 - 1.5	2	32
Callistemon linearis	Bottlebrush	2.0 x 1.0	1 - 1.5	2	32
Catochlaena dubia	False Bracken Fern	0.8 x 0.6	1 - 1.5	2	32
Dodonaea triquetra	Hop Bush	2.0 x 2.0	1 - 1.5	2	32
Leptospermum polygalifolium	Weeping Tea Tree	1.0 x 1.0	1 - 1.5	2	32
Pittosporum revolutum	Rough-fruit Pittosporum	2.0 x 1.0	1 - 1.5	2	32
GROUNDCOVERS					
Commelina cyanea	Creeping Christian	0.2 x 1.0	1.0	5	80
Dianella caerulea var. producta	Flax Lily	0.6 x 0.6	0.6	15	240
Doodia aspera	Rasp Fern	0.4 x 0.4	0.4	20	320
Imperata cylindrica var. major	Blady Grass	0.4 x 0.2	0.2	40	640
Lomandra longifolia	Mat Rush	1.0 x 1.0	0.5	15	240
Oplismenus aemulus	Basket Grass	0.1 x 1.0	1.0	20	320
Viola hederacea	Native Violet	0.1 x 1.0	1.0	20	320
CLIMBERS					
Eustrephus latifolius	Wombat Berry	2.0 x 1.0	1.0	5	80
Pandorea pandorana	Wonga Wonga Vine	3.0 x 1.0	1.0	5	80

PLANTING NOTES FOR REVEGETATION MIX

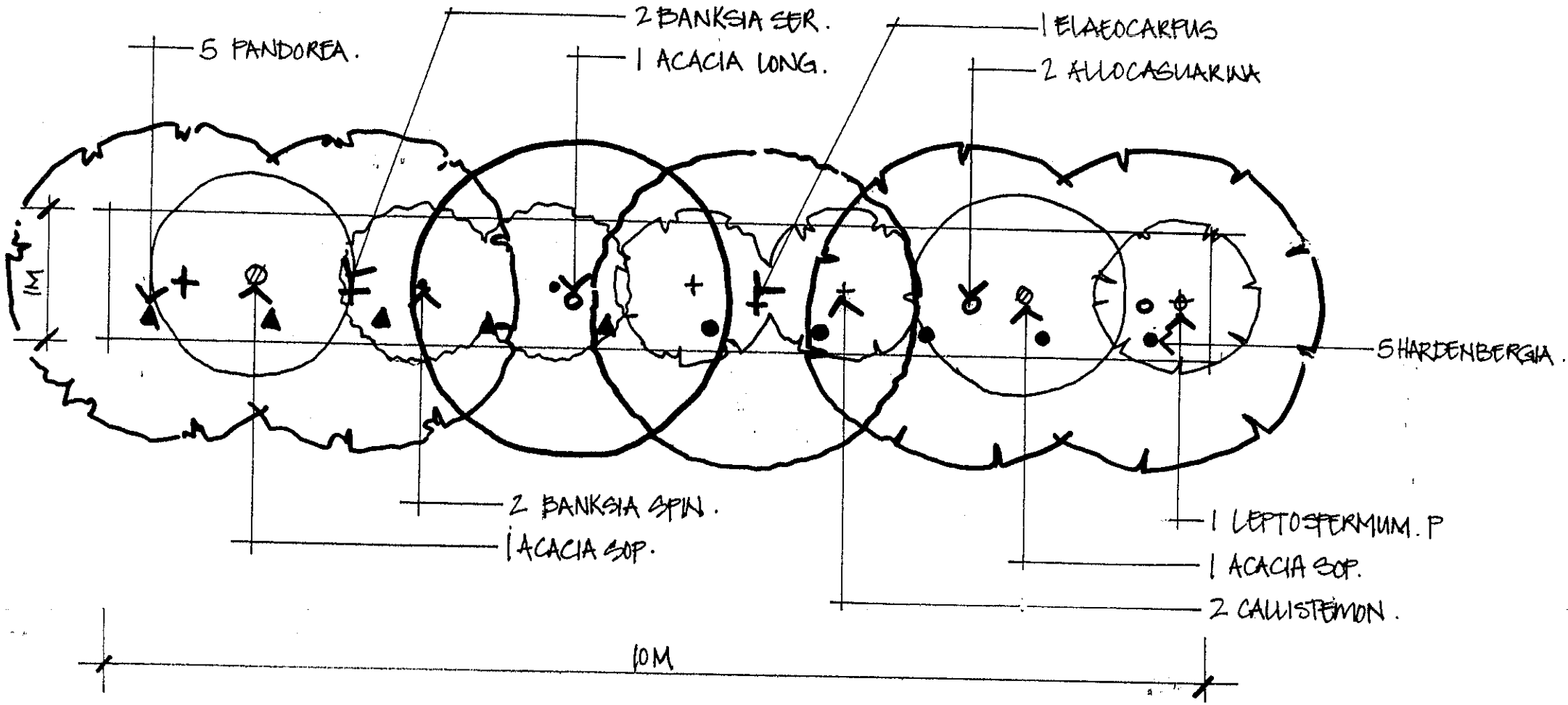
ADDENDUM 17.01.2003: ALL TREES AND SHRUBS IN REVEGETATION MIX TO BE SUPPLIED IN 150MM POTS. ALL GROUNDCOVERS AND CLIMBERS TO BE SUPPLIED IN TUBES.

TREES
For every area of 20 m², plant one tree of each species in list at approximately 2 metre spacings. Trees may be planted in groups of same species, maximum three trees of any type per group. Spacings should be slightly irregular so as to give 'natural' look.

SHRUBS
For every area of 20m², plant two shrubs of each species in list at approximately 1 - 1.5 metre spacings. Shrubs to be planted in groups of three to five of same species. Spacing to be slightly irregular to give 'natural' look.

APPENDIX

GROUNDCOVERS AND CLIMBERS
For every area of 20m², plant number of groundcovers and climbers as listed. Plants to be grouped in numbers of five to ten per species, at spacings as provided in list.



NOTE: PLANT CLIMBERS AT FRONT OF PLANTER TO ENCOURAGE SPILLOVER.

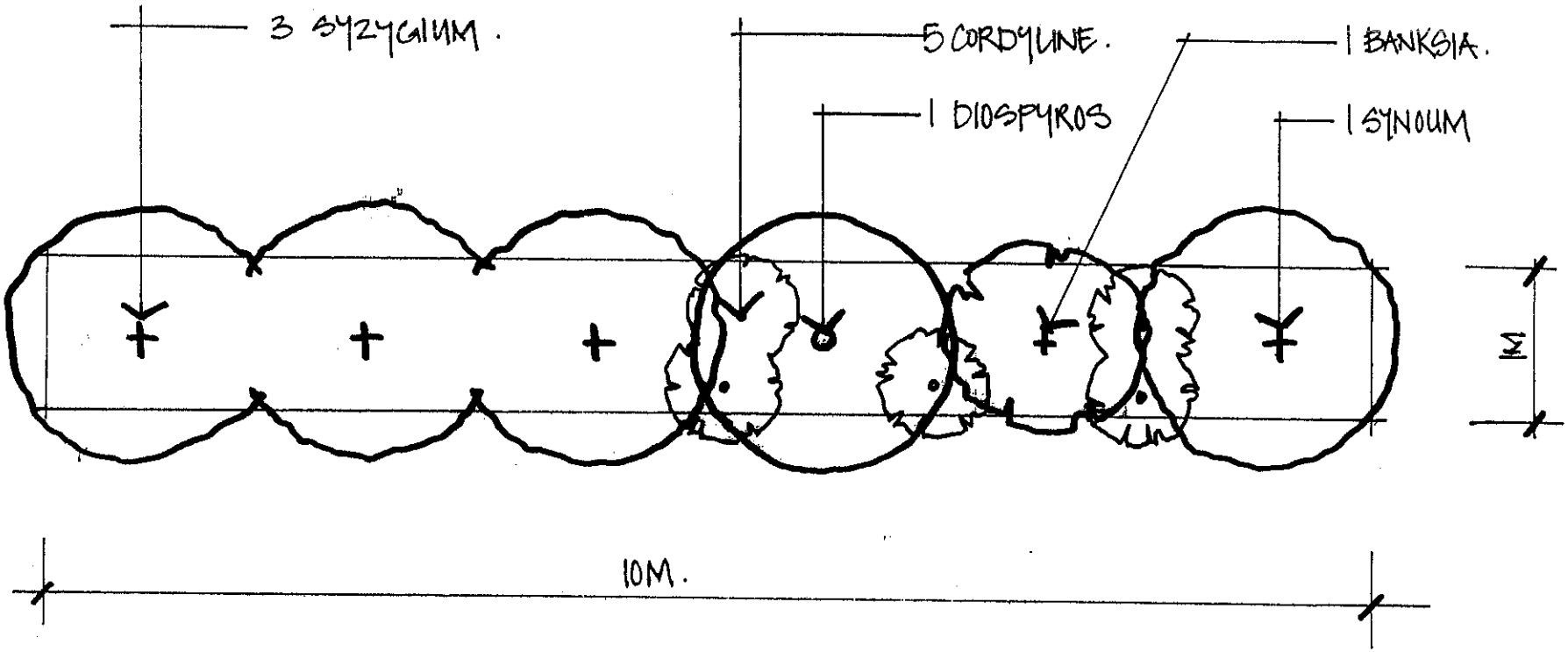
GROUNDCOVERS PER 10m²:

40 DIANELLA CAERULEA @ 500mm SPACINGS.

PLANT MIX B SCALE 1:50

PSB 00137B

PSB

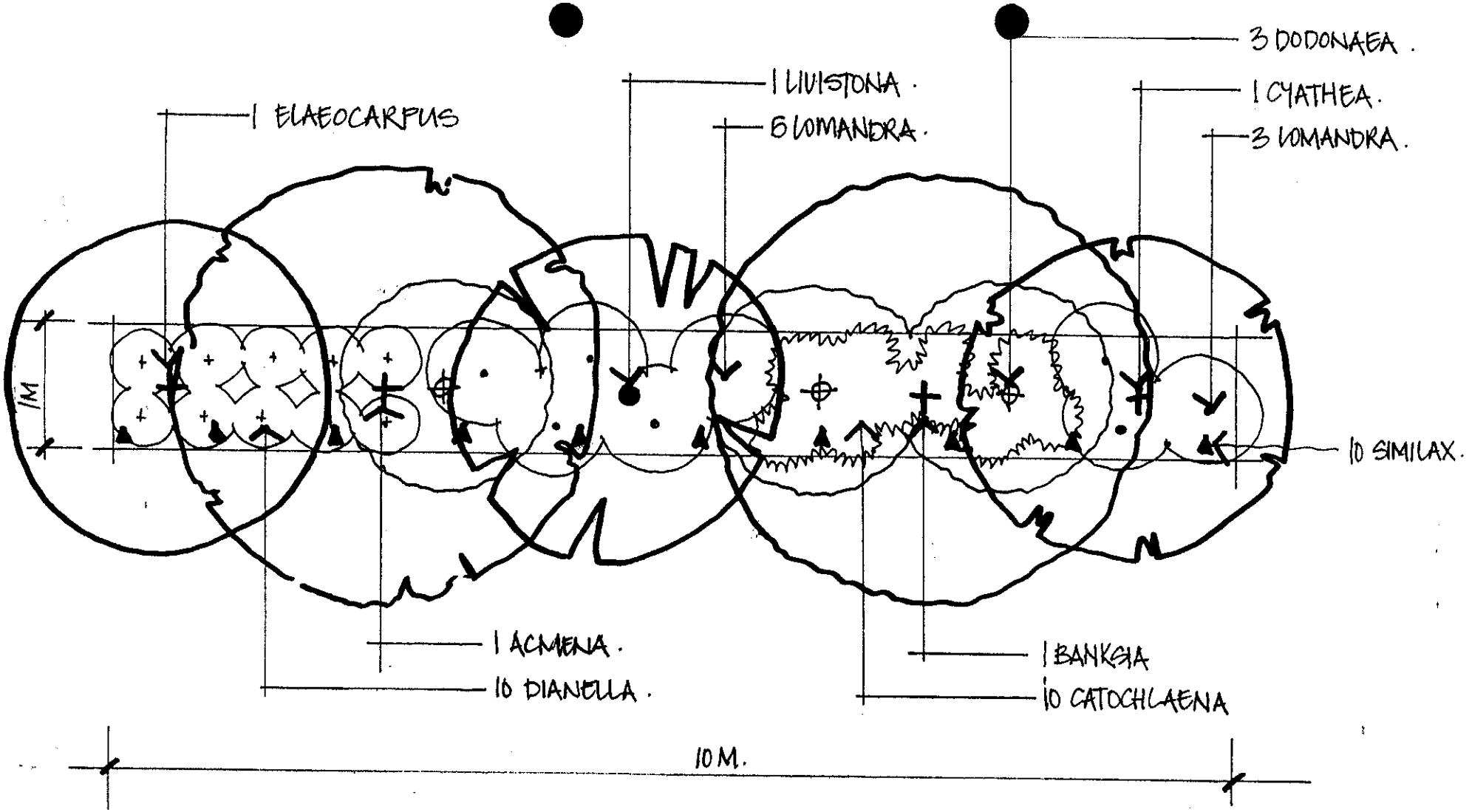


GROUNDCOVERS PER 10m²:
30 DOODIA @ 400mm SPACINGS
30 IMPERATA @ 400mm SPACINGS
(TO BE GROUPED IN CLUMPS OF 5-10).

PLANT MIX C SCALE 1:50

PSB 00137B

PSB

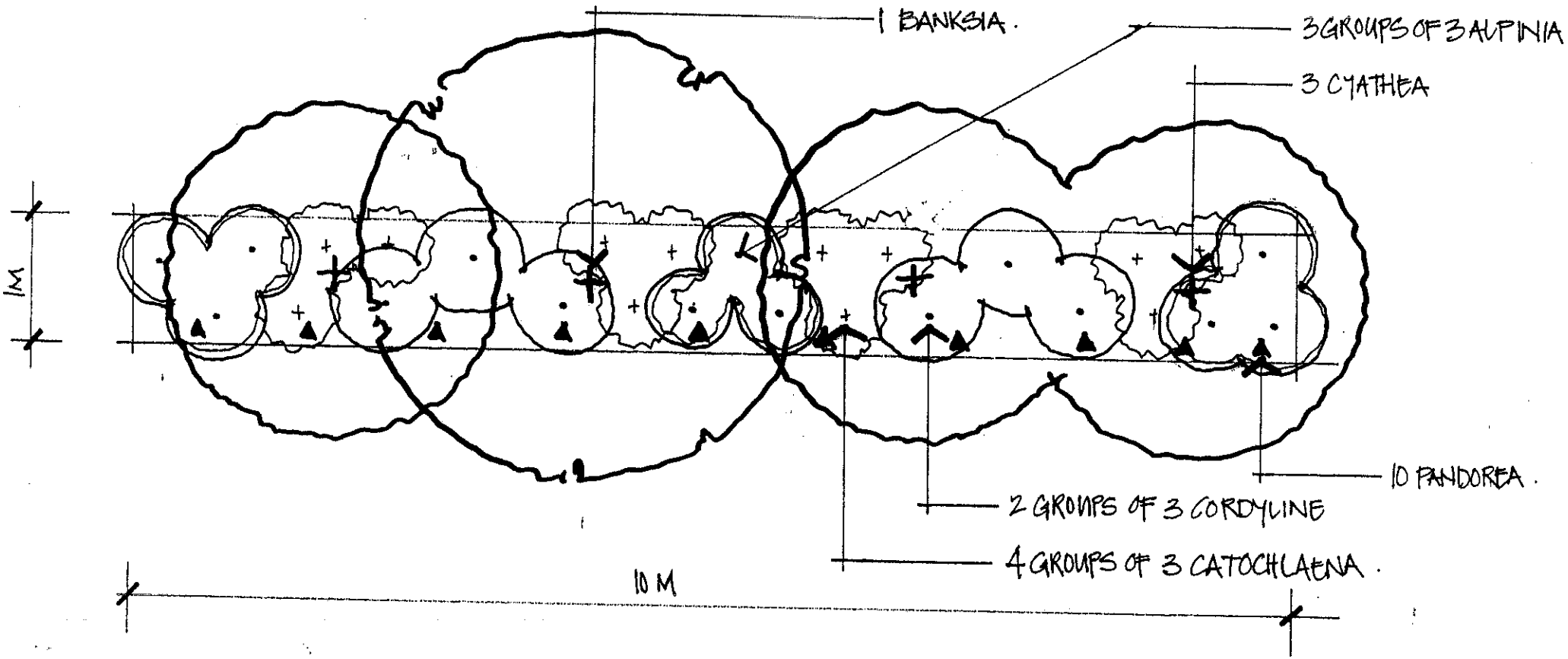


NOTE: INDICATIVE LAYOUT ONLY.
DO NOT REPEAT PATTERN - TREES MAY BE COMBINED IN DIFFERENT ORDER, SPACING SLIGHTLY ADJUSTED SO NOT TOO REGULAR. PLANT CLIMBERS AT FRONT OF PLANTER TO ENCOURAGE SPILLOVER.

GROUNDCOVERS PER 10m²:
10 COMMELINA @ 1000mm SPACINGS

PLANT MIX E SCALE 1:50
PSB 001318

PSB



GROUNDCOVERS PER 10M²:
10 PANDOREA @ 1000mm SPACINGS, PLANTED AT FRONT OF PLANTER TO ENCOURAGE SPILLOVER.
10 COMMELINA @ 1000mm SPACINGS
10 VIOLA @ 1000mm SPACINGS.

PLANT MIX F SCALE 1:50.

PSB 00137B

PSB

Product Data Sheet

BENEDICT

Benedict *SmartMix*™ No. 6 Native Garden Mix

Product Code (s): W117 (N/MIX)
Source: Belrose

Description: A well balanced mix based on a minus 25mm gap graded Hawkesbury sandstone. Low phosphorous and good drainage makes this ideal for most native plantings. Fertiliser additions will improve the suitability of this mix for exotic plants.

80% Crushed Hawkesbury Sandstone
20% Nutrihumus Compost

Uses: W117 is designed to meet the needs of phosphorous sensitive plants preferring a low pH. The high permeability makes this mix suitable for both on-grade and slab applications.

Benefits:

- gap graded sandstone replicates a well structured natural soil.
- sandstone to sandstone contact buffers the soil mix from excessive compaction.
- high porosity allows for easy root expansion, good aeration and drainage.

Handling/ Transport/ Storage: Native Garden Mix is a gap-graded blend. It is important that the mix is well turned prior to placement. There may be some particle segregation if the mix is allowed to dry out. Install at a maximum depth of 300mm in lifts not exceeding 200mm. Where planter depth

Native Garden Mix (cont.)

Handling/ Transport/ Storage: (cont.)

exceeds 300mm, we recommend a sub-soil mix such as our W110 (40% crushed sandstone : 60% washed medium sand) be installed. The organic matter content of this sub-soil mix should be <1% by mass

Characteristics: **(a)Chemical Properties:**

	Result	*Ideal Range*
pH in water (1:2)	5.8	5.0 - 6.0
pH in CaCl (1:2)	5.5	5.0 - 6.0
Electrical conductivity	0.17mS/cm	

Soluble Cations	*mg/kg*	*% ECEC*	*Ideal Range*
Sodium	34.5	7.35	<5
Potassium	70.2	6.97	5 - 15
Calcium	154.0	58.17	60 - 75
Magnesium	46.7	18.4	5 - 25
Calcium:magnesium ratio	3.3	-	3 - 6

Nutrient	*mg/kg*	*Ideal Range*
Phosphate	7.23	10 - 50
Ammonium	5.15	<100
Nitrate	3.55	<100
Sulphate	19.85	>40<100

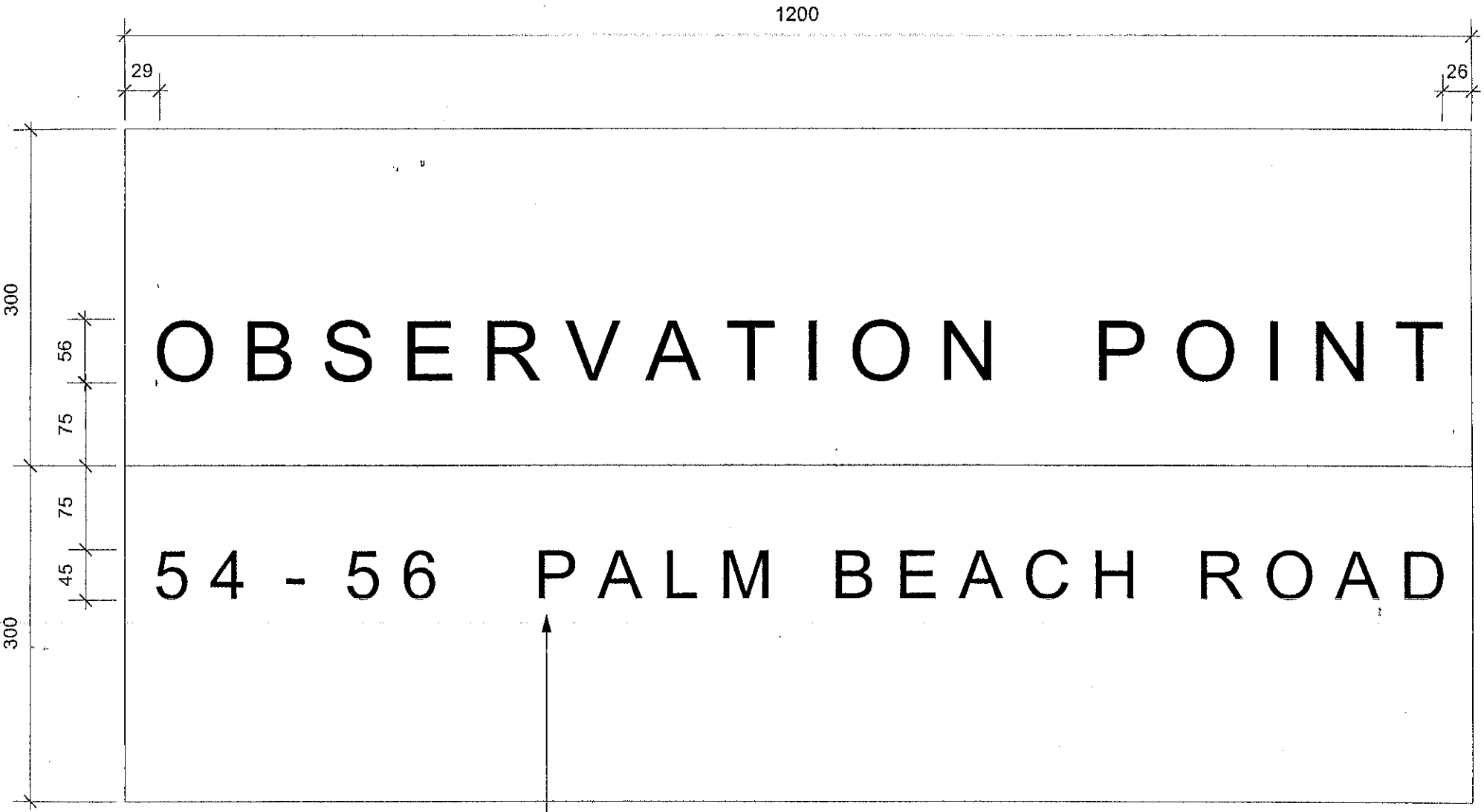
Characteristics: **(b) Physical Properties**

	Result	*Ideal Range*
Permeability	27cm/hour	2 - 80cm/hour
Water holding capacity	40 to 45%	
Air filled porosity	18 to 23%	
Organic matter (% by mass)	13.23	5 - 15%

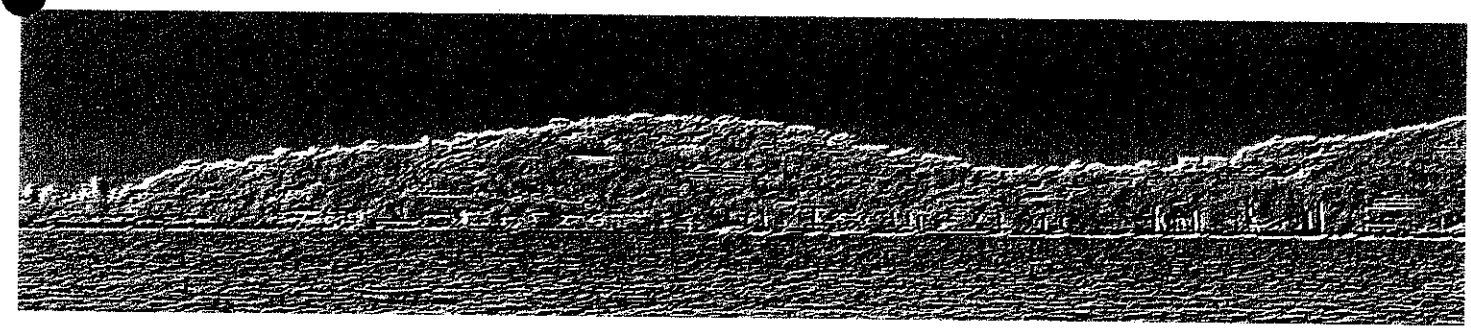
Alternative Products: See BS133, W13, R111, R101

Technical Enquiries:

BENEDICT SAND & GRAVEL
PH: 02 99863500 FAX: 02 99863555
CONTACT: MURRAY FRASER BSc(Ag)



DETAIL LETTERING FOR SIGNAGE
SCALE 1 : 5



CONSTRUCTION MANAGEMENT PLAN
for
OBSERVATION POINT
at
1148-1152 Barrenjoey Road
56 Palm Beach Road
Palm Beach

CONTENTS

1.0 INTRODUCTION 3
1.1 Purpose 3
1.2 Controls 3
1.3 Final Setout Plan 4
2.0 STAGING 4
2.1 Sequence 4
2.2 Construction Programme 5
2.3 Construction Methodology Statement 5
2.4 Construction Working Hours 5
3.0 MATERIALS – DELIVERY AND HANDLING 5
3.1 Site Access 5
3.2 Provision for Access 6
3.3 Materials Storage & Handling 6
3.4 Site Shed & Facilities 7
3.5 Contractor Parking 7
4.0 SITE RESPONSIBILITY 7
5.0 SAFETY PROCEDURES 10
5.1 Emergency Procedure 10
5.2 Site Hoarding / Barricade 10
6.0 OPERATIONAL MATTERS 10
6.1 Legislative Requirements 10
6.2 Water 11
6.3 Air 12
6.4 Noise & Vibration 12
6.5 Waste Minimisation & Management 13
6.6 Excavation 14
6.7 Archeological Relics 14
7.0 CONCLUSION 15
Appendix 1 – Final Setout Plan 16
Appendix 2 – Construction Methodology Statement 17
Appendix 3 – Pedestrian & Traffic Management Plan 18
Appendix 4 – Erosion & Soil Management Plan 19
Appendix 5 – Access Plan 20

Revision History

Revision	Date	Comment
Draft	23 August 2002	Draft issued for comment
0	24 September 2002	Issued to Client
A	19 November 2002	Issued for Council submission

1.0 INTRODUCTION

1.1 Purpose

The following Construction Management Plan (CMP) has been prepared by the owner Raypond Pty Ltd. It is provided at the request of Council and sets out the approach for the management of the works for the sub-division of 3 lots into 4, and erection of four dwellings at 1148 – 1152 Barrenjoey Road, and 56 Palm Beach Road, Palm Beach.

This plan is proposed to satisfy Condition B1 of Development Consent No.N1228/00 dated 27 December 2001 which grants approval for the subdivision of three lots into four, driveway construction and demolition of existing cottage at 1148 Barrenjoey Road Plam Beach.
The plan has been development for the commencement of the subdivision works under a Stage 1 Construction Certificate which involves the construction of the driveway. The information contained in this plan is provided to outline suitable methods for managing these works.

The plan will outline other documents to be considered and implemented in conjunction with this plan, the sequence of works, and material delivery, handling and storage.

This is a Construction Management Plan that shall be the responsibility of the Excavation Contactor and is provided to satisfy the subdivision works as approved by Development Consent N1228/00. A further Construction Management Plan shall be developed by the successful building contractor, in consultation with Council and/or the independent certifier.

1.2 Controls

The following documents have been considered in the preparation of this construction management plan;

- Bushland Management Plan (August 2002) by GIS Environmental
- Geotechnical Report (December 2000) by Shirley Engineering
- Geotechnical Site Investigation Report (29 July 2002) by Shirley Engineering
- Approved DA Consent No. N1228/00 to be issued by Pittwater Council on 27 December 2002.
- Landscape Works Specification (September 2002) by Pittendrigh, Shrinkfield and Bruce.
- Hydraulic Engineers temporary & permanent stormwater drainage works by Tierney & Partners.
- Hydraulic Engineers Soil & Erosion Control Plan by Tierney & Partners.
- Civil drawings by Tierney & Partners.
- Services drawing by Acor Consulting.

- Sewerage diagram by Michael Bell & Partners.
- Architectural Drawings prepared by Crone Nation.

1.3 Final Setout Plan

The final setout plan is attached in Appendix 1.

2.0 STAGING

2.1 Sequence

Site establishment will require final surveying and identification of trees to be removed and the erection of all exclusion fencing of areas to remain undisturbed during the works. The site appointed arborist shall certify the erection of the protective fencing prior to the commencement of any other works.

Site procurement works shall be undertaken such as the provision of a site shed for staff, an ablution block and temporary power. The location of these facilities shall be in accordance with the plan to be prepared by the successful tenderer and submitted to Council prior to commencement of works.

A dilapidation report of existing infrastructure immediately adjoining the site shall be undertaken prior to the commencement of works. Dilapidation reports shall also be prepared and provided to the Accredited Certifier & property owners for dwellings in Sunrise Road, Palm Beach Road and Barrenjoey Road that are likely to be impacted by earthworks or geotechnical activity of the site.

Existing services shall be surveyed to determine if any services diversions are to occur to facilitate the proposed works. Any service diversion works shall be programmed as a specific task and where possible and practicable shall be undertaken prior to the commencement of any other works. Disruption to services shall be kept to a minimum and where necessary as a last resort temporary services shall be provided to maintain the provision of the utility.

The construction of the driveway including the associated earthworks will be the first stage of the works and will be used for the main point of access during construction.

2.2 Construction Programme

The successful contractor shall provided a detailed construction programme that shall identify time allocation to each task involved in this process and the sequencing of the tasks.

2.3 Construction Methodology Statement

The construction order of the driveway is setout in the Methodology of the Geotechnical Report, but it will generally be constructed from the bottom up the site, with the construction of up-hill water run-off drainage essential to be completed before the works commence. A detailed Construction Methodology Statement shall be provided by the successful contractor that shall stipulate the process involved in each task. This Construction methodology Statement shall demonstrate that each task has been co-ordinated with the control documents identified in Section 1.2 of the plan (see Appendix 2).

2.4 Construction Working Hours

The hours of construction are restricted to between the hours of 7.00am and 5.00pm Monday – Friday and 7.00am to 1.00pm on Saturdays. No works are to be carried out on Sunday or Public Holidays.

Construction works to the public road shall be undertaken outside peak traffic periods and in strict accordance with the requirements of the Roads & Traffic Authority requirements.

3.0 MATERIALS – DELIVERY AND HANDLING

3.1 Site Access

All suppliers and subcontractors shall be notified of the intended route for offsite and onsite traffic (Refer to the Pedestrian & Traffic Management Plan in Appendix 3). The supply of materials to the site shall be strictly controlled to minimize the storage.

Materials will generally be delivered via the driveway access from Palm Beach Road. All vehicular traffic is to enter & leave the site in a forward direction, with the exception of heavy delivery vehicles and during initial excavation phase. The construction access to the site shall be via the approved driveway only.

A temporary concrete pump shall be located just beyond the driveway widening when required allowing concrete trucks to reverse from Palm Beach Road into the driveway crossing.

Other materials can be unloaded in a similar manner with delivery vehicles reversing into the base of the driveway. All delivery vehicles shall be co-ordinated with the site manager. Traffic management strategies shall be implemented during the delivery of heavy materials or concrete that would require reversing onto the site. Queuing of delivery vehicles shall not be permitted within 100m of the intersection between Palm Beach Road & Barrenjoey Road.

All vehicles leaving the site shall have any clay or debris removed from the wheels in accordance with the Erosion & Sediment Management Plan (See Appendix 4).

3.2 Provision for Access

In accordance with the Bushland Management Plan, access for machinery for construction of the walls at the top of the embankment at main entry off Palm Beach Road, it will be necessary to clear vegetation to form a temporary access way. A permanent gabion wall will also be located in the area after the embankment walls are completed and access way has finished being utilized. The area is indicated on the attached plan (See Appendix 5).

The vegetation in this area is included in the bush regeneration zone and appropriate collecting of tree species shall be undertaken in accordance with the Bushland Management Plan.

Protective fencing will be erected to define the access way and other appropriate barrier implemented in accordance with the Bushland Management Plan.

The removal of trees shall be undertaken strictly in accordance with the Bushland Management Plan.

3.3 Materials Storage & Handling

Three options to move the materials up the site exists and the successful tender will confirm their preferred option. (alternatively any other low impact method proposed by a successful contractor)

These options include the use of a small utility to run materials up and down the driveway, the usage of four wheel ride-on front loading wheel borrows, or the erection of a lightweight boom crane positioned near house 2 to lift materials from the delivery location and place them directly on the individual driveway zones in front of each dwelling proposed for materials holding.

As described it is proposed to store materials on the individual driveway crossing for each dwelling, and later in the garages of each dwelling. This process is to be confirmed by the successful contractor.

No storage of building materials, waste, excavated fill or topsoil storage shall occur within the drip line of trees. All storage of materials shall occur within the designated locations. The site manager shall be responsible to supervise and enforce this requirement.

3.4 Site Shed & Facilities

The site shed shall be positioned on the existing disturbed zone at the top of the driveway during the construction of the driveway or any other ocation as set out on drawing required by Section 2.1 of this report. Site toilets shall be provided between dwellings 2 – 3 and one between dwellings 1 – 4 at the edge of driveway and within identified disturbance zones.

3.5 Contractor Parking

There will be opportunity for contractors to use the proposed visitor spaces and available space on the driveway crossing outside each dwelling not used for materials storage. Parking opportunities also exists further along Palm Beach Road and down at the community carpark approximately 150m from the site.

Due to the complex nature of the site, sub-contractors will be strategically co-ordinated on site, potentially limiting numbers on site, thus minimising impact of tradesmen's vehicles. Most should be accommodated on site.

4.0 SITE RESPONSIBILITY

The following people have responsibility for the effective implement the Construction Management Plan;

Applicant	Company:	Raypond Pty Ltd
	Contact:	Darren Leete
	Address;	PO Box 1364
	Numbers	0412 226 044
		Fx 9944 0316

Architect	Company:	Crone Nation Architects
	Contact:	Simon Thorne
	Address:	Level 2, 364 Kent Street, Sydney NSW 2000
	Numbers:	Ph 8295 5300
		Fx 8295 5301
Structural Engineer	Company:	Tierney & Partners
	Contact:	James Park
	Address;	Level 5, 411 Victoria Ave, Chatswood NSW 2067
	Numbers	Ph 9904 6555
		Fx 9904 6777
Geotechnical Engineer For Investigation	Company:	Shirley Consulting Engineers
	Contact:	Andrew Shirley
	Address;	895 Pacific Highway, Pymble NSW 2073
	Numbers	Ph 9449 5577
		Fx 9449 5139
Geotechnical Engineer For Works	Company:	Douglas & Partners
	Contact:	John Braybrooke
	Address;	96 Hermitage Road West Ryde NSW 2144
	Numbers	Ph 9809 0666
		Fx 9809 4095
Arborist	Company:	Pittendrigh Shrinkfield and Bruce
	Contact:	Stuart Pittendrigh
	Address;	360 Pacific Highway, Crows Nest NSW 2065
	Numbers	Ph 9906 4500
		Fx 9906 4479
Traffic Consultant	Company:	John Hewitt Traffic Planning Assoc
	Contact:	John Hewitt
	Address;	7 Vincent Pl, Davidson NSW 2085
	Numbers	Ph 9451 2629
		Fx 9453 3349
Traffic Management Consultant	Company:	HVS Services
	Contact:	Bill Ralston
	Address;	11 Arkley St Bankstown NSW 2200
	Numbers	Ph 9790 5077
		Fx 9790 6799

Environ Consultant	Company:	GIS Environmental Consultants
	Contact:	Nicholas Skelton
	Address;	45 Austin Ave, North Curl Curl NSW 2099
	Numbers	Ph 9401 0715
		Mb/Fx 041 943 8672
Driveway Contractor	Company:	To be advised
	Contact:	XXXXXXXXX
	Address;	XXXXXXXXXXXXXXX
	Numbers	XXXXXXXXX
		XXXXXXXXX
Driveway Contractor (Site Manager)	Company:	To be advised
	Contact:	XXXXXXXXX
	Address;	XXXXXXXXXXXXX
	Numbers	XXXXXXXXX
		XXXXXXXXX
Building Contractor	Company:	To be advised
	Contact:	XXXXXXXXX
	Address;	XXXXXXXXXXXXXX
	Numbers	XXXXXXXXX
		XXXXXXXXX
Building Contractor (Site Manager)	Company:	To be advised
	Contact:	XXXXXXXXX
	Address;	XXXXXXXXXXXXXXX
	Numbers	XXXXXXXXX
		XXXXXXXXX
Authority	Company:	Pittwater Council
	Contact:	John Raven
	Address;	9, 11 & 12/5 Vuko Pl, Warriewood NSW 2102
	Numbers	Ph 9970 1111
		Fx 9970 7150
Roads	Company:	RTA
	Contact:	Lyn Van Putten
	Address;	PO Box 558, Blacktown NSW 2148
	Numbers	Ph 9672 2536
		Fx 9831 0932

Accredited Certifier	Company:	City Plan Services
	Contact:	Brendan Bennett
	Address;	Level 1, 364 Kent St, Sydney NSW 2000
	Numbers	Ph 8270 3500
		Fx 8270 3501

5.0 SAFETY PROCEDURES

5.1 Emergency Procedure

The Site Manager shall be responsible for implementation of the Site Emergency Procedure.

- Appropriate first aid supplies shall be kept on site within the site shed.
- All accidents and near accidents shall be reported.

Ambulance / Police / Fire Brigades 000	**Workcover Authority 9370 5029**
Pittwater Council (Environ Officer) 9970 1111	**State Emergency Services 9517 1107**
EPA 13 15 55	**Poisons Information Centre 13 11 26**
Sydney Water 13 30 90	**Energy Australia 13 13 88**
AGL 13 19 09	

5.2 Site Hoarding / Barricade

The site shall be secured from the public by the erection of a Type A hoarding or equivalent for the staging and location of works. An application for the approval of a hoarding shall be lodged with Council prior to the commencement of work.

The works on the public road are to be suitable barricaded to protect the public. A detailed Pedestrian & Traffic Management Plan Shall be prepared and implemented. RTA approval is to be obtained where required. (See Appendix 3)

6.0 OPERATIONAL MATTERS

6.1 Legislative Requirements

The construction team shall be aware of their legislative requirements in respect to the follow legislation and any other relevant legislative requirements.

General NSW Legislation

- Environmental Planning & Assessment Act 1979
- Heritage Act 1977
- Local Government Act 1993
- Occupational Health & Safety Act 1983
- Soil Conservation Act 1983

NSW Environmental Legislation

- Environmentally Hazardous Chemicals Act 1985
- Protection of the Environment Administrations Act 1991
- Protection of the Environment Operations Act 1997
- Resources & Recovery Act 2001

Regulations

- Environmentally Hazardous Chemicals Regulation 1994
- Protection of the Environment Administrations Regulation 1997
- Protection of the Environment Operations (General) Regulation 1998
- Protection of the Environment Operations (Amendments & Repeals) Regulation 1998
- Protection of the Environment Operations (Amendment) Regulation 1999
- Protection of the Environment Operations (Further Amendment) Regulation 1998
-

6.2 Water

Objectives

- To ensure water pollution is not caused by construction activities;
- To develop preventative measures to mitigate water pollution during construction activities;
- To minimize generation of contaminated stormwater;
- To appropriately dispose of excess water pooling on the site, particularly in the excavated areas.

Responsibility; Site Manager & Site Team

Procedures

6.2.1 Implement the Erosion & Sediment Management Plan on site before the commencement of any works

6.2.2 Implement the recommendations of the Hydraulic Engineer on site to minimize stormwater run-off.

6.2.3 Differential between clean & dirty stormwater.

6.2.4 Temporary stormwater management system will be installed before land disturbance activities commence. Divert upstream clean stormwater from the works area as much as possible.

6.2.5 Sweep the roads and footpaths every day before finishing work. Do not hose down footpaths and roads. Do not allow silt laden stormwater to escape and pollute surface water.

6.2.6 Conduct routine site inspections to review the effectiveness of protection measures.

6.3 Air

Objectives

- To manage construction activities so as not to prejudice air quality;
- To ensure no health risk or environmental risk occurs due to emission of exhaust gases, fumes or dust.

Responsibility; Site Manager & Site Team

Procedures

6.3.1 All construction plant & equipment with access to the site will be properly maintained.

6.3.2 Mufflers, plant and machinery will be in good working order.

6.3.3 Equipment emitting visible smoke for longer than 10 seconds while operational on site will be taken out of service and corrected to ensure smoke is no longer visible in accordance with the EPA Guidelines.

6.3.4 Trucks transporting materials to & from the site, such as soil, will be covered and tailgates secured.

6.3.5 There will be no incineration or open burning on site of waste materials.

6.3.6 Prompt action will be taken to extinguish fires.

6.3.7 Water spray or dust retardant will be used on exposed areas to prevent dust lift off.

6.3.8 All endeavours will be used to ensure the use of materials of a non-toxic nature

6.4 Noise & Vibration

Objectives

- Ground vibrations as a result of construction activities will not exceed the objectives of relevant legislation; and Construction and demolition activities will not cause undue or annoyance, and will comply with time limitations imposed by the relevant authorities.;

Responsibility; Site Manager & Site Team

Procedures

6.4.1 No demolition or construction noise should be discernible from a habitable room of a sensitive use between 10pm and 7am Monday to Sunday.

6.4.2 Activities that cause a nuisance to noise sensitive activities will not occur outside the approved work hours for the site.

6.4.3 If noise emitting activities are likely to happen in sensitive areas, noise monitoring devices will be used to measure db levels emitted.

6.4.4 Only silenced air compressors with noise cables attached indicating L(A) maxiumum sound pressure level not exceeding 75 db(A) will be used on site. Any equipment exceeding this level will be taken out of service and repaired before operating on site again.

6.4.5 During operation, if equipment is likely yo cause excessive vibration, it will be monitored for vibration levels.

6.4.6 Rock breaking times will be limited to comply with the consent.

6.4.7 Where vibration is an issue consideration will be given to implementing a notification plan for nearby residents.

6.4.8 The road cut shall be undertaken strictly in accordance with the instructions provided within the geotechnical reports.

6.5 Waste Minimisation & Management

Objectives

- To reduce waste sent to landfill by reduction, redirection and management of waste materials. Waste can be avoided through design, reducing waste at the source, reusing waste both on and off site and to recycle waste on-site through separation.

Responsibility; Site Manager & Site Team

Procedures

6.5.1 Develop a waste minimization and management plan for the site.

6.5.2 Sub-contractors to develop a waste minimization plan for their scope of work. Sub-contractors will undertake as part of their contract to minimise the packaging they bring onto the site and to reuse off-cuts where possible.

6.5.3 Pallets and reels will be returned with reusable packaging to the suppliers.

6.5.4 Stockpile materials (clean fill) on site will be reused for back fill or landscaping as approved by the consent. NB: Stockpiles are to be restricted in accordance with the Geotechnical Report and Bushland Management Plan.

6.5.5 Supplies and deliveries will be monitored to reduce overestimating.

6.6 Excavation

Bulk excavation of the driveway shall be carried out under the direct supervision of the Geotechnical Engineer and shall be undertaken in strict accordance with the requirements of the Geotechnical Report and the Construction Methodology Statement.

The successful tenderer shall identify duration of the excavation and the average volume of material that will need to be removed each day. Some material may be retained on site and be stored in an approved location for backfilling of the building platforms. All other material shall be removed to an approved landfill site. Details of the approved landfill site shall be provided to the Principal Certifying Authority prior to removal of any material from site.

No excavation shall commence until all environmental works including but not limited to vegetation exclusion fencing, weed removal, silt fences, stormwater management devices, silt fences etc have been install.

During excavation all necessary environmental controls will be carried out in accordance with the relevant EPA guidelines for the following;

- Site Plant
- Stormwater runoff
- Dust Generation
- Truck Movements

6.7 Archeological Relics

All works shall cease immediately if any Aboriginal Engravings or Relics are unearthed during the excavation works. The Metropolitan Local Aboriginal Land Council (MLALC) and National Parks and Wildlife Services (NPWS) are to be contacted immediately.

7.0 CONCLUSION

This Construction Management Plan has been prepared to confirm a viable set of options existing for the management and co-ordination of the works and handling of materials as part of the works. The Construction Management Plan will be developed prior to application for the Construction Certificate for the houses and in response to any conditions council impose as part of the development consent.

No works are to commence on site until the following documents have been lodged to the satisfaction of the private accredited certifier;

- Site shed & facilities plan
- Dilapidation report of existing infrastructure & adjoining properties
- Construction programme
- Detailed Construction Methodology Statement
- Details on dumping of materials

Appendix 1 – Final Setout Plan

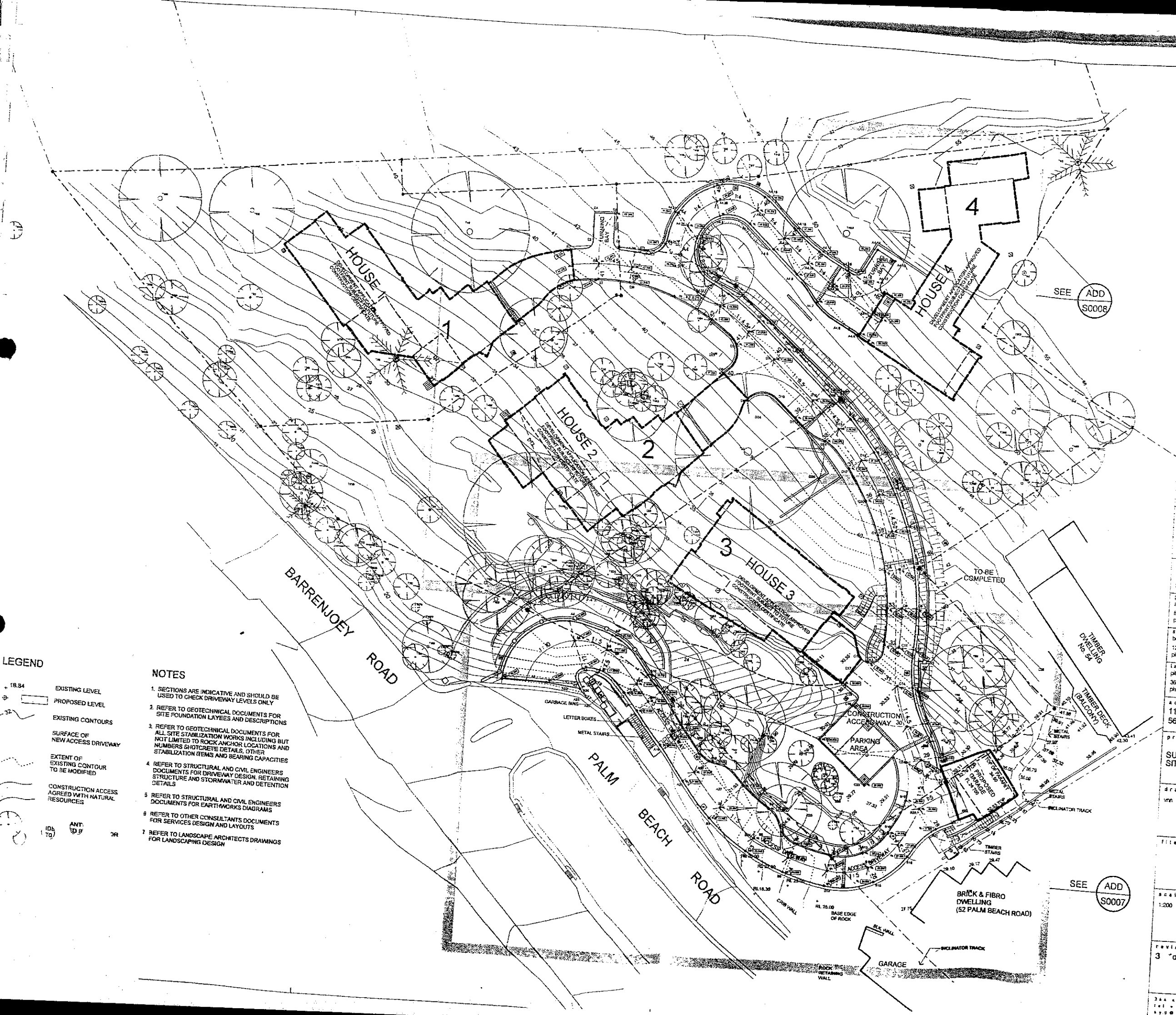
Appendix 2 – Construction Methodology Statement

Appendix 3 – Pedestrian & Traffic Management Plan

Appendix 4 – Erosion & Soil Management Plan

Appendix 5 – Access Plan

Appendix 1 – Final Setout Plan



LEGEND

- EXISTING LEVEL
- PROPOSED LEVEL
- EXISTING CONTOURS
- SURFACE OF NEW ACCESS DRIVEWAY
- EXTENT OF EXISTING CONTOUR TO BE MODIFIED
- CONSTRUCTION ACCESS AGREED WITH NATURAL RESOURCES

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYEES AND DESCRIPTIONS
3. REFER TO GEOTECHNICAL DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants, subcontractors, including specifications. Seek clarification of inconsistencies, conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Colore Hanon Architects

revision

No	Date	Description
1	26-9-12	issued for information & Co-Ordination
2	12-10-12	Revise Entry Slab and Letter Box Revise Retaining Wall and Pathway issue for Information
3	15-10-12	Preliminary issue for inclusion in Construction Management Plan

client
Raypond Developments
po box 1364, dee why, nsw 2099
mobile ph: – 61 2 0412 226 244 fax: – 61 2 9544 0215

structural & civil engineers
bernay & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: – 61 2 9904 6555 fax: – 61 2 9904 5777

geotechnical engineers
shirley consulting engineers Pty Ltd
895 pacific highway, pymble, nsw 2073
ph: – 61 2 9449 5577 fax: – 61 2 9449 5136

surveyor
bowdens group
12 wenworth street, parramatta, nsw 2124
ph: – 61 2 9633 2277 fax: – 61 2 9891 4798

landscape
pittendrigh shinefield & bruce
360 pacific highway, crows nest, nsw 2065
ph: –61 2 9906 4500 fax: –61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
SUB-DIVISION
SITE SETOUT - KEY PLAN

drawn	date	checked	plot date
vm	July 2002		

DF number

file name | job no.
20006

scale
1:200

revision/drawing no.
3 "design development
ADD | S0006

36A knox street sydney, nsw 2000 australia
tel – 61 2 9262 1948 fax – 61 2 9262 3288
sydney@crownarchitecture.com.au

3

HOUSE 3

DEVELOPMENT APPLICATION APPROVED
FOOTPRINT SUBJECT TO FINAL SURVEY
CONSTRUCTION CERTIFICATE

SOLDIER WALL TO ENGINEER'S DETAIL

SURFACE RAIN TO ENGINEER'S DETAIL

NEW RETAINING WALL TO ENGINEER'S DETAIL

NEW BATTER WALL TO BASE OF REGRADED SLOPE REFER TO GEOTECHNICAL ENGINEER'S DOCUMENTS FOR DETAILS

REFER TO GEOTECHNICAL ENGINEER'S DOCUMENTS FOR STABILIZATION WORKS (FOR SOLDIER SHOTCRETE)

NEW RETAINING WALL TO ENGINEER'S DETAIL. TOP OF WALL RAKED TO ANGLE OF DRIVEWAY AND FINISHED WITH CAPPING STONE

STORMWATER DETENTION TANK SHOWN DOTTED REFER TO STORMWATER DESIGNER ENGINEER FOR DETAILS

CONSTRUCTION ACCESS WAY

PARKING AREA

NEW RETAINING WALL TO ENGINEER'S DETAIL

PROPOSED GARAGE

BRICK & FIBRO DWELLING

GARAGE

ROCK RETAINING WALL

BASE EDGE OF ROCK

BLK. WALL

ICLINATOR TRACK

ROCK SHELF

NEW TRAFFIC ISLAND TO ENGINEER'S DETAIL

PALM BEACH ROAD

DATA POINT SETOUT

location	co-ordinates(x,y)	location	co-ordinates(x,y)
A	0, 0	A15	13445,-10735
A2	2680, -87 45	A16	19290,-12485
A3	87680, -5605	A17	17915,-13570
A4	50350, -7960	A18	16540,-14650
A5	58280, -3135	A19	22715,-16150
A6	59280, -6260	A20	21010,-17485
A7	102860, -2250	A21	19640,-18930
A8	97695, -7960	A22	4970,-8460
A9	90445, -8330	A23	6530,-9510
A10	146845, -6505	A24	6965,-8980
A11	132760, -7680	A25	7695,-10160
A12	119600, -8765	A26	24190,-12810
A13	161955, -8560	A27	23420,-19600
A14	148455, -9635		

B	0, 0	B17	-5265, -7540
B1	-239880, -1580	B18	-4050, -8820
B2	-265060, -4260	B19	-4590, -2385
B3	-277355, -5512	B20	-3010, -3259
B4	-203440, -4435	B21	-870, -3500
B5	-222955, -7579	B22	2980, -3319
B6	-232280, -9060	B23	-9, 540
B7	-175460, -8000	B24	-22490, -6789
B8	-187440, -9646	B25	-16425, -5085
B9	-187395, -11280	B26	-12100, -2685
B10	-131995, -9180	B27	-12580, -539
B11	-134485, -10905	B28	2860, -12085
B12	-137990, -12630	B29	-3160, 3585
B13	-33390, -8700	B30	485, 1485
B14	-56810, -11300		
B15	-79605, -11900		
B16	-65080, -6235		

C	0, 0	C17	-7390, -12265
C1	-5155, 33520	C18	-8400, -13635
C2	-3502, 40290	C19	-7085, -16225
C3	-1845, 44855	C20	225, -19605
C4	-4065, -5990	C21	1320, -17880
C5	-2345, -2650	C22	-10755, -20008
C6	-625, 655	C23	-5180, -25395
C7	-3570, -44810	C24	-350, -22430
C8	-1820, -46730	C25	1365, -23982
C9	-75, -46568	C26	3060, -21680
C10	-3855, -59650	C27	-33265, -6145
C11	-1945, -60230	C28	14635, -11180
C12	-200, -84090	C29	-7070, -15310
C13	-5635, -119160		
C14	-1855, -139590		

LEGEND

- 18.84 EXISTING LEVEL
- PROPOSED LEVEL
- EXISTING CONTOURS
- SURFACE OF NEW ACCESS DRIVEWAY
- EXTENT OF EXISTING CONTOUR TO BE MODIFIED
- CONSTRUCTION ACCESS AGREED WITH NATURAL RESOURCES
- SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE RETAINED

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYERS AND DESCRIPTIONS
3. REFER TO GEOTECHNICAL DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	06-9-02	Issue for Information & Co-Ordination
2	02-10-02	Revise Entry Stair and Letter Box Issue for Information
3	15-10-02	Preliminary Issue for Inclusion in Construction Management Plan

client
Raypond Developments
po.box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0315

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatwood nsw 2067
ph: – 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
shirley consulting engineers Pty Ltd.
895 pacific highway, pymble, nsw 2073
ph: – 61 2 9449 5577 fax: + 61 2 9449 5136

surveyor
bowdens group
12 wenworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: –61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
SITE WORKS
SHEET 1

drawn	date	checked	plot date
vhn	July 2002	QF surveyor	

file name

job no.
20006

scale
1:100

revision/drawing no.
3 design development
ADD | S0007

264 kent street sydney nsw 2000 australia
tel + 61 2 9262 1588 fax – 61 2 9262 3288
syd@cronenation.com ACN 059 987 272
crone nation architects

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYERS AND DESCRIPTIONS
3. REFER TO GEOTECHNICAL DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN

18.84 EXISTING LEVEL

PROPOSED LEVEL

EXISTING CONTOURS

SURFACE OF NEW ACCESS DRIVEWAY

EXTENT OF EXISTING CONTOUR TO BE MODIFIED

CONSTRUCTION ACCESS AGREED WITH NATURAL RESOURCES

SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE RETAINED

NEW RETAINING WALLS TO ENGINEER'S DETAILS

NEW RETAINING WALLS TO ENGINEER'S DETAILS

STORMWATER DETENTION TANK SHOWN DOTTED. REFER TO STORMWATER DESIGN BY ENGINEER FOR DETAILS

GUARD RAIL TO ENGINEER'S DETAIL EXTENT SHOWN INDICATIVELY

REINFORCED CONCRETE DRIVEWAY REFER TO DETAILS

TO BE COMPLETED

HOUSE 2 — DEVELOPMENT APPLICATION APPROVED CONDITIONS SUBJECT TO FUTURE CONSTRUCTION CERTIFICATE

HOUSE 4 — DEVELOPMENT APPLICATION APPROVED CONDITIONS SUBJECT TO FUTURE CONSTRUCTION CERTIFICATE

DATA POINT SETOUT

location	co-ordination(x,y)	location	co-ordination(x,y)
A4	0, 0		
A4-0	63965,-4315	A4-21	-490, 4810
A4-1	26945, -1840	A4-22	-1865, 1060
A4-2	9990, 1950	A4-23	-5325, -150
A4-3	47760, 4615	A4-24	371, -1264
A4-4	85320, 3815	A4-25	720, 3410
A4-5	114455, 1090	A4-26	4270, 6295
A4-6	142965, -1645	A4-27	9300, 5420
A4-7	168955, -4670	A4-28	12650, 2405
A4-8	202215, -7045	A4-29	15580, -295
A4-9	228175, -8165	A4-30	18690, -2730
A4-10	235210, 5820	A4-31	3250, -4545
A4-11	248945, -3475	A4-32	-4095, 2205
A4-12	264430, -2090	A4-33	5890, 670
A4-13	259915, -515	A4-34	9955, -7785
A4-14	259739, 1750	A4-35	-8610, -27875
A4-15	282955, -855	A4-36	22870, 185
A4-16	282920, -905	A4-37	21385, -370
A4-17	276890, 1155	A4-38	25300, -2590
A4-18	287795, 3680		
A4-19	296075, 7015		
A4-20	31990, 7975		

DATA POINT SETOUT

location	co-ordination(x,y)	location	co-ordination(x,y)
D	0, 0		
D1	-156960, 8495	D15	-105, -3385
D2	-150220, 9975	D16	1165, -2180
D3	-129755, 5720	D17	1330, -7870
D4	-114460, 7205	D18	2760, -5660
D5	-102220, 8495	D19	4185, -5845
D6	-74190, 2290	D20	3535, -11505
D7	-81290, 4210	D21	5095, -10705
D8	-69925, 5430	D22	6690, -9905
D9	-71105, -420	D23	-15075, 4760
D10	-75480, -270	D24	-9265, -2100
D11	-53090, -2365	D25	-3215, -8470
D12	-33960, -260	D26	-440, 420
D13	-21665, 1000		
D14	-16215, -4840		
E	0, 0		
E1	-195505, -375	E7	-18635, -70
E2	-207440, 3105	E8	-16695, 1675
E3	-175840, 4325	E9	-12905, -225
E4	-175985, 7450	E10	-12700, 1510
E5	-156985, 7480		
E6	-156940, 4325		

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	06-9-02	issued for information & Co-Ordination
2	02-10-02	Revise Retaining Wall issue for Information
3	15-10-02	Preliminary issue for Incusion in Construction Management Plan

client
Raypond Developments
po box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
demey & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: – 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
shirley consulting engineers Pty.Ltd.
895 pacific highway, pymble, nsw 2073
ph: – 61 2 9449 5577 fax: + 61 2 9449 5136

surveyor
bowdens group
12 wenworth street, parramatta, nsw 2124
ph: – 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: –61 2 9906 4500 fax: –61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
SITE WORKS
SHEET 2

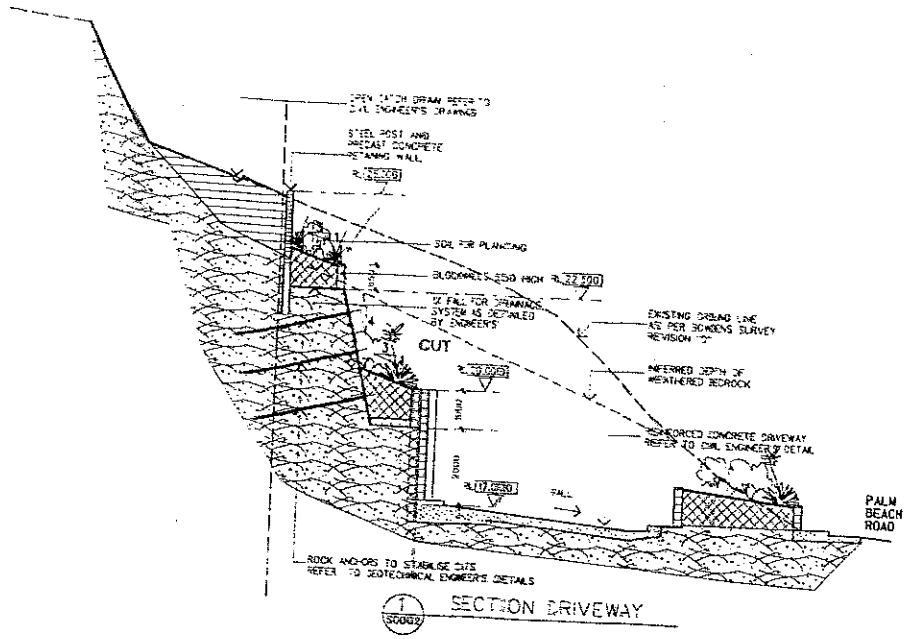
drawn	date	checked	plot date
vnn	aug 2002	QF number	

file name | job no. 20006

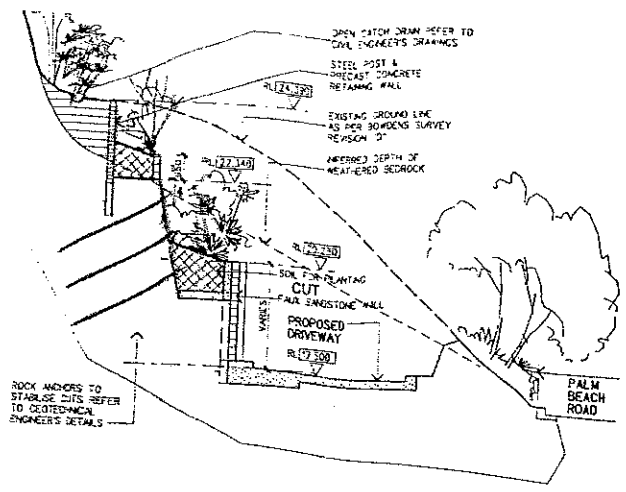
scale

revision/drawing no.
3 design development
ADD | S0008

244 sussex street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3285
sys@cronenation.com ACN 059 981 272
crone nation architects



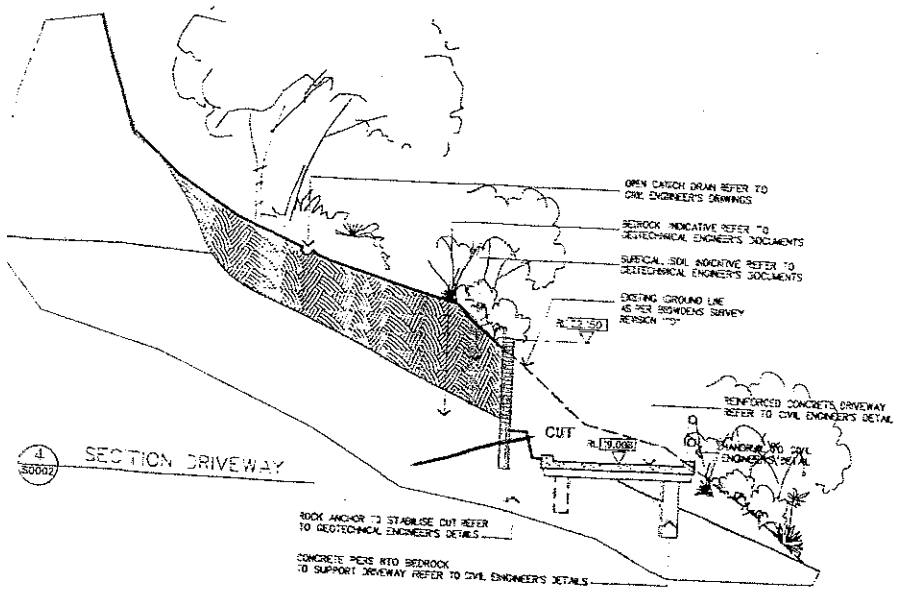
1 50002 SECTION DRIVEWAY



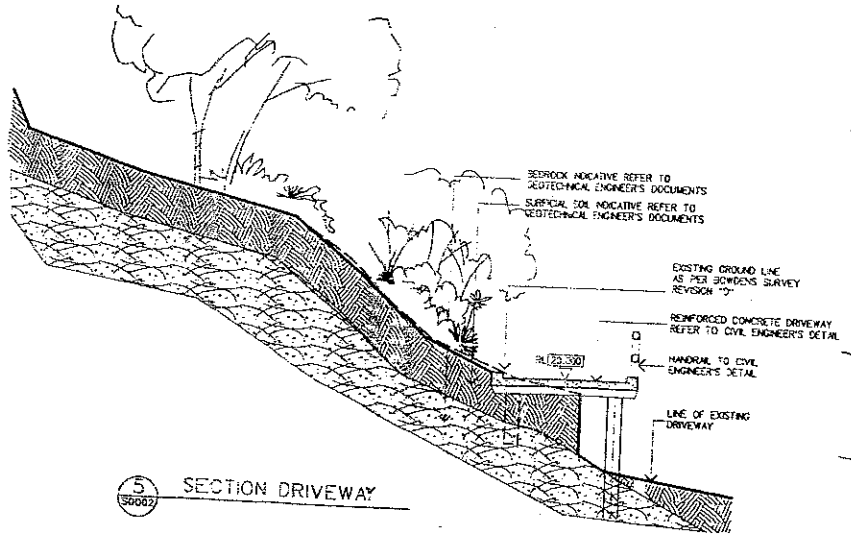
2 50002 SECTION DRIVEWAY

NOT USED

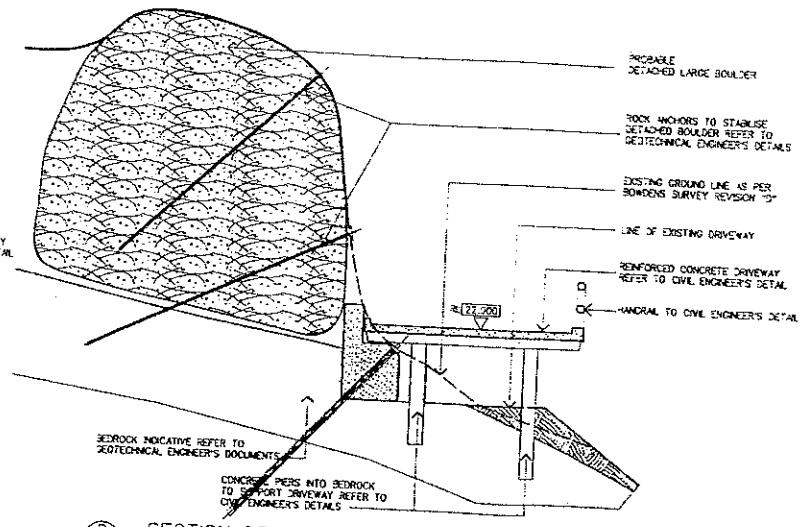
3 50002 SECTION DRIVEWAY



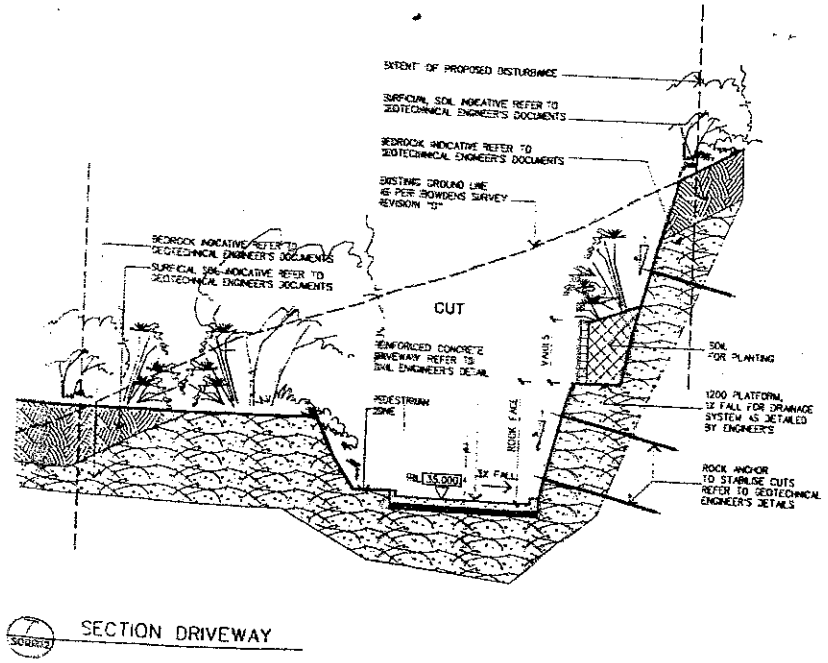
4 50002 SECTION DRIVEWAY



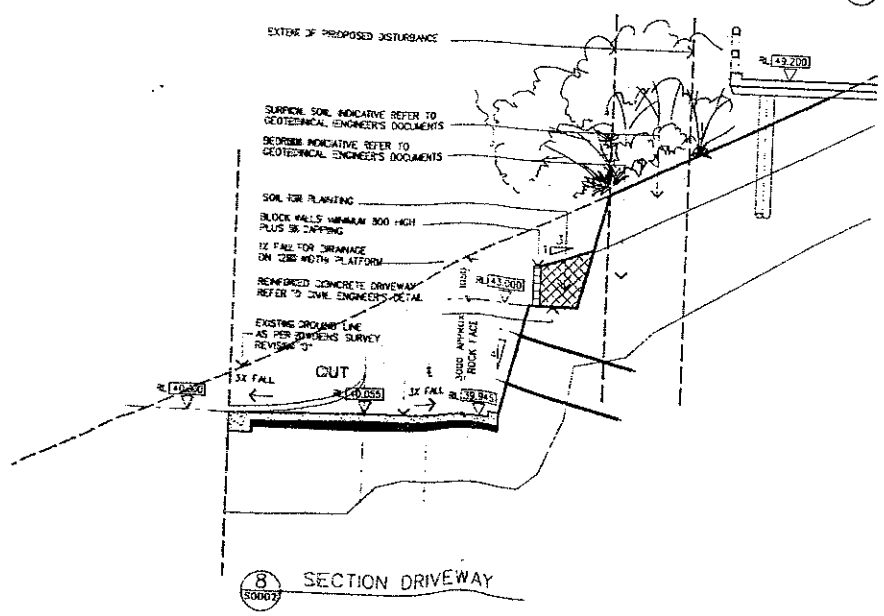
5 50002 SECTION DRIVEWAY



6 50002 SECTION DRIVEWAY



7 50002 SECTION DRIVEWAY



8 50002 SECTION DRIVEWAY

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYEES AND DESCRIPTIONS
3. REFER TO GEOTECHNICAL DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

no	Date	Description
-	5-10-02	Preliminary issue for inclusion in Construction Management Plan

client
Raypond Developments

po box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
Tenney & cartners
level 5, 411 Victoria avenue, chatwood nsw 2067
ph: – 61 2 9904 6555 fax: + 61 2 9904 5777

geotechnical engineers
shirley consulting engineers Pty Ltd
395 pacific highway, pymble, nsw 2073
ph: – 61 2 9449 5577 fax: + 61 2 9449 5136

surveyor
bowdens group
12 wenworth street, parramatta, nsw 2124
ph: – 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: –61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
SUB-DIVISION DRIVEWAY
CROSS SECTIONS

drawn	date	checked	plot date
vnn	aug.2002	QF number	

file name

job no.
20006

scale
1:100

revision/drawing no.
1 design development
ASA | S3001

3rd east street sydney nsw 2000 australia
tel: + 61 2 9242 1988 fax – 61 2 9252 3288
arch@cronenation.com ACN 059 989 272
crone nation architects

Appendix 2 – Construction Methodology Statement

Method Statement for Access Driveway Construction
at No. 1148 – 1152 Barrenjoey Road & No. 56 Palm Beach Road, PALM BEACH

1. *Works Encompassed*

This method statement encompasses the works associated with the construction of the access driveway at the subject site and the necessary detailed site investigations required prior to the major construction processes.

The works embrace:

a) Site Investigations by drilling and test pit excavations.

b) Site drainage & slope stabilisation measures.

c) Earthworks, including rock excavation for the access driveway.

d) The construction of retaining walls.

e) Construction of a concrete "suspended" section of the driveway.

It is also noted that:

- Whilst the excavations are typically some 4 to 6 m deep, they are up to about 7 m deep in the area of the upper access drive and some 6 to 7 m in the vicinity of the existing Palm Beach Road cut for the lower access drive.
- There are significant slope stability issues near the access drive entrance from Palm Beach Road.
- Excavations of 2 to 3 m deep are to be carried out for the house building platforms.
- Only minimal site fill is to be placed.

The methods by which these works are to be carried out are outlined in the following paragraphs:

2. *Site Investigations*

Undertake a site investigation by drilling & test pit excavation to confirm subsurface conditions. The purposes of the investigations are to:

- Confirm the site geology and existence of seams and seepage zones in the cut areas.
- Confirm the quality of the bedrock for excavation contract purposes and long term exposure effects.
- Confirm the depths of soil to be retained by the retaining walls to be constructed.

As such the work envisaged is as follows [see attached Drawings No. BE004G2 & G3]:

a) Survey and peg out proposed access driveway alignment, including proposed chainages and driveway finished Reduced Levels [to AHD].

b) Hand clear site vegetation north of [viz: above] the proposed lower access driveway and create access track to enable access for a small "track type" drilling rig.

c) Drill exploratory boreholes using NMLC coring equipment at the locations shown on Drawings No. BE004G2 & G3 as follows:

Bore Number	Expected depth [m]
BH1 & BH3	4
BH2 & BH4	9
BH5	5
BH6	10
BH7	20

DRAFT REVISION

d) Excavate seven exploratory test pits as shown on the attached drawings near the proposed upper access driveway to confirm the depth to bedrock. One test pit is also to be excavated near the large boulder / detached block of bedrock above the access driveway to confirm the existence or otherwise of seams below the boulder.

e) Excavate two exploratory test pits [at locations to be determined] near the large rock above the Barrenjoey Road excavation proposed upper access driveway to confirm / investigate:
   - the existence of seams below the boulder, and
   - the potential for instability of the large rock.

Notes on fieldwork documentation:

- All site investigations to be supervised by SCE and on completion of the fieldwork, geological sections through the site to be prepared for design purposes.
- All core recovered to be photographed for record purposes and stored at SCE's offices.
- Bore / Test pit logs to be prepared as neat "field logs" to minimise documentation costs.
- A detailed "geotechnical report" on the site investigations not to be prepared [as it is unnecessary].

3. *Access Driveway Construction - ~~Section~~ Stage 1*

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for ~~Section~~ Stage 1:

Note: The procedures also assume that the site's silt / sediment control plan is in place before site work.

a) Stage 1A - Install Drainage

- Construct surface & subsurface drainage above proposed location of the steel soldier pile wall.
- Connect drainage lines to Council pit in Palm Beach Road and provide sediment control devices.

b) Stage 1B - Stabilise Major Boulder above Barrenjoey Road Cut

- Stabilise the major detached boulder above Barrenjoey Road cut.

~~b)~~c) Stage 1~~B~~C - Install Soldier Pile Wall

- ~~Pre-determine steel pile lengths and precast concrete panel sizes from site investigation data.~~
- Drill holes for and progressively install steel soldier piles for wall **before** any soil excavation.
- Install precast concrete panels between piles by progressively removing soil from under / in front of the panel and allowing the panel to slide down. ~~Geocomposite drainage to be attached to the panel prior to panel installation and b~~Backfill any remnant gap with clean, free draining sand or gravel.
- Work to only proceed at a rate that will ensure continuing support for the soil profile.

DRAFT REVISION

~~e)Stage 1C - Stabilise Major Boulder above Barrenjoey Road Cut~~

~~If necessary and based on the site investigation results, stabilise the major detached boulder above Barrenjoey Road cut.~~

d) Stage 1D - Rock Excavation & Stabilisation

After the Stage 1B has been completed, excavate the bedrock to driveway level by the "top down" method and in stages.

Whilst vibration monitoring equipment will probably not be required, this to be confirmed by Acoustic Consultant's advice before commencement of excavation.

The extent of rock anchors to be installed ~~and shotcrete to be applied to the surface~~ to be assessed after ~~the site investigation has been completed~~inspection of excavated rock faces.

Rock excavation procedure to be as follows:

- Excavate the rock in "lifts" not exceeding two [2] metres.
- Install drainage as required on the excavated face.
- Progressively support rock face [as required] with permanent rock bolts, mesh & shotcrete before proceeding with next excavation stage.
- Each lift to be inspected by ~~SCE~~ Geotechnical Engineer before commencing next lift.

e) Stage 1E - Driveway construction

Construct driveway to subgrade level; finish with roadbase and apply a spray seal.

Provide surface drainage for later connection of driveway drainage from Stage 2.

Concrete driveway to be constructed as part of Stage 2 driveway construction.

4. *Access Driveway - ~~Section~~ Stage 2*

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for ~~Section~~ Stage 2:

a) Stage 2A1 - Stabilise Large Boulder

~~Depending on the investigation results, set up and i~~Install rock anchors to stabilise the large rock / boulder and underpin the front edge.

b) Stage 2A2 - ~~Stabilisation of steep fill~~Construct Temporary Accessway

- Clear existing vegetation and remove soft soil.
- ~~Grade subgrade to fall and place free draining sand layer [min 300 mm thick]; connect drainage layer to subsoil system.~~
- Regrade / place crushed sandstone type fill over steep embankment / filled area near the south western corner of Lot 181.

c) Stage 2B - Construct Suspended Concrete Driveway

- Excavate and construct reinforced concrete ~~shear beam type footings~~piers for driveway ensuring that ~~footings~~ piers are founded on bedrock and do not load the crib block wall on Palm Beach Road.

  ~~Note: some rock anchors may be needed to ensure this.~~
- Remove sections of old concrete driveway as required to ensure stable downslope angles.

DRAFT REVISION

- Construct suspended section of the concrete driveway on previously built ~~footings~~piers.
- Construct concrete pavement for driveway Section 1.
- Provide surface drainage for later connection by Stage 2C.

d) Stage 2C1 - Driveway Construction near Existing Carport

- Install surface drainage above planned excavation area and connect to drainage systems already installed in Stages 1 & 2B.
- Excavate to driveway subgrade level.
- Soil excavations to be sloped back at 1¼H:1V for later retention.
- Rock excavation to be ~~minimal and to be sloped back ½H:1V~~progressively cut and permanently retained, to Structural Engineer's detail.
- Place roadbase over subgrade and apply a spray seal.
- Provide surface drainage for later connection by Stage 3.

e) Stage 2C2 - Construct Permanent Retaining Walls

- Construct permanent retaining walls where required to Structural Engineer's detail.

5. *Access Driveway - ~~Section~~ Stage 3*

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for ~~Section~~ Stage 3:

a) Stage 3A - Install Drainage & Vibration Monitoring

- Install surface drainage above planned excavation area and connect to drainage systems already installed in Stages 1 & 2.
- Install vibration monitoring equipment & conduct vibration trials with actual equipment proposed under Acoustic Consultant's supervision.

b) Stage 3B - Excavate Driveway

Procedure to be as follows:

- Excavate driveway ensuring that rock vibration levels do not exceed 3 mm/sec at the Lot No. 182 boundaries.
- Soil excavations to be ~~sloped back at 1¼H:1V for later~~excavated in short lengths and permanently ~~retention~~retained.
- Excavate the rock in "lifts" not exceeding two [2] metres.
- Install drainage as required on the excavated face.
- Progressively support rock face [as required] with permanent rock bolts or dowels, mesh & shotcrete before proceeding with next excavation stage.
- Each lift to be inspected by ~~SCE~~ Geotechnical Engineer before commencing next lift.

c) Stage 3C - Construct Permanent Retaining Walls

- Construct permanent retaining walls where required to Structural Engineer's detail.

6. *Access Driveway Construction - ~~Section~~ Stage 4*

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for ~~Section~~ Stage 4:

DRAFT REVISION

a) Stage 4A - Install Drainage & Vibration Monitoring

- Install surface drainage above planned excavation area and connect to drainage systems already installed in Stages 1, 2 & 3.
- Install & maintain vibration monitoring equipment for excavation operations within ten [10] metres of adjoining lots.

b) Stage 4B - Excavate Driveway

Procedure to be as follows:

- Excavate driveway ensuring that rock vibration levels do not exceed 3 mm/sec at the boundaries of adjoining lots.
- Soil excavations to be excavated in short lengths and permanently retained~~sloped back at 1¼H:1V for later retention, or 2H:1V where retention not to be provided~~.
- Excavate the rock in "lifts" not exceeding three [3] metres.
- Install drainage as required on the excavated face.
- Progressively install any permanent rock bolts or dowels, mesh or shotcrete as directed by Geotechnical Engineer~~SCE~~.
- Each lift to be inspected by Geotechnical Engineer~~SCE~~ before commencing next lift.

c) Stage 4C - Construct Permanent Retaining Walls

- Construct permanent retaining walls where required to Structural Engineer's detail.

7. *Building Platforms*

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for the building platforms:

Excavate the building platforms in a manner similar to the access drive Section 4, also noting that.

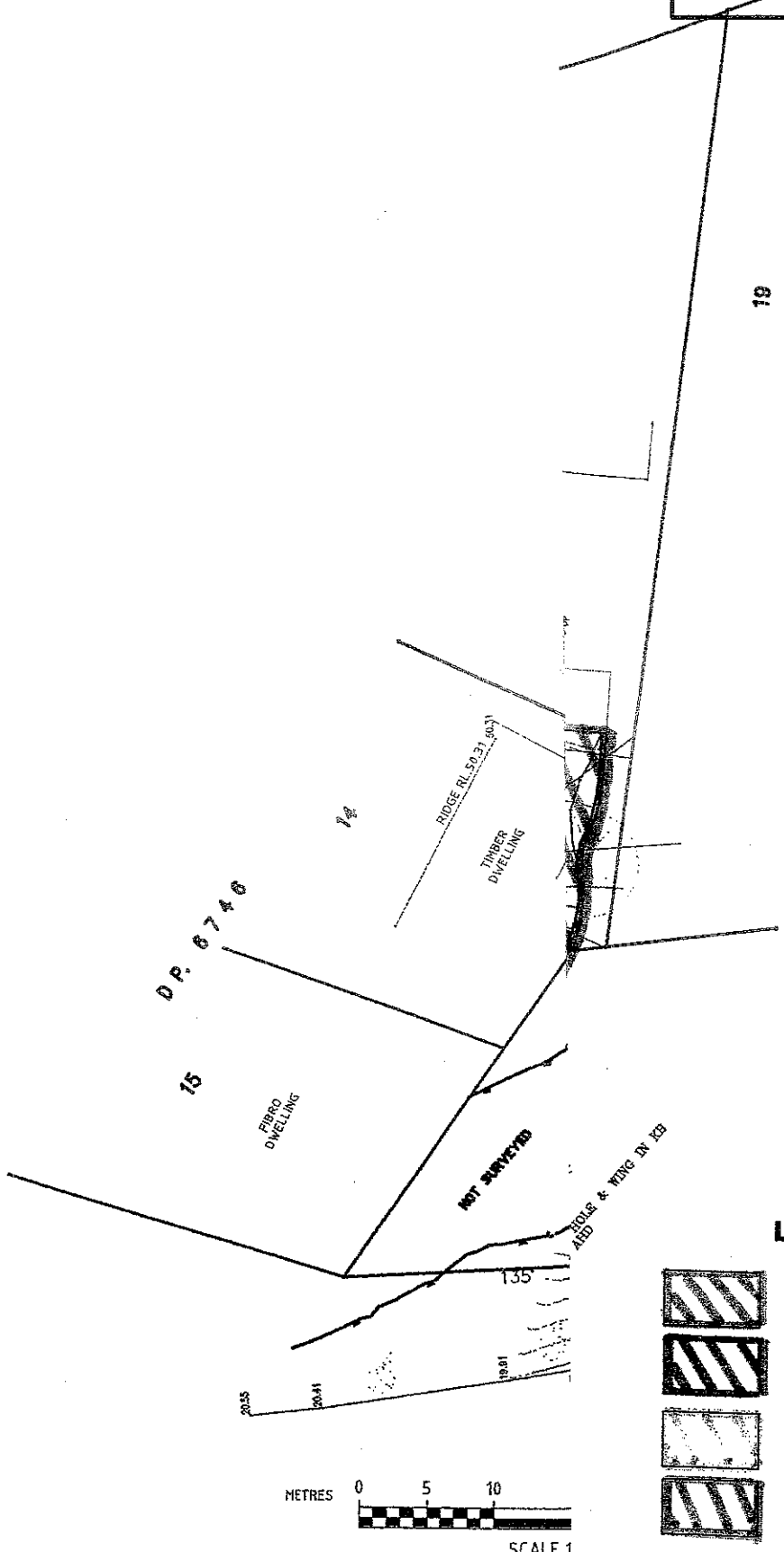
- Unsupported fill for building platforms is not to exceed 400 mm.
- Where fill depths exceed 400 mm, provide a temporary slope of 1½H:1V and construct retaining walls before placing remainder of fill.
- The boulders near the north east corner are to be stabilised by anchoring.
- All retaining walls to have suitable drainage which is connected to the site stormwater system.

8. *House Construction*

- House footing & retaining wall details to be confirmed by Geotechnical Engineer~~SCE~~ prior to construction.
- Where some parts of the proposed houses [mainly balcony areas] extend over the "high" stability risk area and / or a concealed bedrock "cliff", footings to be founded on confirmed stable strata.

DRAFT REVISION

DRAWING NUMBER:	REVISION:
BE004G1	B



LEGEND

- SECTION 1
- SECTION 2
- SECTION 3
- SECTION 4

COPYRIGHT ©- 2002 - SHIRLEY CONSULTING ENGINEERS PTY LTD
This drawing and the details shown hereon are the property of Shirley Consulting Engineers P/L and shall not be used, reproduced or copied by any means whatsoever without express permission.

This plan is to be read in conjunction with Shirley Consulting Engineers Pty Ltd Document Ref.

BE004-2\METHOD20020410

Liability is limited by the Investigative & Remedial Engineers Scheme, approved under the Professional Standards Act 1994 (NSW).

DETAILS	CHECKED
–	–

ENCE
NJOEY ROAD, PALM BEACH

Appendix 3 – Pedestrian & Traffic Management Plan

SUPPLY & INSTALLATION OF
■ ROAD SIGNS ■ RAISED PAVEMENT MARKERS ■ GUARD RAILS ■ GUIDE POSTS
■ LINE MARKING ■ TRAFFIC MANAGEMENT & CONTROL ■ TRAFFIC CONTROL TRAINING
A.C.N. 077 612 274

HVS Services

A DIVISION OF HUNTER VALLEY SIGNS PTY. LTD.

(02) 9790 5077

11 Arkley St Bankstown NSW 2200 Fax: 9790 6799
PO Box 3461 Bankstown Square 2200

FAX COVER SHEET

TO: RAY POND
DATE: 21-5-02
ATTENTION: DARREN KEETE
FAX: 9982 7008
FROM: BILL RALSTON
RE: PLANS
No. of pages including cover sheet: 3

Message:

Darren,
Here are the T.C.P and T.M.P for Palm Road
road We wait to hear from you regarding
times and dates for the Council

Kind regards
Bill

Yours sincerely,

for HVS Services

HVS SERVICES
WORKSITE TRAFFIC MANAGEMENT PLAN

Job Description: DETOUR
Work Location : PALM BEACH ROAD
Nearest Cross Street/s: BARRENJOEY RD AND BEACH RD

2 Traffic Controllers to be on site at all times to monitor and guide vehicular and pedestrian traffic around the work site.
Scope of works is for excavation and earth sample work for a development site on the corner of Palmbeach rd and Barrenjoey rd. This will require a full road closure (resident access only) of Palm beach rd. from Barrenjoey rd to Pacific rd. Those travelling to Barrenjoey rd on Palmbeach rd will turn onto beach rd, then onto Barrenjoey rd, end detour. Those travelling from Barrenjoey rd will turn onto Beach rd then onto Palmbeach rd end detour. All emergency services will be informed. Any pedestrian traffic will be guided through the site by a certified traffic controller.

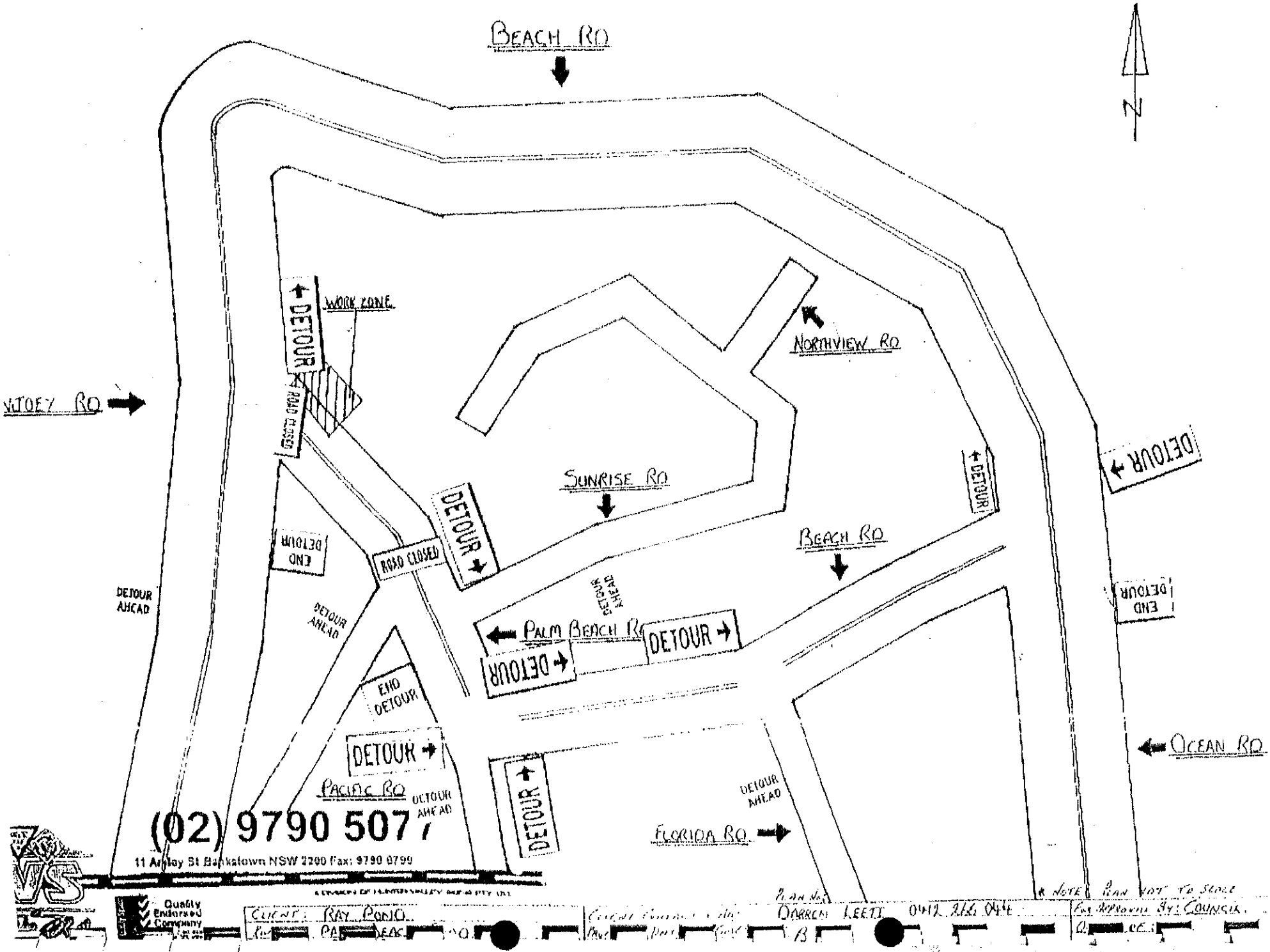
Risk Analysis	
Safety of Workers	CIVIL PRIOR NOTICE TO:
Safety of Motorists	POLICE, FIRE AMBULANCE
Safety of Pedestrians	council

Signs and Equipment	
Detour ahead	5
Detour left	3
Detour right	5
End detour	2

Road configuration 2 Lane 2 Way
Speed Limit: 50 kph
Traffic Controllers Req'd: YES
Short Term Duration: YES
A.S.or R.T.A. plan rep p/beach 1
Authorised by: B.Ralston
Worksite Certificate No: 13211
Plan submitted to: council

Daily Schedule Checklist:

- Inspection of layout Risk Analysis
- Drive through inspection
- Signs/Devices to A.S 1742.3
- Traffic Control Duties observed
- Close down inspection
- Revert Day/Night layout: N/A


BEACH RD
N
WORK ZONE
DETOUR
ROAD CLOSED
NORTHVIEW RD
VIOLET RD
SUNRISE RD
DETOUR
ROAD CLOSED
DETOUR
DETOUR
BEACH RD
DETOUR
END DETOUR
DETOUR AHEAD
DETOUR AHEAD
PALM BEACH RD
DETOUR
DETOUR
END DETOUR
DETOUR
PACIFIC RD
DETOUR AHEAD
DETOUR
DETOUR AHEAD
FLORIDA RD
OCEAN RD
(02) 9790 507
11 Ashley St Bankstown NSW 2200 Fax: 9790 0799
Quality Endorsed Company
CLIENT: RAY PONO
PLAN No: DARREN LEETI 0412 216 044
* NOTE PLAN NOT TO SCALE

Appendix 4 – Erosion & Soil Management Plan

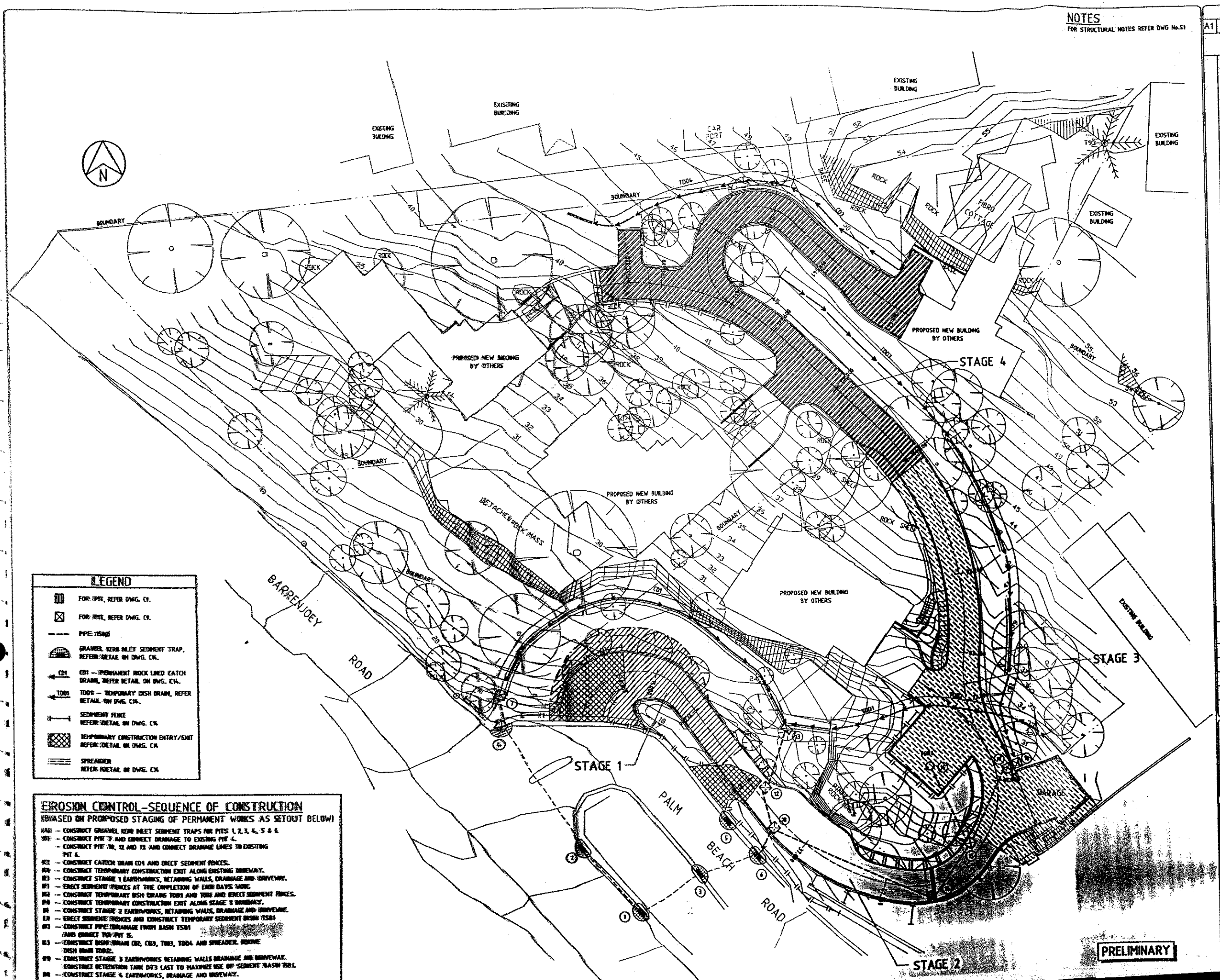
NOTES

FOR STRUCTURAL NOTES REFER DWG No.S1

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60



LEGEND

- FOR PIT, REFER DWG. C9.
- FOR PIT, REFER DWG. C9.
- PIPE: 150ø
- GRAVEL KERB INLET SEDIMENT TRAP, REFER DETAIL ON DWG. C14.
- CD1 — PERMANENT ROCK LINED CATCH DRAIN, REFER DETAIL ON DWG. C14.
- TD01 — TEMPORARY DISH DRAIN, REFER DETAIL ON DWG. C14.
- SEDIMENT FENCE REFER DETAIL ON DWG. C14
- TEMPORARY CONSTRUCTION ENTRY/EXIT REFER DETAIL ON DWG. C14
- SPREADER REFER DETAIL ON DWG. C14

EROSION CONTROL-SEQUENCE OF CONSTRUCTION

(BASED ON PROPOSED STAGING OF PERMANENT WORKS AS SETOUT BELOW)

(A1) — CONSTRUCT GRAVEL KERB INLET SEDIMENT TRAPS FOR PITS 1, 2, 3, 4, 5 & 6.
(S1) — CONSTRUCT PIT 9 AND CONNECT DRAINAGE TO EXISTING PIT 4.
— CONSTRUCT PITS 10, 12 AND 13 AND CONNECT DRAINAGE LINES TO EXISTING PIT 4.
(C1) — CONSTRUCT CATCH DRAIN CD1 AND ERECT SEDIMENT FENCES.
(D1) — CONSTRUCT TEMPORARY CONSTRUCTION EXIT ALONG EXISTING DRIVEWAY.
(E1) — CONSTRUCT STAGE 1 EARTHWORKS, RETAINING WALLS, DRAINAGE AND DRIVEWAY.
(F1) — ERECT SEDIMENT FENCES AT THE COMPLETION OF EACH DAYS WORK.
(G1) — CONSTRUCT TEMPORARY DISH DRAINS TD01 AND TD02 AND ERECT SEDIMENT FENCES.
(D2) — CONSTRUCT TEMPORARY CONSTRUCTION EXIT ALONG STAGE 2 DRIVEWAY.
(E2) — CONSTRUCT STAGE 2 EARTHWORKS, RETAINING WALLS, DRAINAGE AND DRIVEWAY.
(J1) — ERECT SEDIMENT FENCES AND CONSTRUCT TEMPORARY SEDIMENT BASIN TSB1
(K1) — CONSTRUCT PIPE DRAINAGE FROM BASIN TSB1 AND CONNECT TO PIT 15.
(L1) — CONSTRUCT DISH DRAIN CD2, CD3, TD03, TD04 AND SPREADER. REMOVE DISH DRAIN TD02.
(F2) — CONSTRUCT STAGE 3 EARTHWORKS RETAINING WALLS DRAINAGE AND DRIVEWAY. CONSTRUCT DETENTION TANK DET3 LAST TO MAXIMIZE USE OF SEDIMENT BASIN TSB1.
(H2) — CONSTRUCT STAGE 4 EARTHWORKS, DRAINAGE AND DRIVEWAY.

No.	Revision	Int / Date
3	DRAFT ISSUE FOR CONSTRUCTION MANAGEMENT PLAN	16.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. | Checked | Approved

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 164 894
Level 5, 411 Victoria Avenue Tel: (02) 9904 6955
Chatswood 2067 Fax: (02) 9904 6777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 3340 West Chatswood, NSW 1515 cad file: 7539-SCP

Project

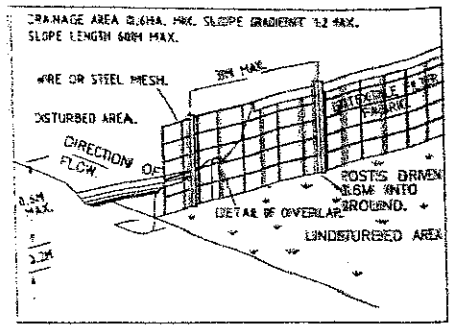
1148-1152 BARRENJOEY ROAD PALM BEACH

Drawing Title

SEDIMENT AND EROSION CONTROL PLAN

NOTES

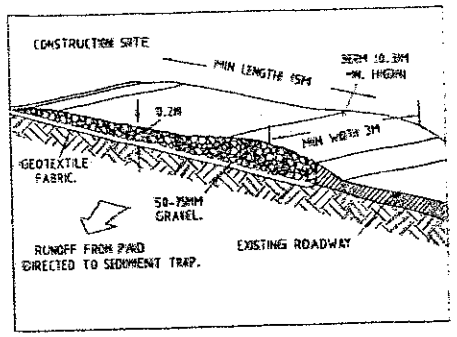
FOR STRUCTURAL NOTES REFER DWG No.S1



SEDIMENT FENCE

CONSTRUCTION NOTES

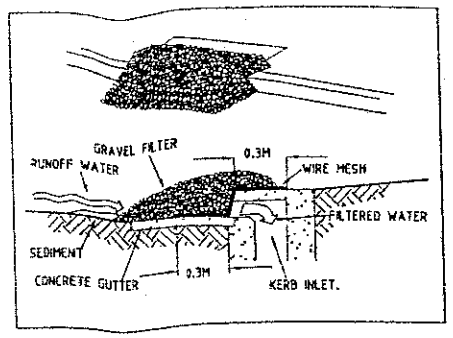
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND, 3 METRES APART.
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF WIRE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES or AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.



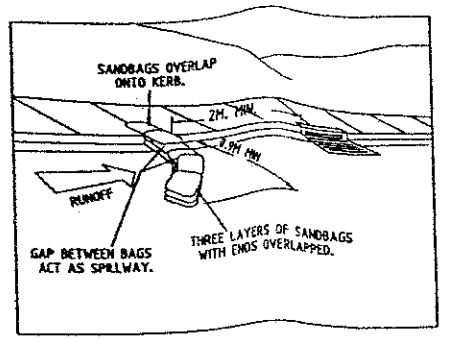
TYPICAL TEMPORARY CONSTRUCTION ENTRY/EXIT DETAIL

CONSTRUCTION NOTES:

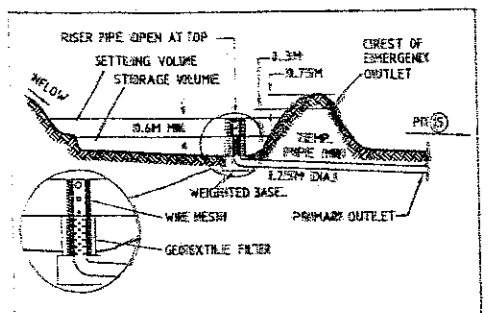
1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE or 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT RAMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE or OTHER SEDIMENT TRAP.



GRAVEL KERB INLET SEDIMENT TRAP

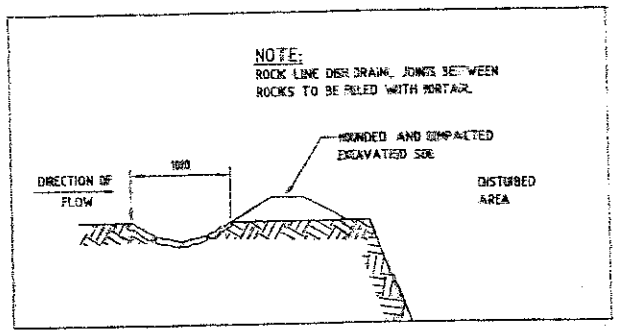


SANDBAG KERB INLET SEDIMENT TRAP



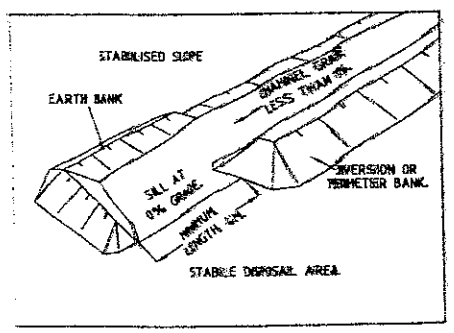
TYPICAL TEMPORARY SEDIMENT BASIN

DENOTED TSB1 ON DWG. C8

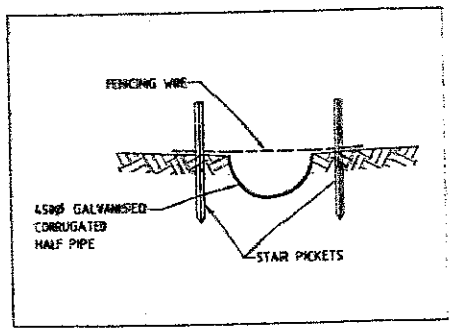


CATCH DRAIN - ROCK LINED

DENOTED CD1, CD2 & CD3 ON DWG. C8



TYPICAL SPREADER DETAIL



TEMPORARY DISH DRAIN

DENOTED TDD1, TDD2, TDD3 & TDD4 ON DWG. C8

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

No.	Revision	Int / Date
D	DRAFT ISSUE FOR CONSTRUCTION MANAGEMENT PLAN	16.10.02
C	ISSUED FOR INFORMATION	25.09.02
B	ISSUED FOR INFORMATION	30.08.02

Designed S.D. Checked

Approved

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 181 661
Level 5, 491 Victoria Avenue
Chatswood 2067
NSW Australia
Tel: (02) 9904 6555
Fax: (02) 9904 6777
e-mail: tierney@tierney.com.au
P.O. Box 5594 West Chatswood, NSW 1515
cad file : 7531-SC0

Project

1148-1152 BARRENJOEY ROAD
PALM BEACH

SEDIMENT AND EROSION DETAILS

PRELIMINARY

NOT FOR CONSTRUCTION

7531 SC8 D

Appendix 5 – Access Plan

Pittendrigh Shinkfield Bruce Pty Ltd
330 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 **Fax** 02 9906 4479 **Email** psb@psb.com.au

PSB

To GIS Environmental Consultants

Attention Nick Skelton

Fax No. 9401 0715 **No of pages** 3

From Selena Hannan

Date 23.09.02

Project Observation Point, Palm Beach

Project No 00137

RECEIVED
23 SEP 2002
CRONE NATION ARCHITECTS

Distribution:

City Plan Services
Brendan Bennett
Fax 9262 2584

Crone Nation Architects
Simon Thorne
Fax 9262 3288

Darren Leete
Fax 9944 0316

Dear Nick,

Please find following information that needs to be incorporated into the Bushland Management Plan somewhere. It will also be included in the Construction Management Plan:

To provide access for machinery for construction of the walls at the top of the embankment at main entry off Palm Beach Road, it will be necessary to clear vegetation to form a temporary access way. A permanent gabion wall will also be located in the area after the embankment walls are complete and accessway has finished being been utilised. The area is indicted on attached plan.

The vegetation in this area is included in the bush regeneration zone. It will be necessary to prepare the area by collecting the smaller ferns and significant shrubs and potting them for holding and replanting back in the same area. Council has advised that they are not too concerned about retaining the *Cyathea*, however, we are of the opinion that if a suitable location can be found they could be transplanted immediately rather than destroyed.

Protective fencing will be erected to define the access way.

The trees that are to be removed include the following numbers:
148,150,151,152,161,162,163,165,166,169,171.

The root system of Tree 144 is within the access way and is to be protected from soil compaction by Ground Protection measures and physical damage to trunk by the use of Trunk Protection boards as detailed in Arboricultural Recommendations in Tree Report by PSB dated 15.08.2002 (herewith paragraphs for your reference).

Reinstatement of mulch, planting and ongoing maintenance to be as per instructions in the BMP.

Trunk Protection
Where space does not permit the placement of protective fencing install trunk protection. Trunk protection shall be by the placement of 2.0 metre lengths of 50 x 100mm hardwood timbers spaced at 150mm centres and secured by 10 gauge wires on steel straps at 300 centres. Place hessian padding to ends of battens to prevent damage to bark. The trunk protection shall be maintained intact until the completion of all work on site.

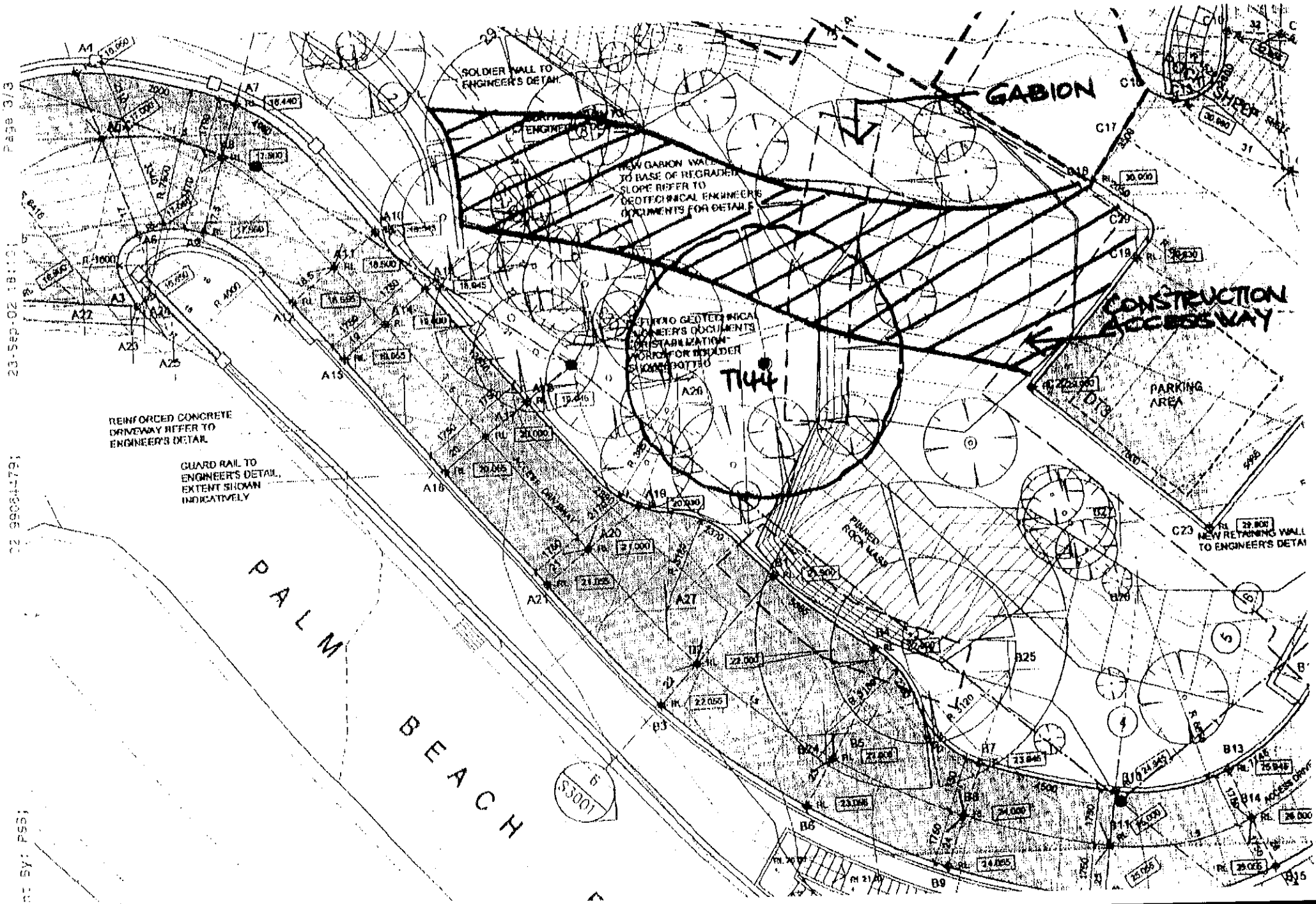
Ground Protection
Where construction occurs close to or beneath the drip line of trees to be retained it shall be necessary to install protection to avoid compaction of the ground surface, lateral and absorbing roots. This protection can be by way of planks supported clear of the ground fixed to scaffolding.

Where machinery is used close to or beneath the dripline of trees to be retained the ground is to be protected by way of an elevated timber platform support clear of the ground on horizontal timber planks.

Yours faithfully.

Selena Hannan
Landscape Designer

PITTENDRIGH SHINKFIELD BRUCE


GABION
SOLDIER WALL TO ENGINEER'S DETAIL
NEW GABION WALL TO BASE OF REGRADED SLOPE REFER TO GEOTECHNICAL ENGINEERS DOCUMENTS FOR DETAILS
REFER TO GEOTECHNICAL ENGINEERS DOCUMENTS FOR STABILISATION WORK FOR BOULDER SHOWN DOTTED
CONSTRUCTION ACCESSWAY
PARKING AREA
REINFORCED CONCRETE DRIVEWAY REFER TO ENGINEER'S DETAIL
GUARD RAIL TO ENGINEER'S DETAIL, EXTENT SHOWN INDICATIVELY
NEW RETAINING WALL TO ENGINEER'S DETAIL
PALM BEACH
T144

Bushland Management Plan

Observation Point

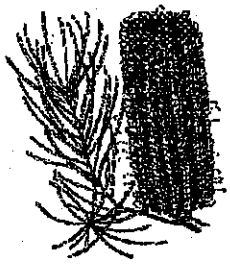
1148 – 1152 Barrenjoey Road, Palm Beach

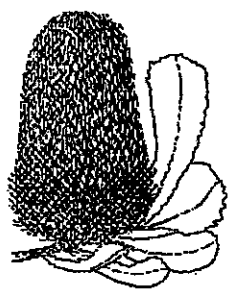
By

Nicholas Skelton, B. Sc. (Hons) M. App. Sc.
&
Tony Gilson, B. Env. Sc.

May 2003

Prepared for
Raypond Pty Ltd.
C/-P.O. Box 1364
Dee Why 2099





GIS Environmental Consultants
45 Austin Avenue, North Curl Curl 2099
Mobile Ph: 041 943 8672, Ph: (02) 9939 5129, Fax: 9401 715, Email: nicksk@mail.usyd.edu.au

Job: PR0147
Status: Final
Approval Date: 22 May 2003
Approved for release by Director: Nicholas John Skelton

GIS Environmental Consultants
45 Austin Ave North Curl Curl NSW 2099
ABN 66 011 504 399
Phone: 9939 5129
Fax: 9401 0715
Mobile: 041 943 8672
Email: nick_skelton@bigpond.com

This document is supplied without alterations and may not be changed without the explicit approval of GIS Environmental Consultants.

Copyright GIS Environmental Consultants, All Rights Reserved © 2003.

GIS Environmental Consultants (Publisher) is the owner of the copyright subsisting in this publication. Other than as permitted by the Copyright Act and as outlined in the Terms of Engagement, no part of this report may be reprinted or reproduced or used in any form, copied or transmitted, by any electronic or by other means (including photocopying, scanning, or otherwise), without the prior written permission of GIS Environmental Consultants. Legal action will be taken against any breach of Copyright. This report is only available in book form. No part of it is authorised to be sold, distributed or offered in any other form.

1. Contents

1. Contents 3
2. Acknowledgments and Responsibilities 5
3. Qualifications and Experience of the Authors 5
4. Introduction 6
4.1 Background 6
4.2 Definitions 7
4.3 Aims of this Bushland Management Plan 8
4.4 What is a Bushland Management Plan? 9
4.5 Legal Perspective 9
4.6 Other Benefits of a Bushland Management Plan 10
4.7 Description of the Study Site 11
4.8 The Proposed Development 12
5. Methods 14
5.1 Meetings and Discussions with Council Officers 14
5.2 Contribution to the Landscaping Plan 14
5.3 The Development Plans Used 14
5.4 Zones Within the Site 15
5.5 Staging 17
6. Environment Works Prior to Construction 17
6.1 Temporary Environment Protection Fences 17
6.2 Propagation of Plant Material 18
6.3 Translocation of Native Plants 18
6.4 Weed Control 18
7. Environment Works During Construction 19
7.1 Environment Protection and Tree Protection Fencing 19
7.2 Retention of Logs 19
7.3 Retention of Sandstone Boulders 19
7.4 Water Quality 19
7.5 Topsoil Recovery 19
7.6 Stockpiling 20
8. Environmental Works Post Construction 22
8.1 Bushland Revegetation 22
8.2 Bushland Regeneration 22
8.3 Weed Control 22
8.4 Planting 26
8.5 Height Restrictions for Plantings 27

8.6 Soil Remediation and Preparation 27
8.7 Erosion Control 27
8.8 Domestic and Feral Animal Control 27
8.9 Cleaning of Earthmoving Equipment 27
8.10 Use of Fertilisers and Insecticides 28
8.11 Staking of Plants 28
8.12 Long-term Weed Control 28
8.13 Landscape Edging 28
8.14 Ecological Fire Prescription 28
8.15 Mulching and Leaf Litter 29
8.16 Weed Matting 29
8.17 Provision of Habitat for Fauna 29
9. Monitoring *32*
9.1 During Construction Monitoring 32
9.2 Annual Monitoring 32
10. References *34*
11. Appendix A, Propagation List for Revegetation and Regeneration Areas *35*
12. Appendix B, Timetable of Works *38*
13. Appendix C, Plant Species List *39*
14. Appendix D, Monitoring Sheets *47*

2. Acknowledgments and Responsibilities

This project was managed and the report was written by Nicholas Skelton (B. Sc. (Hons), M. App. Sc.), Director of GIS Environmental Consultants. Editorial assistance was provided by Tony Gilson, Ecologist, (B. Env. Sc.).

3. Qualifications and Experience of the Authors

Nicholas Skelton's formal qualifications include a Bachelor of Science with Honours (B. Sc. (Hons)) and a Masters in Applied Science (M. App. Sc.). Mr Skelton has been an environmental scientist for 14 years, a bush regenerator for 6 years and a landscaper for 4 years. This experience has been in the northern beaches area of Sydney working with the local soils, the climate of this area and the local indigenous plants and animals. This experience has led to an extensive knowledge of the environmental conditions, a deep understanding of the local ecology and the habitat requirements of the local native fauna.

Tony Gilson is a project officer for GIS Environmental Consultants, and has a Bachelor of Environmental Science from the University of Newcastle and a Bush Regeneration Certificate 2 from Ryde TAFE. Mr Gilson has been with GIS Environmental Consultant for 2 years, and is also an experienced bush regenerator of 2 years and a landscaper for 6 years.

4. Introduction

4.1 Background

This Bushland Management Plan has been prepared by GIS Environmental Consultants for Raypond Developments Pty Ltd. This report will be part of the Construction Certificate Application for a subdivision called Observation Point.

This report focuses on retaining, providing and improving habitat for the flora and fauna species that are known to occur at the site. These species have been identified by flora and fauna surveys conducted by Nicholas Skelton and Quintin Smith from GIS Environmental Consultants. The findings of the surveys and assessment of the impacts are recorded in a November 2000 report titled, "Flora and Fauna Impact Assessment for the Proposed Development at 1148 – 1152 Barrenjoey Road, Palm Beach".

The framework of this report has been approved and is described in the "Bushland Management Concept Plan" for this site by GIS Environmental Consultants (Skelton 2001). The Bushland Management Concept Plan was approved by Pittwater Council as part of the DA approval process.

Maps of the areas that are planned to be disturbed or built upon were provided by Crone Nation Architects and are listed in section 3.4.

This detailed Bushland Management Plan describes practical measures that can be taken to maintain and restore the native plant and animal habitat at 1148 – 1152 Barrenjoey Road, Palm Beach.

Pittwater Council's Development Control Plan 25 (Conservation of Biodiversity in Pittwater (DCP 25) requires a Bushland Management Plan to accompany the development applications where the property contains fragmented or core bushland or that may contain other environmental values. This site is within an area mapped in DCP 25 as fragmented. In accordance with this DCP, this report contains a 5 - year program for the regeneration/revegetation/restoration and management of the site, and a strategy for monitoring the success of the works.

Conditions B15 and B15a of the conditions of consent for the subdivision of the land require that this BMP report be prepared by a qualified person and approved by Council rather than certified. The conditions of consent list additional items that this report must address.

Three copies of this plan should be submitted to Council prior to the release of the Construction Certificate.

This report does not address the health or potential hazard of the mature trees on the site, as they are addressed in a separate arborists report (PSB 2002).

Pittwater has particularly high environmental value due to the naturally occurring scenic vegetation and the occurrence of several threatened plant and animal species, and one Endangered Ecological Community. These threatened species and ecological communities are described and protected by the Threatened Species Conservation Act 1995. This site however is not important habitat for any Threatened Species and does not contain any Endangered Ecological Communities.

4.2 Definitions

Throughout this report "threatened" refers to those species, populations or ecological communities listed on Schedules 1 and 2 of the Threatened Species Conservation Act, 1995 as "endangered" or "vulnerable". A "Noxious" weed is a species of plant listed in the Schedules of the Noxious Weeds Act 1993. "Protected Fauna" refers to any native bird, mammal (except the dingo), reptile or frog in NSW. Protected plant refers to the species listed in Schedule 13 of the NPWS Act 1974.

4.3 Aims of this Bushland Management Plan

- To assist in making the development and occupation of the property ecologically sustainable,
- To identify potential threats to the long term survival of the ecosystem including all the native plants and animals that may occur on the land
- To provide and maintain suitable habitat for native plants and animals that may use the property, with an emphasis on threatened species,
- To reduce degradation of the adjacent and downstream natural environment that may be caused by the development and construction process,
- To inform and educate the land owners and residents of measures to reduce environmental impact and provide habitat for native animals and plants. With better appreciation of the natural environment of the land, there will be increased appreciation of its value.
- To recommend a clear plan of environmental management actions for the next 5 years to achieve these aims,
- To set up a monitoring strategy to assess the success, or otherwise, and inform Council of the environmental management of the site, and
- To provide guidelines for the ongoing maintenance of environmental assets after the life of this plan

These aims will be achieved by the following management strategies:

- Minimising the impacts of the development proposal by reviewing the construction methods.
- Detailing a 5 year program of ecological regeneration, revegetation, restoration and bushland management of the site. This will include: the amount of effort needed, the required ecological qualifications and experience of the works supervisor, appropriate plantings, appropriate weed control methods and habitat restoration goals.
- Installing fauna roosting and nesting hollows and connectivity between trees where appropriate.
- Recommending the control of feral cats, dogs, foxes, Common Mynas, House Sparrows and other introduced and feral fauna.
- A strategy, including recording sheets and photo points, for monitoring and reporting back to Council the work undertaken, new species seen and a photographic record of the site.
- Providing information to the people living on the property about the environment they will be living in and to let the owners know about the valuable natural assets that occur on their land.

4.4 What is a Bushland Management Plan?

Bushland Management Plans describe the details of the environment protection measures that will be taken on a property during construction, as well as the environmental management that will be carried out on the property for at least the next 5 years. Bushland Management Plans are required to demonstrate how the bushland values of the site will be managed during and after development of the site. A Bushland Management Plan is required prior to the issue of a Construction Certificate.

Pittwater Council's DCP 25 contains a description of what a Bushland Management Plan needs to contain. The description in the DCP is brief and broad. It is written this way so it is flexible enough to cover a wide range of circumstances, from small driveway DAs to large-scale subdivision DAs. The scope of the plan that is required will be different for each DA and will depend on the findings of the flora and fauna survey. In part the scope of the plan may involve discussions between the developers, environmental consultant and the assigned Council environmental officer.

The Conditions of Consent also contain additional matters that must be addressed in the Bushland Management Plan, which are further described in conditions B15, B15a.

According to the DCP the Bushland Management Plan should address:

(1) Protection of retained native vegetation, habitat or other elements of biodiversity;

(2) Conservation of native flora and fauna;

(3) Domestic and feral animal control;

(4) Noxious and bushland weed control, follow up weeding and maintenance of the bushland on the site;

(5) The recommended fire regime for the ecology of the site;

(6) Soil management and drainage issues that impact on bushland;

(7) Planting of 80% locally indigenous plants; and

(8) Site management.

The Bushland Management Plan should also meet the recommendations of Planning New South Wales Guidelines for Preparing Management Plans for Urban Bushland. The Bushland Management Plan must be prepared by an appropriately qualified and practising bushland management consultant. This Bushland Management Plan meets all of the necessary requirements and has been written by an appropriately qualified and experienced consultant.

4.5 Legal Perspective

In addition to DCP 25, there are numerous federal, state and local legislative and planning instruments that describe how plants and animals must be managed on all land tenures (including private land).

Relevant laws include:

- Environmental Planning and Assessment Act 1979,
- Threatened Species Conservation Act 1995,
- Environment Protection and Biodiversity Conservation Act 1999,
- Noxious Weed Act 1993,
- Rural Fires Act 1997,
- National Parks and Wildlife Act 1974 and

- Native Vegetation Conservation Act 1997

Other relevant government controls, orders and policies include the; Protection of the Environment Operations Act 1997, NSW Biodiversity Strategy 1997, State Environment Planning Policies (in particular SEPP 44: Koala Habitat Protection Policy, SEPP 14: Wetlands Policy and SEPP 19: Bushland in Urban Areas Policy), Local Environment Plans and DCPs.

These legislative and planning instruments control clearing of land, eradication of weeds, regulation of bush fire fuel loads and harming native animals and plants or their habitat. Fines up to 2 million dollars and 5 years in jail can result from breaches.

Responsibility for the conservation of native plants and animals not only rests with Federal, State and Local government but also with private landholders. Private landholders are collectively the largest landholders and land managers of Sydney, NSW and Australia. Private landholders are required to actively carry out management of their land.

In general, Local Council is the initial enforcement agency with State and Federal agencies overseeing Councils actions especially for large-scale projects. Council's requirement for a Bushland Management Plan helps Council cover their own legal liability, and it also assists landholders meet their legal responsibilities in managing their land. With the implementation of an approved Management Plan the landholder is likely to be seen as a responsible land manager. There are also many practical advantages of having a management plan, outlined below.

4.6 Other Benefits of a Bushland Management Plan

Besides the legal benefits of having a Bushland Management Plan there are also many practical benefits such as:

- The control of weeds that cause medical problems such as asthma, skin irritations and allergies, poisoning, lice, ticks and other health problems,
- Management of bush fire hazards,
- Control of pest, exotic animals including foxes, rabbits, feral dogs, feral cats, rats, mice, sparrows, Common Mynas,
- Control of erosion by planting woody plants that stabilize the soil and prevent land slip and siltation,
- Improvement of the aesthetics of the site by providing a bush land environment for living in,
- Encouragement of colourful and educational native birds, insects, animals and flowers,
- Reduction of landscaping costs, eg the cost of maintaining native bushland is less than 1/10 the cost of maintaining a lawn or gardens,
- The satisfaction of knowing you are not adversely contributing to the extinction of species or degradation of the local environment,
- Provision of shade,
- Privacy screening from neighbours,
- Reduction of the visual impact for other local residents
- Wind protection, and
- Increase in the properties monetary value.

4.7 Description of the Study Site

4.7.1 The Property

The property is known as 1148-1152 Barrenjoey Rd (Lots 16, DP. 6746 and 17, DP. 651978) and 56 Palm Beach Rd (Lot 181 DP. 534139), Palm Beach. Together these form a property that is 5914 m^2 in size. The property is an irregular shape with a road frontage along the western edge and an access drive along the south-western edge.

4.7.2 Location

The property is located at Observation Point in the suburb of Palm Beach approximately 100 m north of the Palm Beach public jetty. The property has road frontage on both Palm Beach Road and Barrenjoey Road. The land is within 100 m of Pittwater and includes the crest of the ridge. The land generally slopes west to Pittwater. The sea is 300 m away to the east at Palm Beach. The AMG co-ordinates of the site are Easting 344055 and Northing 6281318.

4.7.3 The Study Site

The study site consists of the three existing lots, the immediately surrounding land and the Council controlled road reserve. Map 1 shows the study site.

4.7.4 Adjacent Land

The adjacent land to the north, east and south is privately owned and contains long established houses. Most of the houses have gardens that are dominated by exotic plants. To the west is a narrow road reserve, then Barrenjoey Road. On the other side of Barrenjoey Road is an escarpment that is subdivided into a row of developed urban lots that have the high tide mark of Pittwater as their western boundary.

4.7.5 Physical Environment of the Site

The property has a steep slope to the west. There is an existing house in the top of the property and a driveway and garage at the higher western end of the property. Much of the property is an old garden with some remnant native species and a patchy tree canopy of native trees. See Map 1. There are some small sandstone cliffs and some exposed sandstone floaters on the site. A detailed description of the physical environment of the site is in the Flora and Fauna Impact Assessment by Skelton and Smith (2000).

4.7.6 Plants and Animals on the Site

The plants, animals, ecological communities and habitats that occur on the site are described in the Flora and Fauna Impact Assessment by GIS Environmental Consultants (Skelton 2000). The plant species that occur on the site are also listed in Appendix C.

4.7.7 Noxious Weeds

There are 38 species declared Noxious Weeds in the Pittwater local government area. The more disturbed areas of the site contain 11 noxious weeds, 3 of which occur frequently and 1 of which is common on the site. This indicates that the site has a significant infestation of noxious weeds. The less disturbed areas contained 8 noxious weeds, one of, which was frequent.

4.8 The Proposed Development

The proposal addressed by this Bushland Management Plan is the sub-division of the 3 lots into 4 new lots, building of the driveway, and digging of trenches for connection of utilities. At a later date there will be a new house built on each of the new lots. The likely building envelopes of the subdivision and the 4 new dwellings are shown on Map 1.

4.8.1 Driveway

The proposed driveway runs along the southern boundary of the property through the road reserve and a driveway easement, then curves through the centre of the property. The alignment of the driveway is shown on Map 1.

The area that is likely to be disturbed by the construction of the driveway within the property is approximately1249 m^2. Due to the steep gradient of the site, the whole of the driveway will need to be made of concrete. The building of this drive will involve disturbance on the site and the road reserve, the amount of disturbance has been estimated by Crone Nation Architects and is shown on an earthworks map.

4.8.2 Houses

After subdivision and construction of the infrastructure there will be the construction for three of the houses and garages to be built on the escarpment that extends across the centre of the site at approximately at the 30m contour. The fourth house will be partially on the ridge at the top of the property. The area that will be disturbed by the house construction will be 1144 m^2. Information supplied by Crone Nation Architects and is based on the DA's Approved.(23 November 2000.)

4.8.3 Landscaping

The area that will be filled to create a landscaped area will be 102m^2 or 1.7% of the site. Extensive areas of the site are shown on the landscape plan to be retained as bushland or to be bush regenerated or revegetated. Details of the areas and other landscaping are shown on the landscape plans by Pittendrigh Shrinkfield & Bruce Pty Ltd.

4.8.4 Stabilisation of the Boulder

The large boulder that occurs on the high side of the existing driveway has been identified by Shirley Consulting Engineers are requiring stabilisation using bolting and a reinforced concrete block. Sketches SK20020925 and SK20020802A.

4.8.5 Gabion Wall

To prevent erosion when accessing the boulder area and access to make the drain at the top of the soldier wall the engineers have designed a Gabion wall. The location of the Gabion wall is shown on Sketch SK20020802A by Shirley Consulting Engineers.

4.8.6 Stormwater and Sewage Trenches

The location of the stormwater and sewage lines are now known and shown on a plan by Tierney Consulting engineers dated 15.10.02 drawing number 7531 C9 revision 3 and shown on a plan project No. 13701WW, by Michael Bell and Partners and submitted to Sydney Water dated 19/6/02.

4.8.7 Access for Machinery to Build Solider Wall and Drain

There will need to be an access path for heavy machinery to enable the construction of the soldier wall at the top of the embankment at the entry near Palm Beach Road.

There is planned to be a drain running along the top of the retaining wall.

5. Methods

5.1 Meetings and Discussions with Council Officers

Meetings were held and there has been several phone conversations with Council officers, the landowner, Engineers, Landscape Architects and Drilling Contractors to determine the details and modifications relevant to the Bushland Management Plan for the site.

5.2 Contribution to the Landscaping Plan

Meetings have been held, and there have been several phone conversations with the landscape architects (Pittendrigh, Shinkfield & Bruce), and list of local native species that are suitable for the site was supplied to the landscape designers to assist in providing appropriate habitat.

5.3 The Development Plans Used

The plans used in the preparation of this report are based on the following plans:

Landscape Plans for Houses 1 – 4 L03, L04, L05, L06 dated 25.05.01, Sub-Division Site set out dated 5.10.00 20006/ADAS0002, Revision D, and the Pre-construction Tree/vegetation Report Pittendrigh Shrinkfield & Bruce Pty Ltd.

The alignment of the sewerage is shown on a plan project No. 13701WW, by Michael Bell and Partners and submitted to Sydney Water dated 19/6/02 dated 19/6/02.

Concept Stabilisation Works Lower Access Drive to Development 1148-1152 Barrenjoey Road, Palm Beach. Shirley Consulting Engineers Pty Ltd. 26/10/00.

5.4 Zones Within the Site

The site can be divided into zones that reflect different (long term) usages, and will therefore require different management prior to, during and post construction.

5.4.1 Hard Surfaces

The areas of the site that are planned to be houses or driveway have an area of approximately 1696 m^2 of the site and are shown on Map1.

5.4.2 Landscaped Zones

Areas that are to be landscaped are the outdoor living space, areas adjacent to access paths or areas where there will be extensive earthworks. These areas will be designed by Pittendrigh Shrinkfield & Bruce Pty Ltd in detailed plans. These areas are intended to be maintained by landscapers/gardeners or horticulturists. The species used in these area will include many local endemic and propagated from local stock. Landscaping covers the area shown on Map1.

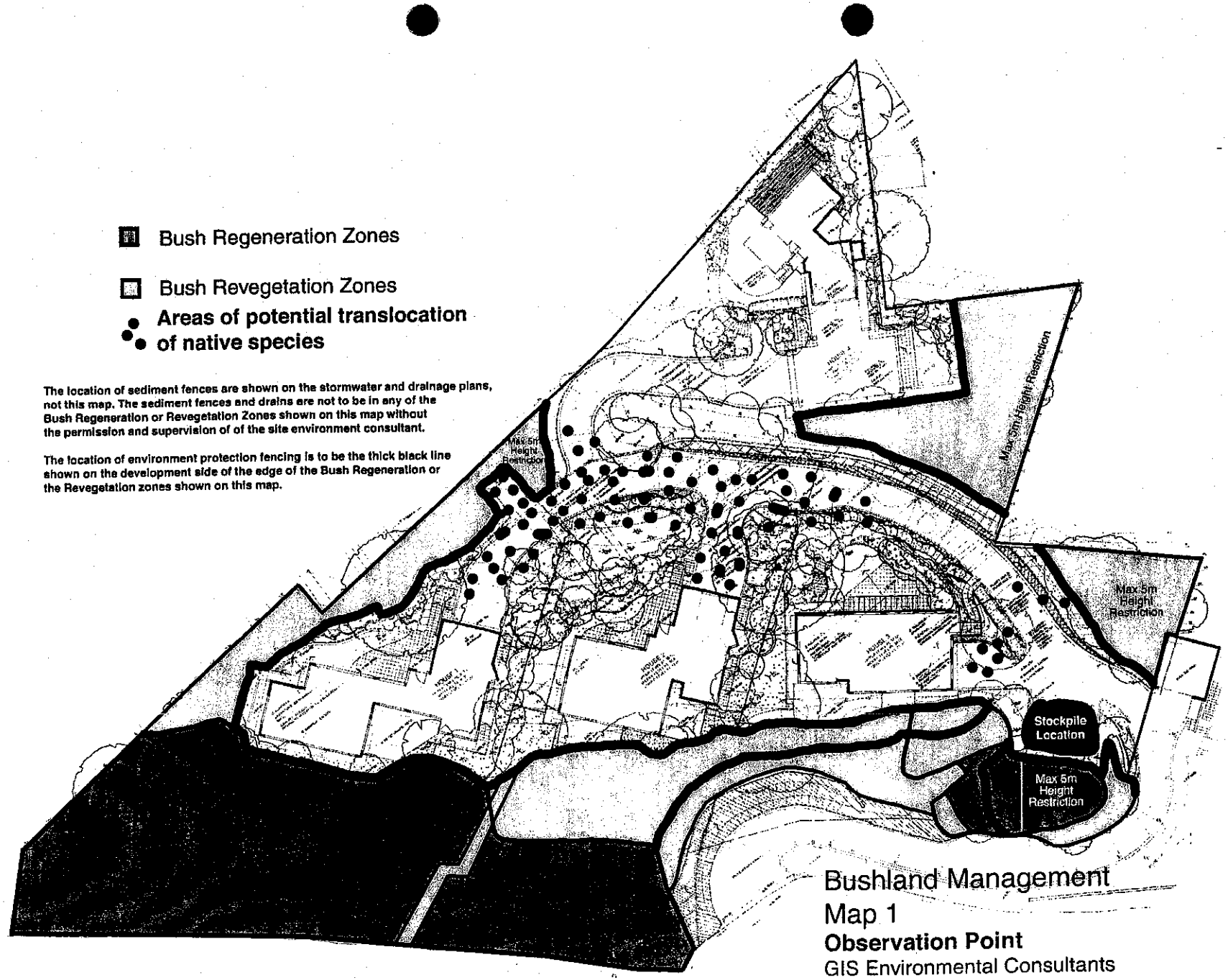
5.4.3 Revegetation Zones

Revegetation Zones have been allocated to a) areas where there is a canopy of native trees but an extensive infestation of weeds in the understorey or b) areas that are likely to be disturbed by earthworks during construction. These areas have been determined to have a low ecological resilience and will not be able to be returned to self-sustaining native bushland with out considerable effort. The aim of the revegetation zones will be to make these areas low maintenance in the long term and to provide habitat for the native animals and plants that occur in the area. Revegetation zones are shown on Map1. There is a need to plant some advanced screen trees in some parts of the bush revegetation area. The species will be either *Eucalyptus maculata, Eucalyptus punctata, Eucalyptus botriodies* or *Angophora costata* and they must be propagated from local (within 5 km of the site) stock. These trees will need at least 12 – 24 months to grow and should be grown immediately. The planting of these trees must be supervised by a environmental consultant or Council.

5.4.4 Bush Regeneration Zones

Bush Regeneration has been assigned to the parts of the site that have a relatively intact native vegetation cover that has a high ecological value and is resilient so it can be easily regenerated. The primary aim of bush regeneration is to retain and enhance the existing ecosystem, to allow it to be naturally self-sustaining. The structure and floristics of these areas is characteristic of the original vegetation. These areas will be fenced off during construction and heavy machinery will be prohibited from these areas. The native vegetation and habitat in these areas will be retained and weeded. Bush Regeneration zones are shown on Map1. There is a need to plant some advanced screen trees in some parts of the bush regeneration area. The species will be either *Eucalyptus maculata, Eucalyptus punctata, Eucalyptus botriodies* or *Angophora costata* and they must be propagated from local (within 5 km of the site) stock. These trees will need at least 12 – 24 months to grow and should be grown immediately. The planting of these trees must be supervised by a environmental consultant or Council.

Bushland Management Zones, Map 1.



Bushland Management Map 1

Observation Point

GIS Environmental Consultants
Ph: 041 943 8672
May 2003

This map is for the subdivision part of the proposal. To allow a similar map to be produced for the house DA's details such as specifications for stockpile and translocation locations and disturbance areas will need to be supplied by the engineers and these will not be known untill a later stage.
At that time maps may be able to be made showing translocation and stockpile areas.

5.5 Staging

A works protection program that outlines the environmental protection works to be carried out includes the timing of the installation of protection fencing, erosion fencing, tree protection, the spraying of weeds, collection of seed and cuttings, the recovery and storage of boulders and logs, drainage works, tree removal and landscaping (see Appendix B). The following sections detail these activities.

6. Environment Works Prior to Construction

6.1 Temporary Environment Protection Fences

Protective fences and guards will have to be installed prior to the commencement of the subdivision works on the site and be retained for the duration of the construction works (see Map 1. for location of fences). A further map will be provided prior to the commencement of works for each of the new homes. Warning signs should be placed along the protective fencing informing contractors and visitors to the site the purpose for the fencing and tree protection. The warning signs would state " Environmental Protection Keep Out".

6.1.1 Protection of Vegetation and Habitat Areas

Environmental protection fencing will need to be installed around the disturbance zones in relation to the subdivision works that are to be regenerated. In relation to the regeneration areas for the homes the regeneration areas will also be fenced off and a map detailing the location of the fence will be provided prior to the commencement of works. The protective fencing will consist of a 2.1m high star pickets with a continuous connecting wire, with orange safety netting and signage. This type of fencing is lower impact to install and more flexible for the terrain. It is recommended that the protective fences are inspected by the site environmental consultant weekly during earthworks and the construction stages of the development. For locations of temporary fences. See Map 1.

6.1.2 Protection of Individual Trees

The requirements for the protection of individual trees are outlined in the Pre Construction Tree/Vegetation Report prepared by Pittendrigh Shinkfield & Bruce Pty Limited (2002). These areas will need to fenced unless they are already fenced by the vegetation and habitat protection fencing.

6.1.3 Protection of Soil and Rock Features

The site is steep and the surface soil is sandy and easily eroded. Sedimentation of creeks and drainage lines will remove or reduce the breeding habitat for a number of fauna species. Prior to the commencement of clearing the site for subdivision works, sediment fences must be installed to contain sediment within the site and minimise surface runoff. The sediment control devices must be consistent with the standards required, and be properly maintained for the duration of the construction. Sediment control devices must also be installed around stock-piles. These measures will also be undertaken for each of the dwellings.

Rocks and boulders are important reptile invertebrate and small mammal habitat. These features that are to be retained as habitat but are outside the fenced areas are to be covered with protective material such as hessian, weed mat or old carpet for the duration of construction. This is reduce damage, erosion and to protect from cement, paint, acid, waste and other material.

6.2 Propagation of Plant Material

Prior to the commencement of works for the subdivision and for each of the dwellings a native bush regeneration nursery will be engaged to propagate appropriate material for use in the bush regeneration and revegetation of the site. Only plants propagated from within 5 km of the site should be used. This type of material is available from nurseries that specialise in this type of stock.

The planting is to include the planting of at least 32 *Diospyros australis* (Black Plum) trees to compensate for those being removed. These will need to be propagated from plants growing on the site. Map 1 shows the locations where these trees are to be planted.

The plant material that will be used in the revegetation and regeneration zones will consist of tube stock and cells, except for semi-mature tree stock in selected areas to provide faster screening of built forms. Appendix A contains a list of suitable plants that are to be propagated.

Prior to the commencement of works of the subdivision and for each of the dwellings a pre-order (or evidence of supply) will be submitted to Council's Natural Resource unit. The pre-order will contain the species that will be used and the number of plant species that will be planted out for the subdivision and for the individual house dwellings.

In the Revegetation areas (Map 1) appropriate trees will be planted at 3 m centres, appropriate ferns and shrubs at 1 m centres and appropriate herbs, vines or grasses that are to be planted at 0.5 m centres. In the regeneration areas where planting is necessary the plantings will be to half these densities

6.3 Translocation of Native Plants

The site contains many native plants such as ground covers, shrubs and trees that are to be transplanted prior to the commencement of works of the subdivision and for the new dwellings. Plants located within the disturbance areas will be assessed for suitability for transplanting by a qualified practising ecologist/bush regenerator. The plants that are identified as suitable for transplanting will be tagged with yellow tape, and the species and number of juvenile plants identified will be submitted to Council prior to the commencement of work. The relocation of the juveniles must be undertaken by a qualified practising ecologist/bush regenerator who has proven experience in this type of work. A minimum of 100 plants are to be translocated this is to include a minimum of 50 Maidenhair Ferns (*Adiantum aethiopicum*). Tree Ferns must be translocated as soon as possible. The location of where the plants are to come from within the disturbance area is shown on Map 1.

6.4 Weed Control

Generally before construction begins a weed removal program is undertaken to reduce the spread of weeds by machinery throughout the site. Due to the extensive long-term weed infestation that occurs on this site, and the high erosion potential of the site, weed control is not recommended prior to driveway and construction. Weed control on this site is recommended to occur as part of the post drive construction environment protection works. To assist in the long-term control of weeds however, it is recommended that all flowering and seeding parts off noxious and environmental weeds are to be removed and bagged prior to commencement of works within the disturbance zone.

7. Environment Works During Construction

During planning and construction as much of the existing native vegetation should be retained as possible and the amount of disturbance should be minimised particularly in the Revegetation and Regeneration zones.

For the Timetable of Works see Appendix B

7.1 Environment Protection and Tree Protection Fencing

The environmental protection fences must remain in good repair and in the position approved by the site environmental consultant, the approximate locations are shown on Map 1 of this report. The fences are to be inspected weekly by the site environmental consultant during the earthworks and construction phases of the works for the subdivision and for the individual dwellings.

7.2 Retention of Logs

Some logs of the felled trees should be retained - especially sections that have hollows or knots. These logs can be incorporated in to the bush regeneration that is to occur on the site. The retained logs must be securely pegged to ensure the do not roll down the slope. Prior to the commencement of work logs that are to be retained for later use must be moved to an stockpile or have a protective fence erected around logs to protect them from damage.

7.3 Retention of Sandstone Boulders

Sandstone features that are not impacted by works should not be damaged or disturbed. Sandstone boulders and large pieces of sandstone must be retained for landscaping and bush regeneration purposes. Before works commence protective fencing must be installed around the sandstone features or stored in a pile protected in the fenced off bush regeneration area..

7.4 Water Quality

All point sources of water pollution are to be contained at the source. Die back is a major cause of death to mature trees in Pittwater. Trees particularly effected are *Eucalyptus, Angophora and Corymbia* and these are essential food and habitat trees for threatened and regionally/locally important species. Contaminated water produced during construction should be not be allowed to flow into the native vegetation.

It is essential that measures are taken to minimise soil erosion during construction. The sedimentation fencing is to be installed 1 week prior to the commencement of works for the subdivision (see accompanying sediment control Map). Prior to the construction of dwellings a further soil erosion control map will be provided.

7.5 Topsoil Recovery

Due to the high number of weeds on this site it is not recommended that the topsoil be collected for re use on this site.

7.6 Stockpiling

Materials, stockpiles and vehicle areas are to be located on already cleared and disturbed land well away from trees, vegetation, habitat, bush rock or other natural features. The designated areas for stockpiling of materials for each of the proposed dwellings will be provided prior to the commencement of the dwellings works. See attached plan for subdivision woks, a further plan will be provided prior to the construction certificate for the dwellings being granted. Designated areas for stockpiling of materials for the subdivision are shown on Map 1. Size of area and the geotechnical suitability of the location of stockpiles may need to be confirmed by with engineers and hydrologists.

7.6.1 Stabilisation of the Boulder

The large boulder that occurs on the high side of the existing driveway has been identified by Shirley Consulting Engineers are requiring stabilisation using bolting and a reinforced concrete block. Sketches SK20020925 and SK20020802A. This area will be extensively disturbed during construction and as a consequence has been removed from the bush regeneration zone and made part of the revegetation zone. Before these works commence there will need to be environment protection fences erected to minimise damage to native bushland to be retained and the native plants in this area that can be transplanted will need to be included in the transplanting plans. Photos are to be taken before and after the works. The fences and the photos are to be taken by the site environmental consultant or Council.

7.6.2 Gabion Wall

To prevent erosion when accessing the boulder area and access to make the drain at the top of the soldier wall the engineers have designed a Gabion wall. The location of the Gabion wall is shown on Sketch SK20020802A by Shirley Consulting Engineers. This area will be extensively disturbed during construction and as a consequence has been removed from the bush regeneration zone and made part of the revegetation zone, See Map 1. Before these works commence there will need to be environment protection fences erected to minimise damage to native bushland to be retained and the native plants in this area that can be transplanted will need to be included in the transplanting plans. Photos are to be taken before and after the works. The fences and the photos are to be taken by the site environmental consultant or Council.

7.6.3 Stormwater and Sewage Trenches

The location of the stormwater and sewage lines are now known and shown on a plan by Tierney Consulting engineers dated 15.10.02 drawing number 7531 C9 revision 3 and shown on a plan project No. 13701WW, by Sydney Water dated 19/6/02. Map 1 has been amended accordingly.

The areas of bush regeneration that would have affected by these works have now been changed to revegetation zones and changes have been made to Map1. The depth of these trenches is not known. It is recommended that the digging and refilling of these trenches be supervised by the site environmental consultant. Photos are to be taken before and after trenching. The trenches should be open for a short a time as possible Where possible the trenches should be shared by s many utilities as possible to reduce the number of trenches and the disturbance to the site. The soil profile is to be retained and the spoil is to be placed on canvas or geotech fabric while the trench is open.

7.6.4 Access for Machinery to Build Solider Wall and Drain

There will need to be an access path for heavy machinery to enable the construction of the soldier wall at the top of the embankment at the entry near Palm Beach Road. There is planned to be a drain running along the top of the retaining wall. This area has been excluded from the Bush regeneration areas on Map 1. This work will require erosion control and revegetation. This area will need to be fenced off by the protective fencing during works.

8. Environmental Works Post Construction

8.1 Bushland Revegetation

The native vegetation and habitat in the revegetation areas will be retained, weeded and planted with local native species propagated from local stock. The initial work and continued maintenance of the revegetation zones must be undertaken by suitably qualified and experienced Certificate 2 Bush Regenerators. The initial work and continued maintenance should also be conducted under the supervision of a suitably experienced and qualified person with Bush Regeneration Certificate 4. Logs, dead trees and surface rocks should be retained in these areas. Plants should not be planted in formal patterns and there should be deep mulching. These areas will contain some soil stabilisation works (such as retaining structures), placed rocks and footpaths and steps may be installed. The techniques of the appropriate weed removal techniques for the more common weed species that are found on the site are listed in table 1.

8.2 Bushland Regeneration

The native vegetation and habitat in these areas will be retained and weeded. There will be planting of local native species that have been propagated from local stock. The initial work and continued maintenance of the regeneration zones must be undertaken by suitably qualified and experienced Certificate 2 Bush Regenerators. The initial work and continued maintenance will also be conducted under the supervision of a suitably experienced and qualified person with Bush Regeneration Certificate 4. Plants should not be planted in formal patterns. The aim of the bush regeneration will be to make these areas self-sustaining and requiring little maintenance while also providing habitat for the native animals and plants. In these areas the soil surface will not be disturbed, except for weeding and planting of some advanced screening native trees. It is recommended that weed control and bush regeneration is to commence at least two months prior to the commencement of works. The techniques that are to be used are those described in "Bush Regeneration" by Robin Buchanan, "Bush Regeneration Handbook" By The National Trust of Australia and "Bush Invaders" by Adam Muyt. Table 1 describes the techniques for those weed species that are the more common on the site.

8.3 Weed Control

Prior to the commencement of construction weed control in the bush regeneration areas is to begin at a minimum of two weeks prior to the commencement of work.

Weeds remaining after construction in all areas are to be removed by qualified bush regenerators. Weed material including all seeds are to be removed from the site and disposed of at Kimbrikii Tip.

It is recommended that weed removal occur in the bush regeneration and revegetation zones after driveway construction but before occupancy. The weed removal in the building envelope areas is to occur 6 months after the construction of the drive if no house has been built in the envelope.

8.3.1 Table 1. Techniques to eradicate weeds and exotic species

*Herbicide concentrations follow NSW Agriculture recommendations in Noxious Weed Control Handbook: Herbicide Control (1998).

Genus species	Common name	Control Method
WOODY PLANTS		
Ligustrum lucidum *Ligustrum sinense*	Privet - Broad Leaved & Narrow Leaved	On the primary visit small plants are to be removed manually, ensuring all roots are removed. Large plants are to be treated by the cut and paint method using glyphosate. The success of this treatment can be increased by applying herbicide to sapwood in the stump after stripping some of the bark. All fruiting branches must be bagged and not carried loose through the site. Masses of seedlings may establish by seed in place of the mature plant and can be removed manually or by the cut and paint method. Broad spraying of seedlings will also impact on native regenerating plants therefore it must be avoided. All plant material is to be removed and disposed of off-site. The follow up visits are to include spot spray of regrowth and seedlings with Metsulfuron (e.g. Brushoff®) 10g/100L.
Lantana camara	Lantana	On the primary visit small plants are to be removed manually, ensuring all roots are removed. Large plants are to be treated by the cut and paint method using glyphosate. Dense, layered thickets must be removed in stages. All fruiting branches must be bagged and not carried loose through the site. All plant material is to be removed and disposed of off-site. The follow up visits are to include spot spraying of regrowth and seedlings with a systemic herbicide such as glyphosate.
Senna pendula	Cassia	On the primary visit small plants are to be removed manually, ensuring all roots are removed. Large plants are to be treated by the cut and paint method using glyphosate. All fruiting branches must be bagged and not carried loose through the site. Seeds persist in the soil for some years and must be contained. All plant material is to be removed and disposed of off-site. The follow up visits are to include spot spray of regrowth and seedlings with a systemic herbicide such as glyphosate.

Genus species	Common name	Control Method
Cinnamomum camphora	Camphor Laurel	On the primary visit small plants are to be removed manually, ensuring all roots are removed. Large plants are to be treated by the cut and paint method using glyphosate. The cut and paint method involves the plant being cut off at ground level and the cut surface is then painted with a glyphosate. This allows the chemical to move through the plant down into the roots thereby killing the plant effectively. All fruiting branches must be bagged and not carried loose through the site. Seeds persist in the soil for some years and must be contained. All plant material is to be removed and disposed of off-site. The follow up visits are to include spot spraying of regrowth and seedlings with a systemic herbicide such as glyphosate.
Ochna serrulata	Ochna or Mickey Mouse Bush	Ochna is difficult to eradicate due to it's tap root system. The best method for eradication is the scrape method. This involves scouring the bark down each side of the stem of the plant and then immediately applying undiluted glyphosate to the scour. Seedlings can be removed manually.
Sida rhombifolia	Paddys Lucerne	On the primary visit small plants are to be removed manually, ensuring all roots are removed. Large plants are to be treated by the cut and paint method using glyphosate. The cut and paint method involves the plant being cut off at ground level and the cut surface is then painted with a glyphosate. This allows the chemical to move through the plant down into the roots thereby killing the plant effectively. The follow up visits are to include spot spraying of regrowth and seedlings with a systemic herbicide such as glyphosate or they can be manually removed.
HERBS *Ageratina adenophera* & *Ageratina riparia*	Crofton Weed & Mist Flower	The primary visit is to manually remove small plants. This is most effective when the soil is wet. All weed material is to be removed and disposed of off-site. The follow up visits are to include manual removal of additional plants and herbicide spot spray of any regrowth using Glyphosate 360, 1:200*.

Genus species	Common name	Control Method
Protasparagus aethiopicus & *Asparagus plumosus*	Asparagus Fern & Climbing Asparagus	The primary visit is to manually remove the growing crown of all large plants and to bag any fruiting stems. All weed material is to be removed and disposed of off-site. This species does not regrow from water tubers which can be left in the soil. This will minimise surface soil disturbance. No fruiting plant material can be carried through the site. The follow up visits are to include the removal of any additional mature crowns and fruiting material.
Watsonia meriana var. bulbilifera	Wild Watsonia, Bugle Lily	The primary visit is to manually remove the plant with tubers and treat all plants by painting a single leaf surface with a systemic herbicide such as glyphosate. This will ensure treatment of the main and secondary tubers that are otherwise difficult to effectively remove. The follow up visits are to include additional leaf painted of surviving plants and manual removal.
Nephrolepis cordifolia	Fishbone Fern	The primary visit is to manually remove all large plants, including the tubers attached to lateral roots. All weed material must be bagged to prevent spore release and removed and disposed of off-site. This species re-sprouts from tubers left in the soil. The follow up visits are to include the removal of any additional mature plants and regrowth from remaining tubers. Mulch and competition from desirable plants can discourage regrowth.
Tradescantia fluminensis	Wandering Jew	Large infestations are raked or rolled into long rolls, the bundled plant matter can be lifted and taken offsite. Small infestations can be hand pulled and also taken off site. The follow up visits involve hand pulling any pieces that were missed in the initial visit.
CLIMBERS/ SCAMBLERS		

Genus species	Common name	Control Method
Ipomea indica	Morning Glory	The primary visit is to remove the bulk of the infestation by pulling/raking vines down from trees and tracing and pulling up ground runners and attached roots. Blanket growth over the ground and other plants is to be manually rolled up. All weed material is to be removed and disposed of off-site. The follow up visits are to include manual removal of regrowth and spot-spraying of seedlings with Glyphosate 360, 1:100*.
Lonicera japonica	Japanese Honeysuckle	The primary visit involves treating large climbing stems using the Drill and Fill method and the Stem Cut and Scrape method. Smaller plants can be treated using the Cut-paint method. Remove the vine by cutting back stems leaving a metre to cut and scrape. Apply the herbicide to the cut and scrape. Seedlings can be hand pulled ensuring that all of the roots and stems are removed from the soil. All material must be taken off site. The follow up visits are to include manual removal of regrowth and spot-spraying of seedlings with Glyphosate 360, 1:100*.

8.4 Planting

The plant material that will be used in the revegetation and regeneration zones will consist of tube stock and cells. The planting must be done by qualified bush regenerators who have the minimum qualifications of Bush Regeneration Certificate 2 and the project must be under the constant supervision of a experienced and qualified person with Bush Regeneration Certificate 4. The specific program and method of planting will be determined by the people carrying out the work. It is likely that seedlings will be supported by stakes and protected by tree guards. If fertiliser is to be used it must be specific to Australian native plants and low in phosphorus and nitrogen.

The goals of the planting will be to use appropriate species and densities sourced from local genetic stock to produce a self-sustaining ecosystem that is representative of the plants, animals and structure of the original vegetation.

Suitable tree species include: *Corymbia maculata* (Spotted Gum), *Eucalyptus punctata* (Grey Gum), *Eucalyptus paniculata* (Grey Ironbark), *Corymbia maculata* (spotted Gum), *Syzygium paniculatum, Allocasuaria torulosa* (Forest Oak), *Eucalyptus umbra* (Bastard Mahogany), *Banksia integrifolia* (Coastal Banksia) and *Livistinia australis* (Cabbage Palms) and *Syncarpia glomulifera* (Turpentines). There should be at least 30 *Allocasuarina torulosa* trees in 150 mm pots planted to replace the Endangered Glossy Black Cockatoo habitat. An extensive planting list for trees, shrubs and ground covers is given in Appendix A.

At least 32 Black Plums (*Diospyros australis*) are to be planted on the site - a minimum of 6 trees in each proposed planting area, see Map 1.

8.5 Height Restrictions for Plantings

There is to be a maximum of 5 m height limit on species selected to be growing in the 3 labelled area shown on Map 1. The species must be selected from the plant species list in Appendix A.

8.6 Soil Remediation and Preparation

Due to the extent of weed infestation that is on the site the topsoil will contain many weed seeds and propagules. It is recommended that the topsoil not be stockpiled for reuse. No levelling, ripping or scarifying of the soil surface is recommended. Spoil will not be used outside disturbance areas that are designated for the subdivision and the construction of the individual dwellings.

8.7 Erosion Control

Where there is to be extensive weed removal the work must be carried out in stages. The work is to be undertaken in this manner to reduce the chance of soil erosion and sudden habitat loss. It is recommended that weed removal occur in the bush regeneration and revegetation zones after construction finishes but before occupancy. This later than usual timing of weed removal is to reduce the change of erosion on this very steep and weedy site. The weed removal in the building envelopes is to occur 6 months after the construction of the drive if no house has been made in the envelope.

Where erosion is likely to occur erosion control such as fencing and weed matting must be utlised.

8.8 Domestic and Feral Animal Control

Studies of the impacts of urban development on native populations of animals indicate that habitat fragmentation and increased predation by carnivores (cats, dogs and foxes) are major factors in the decline of small mammal populations (Dickman and Doncaster 1989, Dickman 1996). For the protection of the threatened species and other animals on the site it is recommended that cats are excluded from the site and dogs are restrained from entering areas of wildlife habitat. The keeping of outdoor dogs and cats will lead to devastation of the wildlife on the property, increases in the amount of phosphorous entering the soil, which will subsequently kill off many native plants.

It is recommended that the keeping of cats be discouraged. However if residents want to have cats they must be restricted to being kept indoors or within a confined area that they cannot escape. Dogs should also be fenced in and kept indoors at night. No feral dogs cats or foxes should be fed.

Preferably all domestic vegetable waste from this site should be removed off site and not composted. Any compost bins that may contain food scraps, faeces or other household waste should be clearly labelled "Not to be used on native gardens" and should be covered to prevent access by feral animals such as European rats, feral cats, foxes etc.

Pest bird species such as Common Mynas, Sparrows and the native Currawong should not be encouraged or fed.

8.9 Cleaning of Earthmoving Equipment

All earthmoving equipment must be thoroughly cleaned before entering the site to prevent the introduction of new weed species and pathogens onto the site.

8.10 Use of Fertilisers and Insecticides

No fertiliser, insecticide, herbicides or detergents are to be used during the construction or maintenance of the property where they may drain to the proposed stormwater system. Fertiliser would be especially destructive to the local ecology - added nutrients will kill phosphorus intolerant natives. No poison type snail bait should be used in the maintenance of the gardens, as these will kill native animals such as Blue Tongue Lizards. Glyphosate herbicide can be used for the cut and paint method and scrape used in bush regeneration, however it is not recommended that it be used for spraying.

8.11 Staking of Plants

Stakes should only be used to mark the position of plants. Plants will grow quicker and stronger if they are not tied to stakes. The stakes only need to be sticks that are found on the site and not formal stakes.

8.12 Long-term Weed Control

There is a large amount of exotic plant material to be removed from the site, including trees, shrubs and herbs. Without careful and quick management the weed problem will become permanent, and the costs of maintaining the site will rapidly increase. Large amounts of weeds can be associated with health problems - in particular asthma, hay fever, ticks and allergies for humans and pets. Dense thickets of weeds can be a bush fire hazard.

Long-term weed control will be essential, as described in the 5-year maintenance timetable and monitoring program. The timetable includes checking and removal of weeds, checking that the mulch layer is intact, and checking for erosion twice a year. There may be a need for further recovery and propagation of seed and plant propagules for use during further bush regeneration works. The first year after construction will include extensive restoration works to remove existing weeds from the revegetation and regeneration areas. Where thickets of weeds are to be removed, the removal is to be gradual and staged to prevent a sudden loss of habitat. The timetable also includes the maintenance effort required to carry out weed control.

8.13 Landscape Edging

There must be edging installed along the boundary between areas that are to be landscaped and areas that are to be bush regenerated or revegetated if there is not planned to be a path along these boundaries. The edging must be at least 100 mm into the soil and 200 mm above the ground surface.

8.14 Ecological Fire Prescription

The lower part of this site contains a high number of species that are typical of moist vegetation. This lower part of the site should not be burnt as it will kill these species and favour fire tolerant species. The upper part of the site contains sclerophyll forest and should have a fire regime of one fire every 15 years in order to maintain species diversity. This can be achieved by pile burning with the supervision of the Rural Fire Service.

8.15 Mulching and Leaf Litter

Areas of dense vegetation and thick leaf-litter provide suitable areas for Long-nosed Bandicoots, reptiles, invertebrates and Lyre Birds to live and forage. Where native vegetation is to be removed, the removed vegetation including shrubs should be chipped on site and the chips used for landscaping and bush regeneration within the site. Only mulch certified to be from native trees should be used, otherwise there may be large infestations of willows, camphor laurel, privet and other noxious species introduced onto the site, the bush regenerator will need to liase with the site manager to ensure that the mulch that is to be used is weed free. The native trees that will be chipped for mulching must be identified and marked by the contracted bush regenerator with the site manager prior to the commencement of works. The mulch is to be placed to a minimum depth of 75 mm and the minimum depth of 150 mm. The mulch must be monitored for erosion, thinning and weeds this can be undertaken as part of the maintenance of the bush regeneration and revegetation areas and the landscaped areas.

8.16 Weed Matting

Due to the steepness and weediness of the site the use of weed matting is highly recommended where there is no existing native shrub or herb species that are to be retained. Depending on the slope, disturbance and weediness of each patch the use of mulch, sterile cover crops and binding sprays may also be used.

The decision of the method and location that is most appropriate for each patch must be made by a level 4 Bush Regenerator on the site at the time. Site assessment for the installation of weed matting is to occur one week prior to the commencement of bush regeneration and revegetation works.

Where weed mats are used they will be laid across the slope of the site with the uphill strip overlaying the downhill strips by 100 mm. The weed matt will be a biodegradable jute fibre which does not contain polymer reinforcement. The mat will be pegged into position using pegs that are galvanised steel, u-shaped, 10 mm diameter and a minimum of 450 mm long. The pegs will be placed at 300 x 300 mm anchor trenches at top and bottom, at 1000 x 1000 mm intervals with 250 mm overlaps. Eucalypt mulch would then be placed on top of the matting.

8.17 Provision of Habitat for Fauna

The areas designated for bush regeneration and bush revegetation will be designed to also provide fauna habitat. There will also be some modified fauna habitat in the landscaped areas of the site.

8.17.1 Bat, Possum and Glider Nesting Boxes

It is recommended that nesting boxes suitable for gliders and insectivorous bats be placed in trees on the property. This may compensate for the loss of tree hollows that are removed or the trees that can no longer grow due to the development. Correctly installed boxes should not require any maintenance. Nesting boxes can be placed in view or out of view depending on the wishes of the owner. If placed in view residents can watch little Feather-tailed and Sugar Gliders, insectivorous bats etc leaving the boxes every evening. The presence of the small insectivorous bats will greatly reduce if not eliminate any nocturnal insect problems such as mosquitoes and moths. The boxes must be placed at least 3 metres up trees to reduce predation by cats. Other roosting boxes should be installed on poles or to existing rough barked trees. The lack of sufficient nesting or roosting sites is likely to be one of the main factors leading to the decline of many animal species.

8.17.2 Bandicoot and Antechinus Habitat Improvement

Survival of the bandicoot and *Antechinus* populations relies upon adequate dense areas of low vegetation and thick leaf litter in which to make their day burrows. This type of habitat should be made and maintained.

8.17.3 Enhancing Possum Pathways

Possums, koalas and tree snakes require a means of travelling through the canopy. When travelling along the ground where they can be attacked by dogs, cats and foxes, or can be run over by cars. Enhancement of aerial pathways can be achieved by planting rough and smooth barked trees so that their canopies touch. Possum access paths could also be created by using discreet ropes to connect important tree canopies. Installing connectivity between trees where appropriate is recommended.

8.17.4 Improving Bat, Owl, Glider and Possum Foraging Habitat

Suitable habitat for bats owls possums and gliders will be improved by providing the appropriate vegetative structure on the site including a mixture of rough and smooth-barked trees, interconnecting canopies and food trees.

8.17.5 Food Plants

It is recommended that tube stock trees of appropriate species, grown from local genetic stock, be planted in vicinity to improve the habitat and feeding value of the site. Suitable species include:

- Spotted Gum—flowering nectar, sap and pollen for arboreal mammals, birds, bats and insects. Spotted Gums, *Corymbia maculata*, flower during winter and as such are important food sources for animals that rely on year round nectar/pollen. *Corymbia maculata* is a potential food plant for the Endangered Population of Squirrel gliders and is occasionally eaten by Koalas (Smith and Smith 1998). A Spotted gum on the neighbouring bushland has a 'feeding cut' most probably from a glider. Claw marks in the tree trunk occur around this slice.
- Autumn flowering Red Bloodwoods (*Corymbia gummifera*) occur site. A few wattle trees and shrubs (*Acacia* spp. see flora section), occur on site none are listed as being fed upon by Squirrel gliders but may be used by this species and/or other arboreal mammals such as locally significant Sugar gliders, Feathertail gliders and Pygmy possums (no feeding marks were evident on these plants).
- Wattles (*Acacia* spp. see flora Section)—few— none are listed as being typical food for Squirrel gliders. Acacias may be used by this species and/or other arboreal mammals such as locally significant Sugar gliders, Feathertail gliders and Pygmy possums.
- *Banksia* species provide nectar for many small birds: *Banksia ericifolia and B. integrefolia* are winter flowering, *B. serrata* and *B. spinulosa* are summer flowering. All of these species occur in areas that are linked to the site by trees.
- Iron barks—usually winter flowering—nectar, sap and pollen.
- Casuarinas—potential Koala food
- Xanthorrhoea—when flowering provides food source for arboreal mammals.
- 'Rainforest plants' (see flora list)—a few species of plants were observed to have fruits/flowers, including *Pittosporum undulatum*, fruits are a food source for animals particularly birds.

8.17.6 Tree Roughness

The site has a mixture of smooth barked and rough barked trees that would increase the access ability of the canopy to possums and study by Rowston (1998) found Squirrel Gliders utilised rough-bark trees and dead trees to a greater extent than any other trees. Released gliders were noted to "slip off" smooth barked Eucalypts, preferring to move along the ground until the nest tree or a rough-bark tree was reached (Rowston, 1998). This result highlight the importance of maintaining a contiguous tree canopy and having a floristically diverse community where smooth-bark trees (such as spotted-gums, winter flowering food trees are intermixed with rough-barked trees such as bloodwoods). Both smooth and rough-barked trees occur on the site.

9. Monitoring

9.1 During Construction Monitoring

The construction process is likely to take many months. During this time the soil in many areas will be exposed and the canopy will be disturbed which is perfect conditions for weeds to spread and become established. The weeds need to be fully suppressed during the construction process. Monthly weed inspections will be required.

During earthworks large machines will be used in difficult conditions, it is likely that the environment protection fencing will be damaged or dislodged. During the earthworks and trench digging phase of the construction weekly inspections and repair of the fences will be necessary and trench digging will need to be supervised when it is within or adjacent to the revegetation or regeneration areas. It is recommended that whenever work is planned to be carried out in or adjacent to these areas the site environmental consultant be called to determine if supervision or advice is needed.

9.2 Annual Monitoring

It is recommended that the success (or otherwise) of the regeneration and revegetation works be evaluated using photographs and data sheets.

In the Timetable of Works (Appendix B) there are 8 occasions over the 5 years of this plan when the data sheets are to be filled in, photos taken and both sent into the Environment Unit of Council for monitoring. The Timetable of Works outlines when the works are to be carried out and the estimated amount of effort required.

The annual monitoring of the management of the site must be carried out by an appropriate person (Bush Regenerator, TAFE certificate IV or a Environmental Scientist, B. Sc. (Hons)) with at least 5 years experience in the ecology of this area.

9.2.1 Filling in the Data Sheet

The data sheet (Appendix D) must be filled out and photocopied every year in September after the bush regeneration work has been carried out. All boxes must be filled in with a response. The map must be marked with the relevant information and the completed data sheet and photos must be sent to the Environment Section of Council before the end of the month (i.e. before the end of either September or March). The data sheet requires information on:

- the date
- the condition of the site (erosion, paths, disturbance fire litter etc.)
- the weeds removed
- the bush regeneration personnel
- the effort spent
- the work carried out
- the materials used
- the presence of feral animals
- other information

9.2.2 Tree Death

All occurrences of tree death or substantial die back of canopy must be recorded on the map in the data sheets.

9.2.3 *Photos*

Photos are to be taken in September every year from the permanent survey points (PP1, PP2, PP3, PP4, PP5, PP6) shown on Map 1. The colour photos are to be taken using a 35 mm camera (preferably digital) in the directions shown on Map 1. The photos must be taken from a standing position and not using any zoom or wide angle lenses. These photos are to be forwarded to the Environmental Section of Pittwater Council in either digital form (>3.1 Mega pixel i.e. an approximately 1.4 Mb, compressed JPEG file, delivered on a CD labelled with the dates and the text "Bushland Monitoring photographs for 1148 – 1152 Barrenjoey Road") or as 2 copies of standard (6' X 4') sized prints with negatives. The photos should have a date stamp on the image or alternatively the date written on the back.

10. References

Buchanan A. 1989, Bush Regeneration, Recovering Australian Landscapes, TAFE NSW

DUAP, Department of Urban Affairs and Planning's Guidelines for Preparing Management Plans for Urban Bushland

Ermert S. and Clapp L. 1998, Gardener's Companion to Weeds, How to identify and control more than 150 common weeds and invasive plants in Australia. Lansdowne Publishing Pty Ltd.

Fairley A. and Moore P. 1989, Native Plants of the Sydney District. An Identification Guide. Kangaroo Press and The Society for Growing Australian Plants.

Muyt A. 2001, Bush invaders of South-East Australia, A guide to the identification and control of environmental weeds found in South-Eastern Australia. R.G ands F.J Richardson.

Pittendrigh Shinkfield & Bruce Pty Limited. 2002, Pre Construction Report, 1148 – 1152 Barrenjoey Road & 56 Palm Beach Road, Palm Beach, NSW, 2108. Prepared for Raypond Developments.

Pittwater Council 2000, Development Control Plan No. 25, Conservation of Biodiversity in Pittwater, Pittwater Council.

Pittwater Council, Notice to Applicant of Determination of a Development Application. Consent No. N1228/00. 27 December, 2001.

Robinson. L. 1994, Field Guide to the Native Plants of Sydney, Kangaroo Press.

Skelton N. and Q. Smith, 2000 Flora and Fauna Impact Assessment at 1148 – 1152 Barrenjoey Road, Palm Beach, GIS Environmental Consultants.

Skelton N. and T. Gilson, 2001 Bushland Management Concept Plan at 1148 – 1152 Barrenjoey Road, Palm Beach, GIS Environmental Consultants.

Smith P. and J. Smith 2000, Management Plan for Threatened Fauna and Flora in Pittwater, Pittwater Council.

11. Appendix A, Propagation List for Revegetation and Regeneration Areas

Prior to construction a native bush regeneration nursery will be engaged to propagate appropriate material for use in the bush regeneration of the site. Only plants propagated from within 5 km of the site should be used. This type of material is available from nurseries that specialise in this type of stock. Such nurseries include; Tharwa Nursery (9450 1967), Wirreanda (9450 1400), Harvest Seeds and Native Plants (9450 2750), Toolijooa Nursery (9970 8709).

The exact quantities of each species and pot sizes will need to be determined by discussions with Councils environment unit or the site environmental consultant.

The exact quantities of each species and pot sizes will need to be determined by discussions with Councils environment unit or the site environmental consultant.

List of suitable native plant species for planting at Observation Point

By Nicholas Skelton, GIS Environmental Consultants Ph: 041 943 8672

Genus and Species	Habit	Common Name
Species mixture for planting on the upper parts of the site		
Macrozamia communis	Cycad	Burrawong
Calochlaena dubia	Fern	False Bracken Fern
Doodia caudata var caudata	Fern	
Entolasia stricta	Grass	Right Angled Grass
Imperata cylindrica var. major	Grass	Blady Grass
Oplismenus aemulus	Grass	Basket Grass
Themeda australis	Grass	Kangaroo Grass
Xanthorrhoea macronema	Grass tree	Grass Tree
Dianella caerulea	Herb	Blue Flax Lily
Geranium homeanum	Herb	
Lomandra longifolia	Herb	Mat Rush
Livistona australis	Palm	Cabbage Tree Palm
Acacia implexa	Shrub	Hickory
Acacia longifolia	Shrub	Sydney Golden Wattle
Acacia ulicifolia	Shrub	Prickly Moses
Acrotriche divaricata	Shrub	
Dodonaea triquetra	Shrub	Hop Bush
Oxylobium ilicifolium	Shrub	Native Holly
Persoonia linearis	Shrub	Narrow-leaved Geebung
Platylobium formosum	Shrub	Handsome Flat-pea
Pultenaea flexilis	Shrub	Graceful Bush Pea
Acacia floribunda	Tree	White Sallow Wattle
Acacia parramattensis	Tree	Parramatta Green Wattle
Acmena smithii	Tree	Lily Pilly
Allocasuarina littoralis	Tree	Black She-oak
Allocasuarina torulosa	Tree	Forest She-oak
Angophora costata	Tree	Smooth-barked Apple
Angophora floribunda	Tree	Rough-barked Apple
Banksia integrifolia ssp. integrifolia	Tree	Coastal Banksia
Cassine australis var. australis	Tree	

Diospyros australis	Tree	Black Plum
Elaeocarpus reticulatus	Tree	Blueberry Ash
Eucalyptus botryoides	Tree	Bangalay
Eucalyptus paniculata ssp. paniculata	Tree	Grey Ironbark
Eucalyptus piperita	Tree	Sydney Peppermint
Eucalyptus punctata	Tree	Grey Gum
Eucalyptus umbra	Tree	Bastard Mahogany
Ficus rubiginosa	Tree	Port Jackson Fig
Glochidion ferdinandi var. ferdinandi	Tree	Cheese Tree
Rapanea variablis	Tree	Brush Muttonwood
Syncarpia glomulifera	Tree	Turpentine
Synoum glandulosum	Tree	Scentless Rosewood
Syzygium paniculatum	Tree	Magenta Lillypilly
Billardiera scandens	Vine	Apple Berry Dumplings
Cissus antarctica	Vine	Kangaroo Vine
Cissus hypoglauca	Vine	Native Grape
Eustrephus latifolius	Vine	Wombat Berry
Geitonoplesium cymosum	Vine	Scrambling Lily
Glycine clandestina/microphylla	Vine	Love Creeper
Kennedia rubicunda	Vine	Dusky Coral Pea
Smilax glyciphylla	Vine	Native Sarsaparilla
Adiantum aethiopicum	Fern	Maidenhair Fern
Blechnum ambiguum	Fern	Gristle fern
Calochlaena dubia	Fern	False Bracken Fern
Cyathea cooperi	Fern	Straw Tree Fern
Doodia caudata var caudata	Fern	
Gleichenia dicarpa	Fern	Coral Fern
Histiopteris incisa	Fern	Bats Wing Fern
Todea barbara	Fern	King Fern
Entolasia stricta	Grass	Right Angled Grass
Imperata cylindrica var. major	Grass	Blady Grass
Oplismenus aemulus	Grass	Basket Grass
Commelina cyanea	Herb	Creeping Christian
Dianella caerulea	Herb	Blue Flax Lily
Dichondra repens	Herb	Kidney Weed
Geranium homeanum	Herb	
Gymnostachys anceps	Herb	Settlers Flax
Lomandra longifolia	Herb	Mat Rush
Pseuderanthemum variable	Herb	Pastel Flower
Viola hederacea	Herb	Native Violet
Livistona australis	Palm	Cabbage Tree Palm
Acacia implexa	Shrub	Hickory
Breynia oblongifolia	Shrub	Breynia
Dodonaea triquetra	Shrub	Hop Bush
Notelaea longifolia	Shrub	Mock Olive
Notelaea venosa	Shrub	Native Olive
Oxylobium ilicifolium	Shrub	Native Holly
Pultenaea flexilis	Shrub	Graceful Bush Pea
Acacia floribunda	Tree	White Sallow Wattle
Acacia parramattensis	Tree	Parramatta Green Wattle

Acmena smithii	Tree	Lily Pilly
Allocasuarina littoralis	Tree	Black She-oak
Allocasuarina torulosa	Tree	Forest She-oak
Angophora costata	Tree	Smooth-barked Apple
Angophora floribunda	Tree	Rough-barked Apple
Banksia integrifolia ssp. integrifolia	Tree	Coastal Banksia
Cassine australis var. australis	Tree	
Corymbia maculata	Tree	Spotted Gum
Diospyros australis	Tree	Black Plum
Elaeocarpus reticulatus	Tree	Blueberry Ash
Eucalyptus botryoides	Tree	Bangalay
Eucalyptus paniculata ssp. paniculata	Tree	Grey Ironbark
Eucalyptus piperita	Tree	Sydney Peppermint
Eucalyptus punctata	Tree	Grey Gum
Ficus rubiginosa	Tree	Port Jackson Fig
Glochidion ferdinandi var. ferdinandi	Tree	Cheese Tree
Rapanea variablis	Tree	Brush Muttonwood
Syncarpia glomulifera	Tree	Turpentine
Synoum glandulosum	Tree	Scentless Rosewood
Syzygium oleosum	Tree	Blue Lillypilly
Syzygium paniculatum	Tree	Magenta Lillypilly
Cissus antarctica	Vine	Kangaroo Vine
Cissus hypoglauca	Vine	Native Grape
Glycine clandestina/microphylla	Vine	Love Creeper
Kennedia rubicunda	Vine	Dusky Coral Pea
Pandorea pandorana	Vine	Wonga Wonga Vine

12. Appendix B, Timetable of Works

Appendix B

Schedule of work for Observation Point

Work Program for the Subdivision/Driveway

Schedule	Task	Monitoring	Effort and Personnel Required
Before Drive Construction	Engage Bush Regeneration Nursery to propagate plant material		Builder
	Engage Bush Regeneration Contractor		Builder
	Take photos of site	Monitoring	Environmental Consultant
	Soil and rock features to be covered		2 Bush Regenerators 1/2 day
	Environment Protection Fencing erected		2 Environmental Consultants 1 day
	Tree, log and rock fence protection installed		2 Aborists /Bush Regenerators 1 day
	Install Erosion control devices 1 week prior to work		2 Environmental Consultants 1 day
	Translocation of natives		2 Bush Regenerators 1/2 day
	Rocks, logs, logs with hollows relocated to stock piles for later use		2 Bush Regenerators 1/2 day
	Take photos of all work done at this point	Monitoring	Environmental Consultant
	Commence weed removal in regeneration areas		4 Bush Regenerators 2 days
During Construction of Driveway	Install nesting boxes, ropes on trees and poles		2 Bush Regenerators 1 day
	Clean earthmoving equipment before entering site		Earth moving contractors
	Continued removal of weeds in regeneration zone		4 Bush Regenerators 1 day
	Inspection of Environment Protection and Sediment devices, take photos	Monitoring	Environmental Consultant
	Install edging and retaining walls		Landscaper/builder
	Weed building envelope if they haven't been built on		2 Bush Regenerators 1 day
Immediately after drive construction	Commence weed removal in revegetation areas		2 Bush Regenerators 1 day
	Continue weed removal in regeneration areas, placement of rocks. Logs and logs with hollows in regen and reveg areas		4 Bush Regenerators 1 day
	Removal of Environment Protection and Sediment control devices		4 Bush Regenerators 1 day
	Take photos of work done	Monitoring	Environmental Consultant
	Commence plantings and mulching in regen, reveg areas and in landscaped areas		4 Bush Regenerators for the reveg and regen areas landscapers for landscaped areas
2 months after construction	Follow up weed removal in all areas. Additional planting as needed.		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant

4 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch.		2 Bush Regenerators 1 day
6 months after construction	Follow up weed removal in all areas. Additional planting as needed.		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
8 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
10 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
12 months after construction	Follow up weed removal in all areas. Additional planting as needed, check mulch and weed matting		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
14 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
16 months after construction	Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1/2 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
18 months after construction	Follow up weed removal in all areas. Additional planting as needed.		2 Bush Regenerators 1 day
20 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
22 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
2 years after construction	Follow up weed removal in all areas Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
2 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
2 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
2 years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day

3 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
3 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
3 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
3 years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
4 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
4 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
4 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
4 years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
5 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
5 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
5 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
5 Years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
End of 5 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant

Work Program for each of the new properties

Schedule	Task	Monitoring	Effort and Personnel Required
Before Dwelling Construction	Engage Bush Regeneration Nursery to propagate plant material		Builder
	Engage Bush Regeneration Contractor		Builder
	Take photos of site	Monitoring	Environmental Consultant
	Soil and rock features to be covered		2 Bush Regenerators 1/2 day
	Environment Protection Fencing erected		2 Environmental Consultants 1 day
	Tree, log and rock fence protection installed		2 Aborists /Bush Regenerators 1 day
	Install Erosion control devices 1 week prior to work		2 Environmental Consultants 1 day
	Translocation of natives		2 Bush Regenerators 1/2 day
	Rocks, logs, logs with hollows relocated to stock piles for later use		2 Bush Regenerators 1/2 day
	Take photos of all work done at this point	Monitoring	Environmental Consultant
	Commence weed removal in regeneration areas		4 Bush regenerators 1 day
During Construction of Dwelling	Install nesting boxes, ropes on trees and poles		2 Bush Regenerators 1 day
	Clean earthmoving equipment before entering site		Earth moving contractors
	Continued removal of weeds in regeneration zone		4 Bush Regenerators 1 day
	Inspection of Environment Protection and Sediment devices, take photos	Monitoring	Environmental Consultant
	Install edging and retaining walls		Landscaper/builder
	Weed building envelope if they haven't been built on		2 Bush Regenerators 1 day
Immediately after Dwelling construction	Commence weed removal in revegetation areas		2 Bush Regenerators 1 day
	Continue weed removal in regeneration areas, placement of rocks. Logs and logs with hollows in regen and reveg areas		4 Bush Regenerators 1 day
	Removal of Environment Protection and Sediment control devices		4 Bush Regenerators 1 day
	Take photos of work done	Monitoring	Environmental Consultant
	Commence plantings and mulching in regen, reveg areas and in landscaped areas		4 Bush Regenerators for the reveg and regen areas landscapers for landscaped areas
2 months after construction	Follow up weed removal in all areas. Additional planting as needed.		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant

4 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch.		2 Bush Regenerators 1 day
6 months after construction	Follow up weed removal in all areas. Additional planting as needed.		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
8 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
10 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
12 months after construction	Follow up weed removal in all areas. Additional planting as needed, check mulch and weed matting		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
14 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
16 months after construction	Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1/2 day
18 months after construction	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
	Follow up weed removal in all areas. Additional planting as needed.		2 Bush Regenerators 1 day
20 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
22 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
2 years after construction	Follow up weed removal in all areas Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
2 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
2 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
2 years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day

3 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
3 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
3 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
3 years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
4 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
4 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
4 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
4 years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
5 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
5 years and 3 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
5 years and 6 months after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant
5 Years and 9 months after construction	Follow up weed removal in all areas. Additional planting as needed, check weed matting and mulch		2 Bush Regenerators 1 day
End of 5 years after construction	Follow up weed removal in all areas. Additional planting as needed		2 Bush Regenerators 1 day
	Take photos fill in data sheet, send to council	Monitoring	Environmental Consultant

13. Appendix C, Plant Species List

Flora Species List for Observation Point, Palm Beach

By Nicholas Skelton, GIS Environmental Consultants, 45 Austin Ave North Curl Curl, Ph: 041 943 8672

Species list is complied for the whole site not just a quadrat or a sub sample. This list may not be copied or reproduced without the permission of the author Nicholas Skelton.

October 2000

Location AMG Easting 344055 and Northing 6281318
Vegetation Type 9h ii
Survey Area 0.5843 ha

Summary Table

Total Records	137
Unique Species	109

Abundance

Relative Abundance	Less Disturbed Areas	More Disturbed Areas
Common	2	1
Frequent	9	13
Scattered	25	23
Uncommon	18	19
Uncommon & Widespread	13	14
Grand Total	68	70

Status

	Less Disturbed Areas	More Disturbed Areas
Noxious	8	11
Planted	2	8
Significant	2	2
Weed	8	24
Native	46	25
Grand Total	68	70

Continued over

Common Families

Most Common Families	Less Disturbed Areas	More Disturbed Areas
SOLANACEAE	5	11
MYRTACEAE	7	2
ASTERACEAE	2	7
FABACEAE	6	2
CONVOLVULACEAE	2	3
ROSACEAE	2	2
PROTEACEAE	2	2
OLEACEAE	2	2

Habit

	Less Disturbed Areas	More Disturbed Areas
Ferns	8	3
Grasses	5	7
Herbs	13	26
Palms	1	2
Scramblers	1	1
Shrubs	12	16
Trees	19	8
Vines	8	7

Key to Abundance

Abundance	Cover
Abundant	76 to 100%
Dominant	51 to 75%
Common	26 to 50%
Frequent	6 to 25%
Widespread	0 to 5%
Scattered	Isolated Few Individuals < 5%
Uncommon	Rare but widespread < 5%

Fauna Habitat Value

	Less Disturbed Areas	More Disturbed Areas
Glider and koala food	3	0
Koala and Glossy Black food	2	2
Fauna nectar, potential Glider	1	1
Food for many animals	1	1
Possible sap source	3	1
RCT and bandicoot habitat	1	0
TSC Act Listed	0, but one just outside the site	0

Flora Species List for Observation Point, Palm Beach

By Nicholas Skelton, GIS Environmental Consultants, 45 Austin Ave North Curl Curl, Ph: 041 943 8672

Species list for the site not just a quadrat or a sub sample. The list is ordered by abundance then genus then species.

This list may not be copied or reproduced without the permission of the author Nicholas Skelton, Ph: 041 943 8672.

October 2000

Location **AMG Easting 344055 and Northing 6281318**

Vegetation Type **9h II**

Survey Area **0.5843 ha**

Plants in the More Disturbed Areas

	Abundance On site	Genus and Species	Family	Habit	Common Name	Status
1	Common	Asparagus plumosus	ASPARAGACEAE	Herb	Climbing asparagus	Nox W4c
2	Frequent	Adiantum aethiopicum	ADIANTACEAE	Fern	Maidenhair Fern	Protected
3	Frequent	Ageratina riparia	ASTERACEAE	Herb	Crofton Weed	Weed
4	Frequent	Banksia integrifolia ssp. integrifolia	PROTEACEAE	Tree	Coastal Banksia	
5	Frequent	Diospyros australis	EBENACEAE	Tree		Significant
6	Frequent	Ficus rubiginosa	MORACEAE	Tree	Port Jackson Fig	
7	Frequent	Glochidion ferdinandi var. ferdinandi	EUPHORBIACEAE	Tree	Cheese Tree	
8	Frequent	Imperata cylindrica var. major	POACEAE	Grass	Blady Grass	
9	Frequent	Ipomea indica	CONVOLVULACEAE	Vine	Morning glory	Nox W4c
10	Frequent	Lantana camara	VERBENACEAE	Shrub	Lantana	Nox W2
11	Frequent	Ligustrum lucidum	OLEACEAE	Shrub	Privet - broad leaved	Nox W4b
12	Frequent	Pittosporum undulatum	PITTOSPORACEAE	Tree	Sweet Pittosporum	
13	Frequent	Pteridium esculentum	DENNSTAEDTIACEAE	Fern	Bracken	
14	Frequent	Tradescantia albiflora	COMMELINACEAE	Herb	Wandering Jew	Weed
15	Widespread	Cissus antarctica	VITACEAE	Vine	Kangaroo Vine	
16	Widespread	Commelina cyanea	COMMELINACEAE	Herb	Creeping Christian	

17	Widespread	Dichondra repens	CONVOLVULACEAE	Herb	Kidney Weed	
18	Widespread	Kennedia rubicunda	FABACEAE	Vine		
19	Widespread	Ligustrum sinense	OLEACEAE	Shrub	Privet - narrow leaved	Nox W4b
20	Widespread	Lonicera japonica	CAPRIFOLIACEAE	Vine	Japanese Honeysuckle	Weed
21	Widespread	Pandorea pandorana	BIGNONIACEAE	Vine	Wonga Wonga Vine	
22	Widespread	Pennisetum clandestinum	POACEAE	Grass	Kikuyu	Planted
23	Widespread	Senna floribunda	CAESALPINIOIDEAE	Shrub	Cassia	Weed
24	Widespread	Sida rhombifolia	MALVACEAE	Shrub	Paddy's Lucerne	Weed
25	Widespread	Strelitzia sp.	MUSACEAE	Shrub	Bird of Paradise	Planted
26	Widespread	Verbena officinalis	VERBENACEAE	Herb	Common Verbena	Weed
27	Widespread	Viola hederacea	VIOLACEAE	Herb	Native Violet	
28	Widespread	Allocasuarina torulosa	CASUARINACEAE	Tree	Forest She-oak	
29	Scattered	Acacia longifolia	FABACEAE	Shrub	Sydney Golden Wattle	
30	Scattered	Acetosa sagittata	POLYGONACEAE	Vine	Turkey Rhubarb	Nox W4b
31	Scattered	Ageratina riparia	ASTERACEAE	Herb	Mistflower	Weed
32	Scattered	Angophora floribunda	MYRTACEAE	Tree	Rough-barked Apple	
33	Scattered	Bidens pilosa	ASTERACEAE	Herb	Cobbler's Pegs, Pitchforks	Weed
34	Scattered	Briza maxima	POACEAE	Grass	Quaking Grass	Weed
35	Scattered	Briza minor	POACEAE	Grass	Shivery Grass	Weed
36	Scattered	Canna indica	CANNACEAE	Herb	Canna Lily	Weed
37	Scattered	Conyza albida	ASTERACEAE	Shrub	Fleabane	Weed
38	Scattered	Dendrobium linguiforme	ORCHIDACEAE	Herb	Tongue Orchid	
39	Scattered	Gnaphalium sp.	ASTERACEAE	Herb	Cud weed	weed
40	Scattered	Hibiscus sp.	MALVACEAE	Shrub	Hibiscus	Planted
41	Scattered	Hypochaeris glabra	ASTERACEAE	Herb	Smooth Cats Ear	Weed
42	Scattered	Ipomea cairica	CONVOLVULACEAE	Vine	Morning Glory	Nox W4c
43	Scattered	Livistona australis	ARECACEAE	Palm	Cabbage Tree Palm	Significant
44	Scattered	Nephrolepis cordifolia	DAVALLIACEAE	Fern	Fishbone Fern	Weed

45	Scattered	Ochna serrulata	OCHNACEAE	Shrub	Ochna, Mickey Mouse Plant	Nox W4b
46	Scattered	Oplismenus aemulus	POACEAE	Grass	Basket Grass	
47	Scattered	Paspalum dilatatum	POACEAE	Grass	Paspalum	Weed
48	Scattered	Rubus hillii	ROSACEAE	Scrambler	Broad-leaved Bramble	
49	Scattered	Solanum mauritianum	SOLANACEAE	Shrub	Wild Tabacco Tree	Weed
50	Scattered	Tropaeolum majus	TROPAEOLACEAE	Herb	Nasturtium	Weed
51	Scattered	Watsonia meriana cv.Bulbillifera	IRIDACEAE	Herb	Wild Watsonia, Bugle Lily	Weed
52	Uncommon	Arundo donax	POACEAE	Grass	Giant Reed / Elephant Grass	Nox W4a
53	Uncommon	Bougainvillea sp.	NYCTAGINACEAE	Shrub	Bougainvillea	Weed
54	Uncommon	Bryophyllum delagoense	CRASSULACEAE	Herb	Mother-of-millions	Weed
55	Uncommon	Cestrum parqui	SOLANACEAE	Shrub	Green Cestrum	Nox W2
56	Uncommon	Clivea miniata	AMARYLLIDACEAE	Herb	Kaffir Lily	Planted
57	Uncommon	Cotoneaster pannosus	ROSACEAE	Shrub	Cotoneaster	Weed
58	Uncommon	Dimorphotheca ecklonis	ASTERACEAE	Herb	Sailor Boy Daisy	Weed
59	Uncommon	Grevillea Hybrid	PROTEACEAE	Shrub	Grevillea	Planted
60	Uncommon	Monstera deliciosa	ARACEAE	Herb	Swiss Cheese Plant	Weed
61	Uncommon	Musa sp.	MUSACEAE	Herb	Banana	Planted
62	Uncommon	Nerium oleander	APOCYNACEAE	Shrub	Oleander	Planted
63	Uncommon	Phoenix canariensis	ARECACEAE	Palm	Canary Island Palm	Planted
64	Uncommon	Physalis peruviana	SOLANACEAE	Herb	Cape Gooseberry	Weed
65	Uncommon	Plantago lanceolata	PLANTAGINACEAE	Herb	Lamb's Tongues, Plantain	Weed
66	Uncommon	Plectranthus parviflorus	LAMIACEAE	Herb	Cockspur Flowers	
67	Uncommon	Protoasparagus aethiopicus	ASPARAGACEAE	Herb	Asparagus Fern	Nox W4c
68	Uncommon	Solanum nigrum	SOLANACEAE	Herb	Black-berry Nightshade	Weed
69	Uncommon	Syzygium oleosum	MYRTACEAE	Tree	Blue Lillypilly	Significant
70	Uncommon	Tetragonia tetragonoides	AIZOACEAE	Herb	Warrigal Greens, Native Spinach	

Plants in the Less Disturbed Areas

	Abundance On Site	Genus and Species	Family	Habit	Common Name	Status
71	Common	Allocasuarina torulosa	CASUARINACEAE	Tree	Forest She-oak	
72	Common	Pittosporum undulatum	PITTOSPORACEAE	Tree	Sweet Pittosporum	
73	Frequent	Acmena smithii	MYRTACEAE	Tree	Lily Pilly	
74	Frequent	Adiantum aethiopicum	ADIANTACEAE	Fern	Maidenhair Fern	Protected
75	Frequent	Banksia integrifolia ssp. integrifolia	PROTEACEAE	Tree	Coastal Banksia	
76	Frequent	Backhousia myrtifolia	MYRTACEAE	Tree	Grey Myrtle	
77	Frequent	Diospyros australis	EBENACEAE	Tree		
78	Frequent	Eucalyptus piperita	MYRTACEAE	Tree	Sydney Peppermint	
79	Frequent	Ficus rubiginosa	MORACEAE	Tree	Port Jackson Fig	
80	Frequent	Glochidion ferdinandi var. ferdinandi	EUPHORBIACEAE	Tree	Cheese Tree	
81	Frequent	Ligustrum lucidum	OLEACEAE	Shrub	Privet - broad leaved	Nox W4b
82	Widespread	Acacia longifolia	FABACEAE	Shrub	Sydney Golden Wattle	
83	Widespread	Briza minor	POACEAE	Grass	Shivery Grass	Weed
84	Widespread	Cissus antarctica	VITACEAE	Vine	Kangaroo Vine	
85	Widespread	Commelina cyanea	COMMELINACEAE	Herb	Creeping Christian	
86	Widespread	Elaeocarpus reticulatus	ELAEOCARPACEAE	Tree	Blueberry Ash	
87	Widespread	Imperata cylindrica var. major	POACEAE	Grass	Blady Grass	
88	Widespread	Ipomea indica	CONVOLVULACEAE	Vine	Morning glory	Nox W4c
89	Widespread	Lantana camara	VERBENACEAE	Shrub	Lantana	Nox W2
90	Widespread	Notelaea venosa	OLEACEAE	Shrub	Native Olive	
91	Widespread	Pandorea pandorana	BIGNONIACEAE	Vine	Wonga Wonga Vine	
92	Widespread	Pteridium esculentum	DENNSTAEDTIACEAE	Fern	Bracken	
93	Widespread	Rapanea variabilis	MYRSINACEAE	Tree	Brush Muttonwood	
94	Widespread	Strelitzia sp.	MUSACEAE	Shrub	Bird of Paradise	Planted
95	Widespread	Tradescantia albiflora	COMMELINACEAE	Herb	Wandering Jew	Weed
96	Scattered	Acacia implexa	FABACEAE	Shrub	Hickory	

97	Scattered	Acacia parramattensis	FABACEAE	Tree	Parramatta Green Wattle	
98	Scattered	Ageratina riparia	ASTERACEAE	Herb	Crofton Weed	Weed
99	Scattered	Angophora floribunda	MYRTACEAE	Tree	Rough-barked Apple	
100	Scattered	Calochlaena dubia	DICKSONIACEAE	Fern	False Bracken Fern	
101	Scattered	Cassine australis var. australis	CELASTRACEAE	Tree		Sig Pitt
102	Scattered	Cissus hypoglauca	VITACEAE	Vine	Native Grape	
103	Scattered	Cortaderia sp.	POACEAE	Grass	Pampas Grass	Nox W2
104	Scattered	Corymbia maculata	MYRTACEAE	Tree	Spotted Gum	
105	Scattered	Dianella caerulea	PHORMIACEAE	Herb	Blue Flax Lily	
106	Scattered	Dichondra repens	CONVOLVULACEAE	Herb	Kidney Weed	
107	Scattered	Entolasia stricta	POACEAE	Grass		
108	Scattered	Eucalyptus botryoides	MYRTACEAE	Tree	Bangalay	
109	Scattered	Eustrephus latifolius	LUZURIAGACEAE	Vine	Wombat Berry	
110	Scattered	Geitonoplesium cymosum	LUZURIAGACEAE	Vine	Scrambling Lily	
111	Scattered	Geranium homeanum	GERANIACEAE	Herb		
112	Scattered	Gleichenia dicarpa	GLEICHENIACEAE	Fern		
113	Scattered	Glycine clandestina/microphylla	FABACEAE	Vine	Love Creeper	
114	Scattered	Hypochaeris glabra	ASTERACEAE	Herb	Smooth Cats Ear	Weed
115	Scattered	Livistona australis	ARECACEAE	Palm	Cabbage Tree Palm	Significant
116	Scattered	Oplismenus aemulus	POACEAE	Grass	Basket Grass	
117	Scattered	Senna floribunda	CAESALPINIOIDEAE	Shrub	Cassia	Weed
118	Scattered	Smilax glyciphylla	SMILACACEAE	Vine	Native Sarsaparilla	
119	Scattered	Trifolium repens	FABACEAE	Herb	White Clover	Weed
120	Scattered	Viola hederacea	VIOLACEAE	Herb	Native Violet	
121	Uncommon	Acacia ulicifolia	FABACEAE	Shrub	Prickly Moses	
122	Uncommon	Angophora costata	MYRTACEAE	Tree	Smooth-barked Apple	
123	Uncommon	Asparagus densiflorus	ASPARAGACEAE	Herb	Asparagus Fern	Nox W4c
124	Uncommon	Asparagus plumosus	ASPARAGACEAE	Herb	Climbing asparagus	Nox W4c
125	Uncommon	Blechnum ambiguum	BLECHNACEAE	Fern		
126	Uncommon	Brachychiton acerifolius	STERCULIACEAE	Tree	Flame Tree	
127	Uncommon	Breynia oblongifolia	EUPHORBIACEAE	Shrub	Breynia	

128	Uncommon	Cyathea cooperi	CYATHEACEAE	Fern	Straw Tree Fern	
129	Uncommon	Eriobotrya japonica	ROSACEAE	Shrub	Loquat	Planted
130	Uncommon	Histiopteris incisa	DENNSTAEDTIACEAE	Fern	Batswing Fern	
131	Uncommon	Lilium formosum	LILIACEAE	Herb	Roadside Lilly	Weed
132	Uncommon	Ochna serrulata	OCHNACEAE	Shrub	Ochna, Mickey Mouse Plant	Nox W4b
133	Uncommon	Persoonia linearis	PROTEACEAE	Shrub	Narrow-leaved Geebung	
134	Uncommon	Petroselinum crispum	PLATYSTACEAE	Herb	Parsley	Weed
135	Uncommon	Pittosporum revolutum	PITTOSPORACEAE	Tree	Rough-fruit Pittosporum	
136	Uncommon	Rubus fruticosus (agg. sp.)	ROSACEAE	Scrambler	Blackberry	Nox W2 or Nox W3
137	Uncommon	Todea barbara	OSMUNDACEAE	Fern		

Noxious weed classifications	
W1	The presence of the weed on land must be notified to the local control authority and the weed must be fully and continuously suppressed and destroyed.
W2	The weed must be fully and continuously suppressed and destroyed.
W3	The weed must be prevented from spreading and its numbers and distribution reduced.
W4a	The weed must not be sold, propagated or knowingly distributed and any part of the weed must be prevented from growing within 3 metres of the boundary of a property.
W4b	The weed must not be sold, propagated or knowingly distributed and any existing weed must be prevented from flowering and fruiting.
W4c	The weed must not be sold, propagated or knowingly distributed and the weed must be prevented from spreading to an adjoining property.
W4d	The weed must not be sold, propagated or knowingly distributed and the weed must be removed if it is: 3 metres in height or less, or within half a kilometre of remnant urban bushland, as defined by SEPP 19, and is not deemed by Council as having historic
W4e	The weed must be fully and continuously suppressed and destroyed. All reasonable precautions must be taken to ensure produce, soil, livestock, equipment and vehicles are free of the weed before sale or movement from an infested area of the property.
W4f	The weed must not be sold, propagated or knowingly distributed. Any biological control or other control program directed by a local control authority must be implemented.
W4g	The weed must not be sold, propagated or knowingly distributed.

14. Appendix D, Monitoring Sheets

Monitoring Sheet for 5 Year Bushland Management Plan

For 1148 - 1152 Barrenjoey Road, Palm Beach

By Nicholas Skelton, GIS Environmental Consultants Ph: 041 943 8672

See text of Management Plan for details

General

Date / /

Recorders initials

Site Personnel

	Qualifications & Experience	Signature
Field Leader		
Name of any other field person		
Contact Mobile phone number		

Effort

Total Hours spent on site

Hours spent weeding

Hours spent planting

Hours spent other activities (specify)

Work Completed

Include weed control methods used and show on map where planted and weeded

Materials Used

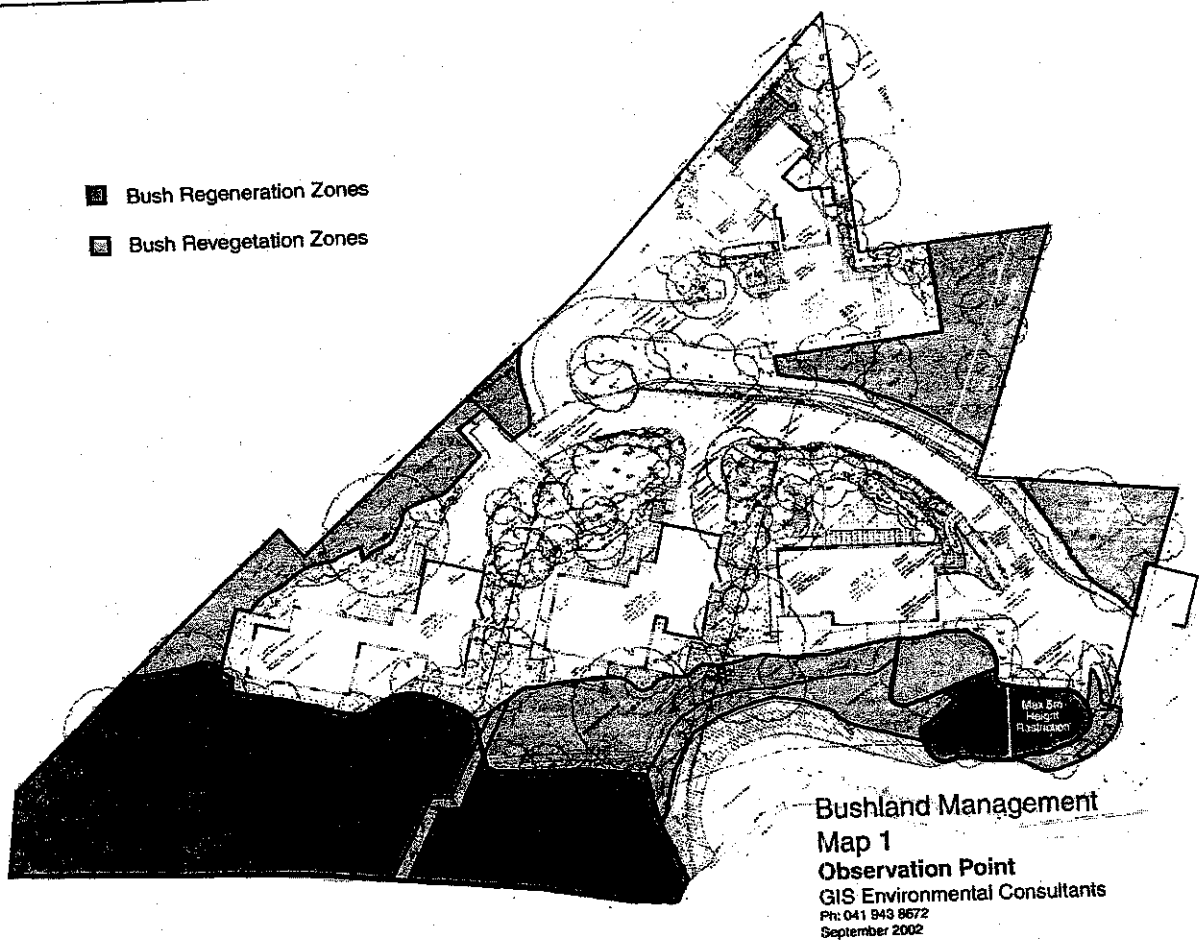
Plants planted

Species	Quantity	Pot Size

Source (nursery) of plants

Source and type of mulch/chip and other materials used (or "none")

Site Map



Plants and animals seen

Plants seen during field work			
Fauna seen during work			

Pest birds seen on site: Circle; Sparrows, Indian Mynors, other

Evidence of cats or dogs using the site:

Nesting boxes

Is there evidence of pest birds using the mammal boxes: Yes / No

If so were the pests removed: Yes / No

Is there evidence of Gliders, possums or bats using the boxes: Yes / No

If so what evidence

Monitoring/Photos

Photos taken at 4 photo points: Yes / No

Signs of disturbance eg. Exotic plants planted, soil imported, herbicide or insecticide use, vegetation (including trees) damaged or dead, nutrient spill, changed drainage etc.

Send completed form and photos with dates on back to; Environment Unit Pittwater Council.

BLAKE DAWSON WALDRON

LAWYERS

Development Agreement

Raypond Pty Limited

ACN 090 921 314

Hedwin Pty LimitedP

ACN 001 022 724

Level 37, Grosvenor Place
255 George Street
Sydney NSW 2000
Telephone: 9258 6000
Fax: 9258 6999

Ref: BMC.1283-4115

© Blake Dawson Waldron 2002

CONTENTS

1.	DEFINITIONS AND INTERPRETATION	1
2.	COMMENCEMENT	5
3.	RAYPOND'S OBLIGATION	6
4.	HEDWIN'S OBLIGATIONS	9
5.	RAYPOND'S WARRANTIES	10
6.	RAYPOND'S RELEASES AND INDEMNITIES	10
7.	RISK AND INSURANCE	11
8.	SERVICES	12
9.	ACCESS TO LAND	12
10.	CERTIFYING COMPLETION	13
11.	DELAY	15
12.	GUARANTEE	16
13.	DEFAULT	17
14.	DEALINGS IN LAND	19
15.	MUTUAL AGREEMENTS	20
16.	FURTHER WARRANTIES	20
17.	COSTS	20
18.	RESOLUTION OF DISPUTES	20
19.	NOTICES	21
20.	GST	22
21.	GENERAL	24
SCHEDULE 1		26
SCHEDULE 2		27
SCHEDULE 3		31
SCHEDULE 4		32
SCHEDULE 5		33
PLANS		57
ANNEXURE A		59
ANNEXURE B		60
ANNEXURE C		66

DEVELOPMENT AGREEMENT

DATE 20 August, 2002

PARTIES

Raypond Pty Limited (ACN 090 921 314) of Level 11, 49-51 York Street, Sydney, New South Wales ("**Raypond**"); and

Hedwin Pty Limited (ACN 001 022 724) of PO Box 410 St Ives, New South Wales, 2075 ("**Hedwin**").

RECITALS

A. Raypond is the registered proprietor of the Raypond Land.

B. Hedwin is the registered proprietor of the Hedwin Land.

C. Raypond has obtained the Development Consent and intends to carry out the Development.

D. Raypond has agreed to carry out the Works and Raypond and Hedwin have agreed to grant and to accept the Easements and Restrictive Covenants in accordance with the terms and conditions set out in this Deed.

OPERATIVE PROVISIONS

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Deed unless the context otherwise requires:

"**Authority**" means Council and any:

(a) a government department;

(b) government or statutory authority; or

(c) other body,

which has the right to impose a requirement or whose consent is required with respect to the Works or a part of it or the granting of the Easements.

"**Bank**" means a trading bank engaged in general retail banking in Sydney.

"**Business day**" means a day on which trading banks are opened for business in Sydney (other than Saturdays, Sundays or public holidays).

"**Certificate of Completion**" means the certificate(s) issued in accordance with clause 10.

"**Commencement Date**" means the date ascertained in accordance with clause 2.1.

"**Commencement Notice**" means a written notice from Raypond to Hedwin which advises Hedwin that the Works have reached the stage at which Raypond requires access to the Hedwin Land.

"**Completion**" means in respect of a Stage of the Works when:

(a) that Stage of the Works are complete (except for minor defects and final topping of road surfaces and final landscaping):

(i) in a manner which does not prevent that Stage of the Works from being reasonably capable of being used for their intended purpose; and

(ii) any rectification of which does not prejudice their convenient use;

(b) all necessary tests have been carried out and passed;

(c) any necessary authorisations have been issued in respect of the use of that Stage of the Works;

(d) all rubbish and surplus material have been removed

(e) all amounts due to contractors engaged in or for material used in that Stage of the Works have been paid and Raypond has confirmed in writing to Hedwin this to be the case; and

(f) Hedwin has been provided a Certificate of Completion in the manner required by clause 10.1.

"**Consultants**" means Hedwin's Consultants and Raypond's Consultants.

"**Council**" means Pittwater Council.

"**Date for Completion**" means the date which is 12 months after the Commencement Date.

"**Default Notice**" means a notice given under clause 13.2(b)(i).

"**Defects Correction Period**" means the period:

(a) 26 weeks after completion of the Development; or

(b) 18 months after completion of Stage 3 of the Works;

whichever is the later.

"**Development**" means the development of the Raypond Land in accordance with the Development Consent for the subdivision of the Raypond Land into 4 lots, the construction of 4 dwellings and associated earthworks, landscaping and the provision of services to be known as Observation Point.

"**Development Consent**" means Development Consent Number N1288/00 issued by Council.

"**Diagram**" means the diagram which is Annexure "A"

"**Dilapidation Report**" means the dilapidation report in respect of the Hedwin Premises to be prepared in accordance with clause 3.6.

"**Easements**" mean the Hedwin Easements and the Raypond Easements.

"**Event of Default**" means an event described in clause 13.1.

"GST" means the same as in the GST Law, and any applicable additional tax, penalty tax, fine, interest or other charge.

"**GST Law**" means the same as "GST law" means in *A New Tax System (Goods and Services Tax) Act 1999* (Cth).

"**Guaranteed Amount**" means the sum of $150,000.00 as varied in accordance with clause 12.2.

"**Hedwin 's Consultants**" means the consultants whose names and addresses are set out in Item 1 of Schedule 3 or such other consultants as may be:

(a) appointed by Hedwin in substitution; or

(b) required from time to time and agreed between the parties for the purpose of the Works.

"**Hedwin Easements**" mean the easements set out in the Section 88B Instrument the benefit of which is appurtenant to the Raypond Land.

"**Hedwin's Engineering Consultant**" means the consultant identified as such in Item 1 of Schedule 3 or such other consultant appointed by Hedwin in substitution.

"**Hedwin's Insurance Consultant**" means the consultant identified as such in Item I of Schedule 3 or such other consultant appointed by Hedwin in substitution.

"**Hedwin Land**" means the land referred to in Item 2 of Schedule 1.

"**Hedwin Premises**" means the residence erected on the Hedwin Land.

"**Insolvency Event**" means, in respect of a party:

(a) an order being made, or the party passing a resolution, for its winding up;

(b) an administrator being appointed to the party;

(c) a Controller, provisional liquidator, trustee for creditors or analogous party is appointed to the party or the whole of the party's property; or

(d) the party being taken under section 459F(1) of the *Corporations Act 2001* (Cth) to have failed to comply with a statutory demand;

(e) the party:

(i) suspending payment of its debts, ceasing (or threatening to cease) to carry on all or a material part of its business, stating that it is unable to pay its debts or being or becoming otherwise insolvent; or

(ii) being taken by applicable law to be (or if a court would be entitled or required to presume that the party is) unable to pay its debts or otherwise insolvent;

unless this takes place as part of a solvent reconstruction, amalgamation, merger or consolidation that has been approved by the other party.

"**Plan**" means the plan identifying the Easements and the Restrictive Covenants substantially in the form of the plan attached to the Section 88B Instrument.

"**Raypond's Agents**" means every agent, employee, licensee, contractor or invitee of Raypond.

"**Raypond's Architectural Consultant**" means the consultant identified as such in Item 2 of Schedule 4 or such other consultant appointed by Raypond in substitution.

"**Raypond 's Consultants**" means any one or more of the consultants whose names and addresses are set out in Item 2 of Schedule 4 or such other consultants as may be:

(a) appointed by Raypond in substitution; or

(b) required from time to time and agreed between the parties for the purpose of the Works.

"**Raypond's Engineering Consultant**" means the consultant identified as such in Item 2 of Schedule 4 or such other consultant appointed by Raypond in substitution.

"**Raypond Easements**" mean the easements set out in the Section 88B Instrument the benefit of which is appurtenant to the Hedwin Land.

"**Raypond's Geotechnical Consultant**" means the consultant identified as such in Item 2 of Schedule 4 or such other consultant appointed by Raypond in substitution.

"**Raypond Land**" means the land referred to in Item 1 of Schedule 1.

"**Restrictive Covenants**" mean the restrictive covenants set out in the Section 88B Instrument.

"**Section 88B Instrument**" means the instrument under Section 88B of the Conveyancing Act 1919 and the Plan substantially in the form set out in Schedule 5.

"**Services**" means mains supply potable water, storm water drainage, sewer, electricity and telephone.

"**Stage**" or "**Stage of the Works**" means a stage of the works identified in the Staging Table and the Diagram.

"**Staging Table**" means the Construction Stages and Hold Points Table set out in Schedule 3.

"**Works**" means the works described in Schedule 2 including when the context requires a Stage of the Works.

1.2 **Rules for interpreting this document**

Headings are for convenience only, and do not affect interpretation. The following rules also apply in interpreting this document, except where the context makes it clear that a rule is not intended to apply.

(a) A reference to:

(i) a document or agreement, or a provision of a document or agreement, is to that document, agreement or provision as amended, supplemented, replaced or notated;

(ii) a person includes any type of entity or body of persons, whether or not it is incorporated or has a separate legal identity, and any executor, administrator or successor in law of the person; and

(iii) anything (including a right, obligation or concept) includes each part of it.

(b) A singular word includes the plural, and vice versa.

(c) A word which suggests one gender includes the other genders.

(d) If a word is defined, another part of speech has a corresponding meaning.

(e) If an example is given of anything (including a right, obligation or concept), such as by saying it includes something else, the example does not limit the scope of that thing.

(f) The word **"agreement"** includes an undertaking or other binding arrangement or understanding, whether or not in writing.

2. COMMENCEMENT

2.1 **Ascertaining Commencement Date**

The Commencement Date is the date on which:

(a) Raypond commences Stage ~~2~~ 26; or

(b) Raypond serves on Hedwin the Commencement Notice; or

(c) the Works have reached the point at which they will cause interference (other than of a temporary or transitory nature) with the usual means of vehicular access to the Hedwin Land,

whichever is the first to occur.

2.2 **Effective Date**

(a) Subject to clause 2.2 (b) this Agreement (other than this clause 2 and clauses ,3.6, 10, 12.1, 12.2, 12.3, 14.1 and 14.3) takes effect from the Commencement Date.

(b) If the Commencement Date does not occur by the date which is 18 months after the date of this Agreement this Agreement is of no force and effect and is deemed to be automatically terminated on that date.

(c) This clause 2 and clauses ,3.6, 10, 12.1, 12.2, 12.3, 14.1 and 14.3 take effect from the date of this Agreement.

2.3 **Commencement Date requirements**

On the Commencement Date Raypond must serve on Hedwin:

(a) the guarantees in the form provided for in clause 12.1;

(b) certificates of currency of the policies of insurance required under clause 7.2(a);

(c) the Dilapidation Report; and

(d) a Certificate of Completion in respect of Stage 1 and Stage 2A.

3. RAYPOND'S OBLIGATION

3.1 **Works**

Raypond:

(a) will carry out the Works in a proper and workmanlike manner by the Date for Completion at its own cost and in accordance with the requirements of this Agreement, the Development Consent and all relevant Australian Standards and in particular and without limiting the generality of the foregoing:

(i) be responsible for the Works including all necessary approvals, design and documentation;

(ii) at the reasonable request of Hedwin or any one or more of Hedwin's Consultants provide to Hedwin or any such Consultant copies of all relevant plans and specifications for the Works;

(iii) proceed with the Works as expeditiously as is reasonably possible;

(iv) rectify and bear all outgoings and expenses in relation to or any defects in the Works;

(b) will pay all sums due under any contract (including any building or construction contract) or sub-contract entered into by Raypond in respect of the Works, any activity or work carried out as part of the Works or on Hedwin's Land in accordance with terms of any such contract or sub-contract unless it has just cause not to do so;

(c) will obtain all necessary authorisations from all competent Authorities to carry out the Works;

(d) will on completion of each Stage of the Works procure the issue of a Certificate of Completion for that Stage;

(e) will not commence work on a Stage of the Works until it has served on Hedwin a Certificate of Completion in respect of each prior Stage of the Works;

(f) will at the request of Hedwin:

(i) assign to Hedwin and use all reasonable endeavours to enforce the benefit of the rights available to Raypond under any warranty or guarantee granted by any party in relation to the carrying out of the Works or in respect of any item of equipment or machinery comprising part of the Works; and

(ii) at the end of any relevant defects correction period deliver to Hedwin the originals of such warranties and guarantees assigned to Hedwin;

(g) will on completion of each Stage of the Works carry out such tests and commissioning which are necessary to demonstrate that the Works have been completed in accordance with the requirements of the Development Consent and the requirements of any other competent Authority as the case requires; and

(h) acknowledges to Hedwin that:

(i) it will comply with all relevant notices issued by any competent Authority which are applicable to the Raypond Land and the Works;

(ii) it has not received from any competent Authority a notice or order which would otherwise have a material adverse affect on the Works; and

(iii) except as disclosed by Raypond to Hedwin in writing it is not aware of any matter which has arisen since its acquisition of the Raypond Land which would have a material adverse affect on the Works.

3.2 **Easements and Restrictive Covenants**

Raypond will:

(a) on completion of the Works and the issue of Certificates of Completion for all Stages of the Works:

(i) grant to Hedwin the Raypond Easements and enter into the Restrictive Covenants;

(ii) release the Hedwin Land from the right of carriage way created by transfer L879895,

(iii) accept from Hedwin a release of the Raypond Land from the:

(A) right of carriage way created by, and

(B) paragraphs (a) and (c) of the covenant contained in

transfer L879895,

and for these purposes prepare, execute and forward to Hedwin for execution:

(iv) the Section 88B Instrument, and

(v) an instrument of transfer and release in respect of the covenant referred to in paragraph (iii)(B) of this clause, and

(b) lodge the documents referred to in this clause at the LPI (NSW) Office for registration within 10 Business Days from the date of their return by Hedwin duly executed.

3.3 **Defects Correction Period**

(a) If at any time before the end of a Defects Correction Period Hedwin has given Raypond notice of any defect, omission or fault in the Works, Raypond will rectify that defect, omission or fault within the time (which shall be reasonable having regard to the defect, omission or fault) specified in the notice.

(b) If at any time before the end of a Defects Correction Period Hedwin has given Raypond notice of any damage which has occurred as a result of the Works and which is not disclosed in the Dilapidation Report, Raypond will rectify that defect, omission or fault within the time (which shall be reasonable having regard to the defect, omission or fault) specified in the notice.

(c) For the duration of the Defects Correction Period Raypond and its authorised representatives:

(i) will have the right upon giving reasonable written notice to Hedwin and at the times agreed between Raypond and Hedwin, to enter the Hedwin Land so far as it may be necessary for the purpose of carrying out any rectification work necessary as a result of a notice issued by Hedwin under clause 3.3(a) or (b) or for carrying out any tests in respect of the Works;

(ii) in so doing Raypond must not cause any undue inconvenience or disrupt the normal activities of the users of the Hedwin Land any more than is necessary; and

(iii) must comply with any reasonable security requirements of Hedwin or other occupants or users of the Hedwin land.

3.4 **Principal contractor under OH&S Regulation**

(a) For the purposes of Clause 210 of the *Occupational Health and Safety Regulation 2001* (NSW) (the "OH&S Regulation") Hedwin hereby:

(i) appoints Raypond as the 'principal contractor' for executing the construction work forming part of the Works; and

(ii) authorises Raypond to exercise such authority of Hedwin as is necessary to enable Raypond to discharge the responsibilities imposed on a 'principal contractor' by Part 8 of the OH&S Regulation.

(b) Without limiting Raypond's obligations under clause 3.2, Raypond must ensure compliance of its duties as 'principal contractor' under the OH&S Regulation.

(c) If Raypond fails to comply with its duties referred to in subclause (b), Hedwin may carry out Raypond's obligations or have them carried out by others and the reasonable cost incurred by Hedwin in having those obligations carried out will be a debt due from Raypond to Hedwin.

(d) Raypond releases and indemnifies Hedwin from and against any damage, expense, loss, liability or claim by or against Hedwin arising out of or in connection with a breach by Raypond of its obligations under this clause 3.4.

3.5 **Landscaping of Raypond Land**

Raypond will cause the parts of the Raypond Land indicated on the Diagram to be landscaped in accordance with the landscaping plan approved by the Council in connection with the Development Consent.

3.6 **Dilapidation report**

Before the Commencement Date Raypond will cause to be prepared a report concerning the condition of the improvements on the Hedwin Land. On receipt of reasonable notice from Raypond, Hedwin must allow the persons Raypond has engaged to undertake the Dilapidation Report to have access to the Hedwin Land and the improvements on it.

3.7 **Tenant**

If the access to the Hedwin Premises is affected to such an extent that the flat in the Hedwin Premises is not tenantable, Raypond will indemnify Hedwin against loss of rental income.

Raypond may satisfy this obligation by providing Hedwin with a suitable tenant subject to approval of Hedwin, (acting reasonably), at a rent no less than $250.00 per week provided that the occupancy of the tenant is managed by LJ Hooker, Palm Beach.

4. HEDWIN'S OBLIGATIONS

4.1 **Easements**

Subject to Completion of the Works and Raypond complying with its obligations under this Agreement, Hedwin will:

(a) by executing the Section 88B Instrument served on Hedwin in accordance with clause 3.2(a) and obtaining the endorsement of the consent of any registered mortgagee of the Hedwin Land:

(i) grant to Raypond the Hedwin Easements, and

(ii) release the Raypond Land from the right of carriage way created by transfer L879895;

(b) release the Raypond Land from paragraphs (a) and (c) of the covenant contained in transfer L879895, by executing the instrument of transfer and release served on Hedwin in accordance with clause 3.2(a) and obtaining the endorsement of the consent of any registered mortgagee of the Hedwin Land; and

(c) cause the production of the relevant certificate of title for the Hedwin Land at LPI (NSW) Office to enable registration of the Section 88B Instrument and instrument of transfer and release within 5 Business Days of being requested to do so by Raypond.

5. RAYPOND'S WARRANTIES

5.1 Warranty

Raypond warrants to Hedwin that:

(a) Raypond has and will use the necessary skill and expertise to comply with its obligations under this Agreement;

(b) it has the capacity unconditionally to execute and deliver and to comply with its obligations under this Agreement; and

(c) it will diligently and carefully carry out its obligations under this Agreement.

6. RAYPOND'S RELEASES AND INDEMNITIES

6.1 Release of Hedwin

To the extent permitted by law Raypond releases Hedwin from any claim, action, damage, loss, liability, cost or expense which Raypond incurs or is liable for in connection with any damage, loss, injury or death arising out of or of and incidental to the carrying out of the Works or the granting of the Hedwin Easements or work carried out by Raypond in response to a notice issued by Hedwin under clause 3.3(a) or (b).

6.2 Indemnity

Raypond indemnifies Hedwin against any claim, action, damage, loss, liability, cost or expense which Hedwin incurs or is liable for in connection with:

(a) any damage, loss to property or, injury or death caused or contributed to by Raypond or Raypond's Agents;

(b) any default by Raypond under this Agreement;

(c) the use or occupation of the Hedwin Land by Raypond or Raypond's Agents; and

(d) any Service not working properly, being unavailable or being interrupted during the course of and as a result of the Works; and

(e) work carried out by Raypond in response to a notice issued by Hedwin under clause 3.3(a) or (b).

6.3 Continuing Indemnity

Each indemnity of Raypond contained in this Agreement is:

(a) a continuing obligation of Raypond and remains in full force and effect after the termination of this Agreement; and

(b) a separate and independent obligation of Raypond.

6.4 **Limitation**

Clauses 6.1 and 6.2 do not apply to the extent that any claim, action, loss, liability, cost or expense arises as a result of the negligent act or omission of Hedwin.

7. RISK AND INSURANCE

7.1 **Risk**

Raypond will carry out the Works at its own risk.

7.2 **Insurance**

Raypond must from the Commencement Date until Completion:

(a) effect and maintain with reputable insurers licensed under the *Insurance Act 1973* the following policies of insurance:

(i) contract works insurance to cover Raypond's liability in respect of damage to or destruction of the Works, the Hedwin Premises and contents and the Hedwin Land, in the joint names of Hedwin and Raypond in a form and for an amount approved by Hedwin's Insurance Consultant and Raypond's Insurance Consultant (and a failure of those Consultants to agree shall be dealt with in accordance with clause 28);

(ii) public liability insurance for not less than $20 million for a single occurrence and which covers:

(A) Hedwin;

(B) Raypond; and

(C) Raypond's subcontractors,

for liability to any third party; and

(iii) worker's compensation insurance as required by law,

and ensure that its contractors effect and maintain such insurance;

(b) upon request give to Hedwin copies of policies and documents relating to the insurances including without limitation all renewal certificates, certificates of currency and endorsement slips (but Hedwin may not request the materials referred to in this sub-clause more than once annually during the currency of the policy or policies in question); and

(c) pay each insurance premium on or before the due date and upon reasonable request from Hedwin produce copies of receipts;

(d) not do or permit anything which may prejudice the insurances;

(e) immediately rectify anything which might prejudice such insurances and reinstate the insurances if they lapse; and

(f) notify Hedwin as soon as practicable when an event occurs that gives rise or might give rise to a claim under or which could prejudice any of the insurances.

7.3 Insurances required under clauses 7.2(a)(i) and (ii) must include a cross liability clause in which the insurer:

(a) agrees to waive all rights of subrogation or action against any of the persons comprising the insured; and

(b) accepts the term "insured" as applying to each of the persons comprising the insured if a separate policy of insurance had been issued to each of them.

8. SERVICES

8.1 Maintain Services

Raypond must keep the Services provided to the Hedwin Premises operational during the carrying out of the Works.

9. ACCESS TO LAND

9.1 Licence

From the Commencement Date Hedwin will grant to Raypond (and Raypond's Agents) and Raypond shall accept possession of part of the Hedwin Land under a non-exclusive licence on the terms set out in this clause 9 to enable Raypond to carry out Stage 2 and Stage 3 and its obligations under this Agreement.

9.2 Nature of licence

Nothing in this Agreement:

(a) confers on Raypond any rights as a tenant of the Hedwin Land; or

(b) creates the relationship of landlord and tenant between Hedwin and Raypond .

9.3 Raypond's obligations

In exercising its right to occupy the Hedwin Land Raypond must:

(a) (**no disturbance**) use all reasonable endeavours to cause as little disturbance as is reasonably possible to invitees to the Hedwin Land or Hedwin who acknowledges that Raypond may cause noise and create dust in carrying out earthmoving, road construction and excavation and other development activities in accordance with this Agreement;

(b) (**no liability of Hedwin**) do or omit to do anything on the Hedwin Land, whereby Hedwin may become exposed to the liability to pay any penalty, damages, compensation, costs, charges or expenses other than as provided for in this Agreement and will keep Hedwin indemnified against all such liabilities; or

(c) (**no nuisance**) use the Hedwin Land in any way which may cause a nuisance.

(d) (**no interference**) cause no unreasonable interference with Hedwin's use of the Hedwin Land, having regard to the nature of the Works permitted under this Agreement;

(e) (**environment**) not cause any environmental degradation, nuisance or fire risk on or to the Hedwin Land;

(f) (**removal of rubbish**) remove from the Hedwin Land all rubbish and debris resulting from Raypond's use of the Hedwin Land;

(g) (**repair damage**) immediately repair to Hedwin's satisfaction any damage directly or indirectly caused to the Hedwin Land other than damage which is consistent with Raypond's conduct of the Works in accordance with this Agreement;

(h) (**no danger**) ensure that no person or property is endangered by Raypond's use of the Hedwin Land.

10. CERTIFYING COMPLETION

10.1 Preliminary Site Investigations

Prior to the Commencement Date Raypond will carry out preliminary site investigations in relation to Stage 1, Stages 2A1 and 2A2 and Stage 3, to determine the prospect of any instability, and the best method of dealing with that instability.

10.2 Report

Within seven Business days after Raypond receives the report furnished by Raypond's Geotechnical Consultants regarding the site investigations referred to in clause 10.1 Raypond will serve on Hedwin's Consultants a copy of that report.

10.3 Determination of Completion

Raypond's Geotechnical Consultant and Raypond's Engineering Consultant will, in accordance with this clause 10, determine if each Stage of the Works have reached Completion and if so issue a Certificate of Completion for the Stage of the Works.

10.4 Advance notice of Completion

Raypond must give to Hedwin not less than 5 Business Days prior notice of the anticipated date for Completion.

10.5 Inspection and comment

(a) Hedwin's Consultants may prior to and during the progress of the Works:

(i) at reasonable times and on reasonable prior notice, inspect and review all or any documents and plans prepared by Raypond's Consultants in relation to the design and construction of the Works and Raypond will not undertake the Works which are the subject of the documents and plans for at least 5 Business Days from the date upon which access to such documents and plans as may be reasonably required by Hedwin's

Consultants has first been made available to Hedwin's Consultants provided that the 5 Business Day period referred to in this clause shall not apply if during the course of the Works circumstances arise which necessitate Raypond undertaking urgent steps to prevent damage to the Works, to Raypond Land or the improvements on it or to the Hedwin Land or the improvements on it;

(ii) at reasonable times and on reasonable prior notice inspect the Works from time to time;

(iii) observe the inspection of the Works undertaken by Raypond's Consultants to determine whether the Works have reached Completion;

(iv) submit to Raypond's Consultants:

(A) a list of matters (if any) which Hedwin's Consultants believe are defective in the design of any part of the Works;

(B) a list of matters (if any)which Hedwin's Consultants believe will result in a material defect in the Works or which mean that the Works have not reached Completion, and

(C) a list of defects which do not prevent the definition of Completion being satisfied but which will require rectification under clause 3.3.

(b) As part of the determination in accordance with clause 10.3, Raypond's Consultants will, acting reasonably, consider the lists delivered by Hedwin's Consultants under clause 10.5(a)(iv) and promptly notify Hedwin which of the matters identified by Hedwin's Consultants are:

(i) matters which Raypond's Consultants agree are likely to result in a material defect in the Works or prevent Completion being achieved,

(ii) matters to be dealt with under clause 3.3,

(iii) matters not accepted by Raypond's Consultants as being within any of the categories referred to in this clause 10.5(a)(iv).

(c) Raypond will carry out all such work and do all such things necessary to satisfy Hedwin's Consultants' requirements in regard to the matters set out in clause 10.5(b)(i) and (subject to clause 3.3) clause 10.5(ii).

(d) Raypond and Hedwin will procure the Raypond Consultants and Hedwin Consultants to use all reasonable endeavours to resolve any matters which are the subject of a notification by Raypond under clause 10.5(b)(iii).

(e) In the event that Hedwin's Consultants and Raypond's Consultants are unable to resolve any dispute in relation to any one or more of the matters set out in this clause 10.5 within 5 Business Days of that dispute arising and receipt by Hedwin's Consultants of all relevant documents and information reasonably requested by them, then the dispute will be determined in accordance with clause 18.

(f) Raypond will not undertake the works which are the subject of a dispute unless and until the dispute is resolved in accordance with clauses 10.5(d) or 10.5(e).

11. DELAY

11.1 Extension of time

(a) If Raypond is delayed in carrying out the Works so that Raypond will be, or it is likely that Raypond will be, unable to complete the Works by the Date for Completion by reason of:

(i) an act, default or omission of Hedwin, or a Hedwin Consultant or agent, or

(ii) strike, lockout or other industrial action, inclement weather, unavailability of plant or materials, fire, flood, civil disturbance or other cause beyond the control of Raypond,

Raypond is entitled to an extension of time in accordance with this clause.

(b) Raypond must make its claim for an extension of time within 10 Business Days of the occurrence of the event that caused the delay, by lodging such claim with Raypond's Architect Consultant and Hedwin's Engineering Consultant for their joint determination.

(c) Raypond must provide any supporting information or documents that Raypond's Architect Consultant and Hedwin's Engineering Consultant reasonably require.

(d) If Raypond is entitled to an extension of time under this clause, Raypond's Architect Consultant and Hedwin's Engineering Consultant must grant Raypond a reasonable extension of time and adjust the Date for Completion to reflect this extension of time and the date referred to in clause 1.1 will be deemed to be amended accordingly.

(e) If either party disputes Raypond's Architect Consultant's and Hedwin's Engineering Consultant's joint determination or if Raypond's Architect Consultant and Hedwin's Engineering Consultant are unable to agree on an appropriate extension of time under sub-clause (d), either party may, within 5 Business Days of the determination, refer the dispute for determination by the Expert under clause 18.

(f) If neither party refers the determination for dispute resolution within the timeframe set out in sub-clause (e),

(i) Raypond's Architect Consultant's and Hedwin's Engineering Consultant's joint determination for the adjustment of the Date for Completion under sub-clause (d); or

(ii) failing agreement by them Hedwin's Engineering Consultant's adjustment of the Date for Completion under sub-clause (d),

will be final and binding on the parties.

(g) Hedwin may at any time in its absolute discretion extend the Date for Completion.

12. GUARANTEE

12.1 Issue of Guarantee

(a) Raypond must on or before the Commencing Date, give Hedwin three unconditional undertakings from a Bank for a total equal to the Guaranteed Amount as follows:

(i) $70,000.00;

(ii) $50,000.00; and

(iii) $30,000.00.

(b) Raypond must ensure that Hedwin approves of:

(i) the form of the undertakings; and

(ii) the bank or financial institution issuing the undertakings,

before Raypond gives the undertakings to Hedwin.

12.2 Guaranteed Amount Release

Hedwin will release the unconditional undertakings in respect of the Guaranteed Amount progressively as follows:

(a) upon the issue of a Certificate of Completion for Stage 2, $70,000.00;

(b) upon the issue of a Certificate of Completion for Stage 3, $50,000.00; and

(c) upon:

(i) termination of the Defects Correction Period; or

(ii) the date being 26 weeks after completion of any rectification work required under clause 3.3,

whichever is the later, $30,000.00.

When release an unconditional undertaking pursuant to this clause, Hedwin must deliver to Raypond the original undertaking and a letter signed on behalf of Hedwin addressed to the party which issued the undertaking stating that Hedwin no longer requires the undertaking.

12.3 Omitted

12.4 Recourse to the security

Hedwin may have recourse to the unconditional undertaking in the following manners and in the following circumstances. If Raypond commits an Event of Default and:

(a) the Works have not been certified to Completion of driveway Section 2 (up to the issue of a Certificate of Completion for Stage 2C2 including the work listed under

the heading "Refurbishment of the Hedwin Premises" and "Steps and Path" in Schedule 2), Hedwin may have recourse to the unconditional undertaking to satisfy the cost it incurs in completing works up to and including the completion of construction Stage 2C2 and the work listed under the head "Refurbishment of the Hedwin Premises" and "Stairs" in Schedule 2 and to satisfy any costs it incurs in making good defects as contemplated by clause 3.3; or

(b) driveway Section 2 has been certified to completion but driveway Section 3 has not been certified to completion by issue of a Certificate of Completion for Stage 3, Hedwin may have recourse to the unconditional undertaking to satisfy any cost Hedwin incurs in making good any slope instability arising or ensuring that any future instability will not arise because of the failure to complete the Works and may retain the unconditional undertakings (as to the balance of the sum secured not already claimed by Hedwin) until the expiry of the Defects Correction Period; or

(c) the Works have been certified to completion up to and including driveway Section 3 by issue of a Certificate of Completion for Stage 3 but the Defects Correction Period has not expired, and there arises a defect where Clause 3.3 applies, Hedwin may have recourse to the unconditional undertaking to satisfy any cost it incurs in making good that defect as contemplated by Clause 3.3.

13. DEFAULT

13.1 In the event that Raypond:

(a) commits an Insolvency Event; or

(b) is in breach of any material provision of this Agreement, and such breach if remediable is not remedied within a reasonable period (having regard to the nature of the breach) specified in notice in writing from Hedwin to Raypond requiring such breach to be remedied (such period to be not less than thirty (30) days),

then an event of default shall occur from:

(c) the date of occurrence of the Insolvency Event; or

(d) subject to any referral of the matter for dispute resolution under clause 18 and the outcome of that dispute resolution, the date of expiry of Hedwin's notice under paragraph (b)

as the case may be.

13.2 If an Event of Default occurs:

(a) in the manner referred to in clause 13.1(a), Hedwin may immediately terminate this Agreement by notice to Raypond; or

(b) in the manner referred to in clause 13.1(b):

(i) Hedwin may by notice in writing to Raypond give notice of its intention to terminate this Agreement on the expiration of 30 days from the date of the notice;

(ii) prior to the expiration of a Default Notice the parties shall negotiate in good faith and use all reasonable endeavours to determine a course of action in relation to the Event of Default which is acceptable to the parties; and

(iii) if a course of action acceptable to the parties is not determined in accordance with clause 13.2(b)(ii) then Hedwin may by notice in writing to Raypond terminate this Agreement after expiration of the Default Notice.

13.3 Termination of this Agreement is without prejudice to the rights of the parties in relation to any antecedent breaches of this Agreement.

13.4 On termination of this Agreement by reason of an Event of Default by Raypond, Raypond will as soon as practicable:

(a) remove all of its equipment and machinery from the Hedwin Land;

(b) if requested by Hedwin take all action reasonably necessary and practicable to make the Hedwin Land safe;

(c) hand back occupation of the Hedwin Land to Hedwin;

(d) give Hedwin full and complete access to all construction and building agreements and documents and documents relating to the Works; and

(e) transfer all assets created for the purpose of the Works including all intellectual property rights to Hedwin and assign if so requested by Hedwin the benefit of any contract capable of assignment made with a sub-contractor, tradesperson, supplier, consultant, professional, expert or other person, firm or corporation to Hedwin.

(f) grant to Hedwin:

(i) a right of carriageway over:

(A) so much of Stage I as lies within the Raypond Land; and

(B) that part of the Raypond Land which encompasses the area of the turning circle for the Hedwin Premises' garage, being part of Stage 2C and 3 as generally delineated in the Plan,

in the form of a right of carriageway as provided for in part 1 of Schedule 8 of the Conveyancing Act 1919; and

(ii) if termination occurs after the commencement of the Works on Stage 3, an easement for support in such terms as may be reasonably required by Hedwin in respect of that part of Stage 3 marked on the Plan,

and do all things reasonably required to effect registration of a Transfer and Grant of Easement at the LPI (NSW) for this purpose.

14. DEALINGS IN LAND

14.1 Hedwin not to deal so as to prevent Works or Easements

(a) Subject to sub-clause (b), Hedwin must not transfer the Hedwin Land, or create any interest in it or otherwise deal with the Hedwin Land in such a way as would:

(i) prevent Raypond from exercising its rights under this Agreement or carrying out the Work;

(ii) prevent the creation of the Hedwin Easements; or

(iii) render the Hedwin Easements unusable or materially and permanently diminish the ability of the authorised users under the Hedwin Easements to exercise their rights under the Hedwin Easements.

(b) If, before creation of the Hedwin Easements, Hedwin proposes to transfer, lease or mortgage the Hedwin Land, it must cause the proposed transferee, lessee or mortgagee (the "Incoming Party") to enter into a deed whereby:

(i) the Incoming Party covenants with Raypond to perform all the covenants and obligations of Hedwin under this Agreement which have not been performed and discharged at the time of the proposed transfer, lease or mortgage (in the case of a lessee or mortgagee, to the extent to which those obligations can be performed by such Incoming Party), including a clause in the form of this clause 14.1; and

(ii) Raypond covenants with the incoming party to perform all covenants and obligations of Raypond under this Agreement which have not been performed and discharged at the time of the proposed transfer, lease or mortgage (to the extent to which those obligations have commenced).

14.2 Raypond must not defeat Raypond Easements

Raypond must ensure that at the Commencement Date and thereafter the Raypond Land is free of any interests which would render the Raypond Easements unusable or materially and permanently diminish the ability of the authorised users under the Raypond Easements to exercise their rights under those easements.

14.3 Raypond may transfer subject to conditions

If, before creation of the Raypond Easements, Raypond proposes to transfer, lease or mortgage the Raypond Land it must cause the proposed transferee, lessee or mortgagee (the "Incoming Party") to enter into a deed whereby:

(a) the Incoming Party covenants with Hedwin to perform all the covenants and obligations of Raypond under this Agreement which have not been performed and discharged at the time of the proposed transfer, lease or mortgage (in the case of a lessee or mortgagee, to the extent to which those obligations can be performed by them), including a clause in the form of this clause 14.3; and

(b) Hedwin covenants with the Incoming Party to perform all the covenants and obligations of Hedwin under this Agreement which have not been performed and discharged at the time of the proposed transfer, lease or mortgage.

15. MUTUAL AGREEMENTS

Each of the parties must be just and faithful to each other and act with probity in all transactions relating to the Works and give a true account of those transactions whenever reasonably required.

16. FURTHER WARRANTIES

The parties warrant and represent to each other party that as an inducement to enter into this Agreement, and it is a condition of this Agreement that, at the date of this Agreement:

(a) the execution and delivery of this Agreement has been properly authorised by all necessary corporate action by it;

(b) it has full corporate power and lawful authority to execute and deliver this Agreement and to consummate and perform its obligations under this Agreement;

(c) this Agreement constitutes a legal, valid and binding obligation on the party enforceable in accordance with its terms by appropriate legal remedy; and

(d) this Agreement does not result in the breach of any provision of its memorandum and articles of association (or other constituent documents) or any material term or provision of any document to which it is a party or subject, or by which it is bound.

17. COSTS

Hedwin's reasonable legal costs and disbursements of and incidental to this Agreement (including any stamp duty and registration fees payable in respect of any documents required in accordance with this Agreement), Consultant's fees and all other costs and disbursements (including any fees payable to Council) will be borne by Raypond and all such costs, fees and disbursements incurred by Hedwin will be paid within 14 days of receipt by Raypond of an invoice from Hedwin.

18. RESOLUTION OF DISPUTES

18.1 (a) If any dispute or difference arises between the parties as to the construction of this Agreement or as to any matter or thing arising out of or in connection with this Agreement then in the first instance the parties shall use all reasonable endeavours to resolve the dispute between themselves.

(b) If, at the expiration of 15 Business Days from the date the dispute first arose, either the dispute or the manner in which the parties will seek to resolve the dispute has not been resolved by the parties in accordance with clause 18.1(a) then subject to clause 18.2 either party may commence legal proceedings to resolve the dispute.

18.2 If the parties are unable to resolve a matter within 15 Business Days of the dispute arising and the dispute is a dispute in relation to:

(a) the design of the Works;

(b) any material defect in the Works;

(c) whether Raypond is carrying out the Works, with due expedition and in accordance with the specifications and plans referred to in Schedule 2;

(d) whether Completion has been achieved,

(e) any dispute arising under a provision to this Agreement which by its terms requires such dispute to be resolved pursuant to this Clause 18,

then either party may refer the matter to an expert for determination in accordance with the terms of clause 18.

18.3 For the purpose of clause 18.2 either party may refer the matter (unless settled) to an expert nominated by the parties, but if the parties cannot agree on such expert then either party may refer the matter to the President of the Institute of Arbitrators (Australia), New South Wales Chapter for the time being to select an expert from the appropriate discipline having regard to the nature of the dispute ("Expert") for a determination. The Expert may employ such consultants as the Expert reasonably requires and the parties shall indemnify the Expert in respect of costs and expenses reasonably incurred by the Expert.

18.4 Upon and as part of the terms of appointment the Expert must:

(a) make a determination:

(i) within the parameters of this Agreement and any other matters that the parties may from time to time agree in writing but so that unjustifiable costs must not be incurred;

(ii) as expeditiously and as practicable as possible; and

(iii) after taking into account any submissions made by the parties prior to the determination being made (but so that the Expert is not obliged to delay his determination pending such submissions);

(b) in determining the matter act as an expert and not an arbitrator; and

(c) give notice of the determination and reasons therefor to the parties.

18.5 The determination of the Expert pursuant to this clause 18 will be final and binding on the parties and no party may commence any proceedings to challenge the determination.

18.6 The costs and disbursements of the Expert appointed pursuant to this clause 18 shall be paid in such manner as the Expert determines.

19. NOTICES

19.1 Method of Giving Notices

A notice required or permitted to be given by one party to another under this Agreement must be in writing and it is treated as being duly given if it is:

(a) left at the other party's address;

(b) sent by pre-paid security post to the other party's address; or

(c) transmitted by facsimile to the other party's address.

19.2 **Time of Receipt**

A notice given to a Participant in accordance with clause 19.1 is treated as having been duly given and received:

(a) when delivered (in the case of it being left at that party's address);

(b) on the third Business Day after posting (in the case of it being sent by pre-paid security post); and

(c) on the Business Day of transmission (where given by facsimile and sent to the facsimile receiver number of that party and where no intimation has been received that the notice has not been received, however that intimation is received).

19.3 **Address of Parties**

For the purposes of clause 19.1, the address of a party is the address set out below or another address which that party may from time to time give notice to each other party:

Raypond Pty Limited:	Level 11, 49-51 York Street, Sydney, NSW 2000
Facsimile No.: Attention:	02 9944 0316 Darren Leete
Hedwin Pty Limited:	PO Box 410 St Ives NSW 2085
Facsimile No.: Attention:	02 9983 9090 Bill Howard

20. **GST**

20.1 **Interpretation**

Words defined in the GST Law have the same meaning in this clause, unless otherwise defined or unless the context makes it clear that a different meaning is intended.

20.2 **GST payable by Raypond**

If GST is payable on a taxable supply made by Hedwin under, by reference to, or in connection with this Agreement, Raypond must, in addition to providing any consideration for that supply:

(a) pay to Hedwin an amount equal to the GST payable by Hedwin in respect of the taxable supply, without deduction or set-off of any other amount; and

(b) make that payment as and when the consideration or part of it must be paid or provided, or if no consideration is provided by Raypond, within 21 days of a written request by Hedwin for payment for the GST, which may be in the form of a tax invoice (or an adjustment note as the case may be).

20.3 **Invoice**

Hedwin must as soon as practicable after a request from Raypond, issue a tax invoice (or an adjustment note) to Raypond for any supply for which Hedwin may recover GST from Raypond under this agreement.

20.4 **GST Indemnity**

Raypond must indemnify Hedwin against, and pay Hedwin on demand the amount of:

(a) all GST on the transactions contemplated by this agreement; and

(b) any loss, liability or expense directly or indirectly incurred in connection with or arising from or caused by any failure by Raypond to pay any amount as and when required by this clause, for example, any additional tax, penalty tax, fine, interest or other charge under a GST Law.

20.5 **GST on claims and expenses**

(a) If any payment by or on behalf of either party to this agreement to satisfy any claim or a right to claim by the other party under or in connection with this agreement gives rise to a liability of Hedwin to pay GST, Raypond must pay, and indemnify Hedwin against the amount of that GST.

(b) If a party has a claim under or in connection with this document for a cost on which that party must pay GST, the claim is for the cost plus all GST (except any GST for which that party is entitled to an input tax credit).

20.6 **Hedwin not registered for GST – change in Hedwin's status**

(a) Hedwin warrants that at the date of this Agreement, Hedwin is not, nor subject to paragraph (b) is it required to be, registered for GST.

(b) If Hedwin becomes required to be registered for GST whether as a result of entering into this Agreement or otherwise:

(i) Hedwin must:

(A) seek to have its registration for GST to be effective from the later of the date of this Agreement and the date of the first taxable supply made under it,

(B) notify Raypond in writing of the effective date of its registration for GST as soon as is practicable after receiving notification from the Australian Taxation Office;

(ii) the preceding parts of this clause 20 apply, *mutatis mutandis*, to supplies made by Raypond to Hedwin under this agreement, provided that Hedwin shall not be obliged to reimburse to Raypond any amount for GST

in excess of any input tax credit the benefit of which is available to Hedwin for supplies made to it by Raypond.

21. GENERAL

21.1 Amendment

No variation of waiver of, or any consent to any departure by a party from, a provision of this Agreement is of any force or effect unless it is confirmed in writing, signed by the parties and then that variation, waiver or consent is effective only to the extent for which it may be made or given.

21.2 Waiver

The failure of any party in exercising when it might do so any right conferred upon that party by this Agreement does not operate as a waiver of that right, nor does any single exercise of any right preclude any other or further exercise of it or the exercise of any other right under this Agreement.

21.3 Rights and Liabilities of Parties

If this Agreement confers a right or imposes an obligation, on more than one party to this Agreement:

(a) a liability of those parties of that kind is a joint liability of all of them and a several liability of each of them; and

(b) a right of those parties of that kind is a right given to each of them,

(c) and if a representation, covenant, release or warranty is made or given by more than one party to this Agreement it is made or given (as the case may be) by all of those parties jointly and each of them severally,

(d) where a party is entitled or required to grant its approval to a matter, that approval must not unreasonably be withheld or delayed and if granted conditionally, must be granted on conditions which are reasonable.

21.4 Entire Agreement

This Agreement and the written agreements envisaged by this Agreement constitute the sole and entire agreement between the parties and a warranty, representation, guarantee or other term or condition of any nature not contained or recorded in this Agreement is of no force or effect.

21.5 Severance

If any provision of this Agreement is invalid and not enforceable in accordance with its terms, other provisions which are self-sustaining and capable of separate enforcement with regard to the invalid provision are and continue to be valid and enforceable in accordance with their terms.

21.6 **Further Assurance**

Each party must promptly and without undue delay do, sign, execute and deliver and must procure that each of its employees and agents does, signs, executes and delivers, all agreements, documents, instruments and acts reasonably required of it or them by notice from another party to effectively carry out and give full effect to this Agreement and the rights and obligations of the parties under it.

21.7 **Counterparts**

This Agreement may be executed in any number of counterparts and all of those counterparts taken together constitute one and the same instrument.

21.8 **Attorneys**

Where this Agreement is executed on behalf of a party by an attorney or representative, that attorney or representative by executing declares that the attorney or representative has no notice of the revocation of the power of attorney or appointment under the authority of which the attorney or representative executes the Agreement on behalf of that party.

21.9 **Governing Law and Jurisdiction**

This Agreement is governed by, and is to be construed in accordance with, the law of New South Wales and the parties submit to the non-exclusive jurisdiction of the Courts of New South Wales.

21.10 **Successors and Assigns**

The obligations imposed and the rights conferred on the parties under this Agreement are binding upon any successor to a party and such successor must upon such succession assume all rights and by the provisions of this Agreement, mutatis mutandis, as if such successor were named in this Agreement as a party, but this clause does not permit the obligations and rights to be transferred or otherwise dealt with or disposed of by any of the parties (whether upon a sale or for security or upon enforcement of a security or otherwise) otherwise than in accordance with the terms and conditions of this Agreement.

SCHEDULE 1

(Land)

Item 1	Lot 181 in Deposited Plan 534139, known as 56 Palm Beach Road, Palm Beach
	Lot 17 in Deposited Plan 651978 known as 1148 Barrenjoey Road, Palm Beach
	Lot 16 in Deposited Plan 6746, known as 1152 Barrenjoey Road, Palm Beach
Item 2	Lot 182 in Deposited Plan 534139, known as 54 Palm Beach Road, Palm Beach

SCHEDULE 2

(Works)

General

Raypond will carry out the works set out in this Schedule 2 generally in accordance with the Methodology Statement annexed and marked B ("Methodology Statement") in the sections and by the stages referred to in the Diagram, the Staging Table and the Methodology Statement.

Earth Works

Earth works will be excavated and completed in four stages as listed in the Methodology Statement and the Diagram subject to recommendations by Raypond's Consultants, depending on the finding of further investigations as staged in the methodology statement and of the site conditions found and, in particular, the matters set out in the Staging Table.

The earthworks will also comply with Subdivision Approved drawings numbered ADAS 0001 revision B, ADAS 0002 revision D, ADAS 0003 revision C, ADAS 3000 revision B and ADAS 3001 revision B attached and marked "C" subject to recommendations by Raypond's Consultants depending on the findings of further investigations as stated in the methodology statement and of the site conditions found.

Road Works

Road works will be constructed in accordance with the approved subdivision plans as listed above and in accordance with the methodology statement, subject to the recommendations by Raypond's consultants, depending on the finding of further investigations as stated in the methodology statement and of the site conditions found.

Final structural details will be provided once Raypond's Consultants have completed their site investigations.

Retaining Walls

Retaining walls will be constructed in accordance with the approved subdivision plans as listed above and the methodology statement, subject to alterations as recommended by Raypond's Consultants, depending on the finding of further investigations as stated in the methodology statement and of the site conditions found.

Final structural details will be provided once Raypond's Consultants have completed their site investigations.

Garage Construction

The garage will be constructed during construction Stage 2c.

Raypond shall renew the retaining walls surrounding the garage as required as in accordance with the details provided by the structural and geotechnical engineers.

Garage dimension 6.4 metres wide and 6 metres deep and to be rotated to allow easier in/out access as per RTA memo. The garage will be constructed of suitable concrete or masonry. Roof to be waterproofed, reinforced concrete slab designed to take a load of 7.5kpa.

Painting to match up with rest of development. Painting to be inside and outside. Door to be of a panel lift type or roller with remote electrical operation and option of mechanical. Door to be suitable for high winds that come from south. A separate small access door with suitable lock is to be installed in one side of garage. Garage to have lighting and power connections. Overall design to be to the satisfaction of Hedwin's Consultants.

All design and construction to be approved by Hedwin.

Inclinator, Steps and Landings

The design for this area will be to Hedwin's requirements.

This work will be constructed during Stage 2c and will comprise:

(a) A sandstone finish or concrete/masonry pathway to be constructed from garage to inclinator access platform. Platform to be rebuilt in concrete/masonry with sandstone or sandstone like facing to be consistent with the balance of the Development with new galvanised steel posts and new electrical inclinator switch and light (fitted with timer). Handrails to be galvanised steel painted. All items prime coated and finish coated to fit into balance of developments. All designs to be approved by Hedwin.

(b) Old septic tank to be broken up or removed. New concrete/masonry steps constructed beside the garage from garage floor level to link to existing steps at top of garage all with galvanised handrails, painted.

(c) From top of garage level to base of Hedwin residence, replace steps with concrete/masonry or galvanised steel or other suitable design with galvanised handrails.

All to be approved by Hedwin – that is, design and construction.

Landscaping

Raypond will landscape the areas on the Hedwin Land immediately surrounding the inclinator area at the bottom of the stairs on the Hedwin property. The landscaping will be to a design approved by Hedwin.

Raypond shall landscape the area directly in front of the Hedwin property in a manner as to blend in with the bushland regeneration that will take place on the Raypond land. Details shall be provided to Hedwin for their approval.

These works shall be completed at the same time Raypond landscapes their property. This will ensure that both properties are at their optimum levels of presentation.

Refurbishment of the Hedwin Premises

Raypond to paint the exterior of the Hedwin premises – colour to blend in with Raypond development to be agreed upon.

The external painting shall include house and windows, deckings, pergola, steps, railings and inclinator cage, rail and support columns, ceiling underneath decking on lower deck level above garden, all timber fascias, roof eaves and remove and clean shutters and replace where necessary.

Raypond to give Hedwin two months' notice on painting so that timber work can be checked and, if necessary, replaced/repaired by Hedwin.

Preparation work etc shall be as specified by Hedwin's Consultants and shall include but not be limited to:

- scrape and sand off flaking paint;
- wash down external walls with woodclean;
- seal gaps and holes;
- sand and smooth wood surfaces;
- anti stain coat on timber;
- paint shall be Dulux Acrylic or feast Watson/or Cabot as decided by Hedwin with prime and two finish coats;
- metal primer or etch primer on metal;
- oil undercoat on metal; and
- two enamel gloss finish on metal.

Temporary Access

Raypond to maintain walking access to Hedwin residence at all times via temporary stairs/platforms etc with temporary lighting if Hedwin considers it required for safety.

Relocation of Services

Raypond will ensure services to Hedwin property are maintained during the work. Should it be necessary to temporarily relocate these services then Raypond will do so at its own expense. All electrical and telephone permanent services to be underground.

Fencing

Raypond shall provide necessary safety fencing on the north western side of the Hedwin property, immediately above the driveway cut should it be necessary to do so. This work will be constructed during Stage 3C.

A suitable safety fence shall be of a type and be installed to the satisfaction of Hedwin above the deep cut/garage section of the work.

Safety Mirrors

One safety mirror to be installed at a location adjacent to the Hedwin garage.

Tree Removal

Raypond agrees to remove about 10 trees (whether dead or alive) and inground tree stumps, some under residence, as nominated by Hedwin provided such removal is permitted under Pittwater Council's tree preservation order. Such work is to be undertaken as part of Stage 3.

Steps and Path

Raypond will construct a simple path (or simple steps where appropriate, having regard to the nature of the terrain) starting at ground level on the south-western corner of the Hedwin residence to clockwise past the upper deck then along the north-eastern side of the residence to meet existing decking on upper level and on eastern side of the inclinator in a manner to be approved by Hedwin.

General

In all cases where in this Schedule 2 Hedwin's approval is required, Hedwin must act promptly and reasonably in granting that approval.

Miscellaneous

Letterbox and garbage recess to be constructed as part of the letterboxes and garbage collection areas for Observation Point.

Stormwater, sewer and electrical cabling for the Development to be underground as follows:

(a) electrical – from power take off from utility to Hedwin Premises;

(b) sewer – from top of garage level to sewer in street; and

(c) stormwater – underground from top of the garage and at the bottom of the garage level to meet up with stormwater piping from the development, under the driveway.

Where the Works interfere with a section of the sewer service of the Hedwin Premises or the stormwater service of the Hedwin Premises (including stormwater for the garage of the Hedwin Premises), Raypond will reinstall that section underground.

SCHEDULE 3

(Construction Stages & Hold Points)

Driveway Section	Construction Stage	Issues to be considered	Works Envisaged	
			Best	Worst
Section 1	Stage 1	TBA	N/A	N/A
Section 2	Stage 2 comprising: Stage 2A1 Stage 2A2	Boulder / detached rock instability. Instability in fill behind boulder	2 or 3 rock bolts about 4 m long and concrete underpinning near toe of boulder. Regrading of fill at rear.	6 or 7 rock anchors about 8 m long, concrete underpinning at toe of boulder & drainage. Low retaining wall, drainage and regrading of fill at rear.
	Stage 2B Driveway construction	No special items	Retaining walls & concrete pavement.	Retaining walls & concrete pavement.
	Stage 2C1 Rebuild Howard garage Stage 2C2 House refurbishment, inclinator	Slope instability in excavation behind garage	Minor slope instability in rock excavation, rock bolts & drainage.	Slope instability & soil nails in rock excavation, retaining wall for colluvium slope & drainage.
Section 3	Stage 3 comprising Stage 3A Stage 3B Driveway Stage 3C	 Slope instability in major rock excavation Retaining walls	Minor slope instability in rock excavation, rock bolts & drainage	Slope instability in rock excavation, retaining wall for colluvium slope & drainage.

SCHEDULE 4

(Consultants)

Item 1

(Hedwin's Consultants)

Name and Address	Expertise
Coffey Geosciences Pty Limited of 142 Wicks Road, North Ryde	Geotechnical
Cardno MBK of Level 3, 910 Pacific Highway, Gordon 2072	Engineering
FLG Hoffanan of 4 Byora Crescent, Northbridge 2063	Insurance

Item 2

(Raypond's Consultants)

Name and Address	Expertise
Shirley Consulting Engineers Pty Limited 895 Pacific Highway, Pymble	Geotechnical
Tierney and Partners Pty Limited Level 5, 411 Victoria Avenue, Chatswood	Engineering
Australian European Insurance (Brokers) Pty Limited 32-34 Atchinson Street, St Leonards	Insurance
Crone Nation 364 Kent Street, Sydney	Architectural

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 1

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

SCHEDULE 5

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 1

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

1. Identity of easement numbered one in the plan: Easement for support *[Retaining Wall]*

Schedule of lots affected

Lots Burdened	*Lots Benefited*
Lot 3	*[Hedwin Lot 182 DP 534139]*

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 1

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

---

2. Identity of easement numbered two in the plan: Right of Carriageway [ ] wide *[Section 2]*

Schedule of lots affected

Lots Burdened	*Lots Benefited*
[Hedwin Lot 182 DP 534139]	Lots 1, 2, 3 and 4

3. Identity of easement numbered three in the plan: Easement for Parking [ ] wide *[Section 3]*

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 3	Hedwin Lot 182 DP 534139

4. Identity of easement numbered four in the plan: Right of Carriageway [ ] wide *[Section 3]*

Schedule of lots affected

Lot Burdened	*Lot Benefited*
* Lot 3	Hedwin Lot 182 DP 534139 and Lots 1, 2 and 4

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 1

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

---

5. *Identity of easement numbered five in the plan:* *Right of Carriageway [ ] wide [Section 4]*

Schedule of lots affected

Lots Burdened	*Lot Benefited*
Lot 2	Lots 1 and 4

6. **Identity of restriction numbered six in the plan:** **Right of Access** ***[View protection west]***

Schedule of lots affected

Lots Burdened	*Lot Benefited*
Lot 3	***[Hedwin Lot 182 DP534139]***

7. **Identity of restriction numbered seven in the plan:** **Restriction on use** ***[Sunlight protection]***

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 4	***[Hedwin Lot 182 DP534139]***

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 1

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

---

8. **Identity of easement numbered eight in the plan:** **Easement to permit encroaching structure to remain**

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 3	*[Hedwin Lot 182 DP 534139]*

9. **Identity of easement numbered nine in the plan:** **Restriction of use** *[View protection Southwest]*

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 3	*[Hedwin Lot 182 DP534139]*

10. **Identity of easement numbered ten in the plan:** **Easement for Batter**

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 182 DP534139	Lot 3

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. **(Sheet of Sheets)**

PART 1

Plan: [# #] **Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**

Full name and address of proprietors of the land: [ ]

---

11. **Identity of easement numbered eleven in the plan:** **Right of Access**

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 182 DP534139	Lot 4

12. **Identity of easement number twelve in the plan:** **Right of Footway [ ] wide**

Schedule of lots affected

Lot Burdened	*Lot Benefited*
Lot 182 DP534139	Lots 1, 2, 3 and 4

PART 1A

1. Identity of easement to be released **Right of Carriage Way created by transfer L879895**

Schedule of lots affected

Lots Burdened	*Lot Benefited*
Lot 181 in Deposited Plan 534139	Lot 182 in Deposited Plan 534139
Lot 182 in Deposited Plan 534139	Lot 181 in Deposited Plan 534139

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres.	**(Sheet of Sheets)**
	PART 2
Plan: [##]	**Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**
Full name and address of proprietors of the land:	[ ]

PART 2

DEFINITIONS

1. For the purpose of this Instrument, the following words have the following meanings unless the contrary intention appears:

   (a) **Authorised User** means every person authorised by the Grantee for the purposes of any easement created by this Instrument and includes, but is not limited to, the Grantee's Employees and the Grantee's authorised visitors.

   (b) **Grantee** means the registered proprietor for the time being of the Lot Benefited or any part of it (as applicable).

   (c) **Grantee's Employees** means the employees, servants, agents and contractors of the Grantee.

   (d) **Grantor** means the registered proprietor for the time being of the Lot Burdened or any part of it (as applicable).

   (e) **Grantor's Employees** means the employees, servants, agents and contractors of the Grantor.

   (f) **Instrument** means this section 88B Instrument.

   (g) **Lot Benefited** means the land having the benefit of the easement or restrictive covenant referred to in the Instrument.

   (h) **Lot Burdened** means the land having the burden of the easement or restrictive covenant referred to in this Instrument.

   (i) **Plan** means the plan of subdivision to which this Instrument relates.

   (j) **Roadway** means the road, platforms and supporting improvements erected or to be erected on the Lot Burdened.

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. **(Sheet of Sheets)**

PART 2

Plan: **[##]** **Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**

Full name and address of proprietors of the land: [ ]

(k) **Structures** means the retaining wall and any other improvements erected or to be erected on the Lot Burdened intended to provide support.

(l) **Work** means repairing, maintaining or renewing the Structure, including, where necessary, replacement, upgrading and reconstruction of the Structure.

A. TERMS OF EASEMENT FOR SUPPORT NUMBERED ONE IN THE PLAN

1. **Full and Free right**

Full, free and unimpeded right for the land comprising and the building erected upon the Lot Benefited to subjacent and lateral support by the Structures erected on the Lot Burdened.

The above rights are granted on and subject to the conditions set out below. These conditions constitute covenants by and between the Grantor and the Grantee and their successors and assigns with the intention and agreement that the benefit and burden of such covenants shall pass with the benefit and burden of this easement.

2. **Obligations to repair**

For the purposes of Section 88BA of the *Conveyancing Act 1919*, the Grantor covenants to maintain, at its cost, the Structures in good repair and in a safe condition.

3. **Right of entry**

(a) The Grantor and the Grantor's Employees may enter that part of the Lot Benefited as is reasonably necessary and to remain there for any reasonable time for the purpose of carrying out the Work.

(b) Except when urgent maintenance is required, the Grantor must give to the Grantee or its nominee not less than 24 hours prior written notice of the intention to exercise its rights of entry.

(c) In carrying out the Work, the Grantor must, at its cost:

(i) ensure all work is done properly;

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

(ii) cause as little inconvenience as practicable to the Grantee and any occupier of the Lot Benefited;

(iii) cause as little damage as is practicable to the Lot Benefited and any improvements on it;

(iv) carry out, at its expense, any work necessary to safeguard the structural soundness of the supporting wall during and after the construction of the Structure; and

(v) restore the Lot Benefited as nearly as is practicable to its former condition.

4. **Damage**

The Grantor must as soon as reasonably possible, at the entire cost and expense of the Grantor, make good any damage (including, without limitation, any collateral damage) to the Lot Benefited caused by the Grantor or any of the Grantor's Employees in the course of carrying out the Work.

5. **Release and indemnity**

(a) The Grantor shall exercise its rights created by this Instrument at its own risk and each hereby releases the Grantee and the Grantee's Employees from all claims and demands of every kind and from all liabilities in respect of any accident or damage to property or death of or injury to any person on or near the Lot Benefited which may arise as a result of the Grantor exercising the rights created by this easement, other than as may be caused directly or indirectly by the negligent or wilful act or omission of the Grantee or the Grantee's Employees; and

(b) Except to the extent that it is caused directly or indirectly or contributed to by the negligent or wilful act or omission of the Grantee or the Grantee's Employees, the Grantor indemnifies and will keep indemnified the Grantee and the Grantee's Employees from and against all actions, claims, demands, losses, damages, costs and expenses incurred by the Grantee or the Grantee's Employees or for which the Grantee or the Grantee's Employees may become liable in respect of or arising from the exercise by the Grantor or any of the Grantor's Employees of its rights

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. **(Sheet of Sheets)**

PART 2

Plan: **[##]** **Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**

Full name and address of proprietors of the land: [ ]

---

created by this easement, or arising from the Grantor's failure to maintain the Structures in good and substantial repair as required by this easement.

B. TERMS OF RIGHT OF CARRIAGEWAY NUMBERED TWO IN THE PLAN

1. **Access**

Full, free and unimpeded right for the Grantee and Authorised Users to go, pass and repass across and over those parts of the Lot Burdened indicated on the Plan, at all times with or without vehicles for the purpose of accessing and visiting the Lots Benefited.

2. **Obligations to Repair**

For the purpose of Section 88BA of the *Conveyancing Act 1919.*

2.1 The Grantee and the Grantor covenant to maintain, at their cost, the trafficable surface of the Roadway in functional repair and condition and to bear such cost in the following proportions:

(a) Grantor 10%;

(b) Grantee 90%.

2.2 The Grantee, at its cost, will maintain that part of the Roadway comprising the structure, support, platforms and piers in functional, safe and stable repair and condition.

3. **Right of Entry**

(a) The Grantee and the Grantee's Employees may enter that part of the lot burdened as is reasonably required and to remain there for any reasonable time for the purpose of carrying out the Work required under clause 2.2.

(b) Except when urgent maintenance is required, the Grantee must give to the Grantor or its nominee not less than 24 hours prior notice of the intention to exercise its rights of entry.

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres.		**(Sheet of Sheets)**
		PART 2
Plan:	[##]	**Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**
Full name and address of proprietors of the land:		[ ]

(c) In carrying out the Work, the Grantee must, at its cost:

(i) ensure all work is done properly;

(ii) cause as little inconvenience as practicable to the Grantors and any occupier of the Lot Benefited;

(iii) cause as little damage as is practicable to the Lot Burdened and any improvements on it;

(iv) carry out, at its expense, any work necessary to safeguard the structural soundness of the supporting wall during and after the construction of the Structure; and

(v) restore the Lot Burdened as nearly as is practicable to its former condition.

4. **Liability of Proprietors of Lots 1, 2, 3 and 4**

Where, under clauses 2.1 and 2.2, the proprietors of lots 1,2, 3 and 4 as Grantee are liable for costs or repairs, the proprietors of those lots must contribute to those costs in the following proportions:

Lot 1 [ ]

Lot 2 [ ]

Lot 3 [ ]

Lot 4 [ ]

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan:	[##]	**Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**
Full name and address of proprietors of the land:	[ ]	

C. TERMS OF EASEMENT FOR PARKING NUMBERED THREE IN THE PLAN

1. **Access**

Full, free and unimpeded right for the Grantee and Authorised Users to go, pass and repass across and over those parts of the Lot Burdened indicated on the Plan, at all times with or without vehicles for the purpose of accessing and visiting the Lots Benefited.

2. **Parking of vehicles**

Full, free and unimpeded right for the Grantee and Authorised Users to park, on those parts of the Lot Burdened indicated on the Plan, at all times when accessing and visiting the Lots Benefited including for the purpose of loading and unloading materials.

3. **Exercise of rights**

(a) In exercising the rights contained in paragraphs 1 and 2, the Grantee and Authorised Users must:

(i) cause as little inconvenience as is practicable to the Grantor; and

(ii) make good any damage caused by them to the Lot Burdened and any improvement on it.

(b) In exercising the rights contained in paragraphs 1 and 2, the Grantee and Authorised Users must not:

(i) clean, grease, oil or repair any vehicle whilst on the Lot Burdened;

(ii) cause or permit any rubbish to be placed, thrown or dropped in or about the Lot Burdened;

(iii) bring or leave in nor permit to be brought or left on the Lot Burdened any offensive, hazardous or dangerous substance; or

(iv) obstruct the flow or traffic in and out of the Lot Burdened.

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

---

4. **Obligations to repair**

For the purpose of section 88BA of the Conveyancing Act 1919:

4.1 The Grantee and the Grantor covenant to maintain, at their cost the trafficable surface of the area the subject of this easement in functional repair and condition and bear such cost in the following proportions:

(a) Grantor 90%;

(b) Grantee 10%.

4.2 The Grantor at is cost, will maintain that part of the area the subject of this easement comprising the structure, support, platforms and piers in functional, safe and stable repair and condition.

D. TERMS OF RIGHT OF CARRIAGEWAY NUMBERED FOUR ON IN THE PLAN

1. **Access**

Full, free and unimpeded right for the Grantee and Authorised Users to go, pass and repass across and over those parts of the Lot Burdened indicated on the Plan, at all times with or without vehicles for the purpose of accessing and visiting the Lots Benefited.

2. **Obligations to repair**

For the purpose of Section 88BA of the *Conveyancing Act 1919.*

2.1 The Grantee and the Grantor covenant to maintain, at their cost, the trafficable surface of the Roadway in functional repair and condition and to bear such cost in the following proportions:

(a) Grantor and the proprietors of Lots 1, 2 and 4 90%;

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

(b) The Proprietor of Lot 182 DP534139 10%.

2.2 The Grantor, at its cost, will maintain that part of the Roadway comprising the structure, support, platforms and piers in functional, safe and stable repair and condition.

3. **Liability of Proprietors of Lots 1, 2, 3 and 4**

Where, under clauses 2.1 or 2.2, the proprietors of lots 1, 2, 3 and 4 as Grantor are liable for costs or repairs, the proprietors of those lots must contribute to those costs in the following proportions:

Lot 1 [ ]

Lot 2 [ ]

Lot 3 [ ]

Lot 4 [ ]

E. TERMS OF RIGHT OF CARRIAGEWAY NUMBERED FIVE ON THE PLAN

1. **Access**

Full, free and unimpeded right for the Grantee and Authorised Users to go, pass and repass across and over those parts of the Lot Burdened indicated on the Plan, at all times with or without vehicles for the purpose of accessing and visiting the Lots Benefited.

2. **Obligations to repair**

For the purpose of Section 88BA of the Conveyancing Act 1919, the Grantee and the Grantor covenant to maintain, at their joint cost, the trafficable surface and the structure, support, platform and piers of the Roadway in functional, safe and stable repair and condition and each of the Grantees and the Grantor (for the avoidance of doubt, each of the proprietors of lots 1, 2, 3 and 4) must bear such cost in equal shares.

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

F. TERMS OF RIGHT OF ACCESS AND RESTRICTION NUMBERED SIX ON THE PLAN

1. **Restriction**

The Grantor will not, and will not permit:

(a) any building or improvements having a height in excess of 5 metres; or

(b) any shrub or tree to be planted which:

(i) will grow to a maximum mature height exceeding 5 metres, or

(ii) is of a species which the Pittwater Council or other competent authority will not permit to be canopy trimmed or crown height reduced,

in the easement area marked [ ] on the Plan.

2. **Right to trim trees**

The Grantee may by any reasonable means pass across the Lot Burdened for the purpose of trimming the canopies and crown height reduction of trees in the area marked [ ] on the Plan in any manner permitted by Pittwater Council and at the Grantee's cost.

3. **Obligations**

In exercising that right, the Grantee must:

(a) give to the Grantor not less than five days' prior notice of its intention to exercise that right;

(b) only exercise that right between the hours of 9.00am and 5.00pm;

(c) permit the Grantor or a person nominated by the Grantor to observe the work;

(d) ensure that all work is done properly;

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

(e) cause as little inconvenience as is practicable to the Grantor or any occupier of the Lot Burdened; and

(f) make good any collateral damage.

G. TERMS OF RESTRICTIVE COVENANT AND EASEMENTS NUMBERED SEVEN ON THE PLAN

1. **Restriction**

The Grantor will not, and will not permit:

(a) any building or improvement having a height in excess of 3.5 metres to be erected in the easement area marked by cross hachure on the Plan or in excess of 5 metres to be erected in the rest of the easement area marked on the Plan unless the Grantor first obtains the written consent of the Grantee (which consent must not unreasonably be withheld or delayed);

(b) any shrub or tree to be planted:

(i) in the easement area not marked by cross hachure on the Plan which will grow to a maximum mature height exceeding 5 metres; or

(ii) in the easement area marked by cross hachure on the Plan which will grow to a maximum mature height exceeding 3.5 metres,

or which is a species which the Pittwater Council or any other competent authority will not permit to be canopy trimmed or crown height reduced.

2. **Right to remedy**

In the event that the such shrub or tree stands above the height referred to in clause 1, the Grantee shall be entitled, by any reasonable means, to pass across the Lot Burdened and do anything reasonably necessary for the purpose of trimming the shrub or tree so that its top is no more than the relevant height referred to in clause 1 and, in exercising that power, the Grantee must:

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres.	**(Sheet of Sheets)**
	PART 2
Plan: [##]	**Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**
Full name and address of proprietors of the land:	**[ ]**

(a) give to the Grantor not less than five days prior notice of its intention to exercise that right;

(b) only exercise that right between the hours of 9.00am and 5.00pm;

(c) permit the Grantor or a person nominated by the Grantor to observe the work;

(d) ensure that all work is done properly;

(e) cause as little inconvenience as is practicable to the Grantor and any occupier of the Lot Burdened; and

(f) make good any collateral damage.

H. TERMS OF EASEMENT NUMBERED EIGHT ON THE PLAN

1. **Encroachment**

The Grantee may insist that part of the Grantee's garage on the lot benefited may remain on the lot burdened and may do anything reasonably necessary to ensure that the encroaching structure remains in good repair and safe condition including:

(a) entering the lot burdened;

(b) taking anything onto the lot burdened; and

(c) carrying out any work.

2. **Obligations to repair**

For the purposes of Section 88BA of the Conveyancing Act 1919, the Grantee covenants to maintain, at its cost, the encroaching structure remains in good repair and in a safe condition.

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. **(Sheet of Sheets)**

PART 2

Plan: [# #] **Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**

Full name and address of proprietors of the land: [ ]

---

3. **Right of entry**

(a) The Grantee and the Grantee's Employees may enter that part of the Lot Burdened as is reasonably necessary and to remain there for any reasonable time for the purpose of carrying out the Works.

(b) Except when urgent maintenance is required, the Grantee must give to the Grantor or its nominee not less than 24 hours prior notice of the intention to exercise its rights of entry.

(c) In carrying out the Work, the Grantee must, at its cost:

(i) ensure all work is done properly;

(ii) cause as little inconvenience as practicable to the Grantor and any occupier of the Lot Burdened;

(iii) cause as little damage as is practicable to the Lot Burdened and any improvements on it;

(iv) carry out, at its expense, any work necessary to safeguard the structural soundness of the supporting wall during and after the construction of the Structure; and

(v) restore the Lot Burdened as nearly as is practicable to its former condition.

4. **Restriction**

The Grantor must not do or allow anything to be done to damage or interfere with the encroaching structure.

I. **TERMS OF RESTRICTIVE COVENANT AND EASEMENT NUMBERED NINE ON THE PLAN**

1. **Restriction**

The Grantor will not, and will not permit:

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

(a) any building or improvement having a height exceeding 3.5 metres to be erected in the easement area marked [ ] on the Plan or 5 metres to be erected in the easement area marked [ ] on the Plan unless the Grantor first obtains the written consent of the Grantee (which consent must no unreasonably be withheld or delayed); or

(b) any shrub or tree to be planted which:

(i) is a species which the Pittwater Council or any other competent authority will not permit to be canopy trimmed or crown height reduced; or

(ii) which will grow to a maximum mature height exceeding 3.5 metres or 5 metres,

in the easement areas marked [ ] and [ ] respectively on the Plan.

2. **Right to remedy**

In the event that the such shrub or tree exceeds the height referred to in clause 1, the Grantee shall be entitled, by any reasonable means, to pass across the Lot Burdened and doing anything reasonably necessary for the purpose of trimming the shrub or tree so that its top does not exceed the height referred to in clause 1 and, in exercising that power, the Grantee must:

(a) give to the Grantor not less than five days' prior notice of its intention to exercise that right;

(b) only exercise that right between the hours of 9.00am and 5.00pm;

(c) permit the Grantor or a person nominated by the Grantor to observe the work;

(d) ensure that all work is done properly;

(e) cause as little inconvenience as is practicable to the Grantor and any occupier of the Lot Burdened; and

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. **(Sheet of Sheets)**

PART 2

Plan: **[##]** **Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**

Full name and address of proprietors of the land: [ ]

(f) make good any collateral damage.

J. TERMS OF EASEMENT FOR BATTER NUMBERED TEN OF THE PLAN

1. **Easement**

An Easement for Batter as set out in Part 6 of Schedule 8 of the Conveyancing Act 1919.

2. **Maintenance**

For the purpose of Section 88BA of the Conveyancing Act 1919 the Grantee covenants to maintain, at its cost any structure (including a retaining wall), batter or embankment constructed on the lot burdened whether constructed for the benefit of the lot benefited or the lot burdened in good repair and safe condition and in a manner which will provide subjacent and lateral support for the land comprising and the building erected upon the Lot Burdened.

3. **Release and indemnity**

(a) The Grantee shall exercise its rights created by this Instrument at its own risk and hereby releases the Grantor and the Grantor's Employees from all claims and demands of every kind and from all liabilities in respect of any accident or damage to property or death of or injury to any person on or near the Lot Benefited which may arise as a result of the Grantee exercising the rights created by this easement, other than as may be caused directly or indirectly by the negligent or wilful act or omission of the Grantor or the Grantor's Employees.

(b) Except to the extent that it is caused directly or indirectly or contributed to by the negligent or wilful act or omission of the Grantor or the Grantor's Employees, the Grantee indemnifies and will keep indemnified the Grantor and the Grantor's Employees from and against all actions, claims, demands, losses, damages, costs and expenses incurred by the Grantor or the Grantor's Employees or for which the Grantor or the Grantor's Employees may become liable in respect of or arising from the exercise by the Grantee or any of the Grantee's Employees of its rights created by this easement, or arising from the Grantee's failure to maintain any structures, batter or embankment in good and substantial repair as required by this easement.

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

K. TERMS OF RESTRICTIVE COVENANT AND EASEMENT NUMBERED ELEVEN ON THE PLAN

1. **Restriction**

The Grantor will not, and will not permit:

(a) any building or improvement having a height in excess of 5 metres to be erected in the easement area marked [ ] on the Plan unless the Grantor first obtains the written consent of the Grantee (which consent must not reasonably be withheld or delayed).

(b) any shrub or tree to be planted in the easement area marked [ ] on the Plan which:

(i) is a species which the Pittwater Council or any other competent authority will not permit to be canopy trimmed or crown height reduced; or

(ii) which will grow to a maximum mature height exceeding 5 metres.

2. **Right of remedy**

In the event that such shrub or tree exceeds the height referred to in clause 1, the Grantee shall be entitled, by any reasonable means, to pass across the Lot Burdened and doing anything reasonably necessary for the purpose of trimming the shrub or tree so that its top does not exceed the height referred to in clause 1.

3. **Right to trim trees**

The Grantee may be any reasonable means pass across the Lot Burdened for the purpose of trimming the canopies of frees in the area marked [ ] on the Plan (such that the canopies are thinned by no more than 10% in any one year) in any manner permitted by Pittwater Council and at the Grantee's cost.

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres.	**(Sheet of Sheets)**
	PART 2
Plan: [##]	**Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**
Full name and address of proprietors of the land:	[ ]

---

4. **Obligations**

In exercising its rights under clauses 2 and 3, the Grantee must:

(a) give to the Grantor not less than five days' prior notice of its intention to exercise that right;

(b) only exercise that right between the hours of 9.00am and 5.00pm;

(c) permit the Grantor or a person nominated by the Grantor to observe the work;

(d) ensure that all work is done properly;

(e) cause as little inconvenience as is practicable to the Grantor or any occupier of the Lot Burdened; and

(f) make good any collateral damage.

L. TERMS OF RIGHT OF FOOTWAY NUMBERED TWELVE ON THE PLAN

1. **Access**

Full, free and unimpeded right for the Grantee and Authorised Users to go, pass and repass across and over those parts of the Lot Burdened indicated on the Plan, at all times without motor vehicles for the purpose of accessing and visiting the Lots Benefited.

2. **Obligations to Repair**

For the purpose of Section 88BA of the Conveyancing Act 1919:

2.1 The Grantee and the Grantor covenant to maintain, at their cost, the trafficable surface of this right of footway in functional repair and condition and to bear such cost in the following proportions:

(a) Grantor 10%;

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres.	**(Sheet of Sheets)**
	PART 2
Plan: [##]	**Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated**
Full name and address of proprietors of the land:	[ ]

(b) Grantee 90%.

2.2 The Grantee, at its cost, will maintain that part of this right of footway comprising the structure, support, platforms and piers in functional, safe and stable repair and condition.

3. **Right of Entry**

(a) The Grantee and the Grantee's Employees may enter that part of the lot burdened as is reasonably required and to remain there for any reasonable time for the purpose of carrying out the Work required under clause 2.2.

(b) Except when urgent maintenance is required, the Grantee must give to the Grantor or its nominee not less than 24 hours prior notice of the intention to exercise its rights of entry.

(c) In carrying out the Work, the Grantee must, at its cost:

(i) ensure all work is done properly;

(ii) cause as little inconvenience as practicable to the Grantors and any occupier of the Lot Benefited;

(iii) cause as little damage as is practicable to the Lot Burdened and any improvements on it;

(iv) carry out, at its expense, any work necessary to safeguard the structural soundness of the supporting wall during and after the construction of the Structure; and

(v) restore the Lot Burdened as nearly as is practicable to its former condition.

4. **Liability of Proprietors of Lots 1, 2, 3 and 4**

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

Where, under clauses 2.1 and 2.2, the proprietors of lots 1,2, 3 and 4 as Grantee are liable for costs or repairs, the proprietors of those lots must contribute to those costs in the following proportions:

Lot 1 [ ]

Lot 2 [ ]

Lot 3 [ ]

Lot 4 [ ]

THE COMMON SEAL of RAYPOND PTY LIMITED, the fixing of which was witnessed by:

Signature of Secretary

Signature of Director

Name (printed)

Name (printed)

(Section 88B Instrument and Plan)

DRAFT

INSTRUMENT SETTING OUT TERMS OF EASEMENTS AND RESTRICTIONS ON USE INTENDED TO BE CREATED PURSUANT TO SECTION 88B, CONVEYANCING ACT, 1919

Lengths are in metres. (Sheet of Sheets)

PART 2

Plan: [##] Subdivision of Lot [ ] in DP [ ] covered by General Manager's Certificate No. dated

Full name and address of proprietors of the land: [ ]

THE COMMON SEAL of HEDWIN PTY LIMITED, the fixing of which was witnessed by:

Signature of Secretary

Signature of Director

Name (printed)

Name (printed)

FAX

8/8/02 11.30 am

HEDWIN PTY LTD
(Formerly POGC PTY LTD)

A.C.N. 001 022 724
A.B.N. 96001 022 724

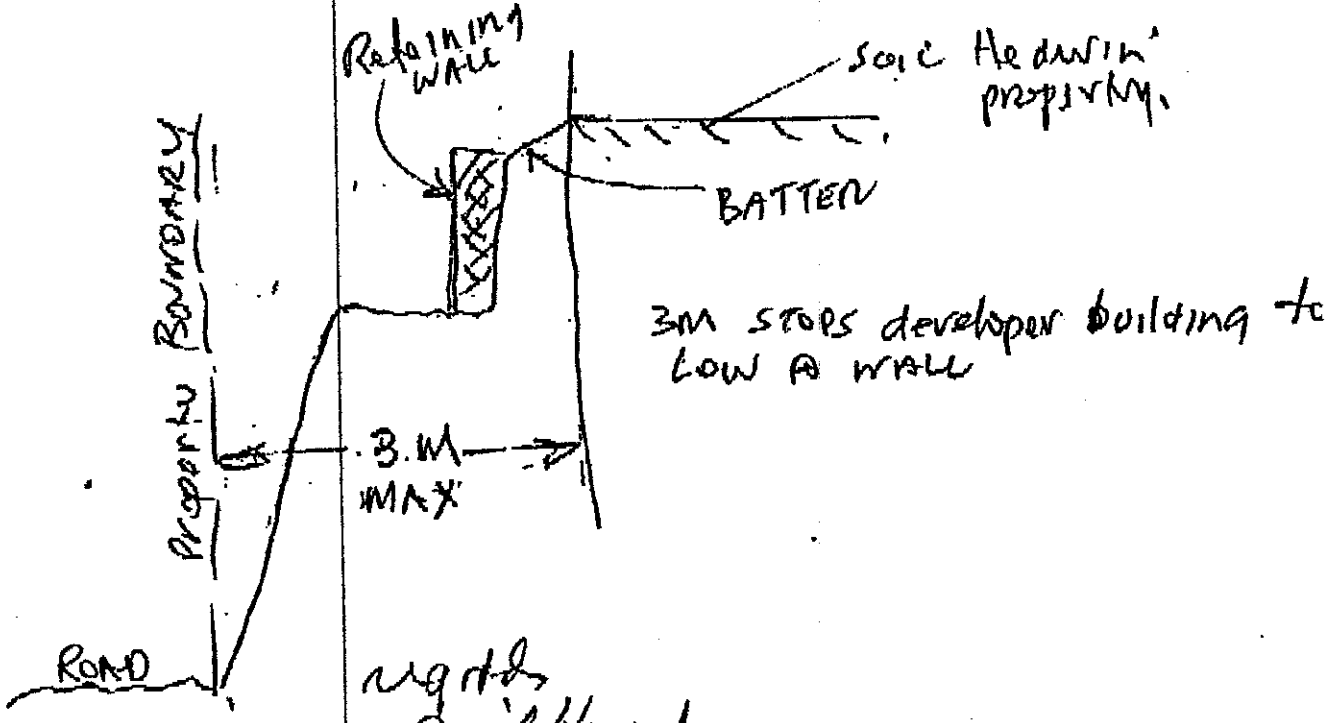
PO BOX 410
ST IVES NSW 2075

Ph: (02) 9983 9969
Fax: (02) 9983 9090
Mobile: 041 7273698
e-mail:wildbilly@bigpond.com

1 of 1

BRUCE CARROLL BDW FAX 92586999
RE OBSERVATION POINT

Doug has reviewed my 3 page FAX to you - incorrectly dated 8/7/002 instead of 8/8/02 - His suggestions on DIMENSIONS ARE



3M stops developer building to low a wall

regds
Bill Howard

EXECUTED as a deed.

Executed by Raypond Pty Limited in accordance with the Corporations Act 2001

~~THE COMMON SEAL of RAYPOND PTY LIMITED, the fixing of which was witnessed by:~~

Signature of Secretary

Signature of Director

Barry Moss

Name (printed)

Darren Leete

Name (printed)

THE COMMON SEAL of HEDWIN PTY LIMITED, the fixing of which was witnessed by:

HEDWIN PTY LTD FORMERLY POGE PTY LTD ABN 96 001 022 724 A.C.N. 001 022 724 Common Seal

Signature

Signature of Director

C R Howard (Sec)

Name (printed)

W. E. HOWARD

Name (printed)

ANNEXURE B

(Methodology Statement)

1. Works Encompassed

This method statement encompasses the works associated with the construction of the access driveway at the subject site and the necessary detailed site investigations required prior to the major construction processes.

The works embrace:

a) Site Investigations by drilling and test pit excavations.

b) Site drainage & slope stabilisation measures.

c) Earthworks, including rock excavation for the access driveway.

d) The construction of retaining walls.

e) Construction of a concrete "suspended" section of the driveway.

It is also noted that:

- Whilst the excavations are typically some 4 to 6 m deep, they are up to about 7 m deep in the area of the upper access drive and some 6 to 7 m in the vicinity of the existing Palm Beach Road cut for the lower access drive.
- There are significant slope stability issues near the access drive entrance from Palm Beach Road.
- Excavations of 2 to 3 m deep are to be carried out for the house building platforms.
- Only minimal site fill is to be placed.

The methods by which these works are to be carried out are outlined in the following paragraphs:

2. Site Investigations

Undertake a site investigation by drilling & test pit excavation to confirm subsurface conditions. The purposes of the investigations are to:

- Confirm the site geology and existence of seams and seepage zones in the cut areas.
- Confirm the quality of the bedrock for excavation contract purposes and long term exposure effects.
- Confirm the depths of soil to be retained by the retaining walls to be constructed.

As such the work envisaged is as follows [see attached Drawings No. BE004G2 & G3]:

a) Survey and peg out proposed access driveway alignment, including proposed chainages and driveway finished Reduced Levels [to AHD].

b) Hand clear site vegetation north of [viz: above] the proposed lower access driveway and create access track to enable access for a small "track type" drilling rig.

c) Drill exploratory boreholes using NMLC coring equipment at the locations shown on Drawings No. BE004G2 & G3 as follows:

Bore Number	Expected depth [m]
BH1 & BH3	4
BH2 & BH4	9
BH5	5
BH6	10
BH7	20

d) Excavate seven exploratory test pits as shown on the attached drawings near the proposed upper access driveway to confirm the depth to bedrock. One test pit is also to be excavated near the large boulder / detached block of bedrock above the access driveway to confirm the existence or otherwise of seams below the boulder.

e) Excavate two exploratory test pits [at locations to be determined] near the large rock above the Barrenjoey Road excavation proposed upper access driveway to confirm / investigate:

- the existence of seams below the boulder, and
- the potential for instability of the large rock.

Notes on fieldwork documentation:

- All site investigations to be supervised by SCE and on completion of the fieldwork, geological sections through the site to be prepared for design purposes.
- All core recovered to be photographed for record purposes and stored at SCE's offices.
- Bore / Test pit logs to be prepared as neat "field logs" to minimise documentation costs.
- A detailed "geotechnical report" on the site investigations not to be prepared [as it is unnecessary].

3. Access Driveway Construction - Section 1

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for Section 1:

Note: The procedures also assume that the site's silt / sediment control plan is in place before site work.

a) **Stage 1A - Install Drainage**

- Construct surface & subsurface drainage above proposed location of the steel soldier pile wall.
- Connect drainage lines to Council pit in Palm Beach Road and provide sediment control devices.

b) **Stage 1B - Install Soldier Pile Wall**

- Pre-determine steel pile lengths and precast concrete panel sizes from site investigation data.
- Drill holes for and progressively install steel soldier piles for wall **before** any soil excavation.
- Install precast concrete panels between piles by progressively removing soil from under / in front of the panel and allowing the panel to slide down. Geocomposite drainage to be attached to the panel prior to panel installation and backfill any remnant gap with clean, free draining sand.
- Work to only proceed at a rate that will ensure continuing support for the soil profile.

c) **Stage 1C - Stabilise Major Boulder above Barrenjoey Road Cut**

If necessary and based on the site investigation results, stabilise the major detached boulder above Barrenjoey Road cut.

d) **Stage 1D - Rock Excavation & Stabilisation**

After the Stage 1B has been completed, excavate the bedrock to driveway level by the "top down" method and in stages.

Whilst vibration monitoring equipment will probably not be required, this to be confirmed by Acoustic Consultant's advice before commencement of excavation.

The extent of rock anchors to be installed and shotcrete to be applied to the surface to be assessed after the site investigation has been completed.

Rock excavation procedure to be as follows:

- Excavate the rock in "lifts" not exceeding two [2] metres.
- Install drainage as required on the excavated face.
- Progressively support rock face [as required] with permanent rock bolts, mesh & shotcrete before proceeding with next excavation stage.
- Each lift to be inspected by SCE before commencing next lift.

e) **Stage 1E - Driveway construction**

Construct driveway to subgrade level; finish with roadbase and apply a spray seal.

Provide surface drainage for later connection of driveway drainage from Stage 2.

Concrete driveway to be constructed as part of Stage 2 driveway construction.

4. Access Driveway - Section 2

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for Section 2:

a) Stage 2A1 - Stabilise Large Boulder

Depending on the investigation results, set up and install rock anchors to stabilise the large rock/boulder.

b) Stage 2A2 - Stabilisation of steep fill

- Clear existing vegetation and remove soft soil.
- Grade subgrade to fall and place free draining sand layer [min 300 mm thick]; connect drainage layer to subsoil system.
- Regrade / place crushed sandstone type fill over steep embankment / filled area near the south western corner of Lot 181.

c) Stage 2B - Construct Suspended Concrete Driveway

- Excavate and construct concrete shear beam type footings for driveway ensuring that footings are founded on bedrock and do not load the crib block wall on Palm Beach Road.

  Note: some rock anchors may be needed to ensure this.
- Remove sections of old concrete driveway as required to ensure stable downslope angles.
- Construct suspended section of the concrete driveway on previously built footings.
- Construct concrete pavement for driveway Section 1.
- Provide surface drainage for later connection by Stage 2C.

d) Stage 2C1 - Driveway Construction near Existing Carport

- Install surface drainage above planned excavation area and connect to drainage systems already installed in Stages 1 & 2B.
- Excavate to driveway subgrade level.
- Soil excavations to be sloped back at 1H:1V for later retention.
- Rock excavation to be minimal and to be sloped back H:1V.
- Place roadbase over subgrade and apply a spray seal.
- Provide surface drainage for later connection by Stage 3.

e) **Stage 2C2 - Construct Permanent Retaining Walls**

- Construct permanent retaining walls where required to Structural Engineer's detail.

5. **Access Driveway - Section 3**

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for Section 3:

a) **Stage 3A - Install Drainage & Vibration Monitoring**

- Install surface drainage above planned excavation area and connect to drainage systems already installed in Stages 1 & 2.
- Install vibration monitoring equipment & conduct vibration trials with actual equipment proposed under Acoustic Consultant's supervision.

b) **Stage 3B - Excavate Driveway**

Procedure to be as follows:

- Excavate driveway ensuring that rock vibration levels do not exceed 3 mm/sec at the Lot No. 182 boundaries.
- Soil excavations to be sloped back at 1H:1V for later retention.
- Excavate the rock in "lifts" not exceeding two [2] metres.
- Install drainage as required on the excavated face.
- Progressively support rock face [as required] with permanent rock bolts, mesh & shotcrete before proceeding with next excavation stage.
- Each lift to be inspected by SCE before commencing next lift.

c) **Stage 3C - Construct Permanent Retaining Walls**

- Construct permanent retaining walls where required to Structural Engineer's detail.

6. **Access Driveway Construction - Section 4**

With regard to Drawing No. BE004G1, the following is a summary of the construction processes for Section 4:

a) **Stage 4A - Install Drainage & Vibration Monitoring**

- Install surface drainage above planned excavation area and connect to drainage systems already installed in Stages 1, 2 & 3.
- Install & maintain vibration monitoring equipment for excavation operations within ten [10] metres of adjoining lots.

b) **Stage 4B - Excavate Driveway**

Procedure to be as follows:

- Excavate driveway ensuring that rock vibration levels do not exceed 3 mm/sec at the boundaries of adjoining lots.
- Soil excavations to be sloped back at 1H:1V for later retention, or 2H:1V where retention not to be provided.
- Excavate the rock in "lifts" not exceeding three [3] metres.
- Install drainage as required on the excavated face.
- Progressively install any permanent rock bolts, mesh or shotcrete as directed by SCE.
- Each lift to be inspected by SCE before commencing next lift.

c) **Stage 4C - Construct Permanent Retaining Walls**

- Construct permanent retaining walls where required to Structural Engineer's detail.

7. Building Platforms

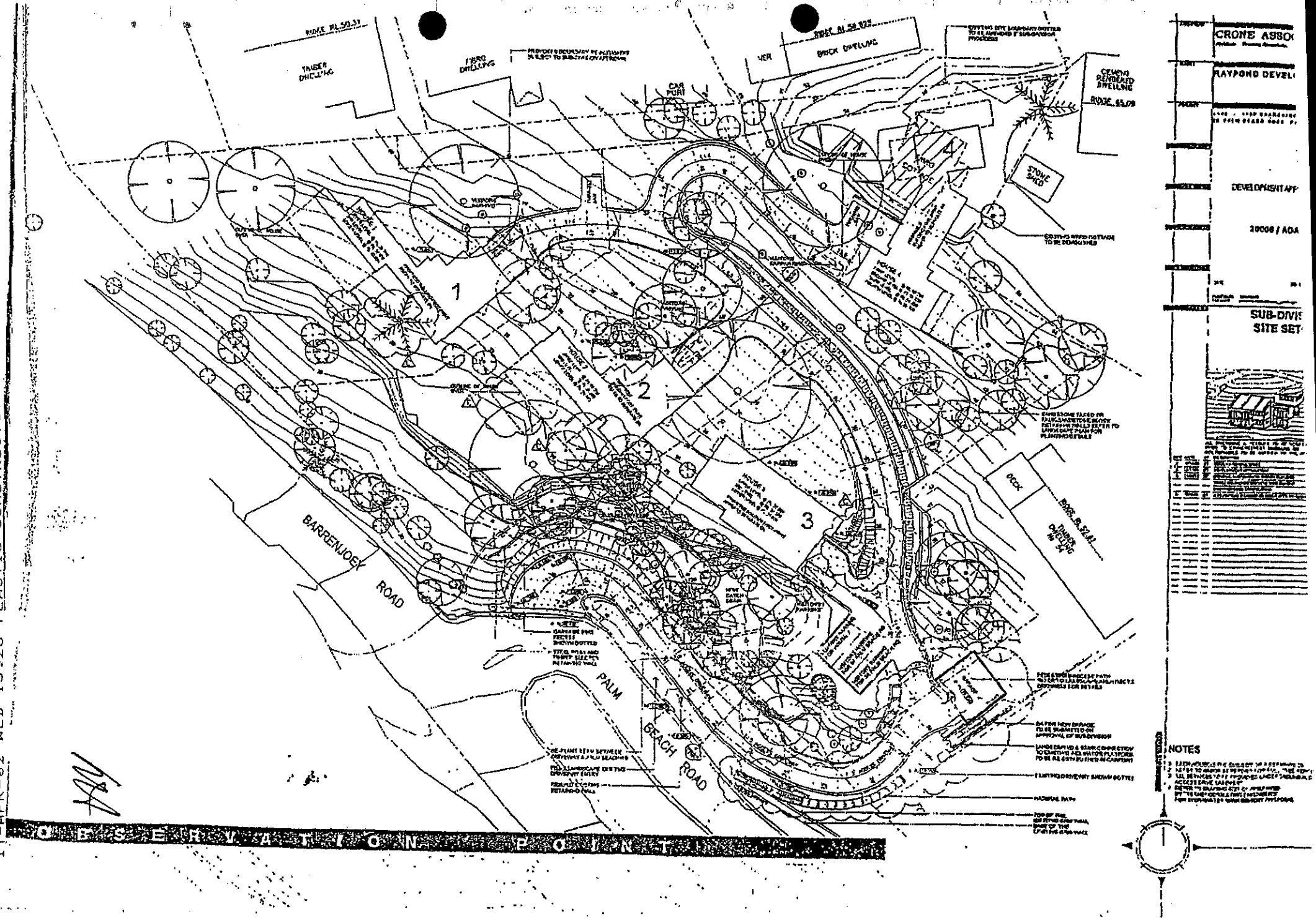
With regard to Drawing No. BE004G1, the following is a summary of the construction processes for the building platforms:

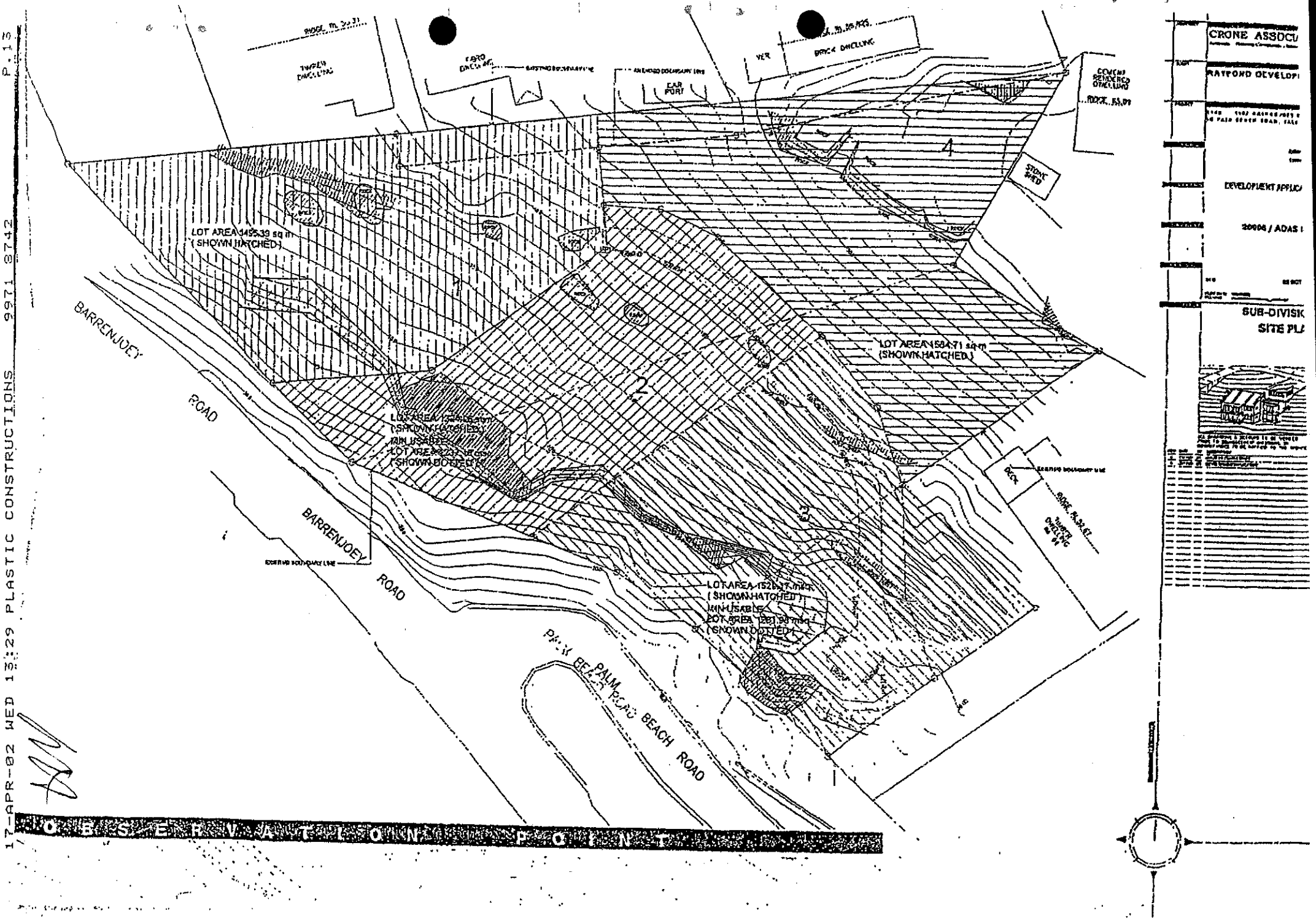
Excavate the building platforms in a manner similar to the access drive Section 4, also noting that.

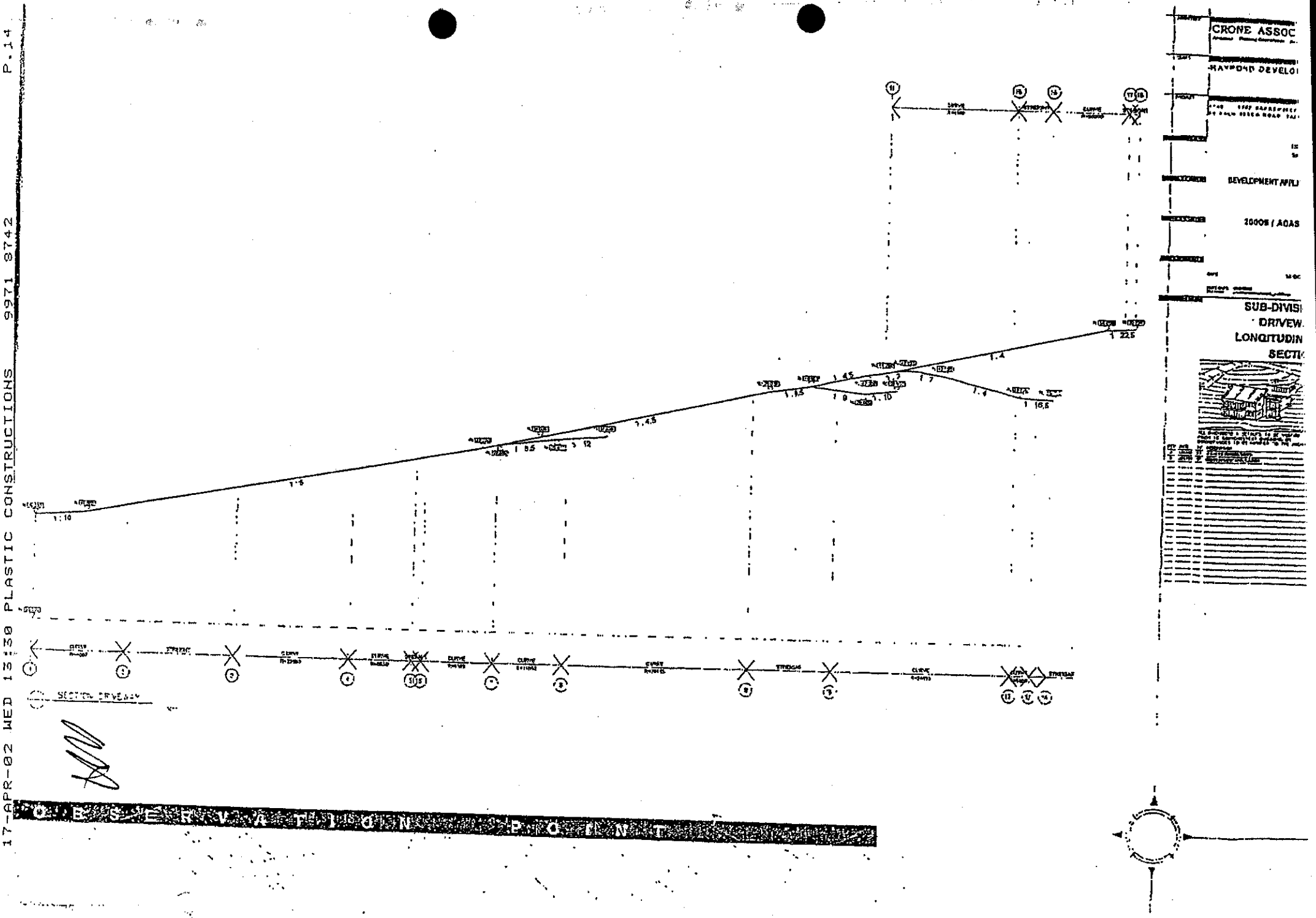
- Unsupported fill for building platforms is not to exceed 400 mm.
- Where fill depths exceed 400 mm, provide a temporary slope of 1H:1V and construct retaining walls before placing remainder of fill.
- The boulders near the north east corner are to be stabilised by anchoring.
- All retaining walls to have suitable drainage which is connected to the site stormwater system.

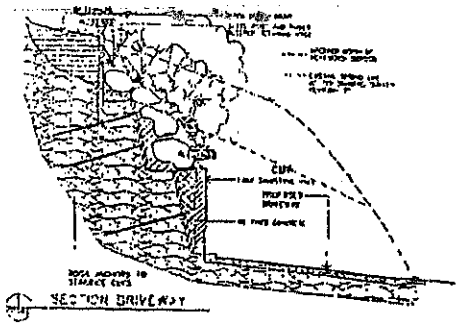
Subdivision Approved Drawings

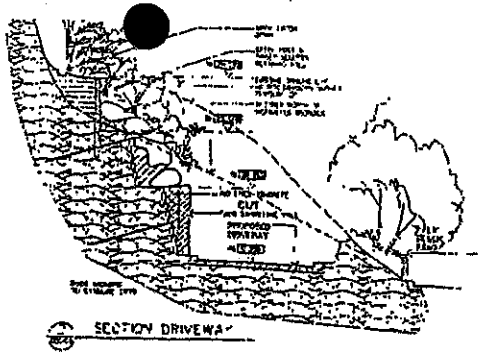
17-APR-02 WED 13:26 PLASTIC CONSTRUCTIONS 9971 8742 P.11


BARRENJOEY ROAD
PALM BEACH ROAD
TIMBER DWELLING
BRICK DWELLING
CEMENT RENDERED DWELLING
CAR PORT
STONE SHED
DECK
1
2
3
CRONE ASSOC
RAYMOND DEVEL
DEVELOPMENT APP
29006 / ADA
SUB-DIVI
SITE SET
NOTES
OBSERVATION POINT


LOT AREA 1455.39 sq m
(SHOWN HATCHED)
LOT AREA 1584.71 sq m
(SHOWN HATCHED)
LOT AREA 1526.17 m2
(SHOWN HATCHED)
MIN USABLE
LOT AREA 1261.94 m2
(SHOWN DOTTED)
BARRENJOEY ROAD
BARRENJOEY ROAD
PALM BEACH ROAD
PALM BEACH ROAD
CRONE ASSOCI
RATFORD DEVELOPI
DEVELOPMENT APPLICA
20606 / ADAS I
SUB-DIVISI
SITE PL
OBSERVATION POINT

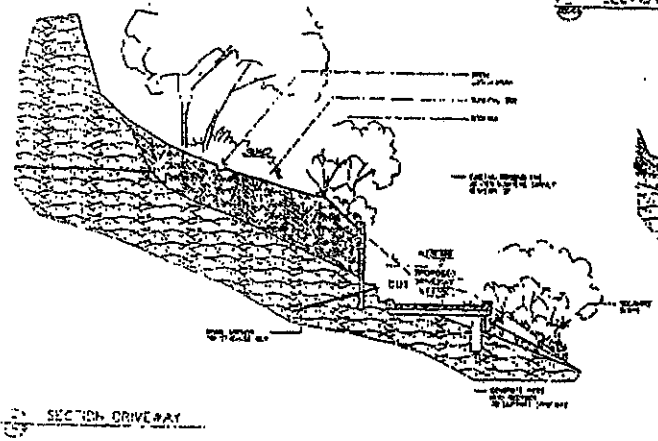

CRONE ASSOC
DEVELOPMENT APPLI
SUB-DIVISI
DRIVEW
LONGITUDIN
SECTI
SECTION DRIVEWAY
OBSERVATION POINT

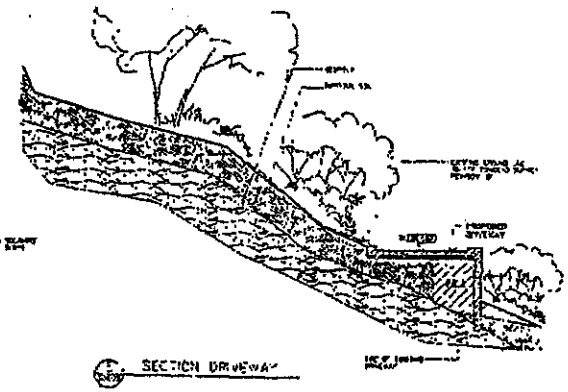


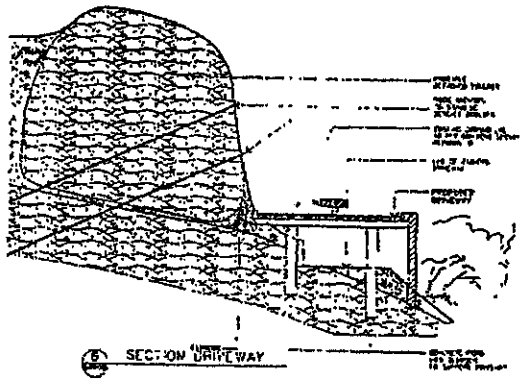


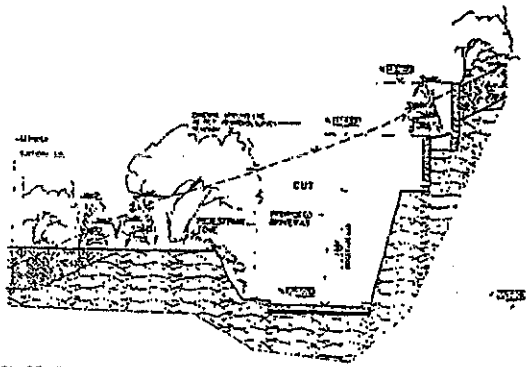
NOT USED

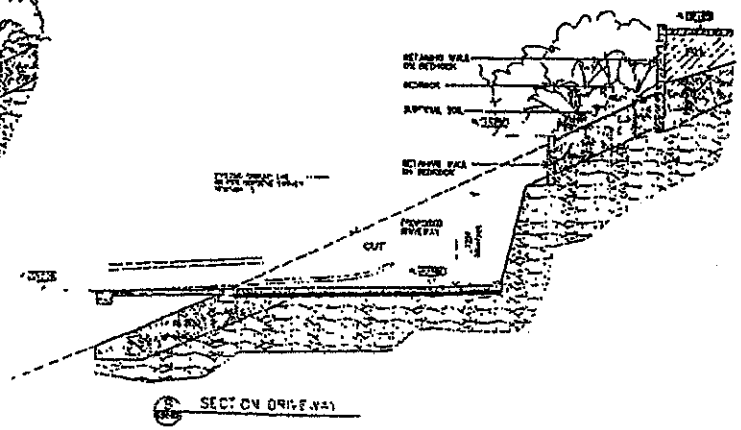
SECTION DRIVEWAY



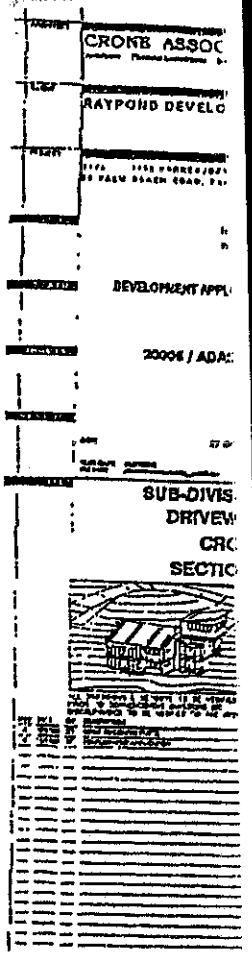


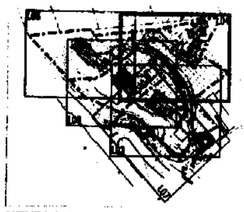






OBSERVATION POINT





KEYPLAN NTS

REFERENCE DOCUMENTS

Consultant	Drawing No	Date of issue
Cross Mission Architects	ADD 00008-09-2 ADA-0100T-02 1 ADA-5100T-02 3	07.09.02 10/02 08/02
Tierney Consulting Engineers	C1-C15	13.10.02
GIS Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	TP10-14 Pre-Development Tree Assessment Landscape Works Specification Vegetation Protection & Removal Specification	15.11.02
M.Bell & Partners	13701WW 026	19.06.02

LEGEND

- Temporary Protective Fencing: Line of maximum disturbance of civil works
- Regeneration Zone To Future detail Refer GIS BMP Aug 2000
- Revegetation Zone To Future detail Refer GIS BMP Aug 2000
- Zone subject to future landscaping and construction works.
- Revegetation Mix
- Plant Mix A-F as shown on plans Refer specification
- Temporary Mulching Refer specification
- Extent of shotcrete walling Refer Tierney Eng. dwgs
- Timber Sleeper & Gravel Path Refer detail & specification
- 45 Existing Contours
- Lot/ Site Boundary
- Sewer Refer architects dwgs
- Exposed rock platform
- Pit Refer Tierney Eng. dwgs
- Grated drain Refer Tierney Eng. dwgs

HOUSE 4 TO FUTURE DETAIL

HOUSE 2 TO FUTURE DETAIL

HOUSE 3 TO FUTURE DETAIL

Plant Mix A

Plant Mix B to planting beside retaining wall

Concrete Lo-A-Bloc retaining wall to engineers detail

Refer detail for drainage to shotcrete wall

SHEET BOUNDARY ADJOINS L05

SHEET BOUNDARY ADJOINS L03

NOTE SCHEDULE:
1. Refer PSB Pre-development Tree Assessment for tree legend and information
2. All retaining walls to engineers detail.

NOT FOR CONSTRUCTION

B	Tender issue	12.11.02	RB Bell
A	Development Approval	25.05.01	
Issue		Date	Checked

Client

Raypond Development

Project
Observation Point
1140-1150 Barrenjoey Rd
& Fern Beach Rd
PALM BEACH NSW

Title
Landscape Plan Subdivision (House 4)

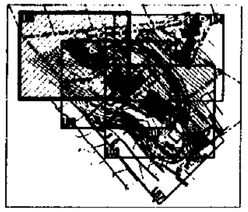
CITY PLAN SERVICES
Title Landscape File No 22375

PSB

Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 978 950
360 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 Fax 02 9906 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137B
Date	17.10.02
Scale	1:100 @ A1
Drawn by	SW



KEYPLAN NTS

REFERENCE DOCUMENTS

Consultant	Drawing No	Date of Issue
Crone Nation Architects	ADC-00000 pe-3 ADC-01000 pe-3 ADC-01001 pe-3	07.08.02 12.08 08.02
Tierney Consulting Engineers	C1-C18	18.10.02
GIS Environmental Consultants	Bushland Management Plan	Aug 2002
PBS Landscape Architects	TP16-14 Pre-development Tree Assessment Landscape Works Specification Vegetation Protection & Removal Specification	16.11.02
M.Bell & Partners	13701WW 009	19.06.02

LEGEND

- Temporary Protective Fencing: Line of extent disturbance of civil works
- Regeneration Zone To future detail Refer SMS BMP Aug 2000
- Regeneration Zone To future detail Refer SMS BMP Aug 2000
- Zone subject to future landscaping and construction works.
- Revegetation Mix
- Plant Mix A-F as shown on plans Refer specification
- Temporary Matching Refer specification
- Extent of sheetpile walling Refer Tierney Eng. dwgs
- Timber Sleeper & Gravel Path Refer detail & specification
- Existing Contours
- Lot/ Site Boundary
- Swale Refer architects dwgs
- Exposed rock platform
- Pit Refer engineers dwgs

BARRENJOEY ROAD

SHEET BOUNDARY ADJOINS L06

SHEET BOUNDARY ADJOINS L04

HOUSE 1 TO FUTURE DETAIL

HOUSE 2 TO FUTURE DETAIL

Plant Mix A

Cut out, to edge of driveway and recate remaining portion

Sewer pipe alignment to change to minimise impacts on existing trees Refer L06 and architects dwgs

NOTE SCHEDULE:
1. Refer PBS Pre-development Tree Assessment for tree layout and information
2. All retaining walls to engineers detail.

NOT FOR CONSTRUCTION

File No 02375

Issue		Date	Checked
B	Tender Issue	15.11.02	
A	Development Approval	25.05.01	

Client: Raypond Development

Project: 1149-1159 Barrenjoey Rd Lot 2 Deposited Plan 1 PALM BEACH NSW

Title: Landscape Plan Subdivision (House 1)

PSB

Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 678 800
880 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 Fax 02 9906 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	001378
Date	17.10.02
Scale	1:100 @ A1
Drawn by	SHa.
Drawing No	L05 B

Level area to RL 37.0 approximately
Retain large in -situ & detached boulders

HOUSE 2
TO FUTURE DETAIL

HOUSE 3
TO FUTURE DETAIL

HOUSE 4
TO FUTURE DETAIL

GARAGE
TO FUTURE DETAIL

VISITOR
PARKING

SHEET BOUNDARY ADJOINS LOT

Open drain

Existing Contours

Cut to fill boundary

Plant Mix C

Plant Mix D

Plant Mix E

Plant Mix F

TW 41.99

TW 41.99

TW 36.50

TW 37.99

TW 22.50

Concrete Lay-A-Stac retaining wall to Engineers detail

Bulk earthworks RL 36.0

Create level area to RL 37.0
Retain large in -situ & detached boulders.

Ornamental boulders to stabilise embankment
Refer specification

Approximately 41 timber steps @ 150mm rise
Contractor to ensure steps are flush with top of kerb

Gravel pathway with timber steps & timber edge

Wall setout as indicated

Outlet setting & drainage to engineers detail
Approximate location only

PALM BEACH ROAD

BARRENJOEY ROAD

0 1 2 3 4 8 10m

NOTE SCHEDULE:
1. Refer PSB Pre-development Tree Assessment for tree legend and information
2. All retaining walls to engineers detail.

NOT FOR CONSTRUCTION

KEYPLAN NTS

REFERENCE DOCUMENTS

Consultant	Drawing No	Date of issue
Grove Hatton Architects	A00-00000 pe-z A01-00001 A01-01001-00-3	07.08.02 10.02 08.02
Tierney Consulting Engineers	C1-C18	13.10.02
GIS Environmental Consultants	Bushland Management	Aug 2002
PSB Landscape Architects	TP10-14 Pre-Development Tree Assessment Landscape Works Specification Vegetation Protection & Removal Specification	15.11.02
M.Bell & Partners	137-11WW 026	19.08.02

LEGEND

- Temporary Protective Fencing: Line of maximum disturbance of civil works
- Regeneration Zone To Future detail Refer GIS BMP Aug 2000
- Regeneration Zone To Future detail Refer GIS BMP Aug 2000
- Zone subject to future landscaping and construction works.
- Revegetation Mix
- Plant Mix A-F as shown on plans Refer specification
- Temporary Mulching Refer specification
- Extent of shotcrete walling Refer Tierney Eng. dwgs
- Timber Stepper & Gravel Path Refer detail & specification
- 45 Existing Contours
- Lot/ Site Boundary
- Sewer Refer architects dwgs
- Exposed rock platform
- PK Refer Tierney Eng. dwgs
- Grated drain Refer Tierney Eng. dwgs

CITY PLAN SERVICES
Title Landscape | File No 22375

Issue	Description	Date	Checked
B	Tender issue	19.11.02	
A	Development Approval	25.05.01	

Client
Raypond Pty Ltd

Project
Proposed Dwellings
Lot 1 DP 1116 Barrenjoey Rd
& Lot 2 Beach Rd
PALM BEACH NSW

Title
Landscape Plan
Subdivision (House 3)

PSB

Pittendrigh Shinkfield Bruce Pty Ltd ACN 087 378 660
360 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 Fax 02 9906 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137B
Date	17.10.02
Scale	1:100 @ A1
Drawn by	
Drawing No	L03 B

HOUSE 1
TO FUTURE DETAIL

Root to be protected during excavation of overall stormwater

Sewer pipe alignment to change as as not to impact trees
Refer architects drawings

HOUSE 2
TO FUTURE DETAIL

Concrete Lee-A-Step retaining wall

Plant Mix D to front edge

HOUSE 3
TO FUTURE DETAIL

BARRENJOEY ROAD

KEYPLAN NTS

REFERENCE DOCUMENTS

Consultant	Drawing No	Date of issue
Crone Nelson Architects	A00-00000-00-2 A00-01001- A00-01001-02-3	07.08.02 10.10 08.08
Tierney Consulting Engineers	C1-C18	15.10.02
GIS Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	TP10-14	18.11.02
	Pre-development Tree Assessment Landscape Works Specification Vegetation Protection & Removal Specification	
M.Bell & Partners	19701WW 026	19.06.02

LEGEND

- Temporary Protective Fencing: Line of maximum disturbance of civil works
- Regeneration Zone To future detail Refer GIS BMP Aug 2000
- Revegetation Zone To future detail Refer GIS BMP Aug 2000
- Zone subject to future landscaping and construction works.
- Revegetation Mix
- Plant Mix A-F as shown on plans Refer specification
- Temporary Mulching Refer specification
- Extent of dwelling roofline Refer Tierney Eng. dwgs
- Timber Sleeper & Gravel Path Refer detail & specification
- 45 Existing Contours
- Lot/ Site Boundary
- Sewer Refer architects dwgs
- Exposed rock platform
- Pit Refer Tierney Eng. dwgs
- Buried drain Refer Tierney Eng. dwgs

CITY PLAN SERVICES
Title Landscape File No 22375

Issue		Date	Checked
B	Tender issue	18.11.02	
A	Development Approval	25.05.01	

Client
Raypond Pty Ltd

Project
Chapmans Point
1148-1160 Barrenjoey Rd
Lot 1 in DP 1035 No
PALM BEACH NSW

Title
Landscape Plan
Subdivision (House 2)

PSB

Pittendrigh Shinkfield Bruce Pty Ltd ACN 001 879 060
680 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4000 Fax 02 9906 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137B
Date	17.10.02
Scale	1:100 @ A1
Drawn by	
Drawing No	L06 B

NOTE SCHEDULE
1. Refer PSB Pre-development Tree Assessment for tree legend and information
2. All retaining walls to engineers detail.

0 1 2 3 4 5 10m

NOT FOR CONSTRUCTION

HOUSE 2
TO FUTURE DETAIL

HOUSE 3
TO FUTURE DETAIL

VISITOR PARKING

GARAGE

Garage and associated planting to future detail

SHEET BOUNDARY ALIGNS LOT 1

Plant Mix B

Gravel path, timber steps and timber edge. Refer detail and specification

Plant Mix D on earth mound. Refer details

Plant Mix A

Paving detailed in DA1

Gravel path, timber steps and timber edge. Refer detail and specification

Plant Mix E

Hand cut and retain existing vegetation to existing grading and embankment

Approximate interface between new and existing rock embankment to be determined on site by Superintendent

PALM BEACH ROAD

SHEET BOUNDARY ALIGNS LOT 1

Plant Mix F

Q01

4 Corokylus 'Robin'
3 Corokylus sieberi
Plant Mix E

NOTE SCHEDULE:
1. Refer PSB Pre-development Tree Assessment for tree layout and information
2. All retaining walls to engineers detail.

0 1 2 3 4 5 10m

NOT FOR CONSTRUCTION

KEYPLAN NTS

REFERENCE DOCUMENTS

Consultant	Drawing No	Date of issue
Cross Hatton Architects	A00-00000-00-0 A00-01000-00-0 A00-01001-00-5	07.02.02 05.02 05.02
Tierney Consulting Engineers	C1-C19	18.10.02
GIS Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	TP10-14 Pre-development Tree Assessment Landscape Works Specification Vegetation Protection & Removal Specification	18.11.02
M.Ball & Partners	1370/1WW 00B	19.06.02

LEGEND

- Temporary Protective Fencing: Line of maximum disturbance of soil works
- Regeneration Zone To future detail Refer GIS SMP Aug 2000
- Revegetation Zone To future detail Refer GIS SMP Aug 2000
- Zone subject to future landscaping and construction works.
- Revegetation Mix
- Plant Mix A-F as shown on plans Refer specification
- Temporary Mulching Refer specification
- Extent of sheetpile walling Refer Tierney Eng. dwgs
- Timber Stepper & Gravel Path Refer detail & specification
- Existing Contours
- Lot/ Site Boundary
- Retaining Wall Refer architects dwgs
- Exposed rock platform
- Pit Refer engineers dwgs
- Grated drain Refer engineers dwgs

B	Tender Issue	18.11.02	kp
A	Development Approval	25.05.01	pg
Issue		Date	Checked

Client
Raypond Development

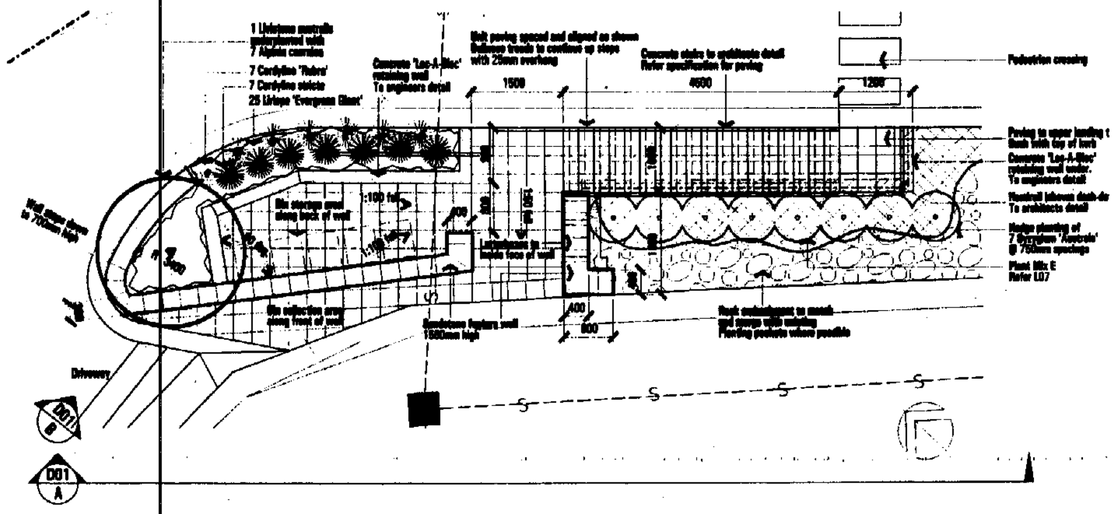
Project
Coastline Point
[illegible] Beach Rd
PALM BEACH NSW

Title
Landscape Plan
Entry Drive

CITY PLAN SERVICES
File No 22375
Title Landscape

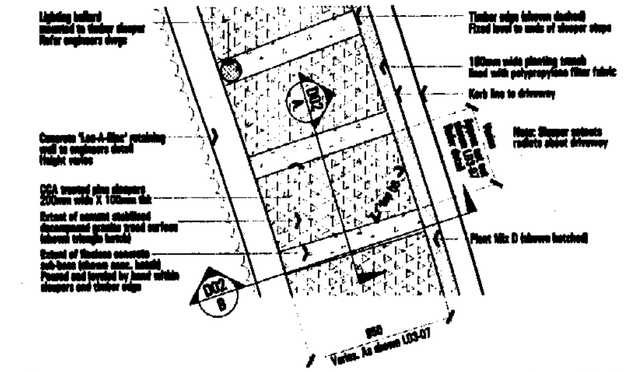
Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 578 960
980 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 Fax 02 9906 4479
Email psb@psb.com.au
PITTENDRIGH SHINKFIELD BRUCE

Project No	00137
Date	17.10.02
Scale	1:100 @ A1
Drawn by	
Drawing No	L07 A B



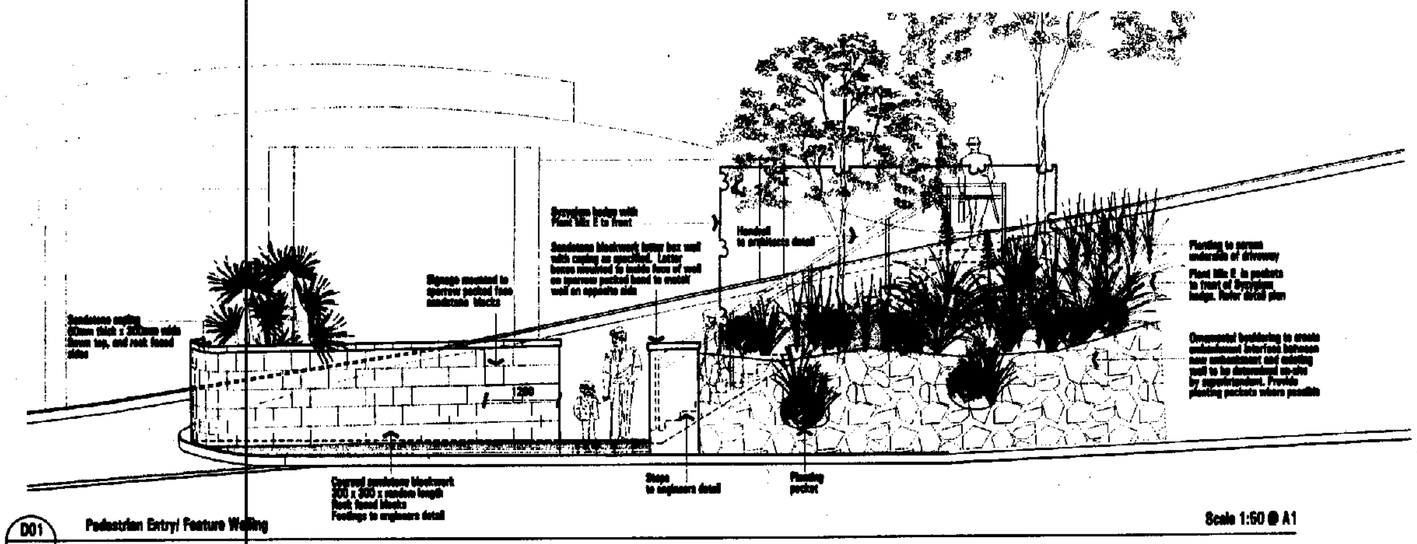
D01 A — **Pedestrian Entry/ Feature Walling** — Scale 1:50 @ A1

DETAIL PLAN



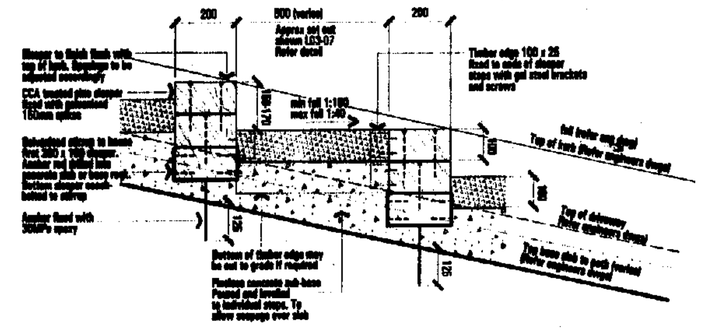
D02 — **Timber Sleeper & Gravel Path** — Scale 1:20 @ A1

DETAIL PLAN



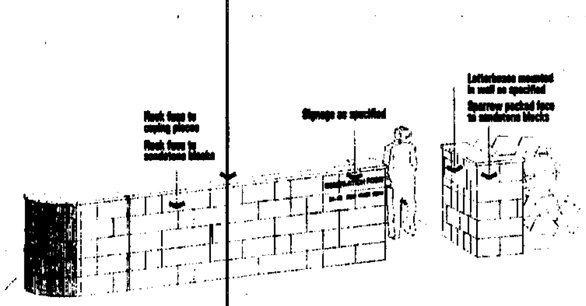
D01 A — **Pedestrian Entry/ Feature Walling** — Scale 1:50 @ A1

ELEVATION



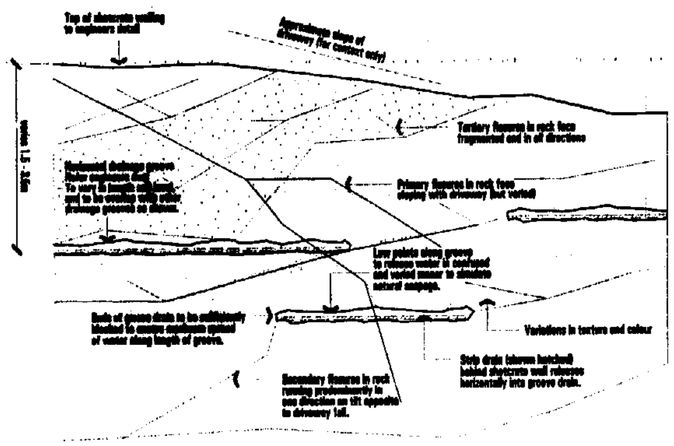
D02 A — **Timber Sleeper & Gravel Path** — Scale 1:10 @ A1

LONG-SECTION



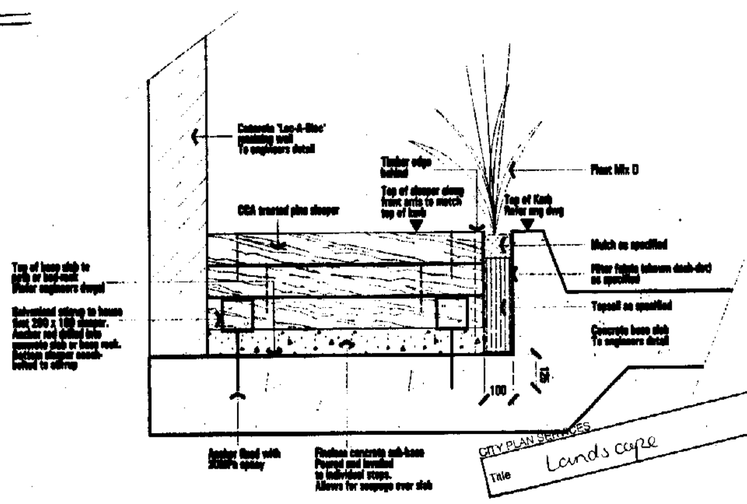
D01 B — **Pedestrian Entry/ Feature Walling** — Not to scale

PERSPECTIVE



D03 — **Horizontal Groove Drain to Shotcrete** — Not to scale

ELEVATION



D02 B — **Timber Sleeper & Gravel Path** — Scale 1:10 @ A1

SECTION

NOT FOR CONSTRUCTION

A	Tender Issue	18.11.02	
Issue		Date	Checked

Client

Raypond Development

Project

LOT 2 (10) Bungaloe Rd PALM BEACH NSW

Title

Landscape Details

PSB

File No 22375

CITY PLAN SERVICES

Title Landscape

Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 078 060
360 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4500 Fax 02 9906 4479
Email: psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137
Date	19.10.02
Scale	1:100 @ A1
Drawn by	Sita
Drawing No	L08 A

HOUSE 2
TO FUTURE DETAIL

HOUSE 3
TO FUTURE DETAIL

HOUSE 4
TO FUTURE DETAIL

GARAGE
TO FUTURE DETAIL

SHEET BOUNDARY ADJOINS TP13

SHEET BOUNDARY ADJOINS TP14

SHEET BOUNDARY ADJOINS TP14

PALM BEACH ROAD

BARRENJOEY ROAD

Existing Contours

NOT FOR CONSTRUCTION

0 1 2 3 4 5 10m

KEYPLAN NTS

REFERENCE PLANS

Consultant	Drawing No	Date of Issue
Jones Nation Architects	A00-30000-00-0 A01-31001-00-1 A04-31001-00-3	07.08.02 10.10.02 08.02
Tierney Consulting Engineers	C1-C19	18.10.02
PSB Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	L01-07 Landscape Works Specification Vegetation Protection & Removal Specification	18.11.02

LEGEND

- Existing tree to be retained and protected. Refer PSB tree report & specification
- Existing tree to be retained. Refer PSB tree report & specification
- Existing tree to be removed. Refer PSB tree report & specification
- Existing spread tree to be removed. Refer PSB tree report & specification
- Temporary Protective Fencing: Line of maximum disturbance
- Existing Contours
- Lot/ Site Boundary
- Sewer Refer architects dwgs
- Exposed rock platform
- Excavation by hand under supervision of arborist
- Pit Refer engineers dwgs
- Retained drain Refer engineers dwgs
- Spoon drain Refer engineers dwgs

Issue	Date	Checked
A Tender	18.11.02	

Client

Raypond Pty Ltd

Project

Title

Tree Protection Plan
House 3

PSB

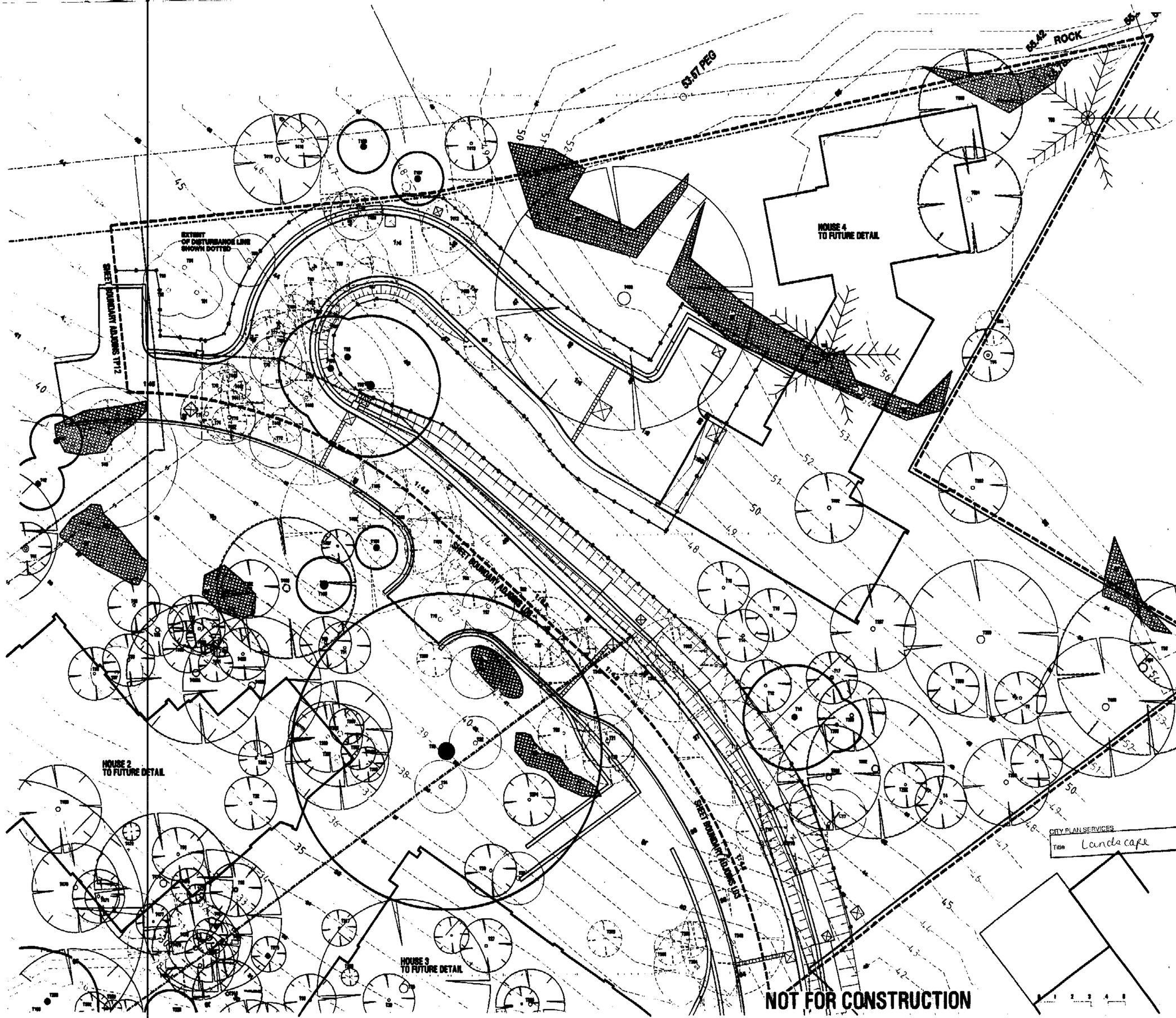
File No 22375

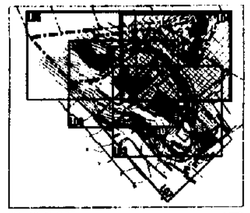
landscape

Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 676 660
660 Pacific Highway Greens Head NSW 2065
Phone 02 6908 4800 Fax 02 6908 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137
Date	17.10.02
Scale	1:100 @ A1
Drawn by	
Drawing No	TP10 A





KEYPLAN NTS

REFERENCE PLANS

Consultant	Drawing No	Date of Issue
Craig Hatton Architects	A00-00000-06-2 A00-10000-1 A00-51001-06-9	07.09/02 10/02 09/02
Barney Consulting Engineers	C1-C18	15.10.02
GIS Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	LP1-07 Landscape Works Specification Vegetation Protection & Removal Specification	15.11.02

LEGEND

- Existing tree to be retained and protected. Refer PSB tree report & specification
- Existing tree to be retained. Refer PSB tree report & specification
- Existing tree to be removed. Refer PSB tree report & specification
- Existing weed tree to be removed. Refer PSB tree report & specification
- Temporary Protective Fencing: Line of maximum disturbance
- Existing Contours
- Lot/ Site Boundary
- Sewer Refer architects dwgs
- Exposed rock platform
- Excavation by hand under supervision of arborist
- Fill Refer engineers dwgs
- Expand drain Refer engineers dwgs
- Spoon drain Refer engineers dwgs

Issue	Description	Date	Checked
A	Tender Issue	15.11.02	

Client: **Raypond Pty Ltd**

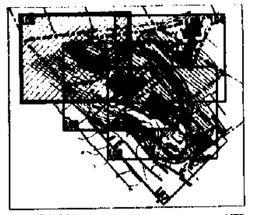
Project: Observation Point
Title: **Tree Protection Plan House 4**

CITY PLAN SERVICES
Title: Landscape File No: 22375

Pittendrigh Shinkfield Bruce Pty Ltd ACN 097 978 990
360 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4800 Fax 02 9906 4479
Email: psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137
Date	17.10.02
Scale	1:100 @ A1
Drawn by	SH
Drawing No	TP11 A



KEYPLAN NTS

REFERENCE PLANS

Consultant	Drawing No	Date of issue
Chris Mellon Architect	A00-20000-09-2 A01-20000-1 A02-21001-02-9	07.09.02 15.08 09.10
Tierney Consulting Engineers	01-018	18.10.02
GIS Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	LP1-07 Landscape Works Specification Vegetation Protection & Removal Specification	18.11.02

LEGEND

- Existing tree to be retained and protected. Refer PSB tree report & specification
- Existing tree to be retained. Refer PSB tree report & specification
- Existing tree to be removed. Refer PSB tree report & specification
- Existing weed tree to be removed. Refer PSB tree report & specification
- Temporary Protective Fencing: Line of maximum disturbance
- Existing Contours
- Lot/ Site Boundary
- Stairs/ Refer architects dwgs
- Exposed rock platform
- Excavation by hand under supervision of arborist
- Fill/ Refer engineers dwgs
- Slotted drain/ Refer engineers dwgs
- Grass drain/ Refer engineers dwgs

BARRENJOEY ROAD

SHEET BOUNDARY ADJOINS TP13

HOUSE 1
TO FUTURE DETAIL

HOUSE 2
TO FUTURE DETAIL

CITY PLAN SERVICES

File No 82375

A	Tender Issue	15.11.02	kpm
Issue		Date	Checked

Client
Raypond Pty Ltd

Project
Proposed Pool
Lot 1 DP 1018 Barrenjoey Rd
PALM BEACH NSW

Title
Tree Protection Plan
House 1

PSB

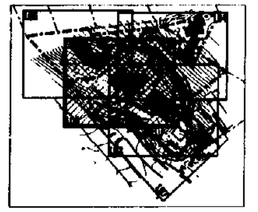
Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 673 080
350 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4000 Fax 02 9906 4479
Email psb@psb.com.au
PITTENDRIGH SHINKFIELD BRUCE

Project Nº	00137
Date	17.10.02
Scale	1:100 @ A1
Drawn by	SHN
Drawing Nº	TP12 A

NOT FOR CONSTRUCTION

HOUSE 2
TO FUTURE DETAIL

HOUSE 3
TO FUTURE DETAIL



KEYPLAN NTS

REFERENCE PLANS

Consultant	Drawing No	Date of Issue
Group Nielsen Architects	A00-20000-00-2 A00-20000-1 A04-31001-00-5	07.08.02 08.02 08.02
Barney Consulting Engineers	C1-C15	18.10.02
Gilt Environmental Consultancy	Bushland Management Plan	Aug 2002
Gillis Landscape Architects	L01-07 Landscape Works Specification Vegetation Protection & Removal Specification	18.11.02

LEGEND

- Existing tree to be retained and protected. Refer PSB tree report & specification
- Existing tree to be retained. Refer PSB tree report & specification
- Existing tree to be removed. Refer PSB tree report & specification
- Existing weed tree to be removed. Refer PSB tree report & specification
- Temporary Protective Fencing: Line of maximum disturbance
- Existing Contours
- Lot/ Site Boundary
- Sewer. Refer architects dwgs
- Exposed rock platform
- Excavation by hand under supervision of arborist
- Pit. Refer engineers dwgs
- Grated drain. Refer engineers dwgs
- Open drain. Refer engineers dwgs

CITY PLAN SERVICES
File No 22375

Issue	Date	Checked
A Tender Issue	15.11.02	

Client
Raypond Pty Ltd

Project
Oyster Point
1 Pittwater Spitview Rd
& 1 Pittwater Rd
PALM BEACH NSW

Title
Tree Protection Plan
House 2

PSB

Pittendrigh Shinkfield Bruce Pty Ltd ACN 057 675 980
660 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4800 Fax 02 9906 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137
Date	17.10.02
Scale	1:100 @ A1
Drawn by	
Drawing No	TP13 A

NOT FOR CONSTRUCTION

HOUSE 2
TO FUTURE DETAIL

HOUSE 3
TO FUTURE DETAIL

GARAGE
TO FUTURE DETAIL

SHEET BOUNDARY ADJOINS TP10

VISITOR PARKING

SHEET BOUNDARY ADJOINS TP12

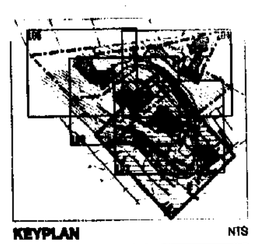
PALM BEACH ROAD

16.66

17.90

PIT 15.06
L 14.97

NOT FOR CONSTRUCTION



KEYPLAN NTS

REFERENCE PLANS

Consultant	Drawing No	Date of Issue
Scape Nation Architects	ADD-00000-00-0 ADD-00000-1 ADD-ELEV01-00-3	07.08.02 10.10 08.10
Tierney Consulting Engineers	C1-C18	15.10.02
gsa Environmental Consultants	Bushland Management Plan	Aug 2002
PSB Landscape Architects	L01-07 Landscape Works Specification Vegetation Protection & Removal Specification	15.11.02

LEGEND

- Existing tree to be retained and protected. Refer PSB tree report & specification
- Existing tree to be retained. Refer PSB tree report & specification
- Existing tree to be removed. Refer PSB tree report & specification
- Existing weed tree to be removed. Refer PSB tree report & specification
- Temporary Protective Fencing: Line of maximum disturbance
- Existing Contours
- Lot/ Site Boundary
- Slopes: Refer architects dwgs
- Exposed rock platform
- Excavation by hand under supervision of arborist
- Fill: Refer engineers dwgs
- Retaining Wall: Refer engineers dwgs
- Drainage: Refer engineers dwgs

Issue	Date	Checked
A Tender Issue	15.11.02	

Client: Raypond Pty Ltd

Project: Palm Beach Point
1146-1156 Barrenjoey Rd
PALM BEACH NSW

Title: Tree ProtectionPlan
Entry Drive

PSB

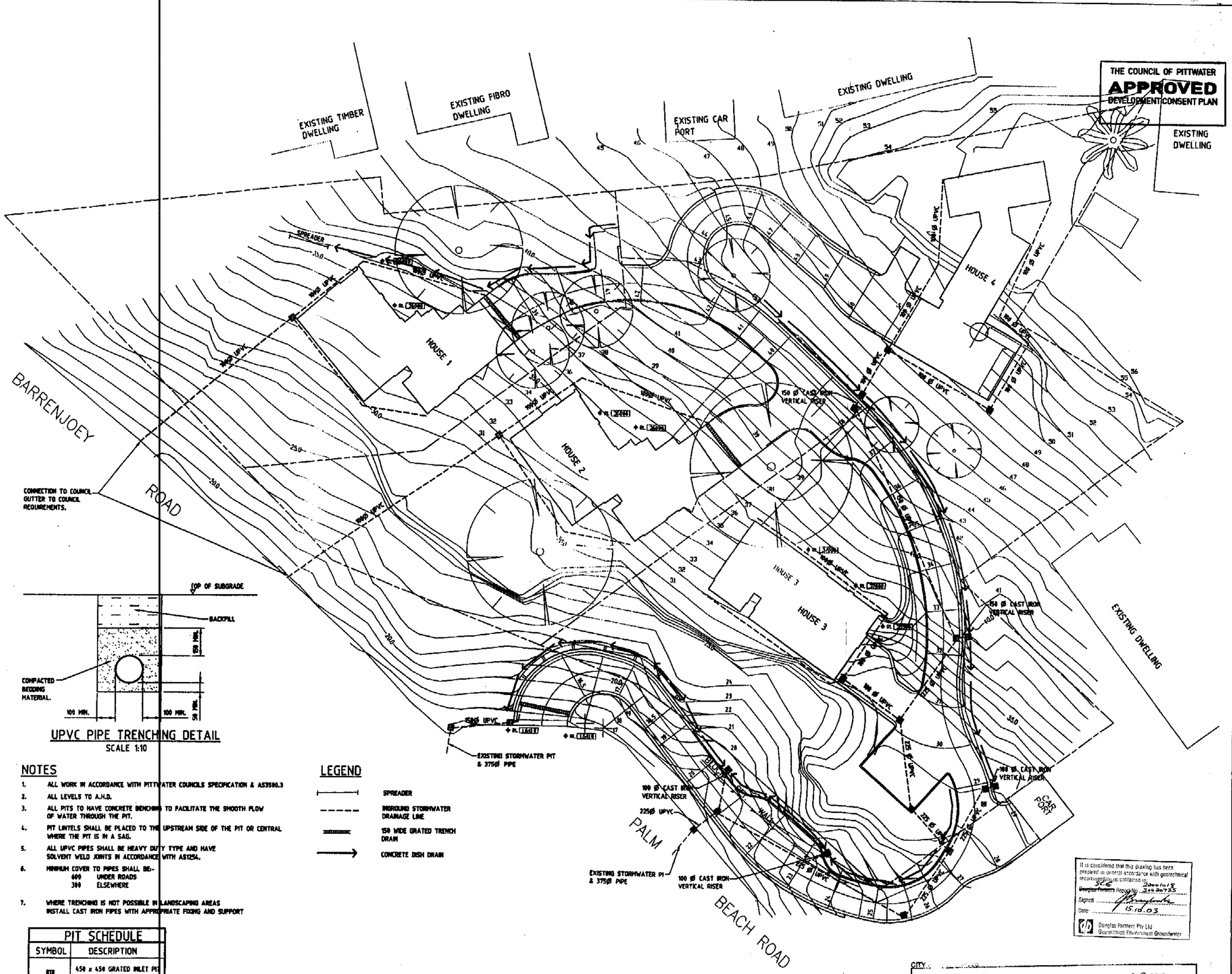
CITY PLAN SERVICES File No 2235
Title landscape

Pittendrigh Shinkfield Bruce Pty Ltd ACN 087 878 080
380 Pacific Highway Crows Nest NSW 2065
Phone 02 9906 4000 Fax 02 9906 4479
Email psb@psb.com.au

PITTENDRIGH SHINKFIELD BRUCE

Project No	00137
Date	17.10.02
Scale	1:100 @ A1
Drawn by	
Drawing No	TP14 A

0 1 2 3 4 8 10m



UPVC PIPE TRENCHING DETAIL

SCALE 1:10

NOTES

1. ALL WORK IN ACCORDANCE WITH PITTWATER COUNCILS SPECIFICATION & AS3500.3
2. ALL LEVELS TO A.H.D.
3. ALL PITS TO HAVE CONCRETE BENCHING TO FACILITATE THE SMOOTH FLOW OF WATER THROUGH THE PIT.
4. PIT LINTELS SHALL BE PLACED TO THE UPSTREAM SIDE OF THE PIT OR CENTRAL WHERE THE PIT IS IN A SAG.
5. ALL UPVC PIPES SHALL BE HEAVY DUTY TYPE AND HAVE SOLVENT WELD JOINTS IN ACCORDANCE WITH AS1254.
6. MINIMUM COVER TO PIPES SHALL BE:-
   - 600 UNDER ROADS
   - 300 ELSEWHERE
7. WHERE TRENCHING IS NOT POSSIBLE IN LANDSCAPING AREAS INSTALL CAST IRON PIPES WITH APPROPRIATE FIXING AND SUPPORT

LEGEND

- SPREADER
- INGROUND STORMWATER DRAINAGE LINE
- 150 WIDE GRATED TRENCH DRAIN
- CONCRETE IRISH DRAIN

PIT SCHEDULE	
SYMBOL	DESCRIPTION
	450 x 450 GRATED INLET PIT OR JUNCTION PIT

THE COUNCIL OF PITTWATER
APPROVED
DEVELOPMENT CONSENT PLAN

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in Douglas Partners Report No. 32 2000/118 2000/225
Signed: [signature]
Date: 15.10.03
Douglas Partners Pty Ltd Geotechnics Environment Groundwater

CITY:
Title: Hydraulic File No: 22375

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS
A1 CAD - DO NOT AMEND MANUALLY

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD

Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

No.	Revision	Init / Date
2	ISSUED FOR D.A. APPROVAL	24.10.00
1	ISSUED FOR COMMENT	13.10.00

Designed: S.D. Checked:
Approved:

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 184 884
Level 3, 411 Victoria Avenue Tel: (02) 9804 8686
Chatswood 2067 Fax: (02) 9804 8777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5940 West Chatswood NSW 1515 card file: 5727-09

Project
OBSERVATION POINT
1148-1152 BARRENJOEY RD
56 PALM BEACH RD
PALM BEACH

Drawing Title
STORMWATER DRAINAGE PLAN

ARCHITECT
CRONE ASSOCIATES

Scale	Date	Drawn
1:200	OCT 00	RBH

Project No.	Drawing No.	Revision
6727	C1	2

STRUCTURAL AND CIVIL NOTES

GENERAL

G1. THESE STRUCTURAL 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 DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH THE WORK.

G2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BUILDING CODE OF AUSTRALIA.

G3. ALL DIMENSIONS SHOWN ON THESE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.

G4. UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.

G5. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED FOR THE FOLLOWING APPLIED LOADINGS. REFER TO ARCHITECTURAL DRAWINGS FOR PROPOSED FLOOR USAGE.

FLOOR USAGE	LIVE LOAD (kPa)	ALLOWANCE FOR SUPERIMPOSED DEAD LOAD (kPa)
GARAGE ROOF SLAB	7.5	
DRIVEWAY	10	

G6. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERLOADED. TEMPORARY BRACING SHALL BE PROVIDED BY THE CONTRACTOR IN ORDER TO KEEP THE BUILDING WORKS AND EXCAVATIONS STABLE AT ALL TIMES.

MASONRY

M1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN COMPLIANCE WITH THE CURRENT EDITION AS.3700. MASONRY UNITS SHALL COMPLY WITH AS.4455. WALL TIES SHALL COMPLY WITH THE CURRENT EDITION AS.2699, AND SHALL BE STAINLESS STEEL (316 OR 304L).

M2. UNLESS NOTED OTHERWISE, ALL MASONRY WALLS AND PIERS SUPPORTING SLABS AND BEAMS SHALL HAVE A PRE-GREASED GALVANIZED STEEL SLIP JOINT (EQUIVALENT TO "SWAN" JOINT STRIPS) BETWEEN THE TOP OF THE MASONRY AND THE CONCRETE.

M3. NON-LOADBEARING WALLS SHALL BE SEPARATED FROM THE CONCRETE ABOVE BY A 20mm THICK CLOSED CELL POLYETHYLENE STRIP.

M4. MASONRY SUPPORTING OR SUPPORTED BY CONCRETE FLOORS SHALL BE PROVIDED WITH VERTICAL CONTROL JOINTS TO MATCH ANY CONTROL JOINTS IN THE CONCRETE FLOOR.

M5. PROVIDE VERTICAL CONTROL JOINTS AT 10m MAXIMUM CENTRES, AND 5m MAXIMUM FROM CORNERS, UNLESS SHOWN OTHERWISE ON STRUCTURAL DRAWINGS. (U.N.O.)

M6. DO NOT CONSTRUCT MASONRY WALLS ON SUSPENDED SLABS OR BEAMS UNTIL ALL PROPPING HAS BEEN REMOVED.

M7. NO CHASES OR RECESSES ARE PERMITTED IN LOAD BEARING MASONRY WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.

M8. PROVIDE TEMPORARY PROPPING OR BRACING TO ALL WALLS WHERE REQUIRED FOR STABILITY DURING CONSTRUCTION.

M9. MAXIMUM DEPTH OF RAKING OF THE MORTAR JOINTS TO BE 3mm. UNLESS NOTED OTHERWISE.

M10. ALL BONDING, TYING AND FIXING OF MASONRY SHALL COMPLY WITH CLAUSE 4.11 OF AS.3700.

M13. BLOCK STRENGTH(S) AND MORTAR TYPE(S) SHALL BE AS FOLLOWS:-

ELEMENT	BLOCK TYPE	CHARACTERISTIC UNCONFINED COMPRESSIVE STRENGTH (f'_{uc})		MORTAR TYPE (1 : 0 : 5)
BLOCKWORK	CONCRETE	15 MPa (MIN.)		1 : 1 : 6
LOC-A-BLOC	CONCRETE	40 MPa (MIN.)		N/A

M14. REINFORCED CONCRETE BLOCKWORK SHALL HAVE CLEAN-OUT OPENINGS AT THE BASE OF ALL CORES TO BE CONCRETE FILLED. REMOVE MORTAR PROTRUSIONS FROM WITHIN CORES BEFORE PLACING REINFORCEMENT AND CONCRETE FILLING.

M15. CORE-FILLING CONCRETE FOR BLOCKWORK ELEMENTS SHALL HAVE A CHARACTERISTIC STRENGTH OF 20MPa, 10mm MAXIMUM AGGREGATE, 230mm (±30mm) SLUMP AND A MINIMUM CEMENT CONTENT OF 300kg/m³.

M16. COVER TO REINFORCING BARS TO BE NOT LESS THAN 40mm TO THE OUTSIDE FACE OF BLOCKS TO ENSURE ADEQUATE CORE-FILLING CONCRETE COVER.

M17. CORE-FILLING CONCRETE FOR " LOC-A-BLOC " SHALL HAVE A CHARACTERISTIC STRENGTH OF 40MPa, 10mm MAXIMUM AGGREGATE, 110mm SLUMP AND USE A TYPE GP CEMENT IN ACCORDANCE WITH A.S. 3972

M18. THE GROUT IS TO BE ROCKED DURING PLACEMENT TO ENSURE ALL CAVITIES OR CORES ARE COMPLETELY FILLED.

RETAINING WALLS

RW1. ENSURE FREE DRAINING BACKFILL AND DRAINAGE IS IN PLACE BEHIND ALL RETAINING WALLS.

SHOTCRETE NOTES

1. PROVIDE SUPPORT TO EXISTING SERVICES AS REQUIRED. TO BE DETERMINED ON SITE.
2. SHOTCRETE CONCRETE TO BE IN ACCORDANCE WITH THE 'CONCRETE INSTITUTE OF AUSTRALIA' PUBLICATION 'RECOMMENDED PRACTICE - SPRAYED CONCRETE'.
3. SANDSTONE ROCK FACE TO BE INSPECTED BY GEOTECHNICAL ENGINEER TO CONFIRM STABILITY. IF UNFAVOURABLE ROCK MASS CONDITIONS ARE ENCOUNTERED, ROCK BOLTING MAY BE REQUIRED.

CONCRETE FOR SUSPENDED STRUCTURES

C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF AS.3600 INCLUDING AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.

C2. PRE-MIXED CONCRETE SUPPLY SHALL COMPLY WITH AS.1379.

C3. CONCRETE QUALITY:-

ELEMENT	STRENGTH GRADE (MPa)	SLUMP (mm)	MAX. AGG. SIZE (mm)	CEMENT TYPE
ALL INSITU	40	80	20	A

C4. PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS.1379, CLAUSE B7.

C5. NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

C6. CLEAR CONCRETE COVER TO REINFORCEMENT FOR DURABILITY SHALL BE AS FOLLOWS UNLESS SPECIFICALLY NOTED OTHERWISE:-

EXPOSURE CLASSIFICATION TO AS.3600	CONCRETE GRADE		
	25 MPa	32 MPa	40 MPa
A1	20mm	20mm	20mm
A2	30mm	25mm	20mm
B1	(40mm)	40mm	30mm
B2	-	(45mm)	45mm

NOTE:- B1 VALUES IN BRACKETS APPLY ONLY WHEN ONE SURFACE OF MEMBER SUBJECT TO B1 OR B2 EXPOSURE.
- (2) COVER REQUIREMENTS MAY NEED TO BE INCREASED TO SUIT FIRE RATING.
- (3) EXPOSURE CLASSIFICATION SHALL BE AS INDICATED IN NOTE C7 OR ON THE DRAWINGS.
- (4) THE SURFACES OF MEMBERS PROTECTED FROM THE GROUND BY A DAMP-PROOF MEMBRANE HAVE EXPOSURE CLASSIFICATION A1, UNLESS NOTED OTHERWISE.

C7. THE CONCRETE WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING EXPOSURE CLASSIFICATIONS FOR DURABILITY IN ACCORDANCE WITH AS.3600:-

ELEMENT	EXPOSURE CLASSIFICATION
ALL	B2

C8. CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESSES OF APPLIED FINISHES.

C9. DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESSES, IF ANY.

C10. FOR CHAMFERS, DRIP GROOVES, REGLETS, ETC., REFER TO PROJECT ARCHITECTS DETAILS. MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.

C11. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

C12. CONDUITS, PIPES ETC. SHALL ONLY BE LOCATED IN THE MIDDLE ONE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE COVER TO THE REINFORCEMENT.

C13. WHERE NOT SHOWN ON THE STRUCTURAL DRAWINGS, CONSTRUCTION JOINTS SHALL BE LOCATED TO THE APPROVAL OF THE STRUCTURAL ENGINEER.

C14. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING FOOTINGS AND SLABS ON GROUND SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.

C15. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY WET CURING OR SEAL CURING IN ACCORDANCE WITH SPECIFICATION B60.

C16. CONSTRUCTION SUPPORT PROPPING IS TO BE LEFT IN PLACE WHERE NEEDED TO AVOID OVER-STRESSING THE STRUCTURE DUE TO CONSTRUCTION LOADING. NO BRICKWORK OR PARTITION WALLS ARE TO BE CONSTRUCTED ON SUSPENDED LEVELS UNTIL ALL PROPPING IS REMOVED AND THE SLAB HAS ABSORBED ITS DEAD LOAD DEFLECTION.

C17. PROVIDE UPWARD CAMBER TO CANTILEVERS OF L/120 AT THEIR OUTER EDGE, WHERE 'L' IS THE SHORTEST PROJECTION BEYOND COLUMN OR WALL FACE. PROVIDE ALSO CAMBERS TO SLABS WHERE INDICATED ON PLAN. MAINTAIN SLAB AND BEAM DEPTHS AS SHOWN.

FOOTINGS

F1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING CAPACITY OF: RETAINING WALLS 200 kPa ON 'I' PIERS 1000 kPa ON ROCK
THE FOUNDATION MATERIAL SHALL BE VERIFIED BY THE GEOTECHNICAL ENGINEER FOR THIS ALLOWABLE BEARING CAPACITY BEFORE PLACING MEMBRANE, REINFORCEMENT OR CONCRETE.

F2. EXCAVATE FOR FOOTINGS TO THE NOMINATED SIZE AND DEPTH. FOOTING FOUNDING LEVELS ARE PROVISIONAL SUBJECT TO ACTUAL SITE CONDITIONS AND ADVICE BY THE GEOTECHNICAL ENGINEER.

F3. FOOTINGS SHALL BE LOCATED CENTRALLY UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.

F4. FOOTINGS SHALL BE CONSTRUCTED AND BACKFILLED AS SOON AS POSSIBLE FOLLOWING EXCAVATION TO AVOID EITHER SOFTENING OF THE FOUNDING MATERIAL OR DRYING OUT BY EXPOSURE.

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

REINFORCEMENT

R1. REINFORCEMENT IS REPRESENTED DIAGRAMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.

R2. SITE BENDING OF REINFORCING BARS SHALL BE DONE WITHOUT HEATING USING MECHANICAL BENDING TOOLS.

R3. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER. IF PERMITTED WELDING IS TO BE CARRIED AT IN ACCORDING WITH AS 1554.3

R4. REINFORCEMENT SYMBOLS:-
R - DENOTES GRADE 250N HOT ROLLED PLAIN BARS TO AS.1302.
W - DENOTES GRADE D500N DEFORMED BARS TO AS.4671.
SL or RL - DENOTES SQUARE OR RECTANGULAR GRID DEFORMED REINFORCING FABRIC GRADE D500L TO AS.4671.
L.....TM - DENOTES TRENCH MESH GRADE D500L TO AS.4671.

R5. REINFORCEMENT NOTATION:-
NUMBER OF BARS IN GROUP — BAR GRADE AND TYPE
4N20-200
NOMINAL BAR SIZE IN mm — SPACING IN mm

R6. REINFORCEMENT LAYERS DENOTED THUS; (UNLESS NOTED OTHERWISE)-
TT - DENOTES TOP BARS LAID LAST
T - DENOTES TOP BARS LAID FIRST
B - DENOTES BOTTOM BARS LAID SECOND
BB - DENOTES BOTTOM BARS LAID FIRST

R7. WHERE TRANSVERSE TIE BARS ARE NOT SHOWN PROVIDE N12-300 SPLICED WHERE NECESSARY AND LAP WITH MAIN BARS 500mm, UNLESS NOTED OTHERWISE.

R8. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS FOR BARS OR 750mm CENTRES FOR FABRIC IN EXPOSURE CONDITION B2 OR C USE ONLY PLASTIC OR CONCRETE CHAIRS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.

R9. SPLICES IN THE REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN. THE WRITTEN APPROVAL OF THE ENGINEER SHALL BE OBTAINED FOR ANY OTHER SPLICES. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE AS PER THE MINIMUM LAP SHOWN BELOW.

R10. MINIMUM LAP LENGTHS UNLESS NOTED OTHERWISE SHALL BE
625 FOR N12 BARS
750 FOR N16 BARS
1125 FOR N20 BARS
1250 FOR N24 BARS
1500 FOR N28 BARS
1875 FOR N32 BARS
2250 FOR N36 BARS

R11. TYPICAL FABRIC LAP:- 25 MIN.

R12. BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF WIRE.

R13. JOGGLES TO BARS SHALL BE 1 BAR DIAMETER OVER A LENGTH OF 12 BAR DIAMETERS.

R14. THE SUPERINTENDENT SHALL BE GIVEN 48 HOURS NOTICE FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL HAS BEEN OBTAINED.

NOTE
DETAILS AND SECTIONS ON THESE DRAWINGS ARE CROSS-REFERENCED BY THE FOLLOWING SYSTEM:-
SECTION OR DETAIL No. — 5
SHEET No., WHERE SECTION OR DETAIL IS DRAWN. — S3

DRAFTING ABBREVIATIONS

K.J.	KEYED JOINT
D.J.	DOWELLED JOINT
V.B.M.	VAPOUR BARRIER MEMBRANE
F.F.L.	FINISHED FLOOR LEVEL
F.G.L.	FINISHED GROUND LEVEL
F.R.R.	FIRE RESISTANCE RATING
N.T.S.	NOT TO SCALE
TYP.	TYPICAL
B/W.	BOTTOMWAYS
BWK.	BRICKWORK
BLK.	BLOCKWORK
C/C.	CENTRES
B.I.F.B.	BITUMEN IMPREGNATED FIBRE BOARD
C/S.	COURSES
REINF.	REINFORCEMENT
CONC.	CONCRETE
MIN.	MINIMUM
MAX.	MAXIMUM
U.N.O.	UNLESS NOTED OTHERWISE
V.J.	VERTICAL JOINT
E.F.	EACH FACE
F.F.	FAR FACE
N.F.	NEAR FACE
N.S.O.P	NOT SHOWN ON PLAN

PAVEMENTS

P1. CONCRETE BASE ON GROUND
MINIMUM STRENGTH, f'c = 32 MPa
OTHER CONCRETE PROPERTIES: REFER STRUCTURAL NOTES

P2. GRANULAR SUB-PAVEMENT
BASE MATERIAL TO BE CRUSHED ROCK NOM. 20 MM MAXIMUM SIZE PARTICLES WITH THE FOLLOWING PROPERTIES.

PARTICLE SIZE GRADING

SIEVE SIZE (mm)	% PASSING NOM. 38MM
26.5	100
19.0	93-100
9.5	64-85
4.75	44-64
2.36	32-47
0.425	13-22
0.075	3-11

PLASTICITY INDEX 6% MAX.
LIQUID LIMIT 25% MAX.
OTHER MATERIALS MAY BE CONSIDERED FOR APPROVAL. SUPERINTENDENT TO BE PROVIDED WITH DETAILS OF ANY ALTERNATIVE MATERIAL PROPOSED.

STRUCTURAL STEELWORK

SS1. ALL WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH AS.4100. FABRICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 14 OF AS.4100.
ERECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 15 OF AS.4100.

SS2. UNLESS NOTED OTHERWISE, ALL STEEL SHALL BE OF THE FOLLOWING GRADES IN ACCORDANCE WITH THE FOLLOWING AUSTRALIAN STANDARDS:-

TYPE OF STEEL	GRADE
UNIVERSAL BEAMS AND COLUMNS, PARALLEL FLANGE CHANNELS, LARGE ANGLES TO AS/NZS.3679.1	300
WELDED SECTIONS TO AS/NZS.3679.2	300
HOT ROLLED PLATES, FLOOR PLATES AND SLABS TO AS/NZS.3678	250
HOLLOW SECTIONS TO AS.1163	C350 (C250 FOR DIA.≤99mm)
COLD FORMED PURLINS AND GIRTS TO AS.1397.	G450, Z350
TAPER FLANGE CHANNELS AND BEAMS, SMALL ANGLES TO AS/NZS.3679.1	299

SS3. THREE (3) COPIES OF WORKSHOP FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AT LEAST 14 DAYS PRIOR TO COMMENCEMENT OF FABRICATION. FABRICATION SHALL NOT COMMENCE WITHOUT THE STRUCTURAL ENGINEERS REVIEW APPROVAL OF THE WORKSHOP DRAWINGS WHICH EXCLUDES DIMENSIONS. ALL SETOUT DIMENSIONS TO BE OBTAINED FROM SITE AND/OR ARCHITECTURAL DRAWINGS.

SS4. PROVIDE ALL CLEATS AND DRILL ALL HOLES NECESSARY FOR FIXING OTHER ELEMENTS TO THE STEEL WHETHER OR NOT DETAILED ON THE STRUCTURAL DRAWINGS.

SS5. ALL BEAMS AND RAFTERS SHALL BE FABRICATED AND ERECTED WITH NATURAL CAMBER UP.

SS6. ALL MEMBERS SHALL BE SUPPLIED IN SINGLE LENGTHS. SPLICES SHALL ONLY BE PERMITTED IN LOCATIONS SHOWN ON THE STRUCTURAL DRAWINGS.

SS7. ALL STEELWORK SHALL BE SECURELY TEMPORARILY BRACED AS NECESSARY TO STABILISE THE STRUCTURE DURING ERECTION.

BOLTING

SS8. BOLTING CATEGORIES ARE IDENTIFIED ON THE STRUCTURAL DRAWINGS IN THE FOLLOWING MANNER:-
4.6/S - COMMERCIAL BOLTS OF GRADE 4.6 TO AS.1111 SNUG TIGHTENED.
8.8/S - HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS.1252 SNUG TIGHTENED.
8.8/TB - HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS.1252 FULLY TENSIONED TO AS.4100 AS A BEARING TYPE JOINT.
8.8/TF - HIGH STRENGTH STRUCTURAL BOLTS OF GRADE 8.8 TO AS.1252 FULLY TENSIONED TO AS.4100 AS A FRICTION TYPE JOINT WITH PAYING SURFACES LEFT UNCOATED.

SS9. UNLESS NOTED OTHERWISE ALL BOLTS SHALL BE M20 CATEGORY 8.8/S AND CLEAT PLATES 10mm THICK. NO CONNECTION SHALL HAVE LESS THAN 2 BOLTS. ALL BOLTS AND WASHERS SHALL BE GALVANIZED. ALL HOLES SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE.

SS10. /TB AND /TF BOLT CATEGORIES SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 15 OF AS.4100, USING EITHER THE PART-TURN METHOD OR THE DIRECT-TENSION INDICATOR METHOD.

WELDING

SS11. ALL WELDING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS.1554.1. ELECTRODES SHALL BE TO EITHER AS.1553, AS.1858, AS.2203 OR AS.2717, AS APPROPRIATE.

SS12. UNLESS NOTED OTHERWISE, ALL FILLET WELDS SHALL BE 6mm CONTINUOUS CATEGORY SP USING E48XX ELECTRODES OR EQUIVALENT. ALL BUTT WELDS SHALL BE COMPLETE PENETRATION BUTT WELDS CATEGORY SP TO AS.1554.1.

SS13. THE EXTENT OF NON-DESTRUCTIVE WELD EXAMINATION SHALL BE AS NOTED BELOW. RADIOGRAPHIC OR ULTRASONIC EXAMINATION SHALL BE TO AS.1554.1, AS.2177.1 AND AS.2207 AS APPROPRIATE AND CARRIED OUT BY AN INDEPENDENT NATA REGISTERED/CERTIFIED WELDING INSPECTOR.

TYPE OF WELD CATEGORY	EXAMINATION METHOD	EXTENT (%) OF TOTAL LENGTH OF WELD TYPE)
FILLET WELDS, GP + SP	VISUAL INSPECTION	100
BUTT WELDS, GP	VISUAL INSPECTION	100
BUTT WELDS, SP	VISUAL INSPECTION	100
	RADIOGRAPHIC OR ULTRASONIC INSPECTION	10

SS14. A REPORT APPROVING ALL WELDING SHALL BE FORWARDED TO THE STRUCTURAL ENGINEER PRIOR TO THE STEELWORK BEING DELIVERED TO SITE.

CORROSION PROTECTION

SS15. STRUCTURAL STEELWORK NOT ENCASED IN CONCRETE SHALL HAVE THE FOLLOWING CORROSION PROTECTION:-

ELEMENT	SURFACE PREPARATION	PRIME COAT

SS16. ALL GALVANIZING OF STRUCTURAL STEELWORK SHALL BE TO AS.4680. THE CONTINUOUS AVERAGE ZINC COATING MASS SHALL BE 600g/m² (85µm/m² MINIMUM.

SS17. PROVIDE SEAL PLATES TO THE ENDS OF ALL HOLLOW SECTIONS, WITH 'BREATHER' HOLES IF MEMBERS ARE TO BE HOT DIP GALVANIZED.

SS18. STEELWORK INTENDED TO BE CONCRETE ENCASED SHALL BE UNPAINTED. ENCASING CONCRETE SHALL BE GRADE 25 MPa PROVIDING A COVER ADEQUATE TO SUIT FIRE RATING OR EXPOSURE CONDITIONS. CONCRETE ENCASEMENT SHALL BE CENTRALLY REINFORCED WITH 5mm WIRE TO AS.4671 OR 6mm STRUCTURAL GRADE BARS TO AS.4671 AT 150mm PITCH.

SS19. COATINGS DAMAGED DURING ERECTION OR SUBSEQUENT STAGES OF THE WORK SHALL BE MADE GOOD AND/OR REPAIRED.

SITE PREPARATION, CLEARING AND GRUBBING

S1. ALL WORK TO BE IN ACCORDANCE WITH LANDSCAPE SPECIFICATION

S2. DIVERTING WATER AND DEWATERING:
THE CONTRACTOR SHALL TAKE ALL NECESSARY ACTION TO PREVENT ANY SURFACE OR SUBSOIL WATER FROM INTERFERING WITH THE PROGRESS OF THE WORKS. THE WORK SHALL BE KEPT FREE FROM SUCH WATER.
ANY EXISTING AREAS OF THE SITE SUBJECT TO INUNDATION SHALL BE DEWATERED PRIOR TO WORKING IN THOSE AREAS.
ANY WORK OR MATERIAL DAMAGED BY WATER FROM ANY SOURCE SHALL BE REMOVED, REPLACED WITH FRESH MATERIAL AND RECONSTRUCTED BY THE CONTRACTOR.

S3. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE CARRIED OUT FOR THE FULL DURATION OF THE WORKS BY THE CONTRACTOR.

S4. THE SITE AREA SUBJECT TO NEW WORKS IS TO BE CLEARED OF ALL VEGETATION, FALLEN TIMBER, RUBBISH, DEBRIS AND CONCRETE FOUNDATIONS.

S5. STRIP EXISTING TOPSOIL (ALLOW 100mm) AND DISPOSE OF OR REUSE FOR LANDSCAPING AS PER SPECIFICATION. DEPTH OF TOPSOIL MAY EXCEED 250mm IN SOME AREAS. ONLY REMOVE TOPSOIL AS DIRECTED BY THE SUPERINTENDENT.

S6. EXISTING SMALL TREES IN AREAS SUBJECT TO NEW WORKS TO BE TRANSPLANTED TO OTHER AREAS WITHIN THE SITE.

EARTHWORKS

E1. ALL WORK TO BE IN ACCORDANCE WITH THE SPECIFICATION.

E2. CUT TO LEVEL OF TOP OF SUBGRADE. PROOF ROLL ALL EXPOSED SUBGRADE AND REPLACE SOFT OR SPONGY AREAS AS PER FILL NOTES BELOW, COMPACT AS PER FILL.

E3. IN FILL AREAS- CUT AND REMOVE VEGETATION AND STRIP TOPSOIL AS PER SITE PREPARATION NOTES PROOF ROLL EXPOSED SUBGRADE AND REPLACE SOFT OR SPONGY AREAS, AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR SUPERINTENDENT. PLACE AND COMPACT NEW FILL

GEOTECHNICAL

GT1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GEOTECHNICAL INVESTIGATION REPORTS BY: SHIRLEY CONSULTING ENGINEERS PREPARED 18 DECEMBER 2000, REF: RN20001818
SHIRLEY CONSULTING ENGINEERS PREPARED 27 JULY 2002, REF: RN20020725

SURVEY

SY1. THESE DRAWINGS BASED ON SURVEY PREPARED BY BOWDENS GROUP DRAWING No. 3788A/01

SY2. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (A.H.D.) UNO.

SY3. ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF WORK AND SUPERINTENDENT NOTIFIED OF ANY DISCREPANCIES.

EXISTING PAVEMENT

EP1. CUT EXISTING PAVEMENT TO FORM NEAT EDGE FOR NEW WORK.

EP2. LEVELS OF NEW PAVEMENT TO MATCH EXISTING WHERE IT ABUTS.

EXCAVATION AND STORAGE

ES1. EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT. CONTRACTOR SHALL PROVIDE ADEQUATE BARRICADES, WARNING SIGNS, LAMPS ETC. AS REQUIRED FOR THE SAFETY OF THE PUBLIC.

ES2. LOCATION OF STORAGE OF CONSTRUCTION MATERIALS TO BE APPROVED BY THE SUPERINTENDENT.

DRAINAGE

D1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS3500.3.

D2. ALL PIPES NOMINATE " SWC " ON DRAINAGE PLAN SHALL BE STORMWATER UPVC PIPES CLASS AND HAVE SOLVENT WELDED JOINTS IN ACCORDANCE WITH AS1254 AND INSTALLED IN ACCORDANCE WITH AS 2032

D3. ALL PIPES NOMINATE " MSP " ON DRAINAGE PLAN SHALL BE SEWER CLASS UPVC PIPE WITH MINE SUBSIDENCE JOINT (PLEX PRODUCT CODE DMEH 150 OR APPROVED EQUIVALENT).

D4. ALL PITS TO HAVE CONCRETE BENCHING TO FACILITATE THE SMOOTH FLOW OF WATER THROUGH THE PIT.

D5. MINIMUM COVER TO PIPES SHALL BE 600mm UNDER TRAFFICABLE AREAS WITH NO CONCRETE SLAB OVER 450mm UNDER TRAFFICABLE AREA WITH CONCRETE SLAB OVER AND 300 ELSEWHERE U.N.O.

D6. ALL PIPE GRADIENTS TO BE A MINIMUM OF 1% U.N.O

D7. ALL PITS DEEPER THAN 1.2m TO HAVE STEP IRONS.

D8. PROVIDE SUB-SOIL DRAINS TO ALL LANDSCAPED AREAS AND MEDIANS. CONNECT TO STORMWATER PITS. REFER LANDSCAPE ARCHITECTS DRAWINGS FOR DETAILS.

SEDIMENT & EROSION CONTROL

SE1. THE SEDIMENT & EROSION CONTROL MEASURES SHOWN ON THESE DRAWINGS ARE INDICATIVE ONLY AND ARE INTENDED AS A GUIDE TO THE BASIC MEASURES REQUIRED. THE CONTRACTOR IS TO PROVIDE ADDITIONAL MEASURES AS REQUIRED TO SUIT HIS STAGING, WORK METHODS & REQUIREMENTS OF COUNCIL.
THE CONTRACTOR IS ALSO TO PROVIDE & MAINTAIN EFFECTIVE DUST CONTROL MEASURES TO THE ABOVE AUTHORITIES SATISFACTION.

SE2. THE WORKS ARE TO BE UNDERTAKEN WITH SEDIMENT & EROSION CONTROL MEASURES IN ACCORDANCE WITH SPECIFICATION R59.

SE3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING ALL REQUIRED SEDIMENT AND EROSION CONTROL MEASURES AND FOR THE MAINTENANCE AND ONGOING OPERATION OF ALL CONTROL MEASURES. ALL CONTROL FEATURES ARE TO BE REGULARLY INSPECTED TO ENSURE CORRECT OPERATION.

CITY PLAN SERVICES
Title Structural — File No 22375

If it is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in SCE 2000/1015 Douglas Partners Ref: 20020725
Signed .....
Date: 15.10.03
Douglas Partners Pty Ltd Geotechnics, Environment, Groundwater

DO NOT SCALE FROM THESE DRAWINGS
A1 CAD - DO NOT AMEND MANUALLY
0 10 20 30 40 50 60

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD

Construction Certificate Number 22875
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No.: BPA3004

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed SD | Checked
Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 184 889
Level 5, 411 Victoria Avenue Tel: (02) 9004 8555
Chatswood 2067 Fax: (02) 9004 6777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5040 West Chatswood, NSW 1515 cad file : 7531-SNEN

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PLAM BEACH

Drawing Title
STRUCTURAL AND CIVIL NOTES

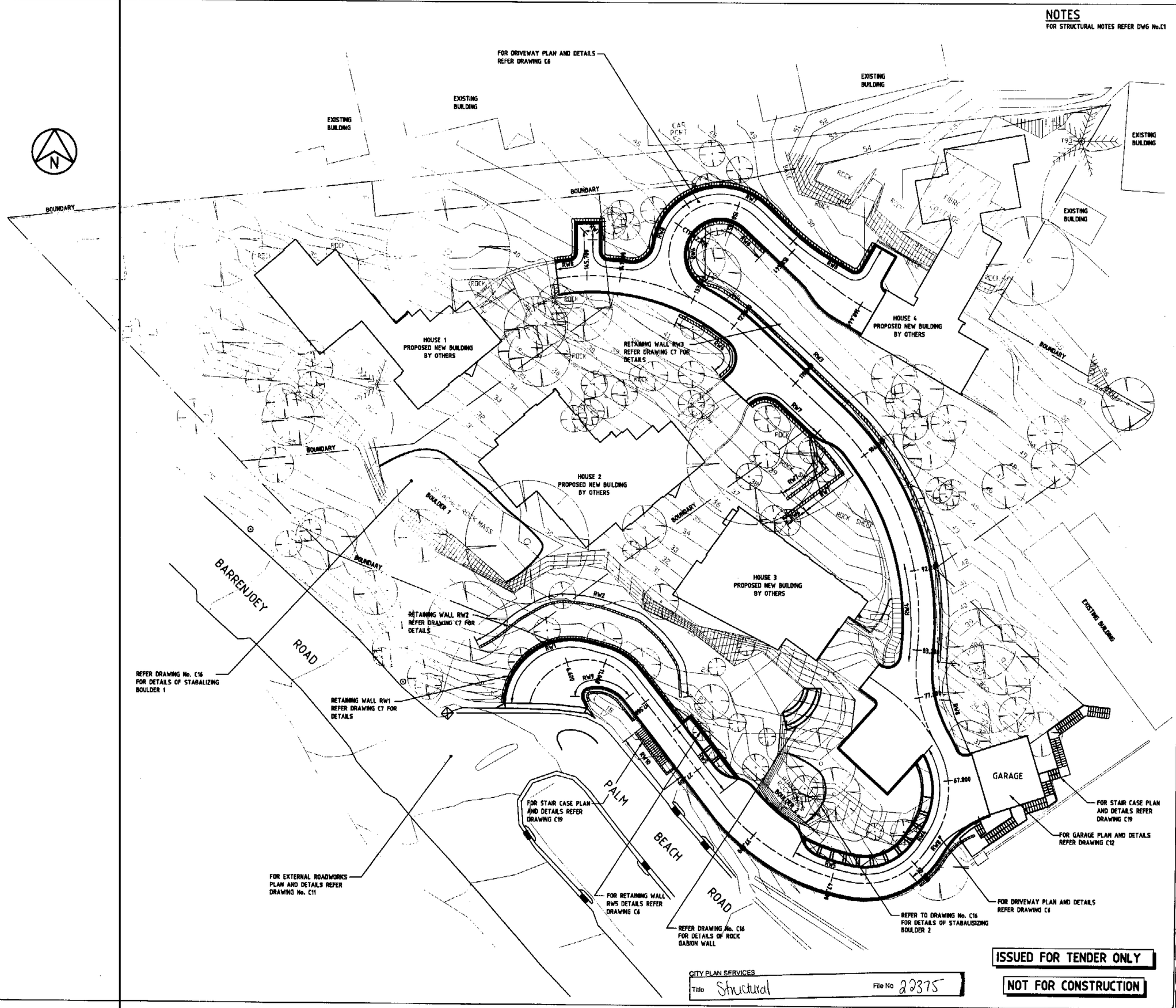
Client
RAYPOND Pty. Ltd.

Scale	Date	Drawn
	AUG '02	TJ

Project No.	Drawing No.	Revision
7531	C1	4

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1



CITY PLAN SERVICES

Title Structural File No 22375

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

RECEIVED

10 OCT 2003

CITY PLAN SERVICES PTY LTD

Construction Certificate Number: 22375

Approved: 25 NOV 2003

Accredited Certifier: Brendan Bennett

Accreditation No: BPA3004

and under Part 4A of the Environmental Planning

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. Checked

Approved

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR

TIERNEY & PARTNERS PTY LTD ACN 001 194 884
Level 8, 411 Victoria Avenue
Chatswood 2067
NSW Australia
P.O. Box 5840 West Chatswood, NSW 1515
Tel: (02) 9904 8866
Fax: (02) 9904 6777
e-mail: tierney@tierney.com.au
card file : 7531-GA

Project

OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title

GENERAL ARRANANGEMENT

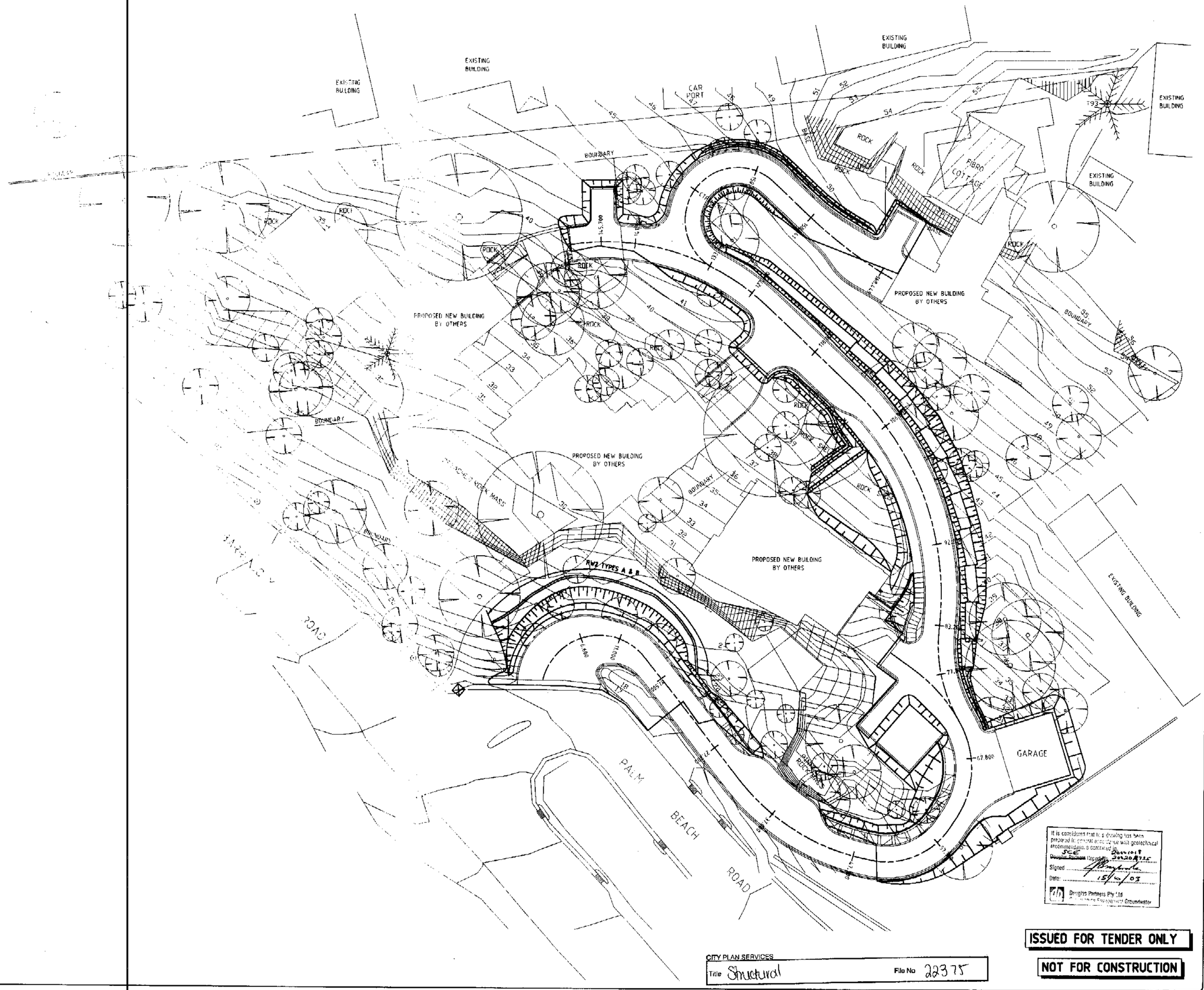
Client

RAYPOND PTY LTD

Scale	Date	Drawn
1:200	AUG '02	BRB
Project No.	Drawing No.	Revision
7531	C2	4

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1



It is considered that the drawing has been prepared in general accordance with geotechnical recommendations contained in SCE Document Reference No: 22375/1 Dated 25/11/03

Signed

Date: 15/12/03

Douglas Partners Pty Ltd

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

CITY PLAN SERVICES

Title Structural File No 22375

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

RECEIVED

10 OCT 2003

CITY PLAN SERVICES PTY LTD

Construction Certificate Number: 22375

Approved on: 25 NOV 2003

Accredited Certifier: Brendan Bennett

Accreditation No: BA3004

Issued under Part 4A of the Environmental Planning and Assessment Act 1979

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed SD | Checked | Approved

TIERNEY CONSULTING ENGINEERS

SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR

TIERNEY & PARTNERS PTY LTD ACN 091 161 691
Level 8, 411 Victoria Avenue Tel: (02) 9904 6555
Chatswood 2067 Fax: (02) 9904 6777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5340 West Chatswood, NSW 1515 cad file: 7531-EW1

Project

OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title

EARTHWORKS PLAN

Client

RAYPOND PTY LTD

Scale	Date	Drawn
1:200	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C3	4

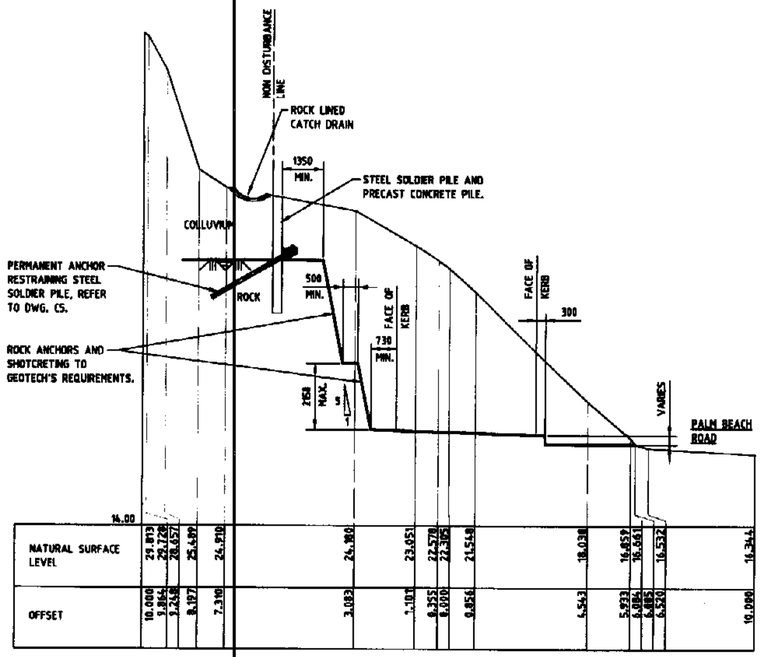
NOTES
FOR STRUCTURAL NOTES REFER DWG No.C1

DO NOT SCALE FROM THESE DRAWINGS

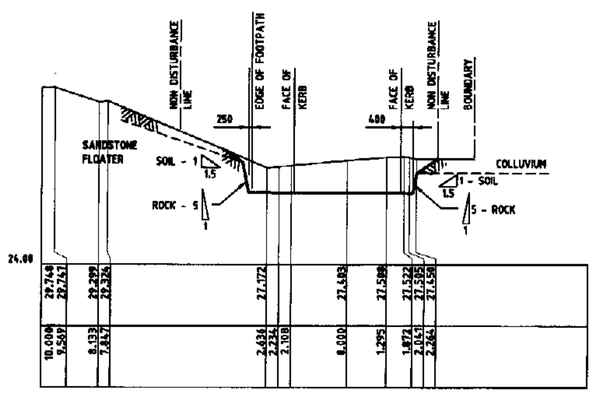
A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

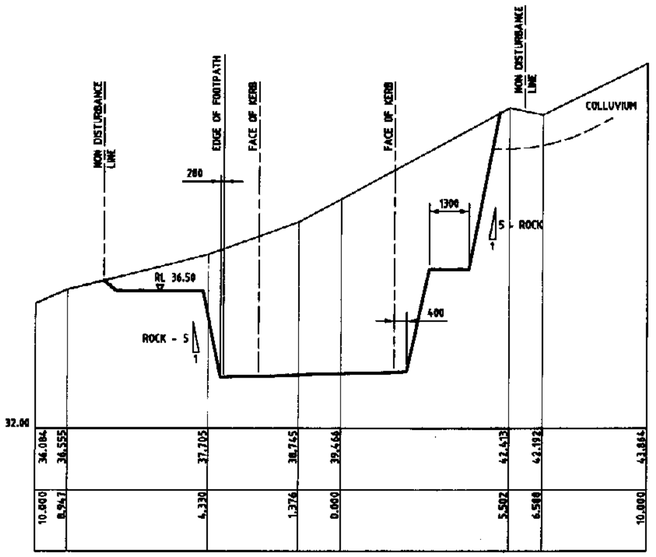
NOTE:
- RETAINING WALLS THAT ARE NOT REQUIRED DURING BULK EARTHWORKS ARE NOT SHOWN.
- REFER TO DRAWING No. C17 & C18 FOR STABILISATION OF COLLUVIUM AND ROCK BATTERS.



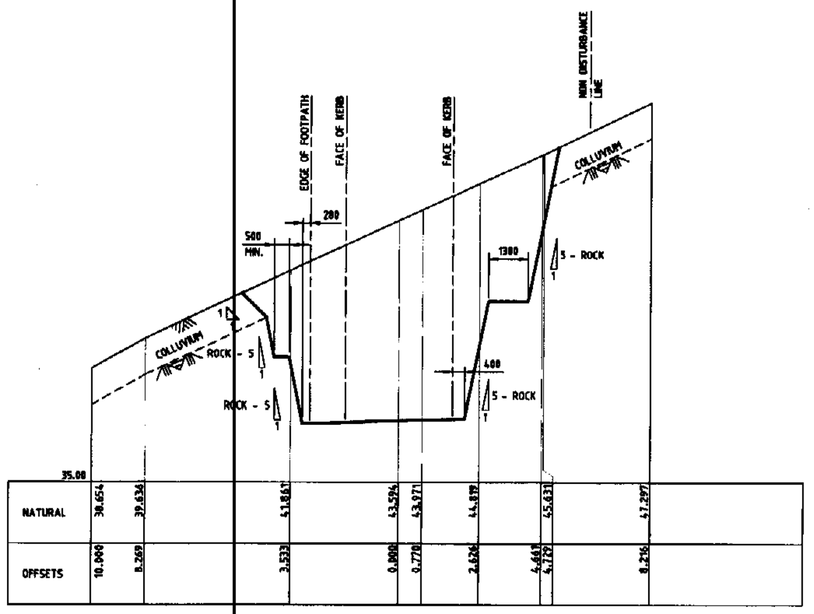
CH11.000



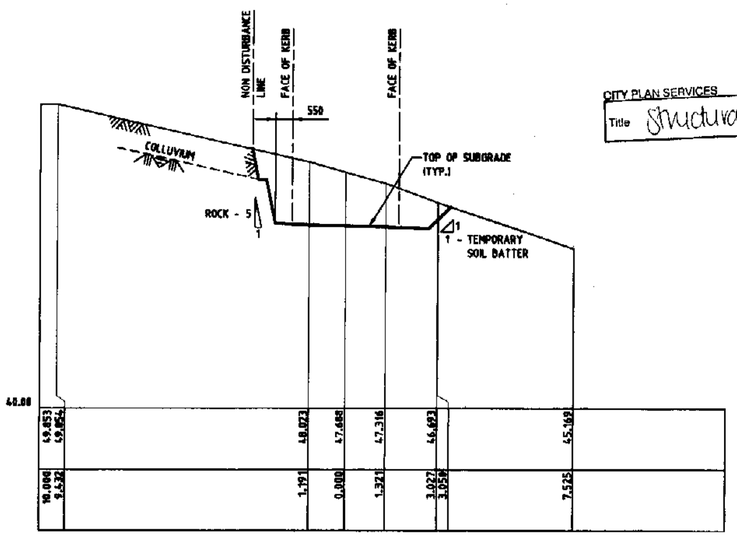
CH57.300



CH92.200



CH106.600



CH150.455 upper road

CITY PLAN SERVICES
Title Structural File No 22375

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number 22375
Approved: 7 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

NOTE:
SECTIONS ARE DERIVED FROM SURVEY, REFER TO ARCHITECTS DRAWINGS FOR PAVEMENT LEVELS AND SET OUT.

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in:
SCE ~~Douglas Partners~~ Report No 2003/1018 ~~2003/0725~~
Signed
Date: 15/12/03
Douglas Partners Pty Ltd
Geotechnics Environment Groundwater

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

No.	Revision	Init / Date
2	RE-ISSUED FOR TENDER	18.11.02
1	ISSUED FOR TENDER	30.10.02

Designed S.D. | Checked | Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 194 884
Level 6, 411 Victoria Avenue Tel: (02) 9804 6555
Chatswood 2067 Fax: (02) 9804 6777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 6340 West Chatswood, NSW 1515 cad file : 7531-C51

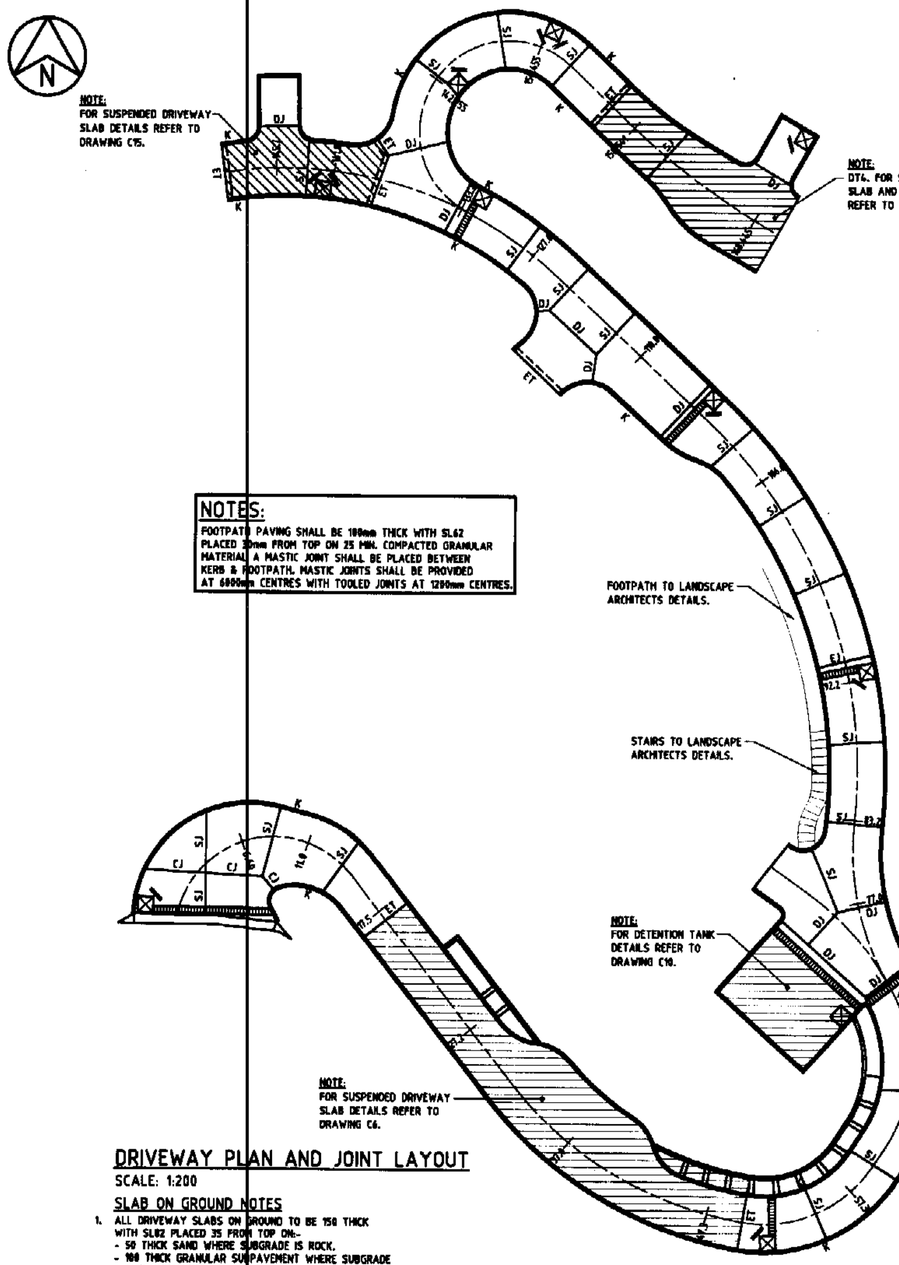
Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
EARTHWORKS
CROSS SECTIONS

Client
RAYPOND PTY LTD

Scale	Date	Drawn
-	OCT '02	T.S.J.

Project No.	Drawing No.	Revision
7531	C4	2



NOTES:
FOOTPATH PAVING SHALL BE 180mm THICK WITH SL62 PLACED 30mm FROM TOP ON 25 MIN. COMPACTED GRANULAR MATERIAL. A MASTIC JOINT SHALL BE PLACED BETWEEN KERB & FOOTPATH. MASTIC JOINTS SHALL BE PROVIDED AT 6000mm CENTRES WITH TOOLED JOINTS AT 1200mm CENTRES.

DRIVEWAY PLAN AND JOINT LAYOUT

SCALE: 1:200

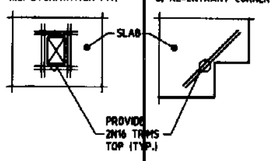
SLAB ON GROUND NOTES

1. ALL DRIVEWAY SLABS ON GROUND TO BE 150 THICK WITH SL82 PLACED 35 FROM TOP ON:-
   - 50 THICK SAND WHERE SUBGRADE IS ROCK.
   - 100 THICK GRANULAR SUBPAVEMENT WHERE SUBGRADE IS RESIDUAL SOIL.

   ALL REINFORCEMENT TO BE POSITIONED ON BAR CHAIRS WITH CORRECT COVER AND NOT TO BE WALKED IN
2. TYPICAL FABRIC LAP ;

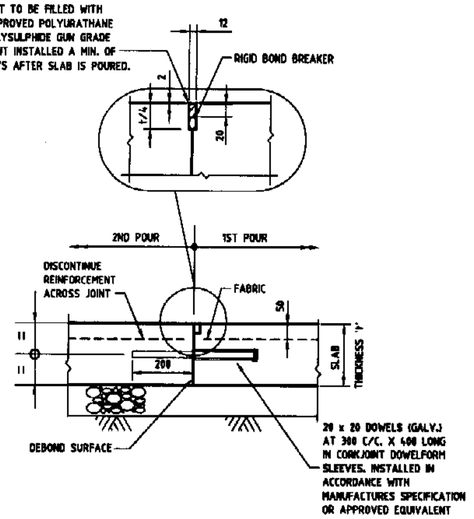


3. ALL EXISTING FILL TO BE PROOF ROLLED.
4. a) PENETRATIONS (I.E: STORMWATER PIT) b) RE-ENTRANT CORNER



5. ALL DRIVEWAY SLABS TO HAVE A TRANSVERSELY TYNED FINISH WITH AVERAGE GROOVE DEPTH OF 5mm. THE TRANSVERSE TYNED SHALL BE SKEWED UP TO 2° TO ALLOW ADEQUATE DRAINAGE TO KERB

DOUBLE BLADED SAWCUT, TO BE CLEANED BEFORE FILLING. SAWCUT TO BE FILLED WITH AN APPROVED POLYURATHANE OR POLYSULPHIDE GUN GRADE SEALANT INSTALLED A MIN. OF 30 DAYS AFTER SLAB IS POURED.



TYPICAL DOWELLED JOINT DETAIL

DENOTED D.J. ON PLAN.

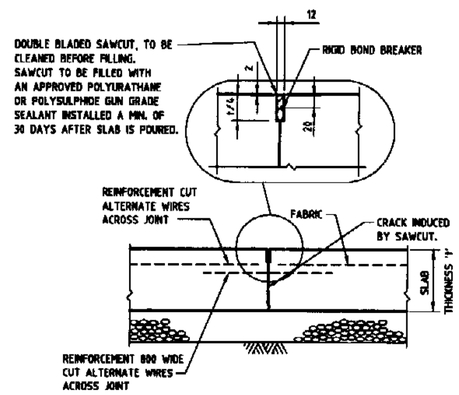
NOTES:

1. DOWELS SHALL BE ONE-PIECE BARS COMPLYING WITH AS 1302. THE ENDS SHALL BE CUT SQUARE AND FREE FROM BURRS. HOT DIPPED GALVANISED TO AS 4791.
2. DOWELS TO BE INSTALLED TO THE FOLLOWING TOLERANCES:
   HORIZONTAL VERTICAL LOCATION - HALF THE DIAMETER OF THE DOWEL
3. DOWELS IN LONGITUDINAL JOINTS SHALL BE OMITTED WHEN THE CENTRE OF THE DOWEL WOULD OCCUR WITHIN 200mm (HORIZONTALLY) OF A TRANSVERSE JOINT.

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1

DOUBLE BLADED SAWCUT, TO BE CLEANED BEFORE FILLING. SAWCUT TO BE FILLED WITH AN APPROVED POLYURATHANE OR POLYSULPHIDE GUN GRADE SEALANT INSTALLED A MIN. OF 30 DAYS AFTER SLAB IS POURED.



TYPICAL SAW JOINT DETAIL

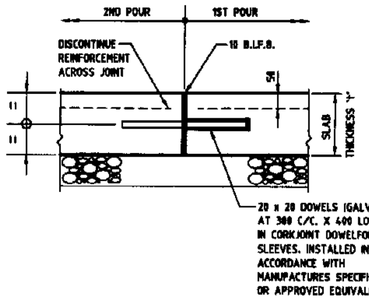
DENOTED S.J. ON PLAN

NOTES:

1. THE TIME OF SAWING SHALL BE VARIED, DEPENDING ON WEATHER CONDITIONS, AND SHALL BE SUCH TO PREVENT UNCONTROLLED CRACKING OF THE PAVEMENT.
2. SAWING OF THE JOINTS SHALL COMMENCE AS EARLY AS POSSIBLE AND TO BE COMMENSURATE WITH THE CONCRETE HAVING HARDENED SUFFICIENTLY TO PERMIT CUTTING WITHOUT EXCESSIVE CHIPPING, SPALLING OR TEARING.
3. ADEQUATE PROVISION SHALL BE MADE TO PERMIT SAWING OVERNIGHT IF REQUIRED.
4. THE APPROPRIATE TIME FOR SAWING IS BEST ASSESSED BY CASTING TEST PANELS ADJACENT TO THE WORKS AND CONDUCTING SAWING TRIALS.
5. AS A GENERAL GUIDE, THE JOINTS SHOULD BE SAWN WITHIN THE FOLLOWING PERIODS:

DAILY MAXIMUM TEMP (C°)	LATEST TIME FOR SAWING (HOURS)
<10	48
10-20	36
20-30	24
>30	12

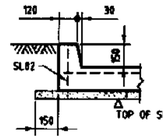
6. THE JOINTS SHALL BE SAWN IN THE SEQUENCE OF THE CONCRETE PLACEMENT



TYPICAL EXPANSION JOINT DETAIL

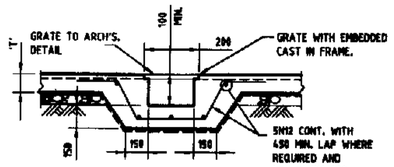
DENOTED 'EJ' ON PLAN.

N.T.S.



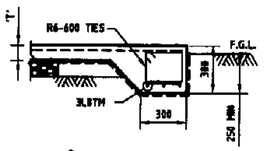
KERB DETAIL

DENOTED K



TYPICAL GRATED DRAIN DETAIL

SCALE 1:20



TYPICAL EDGE THICKENING DETAIL

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in SCE Douglas Partners Report No. 2000 to 19 2000 to 23
Signed
Date: 15/1/03
Douglas Partners Pty Ltd Geotechnics Environment Groundwater

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No.: PIA3004
Issued under Part IIA of the Environmental Planning and Assessment Act 1979

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed SD | Checked | Approved

CITY PLAN SERVICES
Title Structural File No 22375

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 184 884
Level 6, 411 Victoria Avenue Tel: (02) 9904 9555
Chatswood 2067 Fax: (02) 9904 9777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5340 West Chatswood, NSW 1515 cad file : 7531-DS1

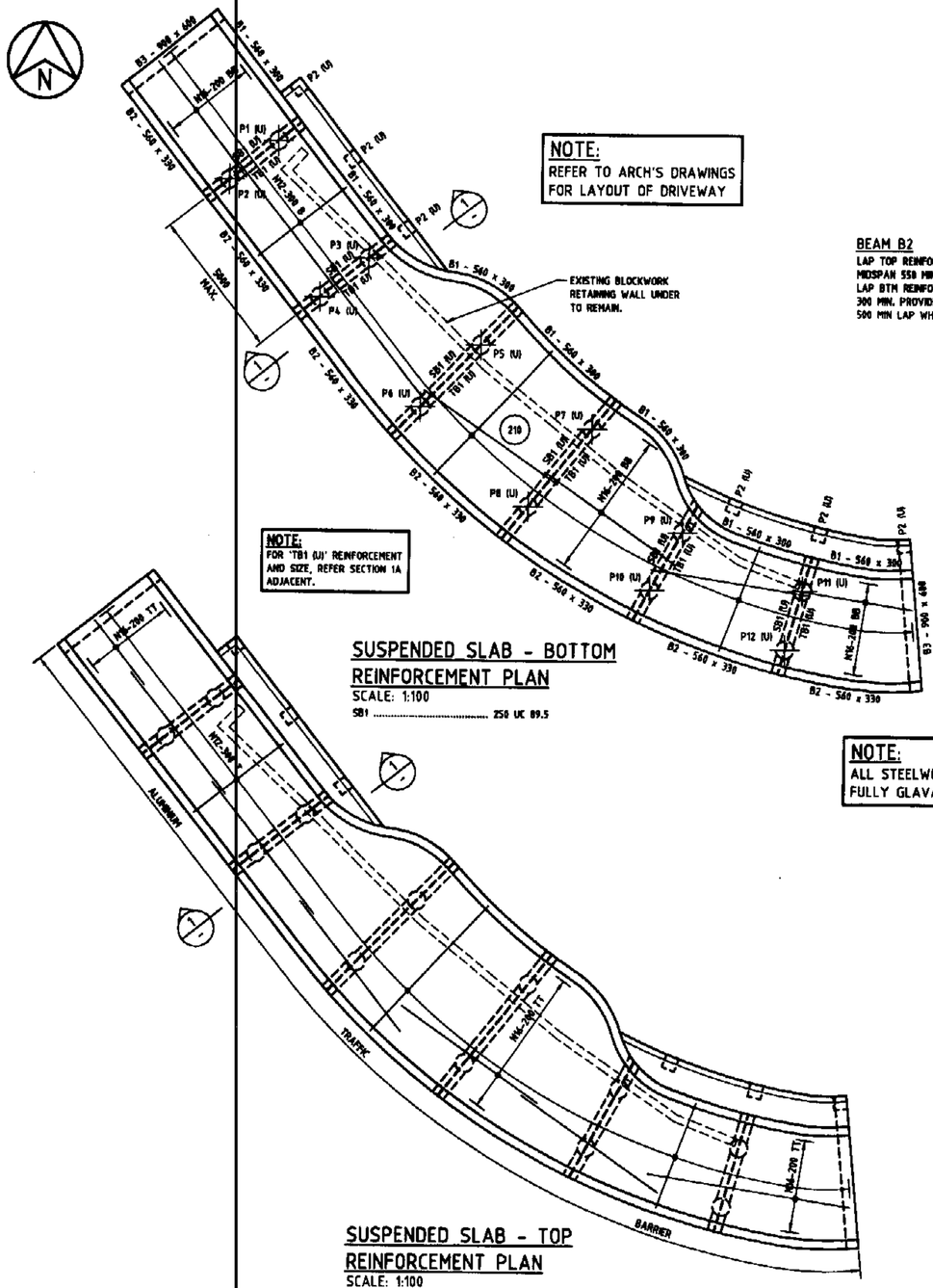
Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
DRIVEWAY LAYOUT AND DETAILS

Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:200	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C5	4



SUSPENDED SLAB - BOTTOM REINFORCEMENT PLAN
SCALE: 1:100

SB1 ..... 250 UC 89.5

NOTE:
FOR 'TB1 (U)' REINFORCEMENT AND SIZE, REFER SECTION 1A ADJACENT.

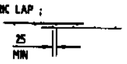
NOTE:
REFER TO ARCH'S DRAWINGS FOR LAYOUT OF DRIVEWAY

NOTE:
ALL STEELWORK TO BE FULLY GLAVANIZED.

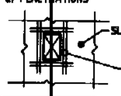
SUSPENDED SLAB - TOP REINFORCEMENT PLAN
SCALE: 1:100

'CONDECK' SLAB NOTES

1. ALL SLABS TO BE 210 THICK 'CONDECK' U.N.O.
2. STEEL DECKING TO BE LB1 CONDECK 0.90 THICK TO AS.1397 - G550 - Z.00 CONDECK SHEETING IS TO BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS SPECIFICATIONS.
3. (000) DENOTES SLAB THICKNESS
4. TYPICAL FABRIC LAP ;



5. DEPTH OF SETDOWN TO BE MEASURED FROM TOP OF STRUCTURAL SLAB LEVEL.
6. PROVIDE SL72 TOP WHERE NO OTHER REINFORCEMENT SHOWN.
7. a) PENETRATIONS



TYPICAL CONCRETE BEAM NOTES

1. ALL BEAM DIMENSIONS ARE DENOTED ON PLAN, FOR EXAMPLE 'B1 - 350 x 1800' INDICATES THE BEAMS DIMENSIONS ARE 350 DEEP x 1800 WIDE.
2. (600) DENOTES DEPTH OF BEAM.
3. TIES IN BEAMS SHALL BE AS PER THE FOLLOWING SCHEDULE :-

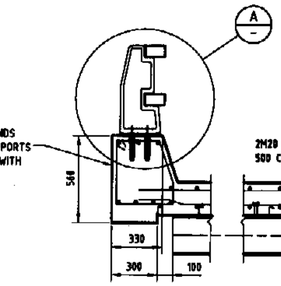
TYPICAL BEAM TIES

ALL BEAM TIES TO BE N12-300 ▭ U.N.O.

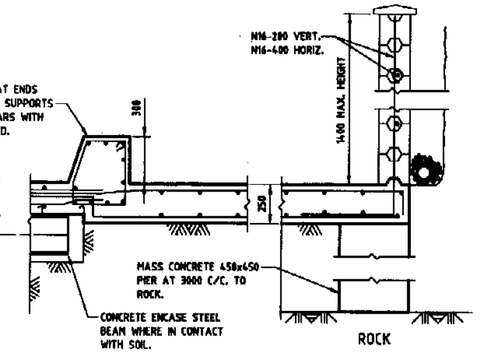
BT1 - N ▭

4. TIES ABOVE ARE SHOWN DIAGRAMATICALLY. FOR MULTIPLE TIES, THE LEGS SHALL BE PLACED EQUIDISTANT ACROSS THE BEAM WIDTH.
5. ALL BEAM TIES DENOTED ON PLAN i.e. (BT1-1500) ON PLAN DENOTES TYPE BT1 TIES OVER A LENGTH OF 1500mm IN BEAM AT THE LOCATION SHOWN.
6. ENSURE THAT LONGITUDINAL REINFORCEMENT IS PLACED AT THE CORNERS OF ALL TIES.

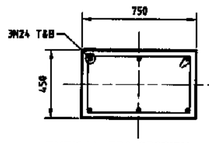
BEAM B2
LAP TOP REINFORCEMENT AT MIDSPAN 550 MIN. COG 300 AT ENDS
LAP BTM REINFORCEMENT AT SUPPORTS 300 MIN. PROVIDE CORNER BARS WITH 500 MIN LAP WHERE REQUIRED.



BEAM B1
LAP TOP REINFORCEMENT AT MIDSPAN 550 MIN. COG 300 AT ENDS
LAP BTM REINFORCEMENT AT SUPPORTS 300 MIN. PROVIDE CORNER BARS WITH 500 MIN LAP WHERE REQUIRED.

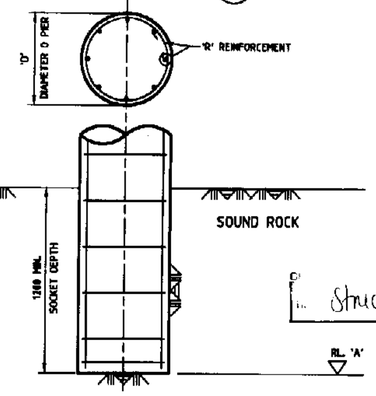


TYPICAL RETAINING WALL 'RW5' DETAIL
SCALE 1:20



TYPICAL TB1 SECTION

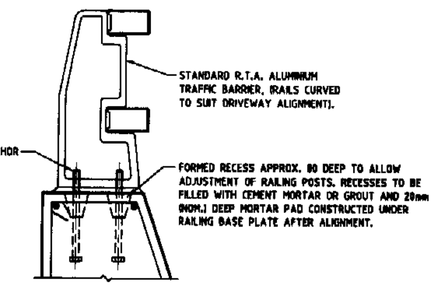
SECTION 1A
SCALE 1:20



TYPICAL PIER DETAIL

SECTION 1
SCALE 1:20

PIER SCHEDULE				
PIER No.	PIER Ø 'D'	'R' PIER REINF.	'R' PIER TIES	RL. 'A'
P1	600	8N24	N12-300	16.0
P2	600	8N24	N12-300	16.8
P3	600	8N24	N12-300	16.2
P4	600	8N24	N12-300	16.2
P5	600	8N24	N12-300	16.5
P6	600	8N24	N12-300	16.5
P7	600	8N24	N12-300	16.8
P8	600	8N24	N12-300	16.8
P9	600	8N24	N12-300	17.2
P10	600	8N24	N12-300	17.2
P11	600	8N24	N12-300	17.5
P12	600	8N24	N12-300	17.5



DETAIL A
SCALE 1:10

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1

DO NOT SCALE FROM THESE DRAWINGS
A1 CAD - DO NOT AMEND MANUALLY

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

In Structural File No 22375

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in: SCE 20001018 Douglas Partners Report No 22375Z
Signed: [signature]
Date: 13/10/03
Douglas Partners Pty Ltd Geotechnics Environment Groundwater

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed SD | Checked | Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 164 694
Level 5, 411 Victoria Avenue Tel: (02) 9904 8888
Chatswood 2067 Fax: (02) 9904 8777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5340 West Chatswood, NSW 1515 cad file : 7531-DS2

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
SUSPENDED DRIVEWAY PLAN AND DETAILS

Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:100	AUG '02	BRB

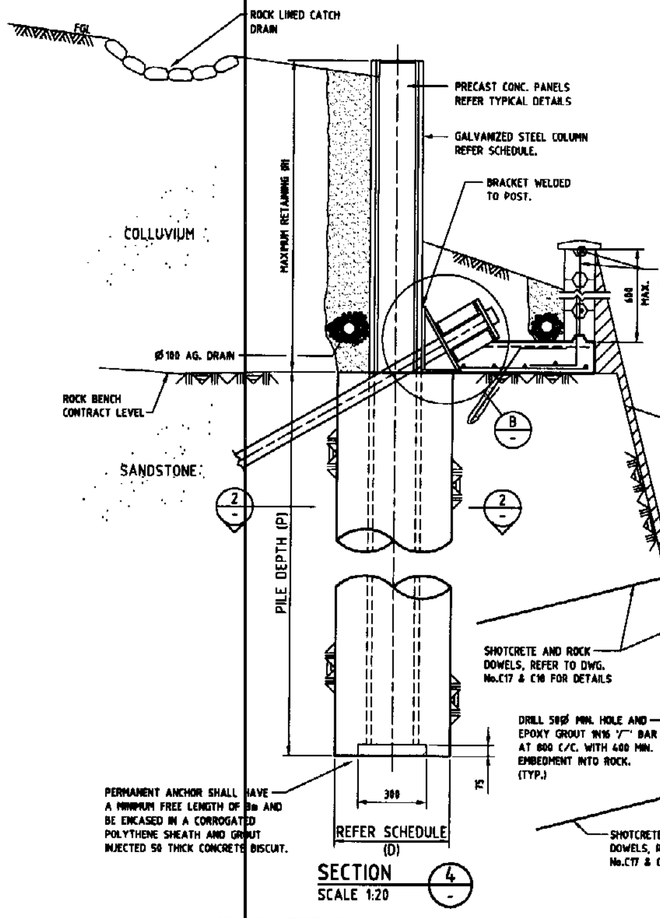
Project No.	Drawing No.	Revision
7531	C6	4

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

SUGGESTED INSTALLATION SEQUENCE OF RW2

1. STABILIZE DETACHED BOULDER 1. REFER TO DRAWING No. C16
2. CONSTRUCT ROCK LINED CATCH DRAIN UPSTREAM OF WALL & ASSOCIATED DRAINAGE.
3. RW2 IS TO BE INSTALLED IN A PROGRESSIVE FASHION, WITH THE SOLDIER PILES BEING INSTALLED IN DRILLED PIERS BEFORE ANY SOIL EXCAVATION; SUBSEQUENTLY, PRECAST CONCRETE SECTIONS ARE THEN INSTALLED BETWEEN THE PILES.
4. DURING THE INSTALLATION OF THE PRECAST PANELS BETWEEN INDIVIDUAL PILES, SUBSOIL & SEEPAGE DRAINAGE SHALL BE INSTALLED SO THAT THE LIKELY SEEPAGE BETWEEN THE TALUS AND BEDROCK INTERFACE IS PROPERLY CONTROLLED.
5. SOIL EXCAVATIONS SHALL ONLY PROCEED BETWEEN ONE SET OF "SOLDIER PIERS" AT A TIME SO THAT THE ENTIRE SOIL PROFILE IS PROGRESSIVELY FULLY SUPPORTED.
6. INSTALL AND STRESS ALL PERMANENT ANCHORS ENSURING THAT PAIRS OF ANCHORS ARE PROGRESSIVELY TENSIONED TOGETHER.
7. THE BEDROCK STRATA CAN THEN BE EXCAVATED TO THE REQUIRED LEVELS AT THE SLOPES INDICATED WITH ANY NECESSARY ROCK BOLTS, SHOTCRETE & MESH BEING INSTALLED TO ADEQUATELY SECURE THE BEDROCK.

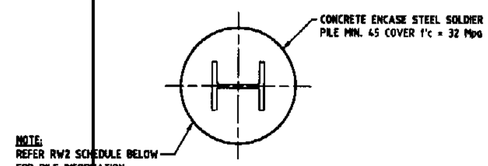


SECTION 4 — SCALE 1:20

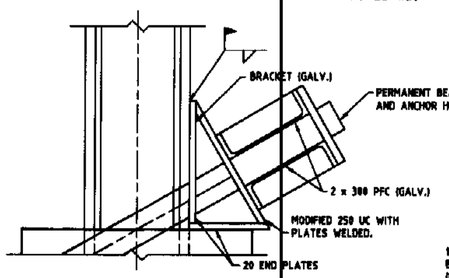
TYPICAL RETAINING WALL RW2 DETAIL

SCALE 1:20

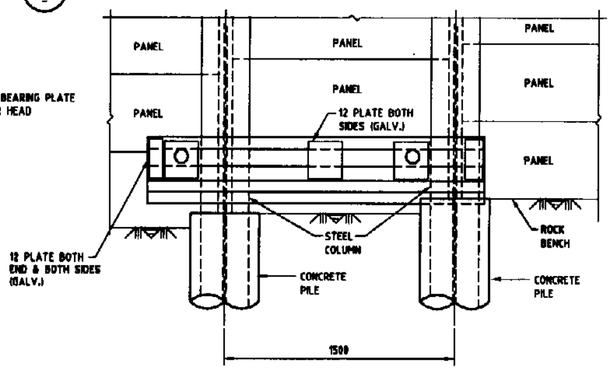
- REFER TO 'RW2' ELEVATION BELOW FOR FULL ELEVATION



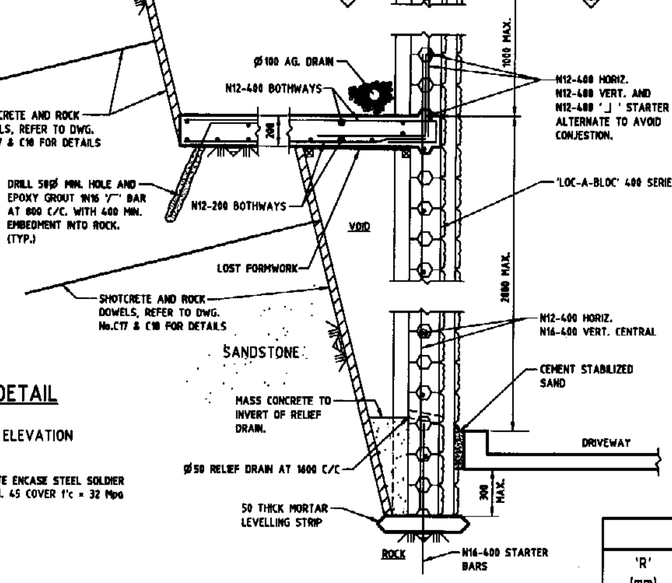
SECTION 2 — SCALE 1:20



DETAIL B — SCALE 1:10

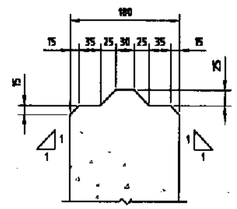


DETAIL A — SCALE 1:20



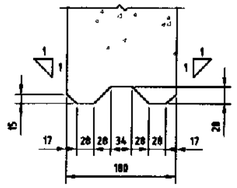
TYPICAL RETAINING WALL RW1 DETAIL

SCALE 1:20



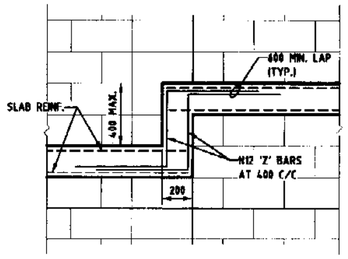
DETAIL C — SCALE 1:5

MALE RECESS DETAIL



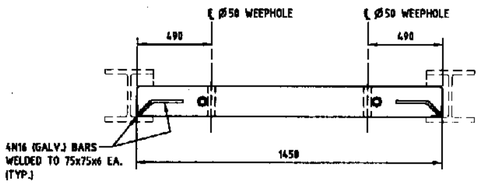
DETAIL D — SCALE 1:5

FEMALE RECESS DETAIL



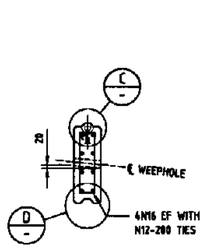
TYPICAL SLAB STEP DETAIL

SCALE 1:20

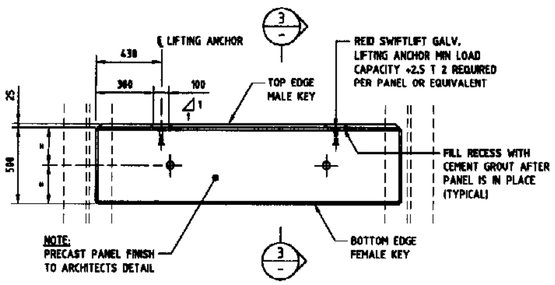


PRECAST PANEL PLAN

SCALE 1:20



SECTION 3 — SCALE 1:20



PRECAST PANEL ELEVATION

SCALE 1:20

PRECAST CONCRETE PANEL DETAILS

PRECAST PANEL NOTES:

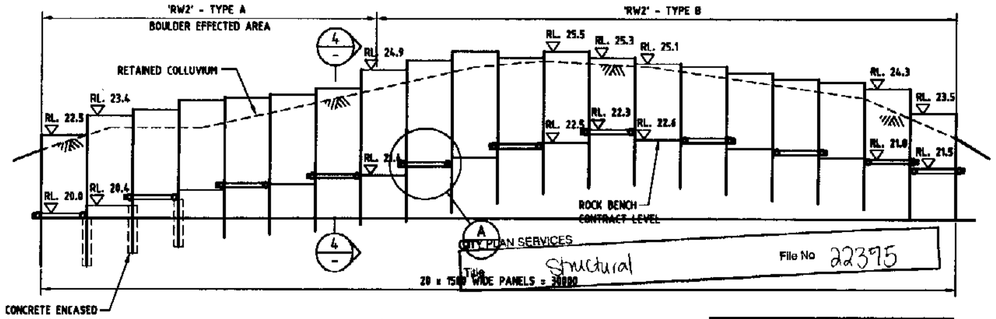
ALL CONCRETE WORK SHALL COMPLY WITH AS 3600.
CONCRETE 28 DAY COMPRESSIVE STRENGTH f'c = 40 MPa
EXPOSURE CLASSIFICATION = B2
CLEAR COVER TO REINFORCEMENT SHALL BE 45mm

RW2 TYPE A SCHEDULE

'R' (mm)	PILE D (mm)	PILE P (mm)	PILE SPACING (mm)	PERMANENT GROUND ANCHOR, ULTIMATE CAPACITY AT 30° TO HORIZ. (KN)	COLUMN SIZE
1000	Ø450	1500	1500	200	250 UC 89.5
1500	Ø450	1500	1500	360	250 UC 89.5
2000	Ø450	1500	1500	550	250 UC 89.5
2500	Ø600	1800	1500	750	310 UC 96.8
3000	Ø600	2000	1500	1050	310 UC 137
3200	Ø600	2200	1500	1100	310 UC 158

RW2 TYPE B SCHEDULE

'R' (mm)	PILE D (mm)	PILE P (mm)	PILE SPACING (mm)	PERMANENT GROUND ANCHOR, ULTIMATE CAPACITY AT 30° TO HORIZ. (KN)	COLUMN SIZE
1000	Ø525	1500	1500	100	250 UC 89.5
1500	Ø525	1500	1500	150	250 UC 89.5
2000	Ø525	1500	1500	250	250 UC 89.5
2500	Ø525	1500	1500	300	310 UC 96.8
3000	Ø525	1600	1500	450	310 UC 137
3200	Ø525	1700	1500	500	310 UC 158



'RW2' ELEVATION TYPES A & B

SCALE 1:100

NOT FOR CONSTRUCTION

ISSUED FOR TENDER ONLY

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 60

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA3004

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in: SCE 2000 1018
Douglas Partners Report No. 2000/275
Signed
Date: 15/10/03
Douglas Partners Pty Ltd Geotechnics Environment Groundwater

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. Checked
Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 161 661
Level 8, 411 Victoria Avenue Tel: (02) 9904 6555
Chatswood 2067 Fax: (02) 9904 0777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5940 West Chatswood, NSW 1515 cad file : 7531-RW01

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
RETAINING WALL DETAILS
SHEET 1

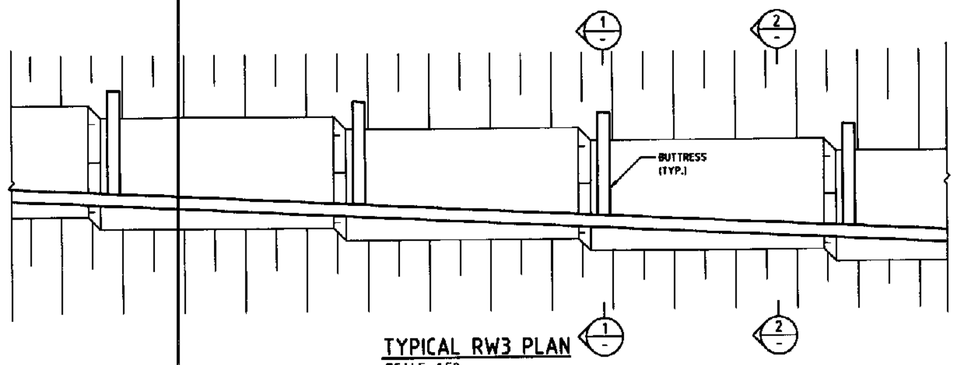
Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:20	AUG '02	BRB

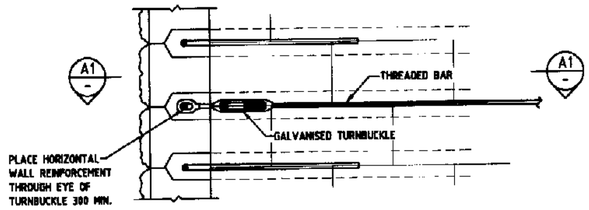
Project No.	Drawing No.	Revision
7531	C7	4

NOTES

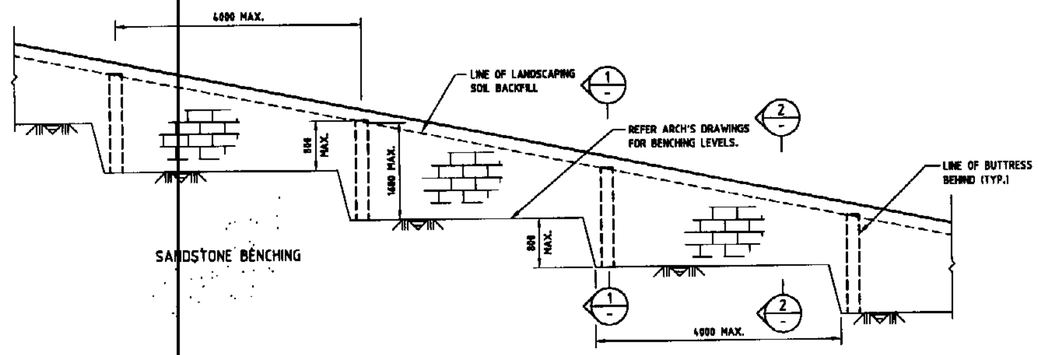
FOR STRUCTURAL NOTES REFER DWG No.S1



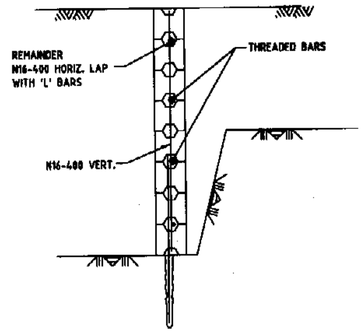
TYPICAL RW3 PLAN
SCALE: 1:50



DETAIL A
SCALE 1:10

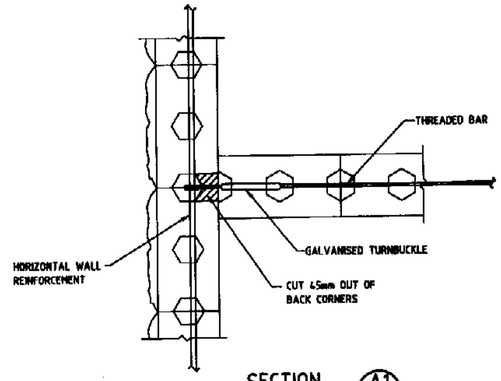


TYPICAL RW3 ELEVATION
SCALE: 1:50

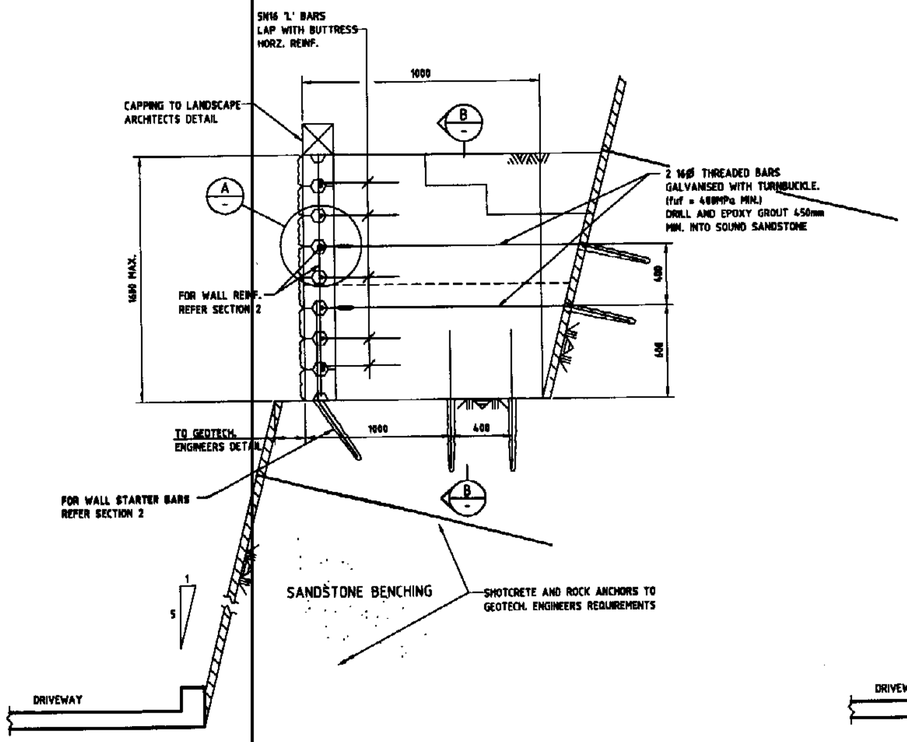


TYPICAL BUTTRESS REINFORCEMENT

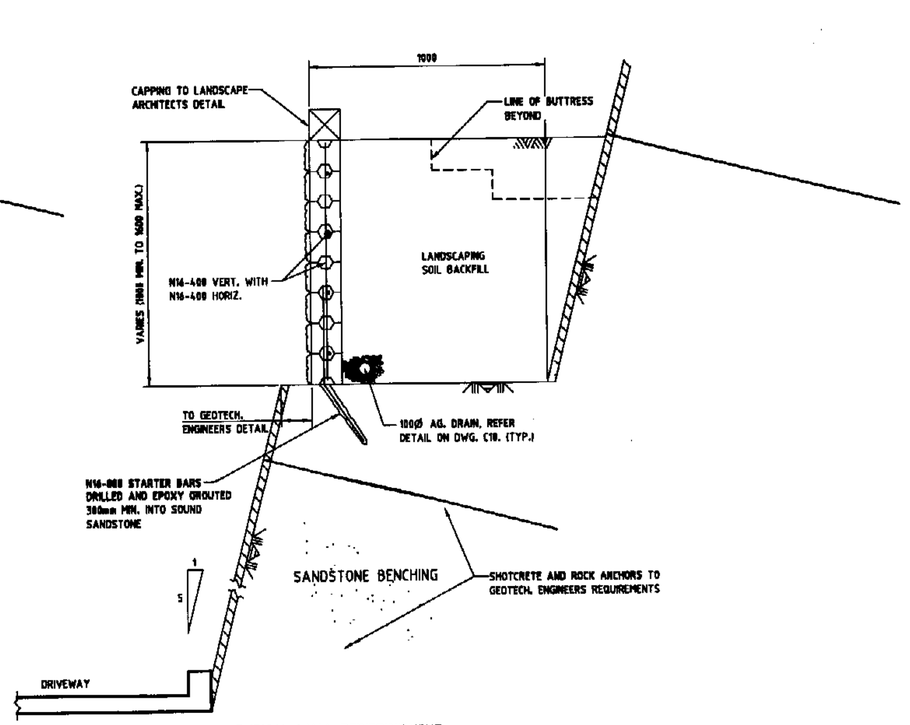
SECTION B
SCALE 1:20



SECTION A1
SCALE 1:10



SECTION 1
SCALE 1:20



TYPICAL WALL REINFORCEMENT

SECTION 2
SCALE 1:20

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

CITY PLAN SERVICES

Title Structural

File No 2375

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in:
Douglas Partners Report No. 28982.2.25
Signed
Date: 15/10/03
Douglas Partners Pty Ltd
Geotechnics Environment Groundwater

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. | Checked | Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 104 881
Level 5, 411 Victoria Avenue
Chatswood 2067
NSW Australia
P.O. Box 5840 West Chatswood, NSW 1515
Tel: (02) 9904 6655
Fax: (02) 9904 6777
e-mail: tierney@tierney.com.au
cad file : 7531-RW02

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
RETAINING WALL DETAILS
SHEET 2

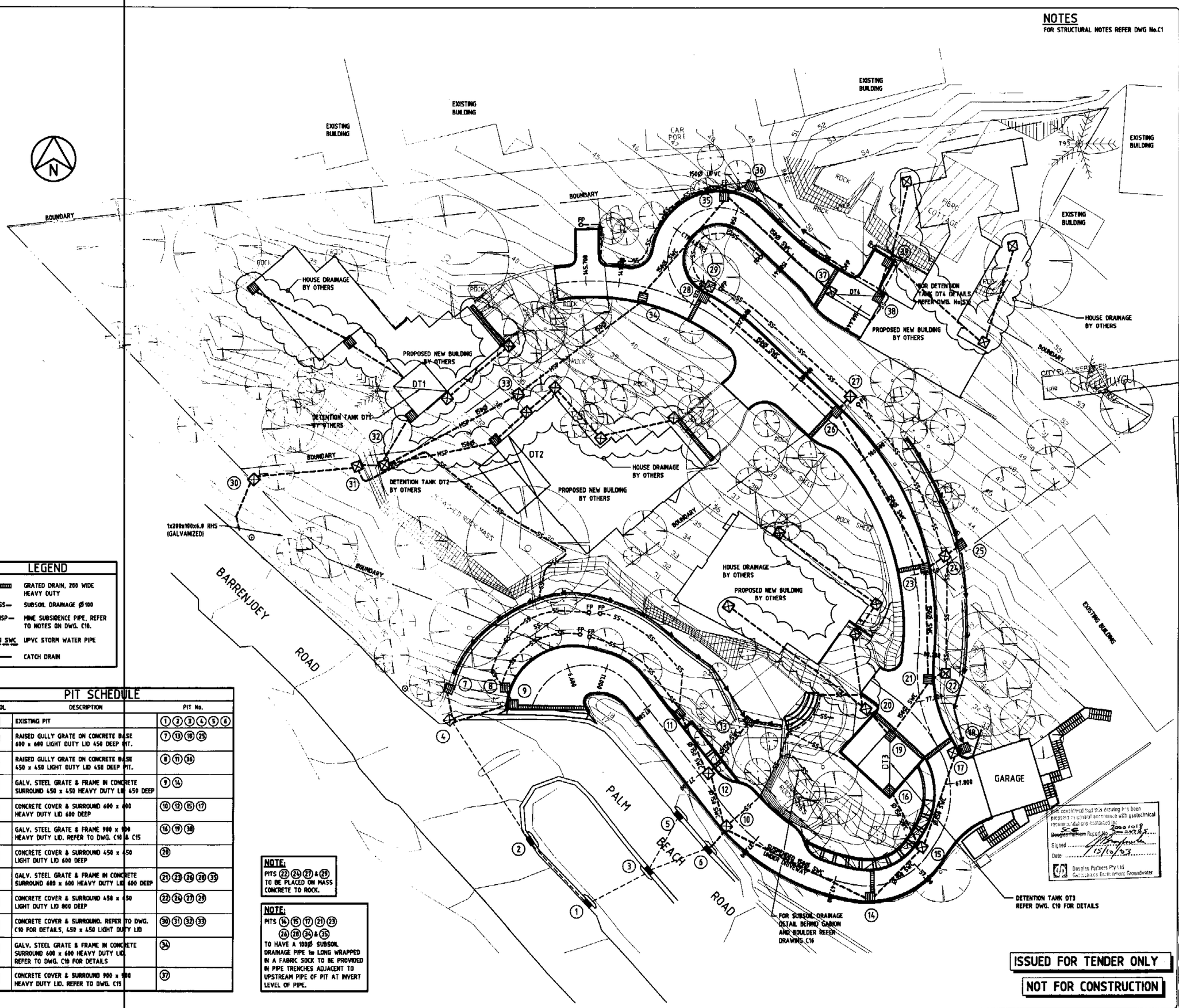
Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:20	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C8	4

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1



LEGEND

- GRATED DRAIN, 200 WIDE HEAVY DUTY
- —SS— SUBSOIL DRAINAGE Ø100
- —MSP— MINE SUBSIDENCE PIPE, REFER TO NOTES ON DWG. C10.
- Ø150 SWC UPVC STORM WATER PIPE
- CATCH DRAIN

PIT SCHEDULE

SYMBOL	DESCRIPTION	PIT No.
	EXISTING PIT	(1)(2)(3)(4)(5)(6)
	RAISED GULLY GRATE ON CONCRETE BASE 600 x 600 LIGHT DUTY LID 450 DEEP PIT.	(7)(13)(18)(25)
	RAISED GULLY GRATE ON CONCRETE BASE 450 x 450 LIGHT DUTY LID 450 DEEP PIT.	(8)(11)(36)
	GALV. STEEL GRATE & FRAME IN CONCRETE SURROUND 450 x 450 HEAVY DUTY LID 450 DEEP	(9)(14)
	CONCRETE COVER & SURROUND 600 x 600 HEAVY DUTY LID 600 DEEP	(10)(12)(15)(17)
	GALV. STEEL GRATE & FRAME 900 x 900 HEAVY DUTY LID. REFER TO DWG. C10 & C15	(16)(19)(38)
	CONCRETE COVER & SURROUND 450 x 450 LIGHT DUTY LID 600 DEEP	(20)
	GALV. STEEL GRATE & FRAME IN CONCRETE SURROUND 600 x 600 HEAVY DUTY LID 600 DEEP	(21)(23)(26)(28)(35)
	CONCRETE COVER & SURROUND 450 x 450 LIGHT DUTY LID 900 DEEP	(22)(24)(27)(29)
	CONCRETE COVER & SURROUND. REFER TO DWG. C10 FOR DETAILS, 450 x 450 LIGHT DUTY LID	(30)(31)(32)(33)
	GALV. STEEL GRATE & FRAME IN CONCRETE SURROUND 600 x 600 HEAVY DUTY LID. REFER TO DWG. C10 FOR DETAILS	(34)
	CONCRETE COVER & SURROUND 900 x 900 HEAVY DUTY LID. REFER TO DWG. C15	(37)

NOTE:
PITS (22)(24)(27)&(29) TO BE PLACED ON MASS CONCRETE TO ROCK.

NOTE:
PITS (14)(15)(17)(21)(23)(26)(28)(34)&(35) TO HAVE A 100Ø SUBSOIL DRAINAGE PIPE 1m LONG WRAPPED IN A FABRIC SOCK TO BE PROVIDED IN PIPE TRENCHES ADJACENT TO UPSTREAM PIPE OF PIT AT INVERT LEVEL OF PIPE.

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

File No 22375

Title

RECEIVED

10 OCT 2003

CITY PLAN SERVICES PTY LTD

Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

No.	Revision	Init / Date
5	RE-ISSUED FOR TENDER	18.11.02
4	ISSUED FOR TENDER	30.10.02
3	ISSUED FOR INFORMATION	15.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. Checked
Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 464 864
Level 5, 411 Victoria Avenue Tel: (02) 9804 8555
Chatswood 2067 Fax: (02) 9804 8777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5940 West Chatswood, NSW 1515 card file: 7531-01

Project

OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title

DRAINAGE PLAN

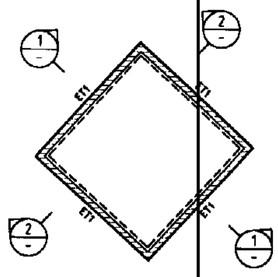
Client

RAYPOND PTY LTD

Scale	Date	Drawn
1:200	AUG '02	BRB

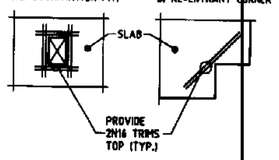
Project No.	Drawing No.	Revision
7531	C9	5

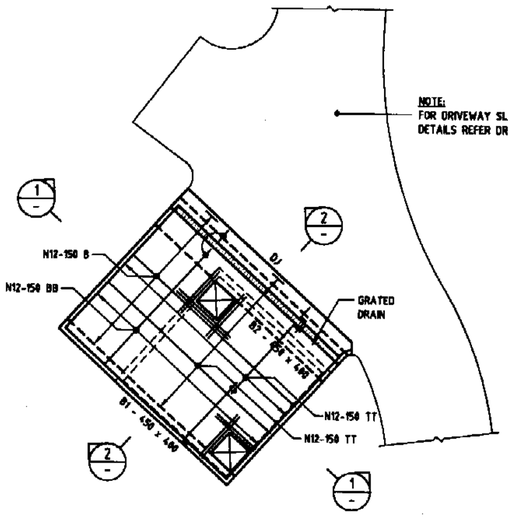
It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in: Douglas Partners Report No. 2000/018 dated 20.12.2002
Signed
Date: 15/10/03
Douglas Partners Pty Ltd Geotechnics Environment Groundwater



DETENTION TANK DT3 FLOOR PLAN
SCALE 1:100

SLAB ON GROUND NOTES
1. ALL SLABS TO BE 120 THICK WITH SL72 PLACED 30 FROM TOP ON 50 NOM. SAND BLINDING LAYER. (U.N.O.)
   ALL REINFORCEMENT TO BE POSITIONED ON BAR CHAIRS WITH CORRECT COVER AND NOT TO BE WALKED IN
2. TYPICAL FABRIC LAP :
   25 MIN
3. ALL SLABS TO BE POURED ON APPROVED VAPOUR BARRIER MEMBRANE (V.B.M.)
4. ALL EXISTING FILL TO BE PROOF ROLLED.
5. a) PENETRATIONS (I.E. STORMWATER PIT) b) RE-ENTRANT CORNER

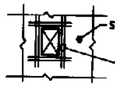




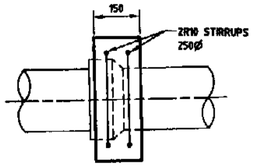
NOTE:
FOR DRIVEWAY SLAB DETAILS REFER DRAWING C5.

DETENTION TANK DT3 ROOF PLAN
SCALE 1:100

SLAB NOTES
1. ALL SLABS TO BE 170 THICK U.N.O.
2. (000) DENOTES SLAB THICKNESS
3. PROVIDE N12-300 CROSSRODS TO REINFORCEMENT WHERE REQUIRED. LAP 450 WHERE NECESSARY.
4. TYPICAL FABRIC LAP :
   25 MIN
5. DEPTH OF SETDOWN TO BE MEASURED FROM TOP OF STRUCTURAL SLAB LEVEL.
6. BAR LAYING SEQUENCE
   BB LAID 1ST IN BTM.
   B LAID 2ND IN BTM.
   T LAID 1ST IN TOP.
   TT LAID LAST IN TOP.
7. PREFIX ALL BEAMS 'Z' i.e. Z86, Z87
8. PROVIDE SL72 TOP WHERE NO OTHER REINFORCEMENT SHOWN.
9. a) PENETRATIONS

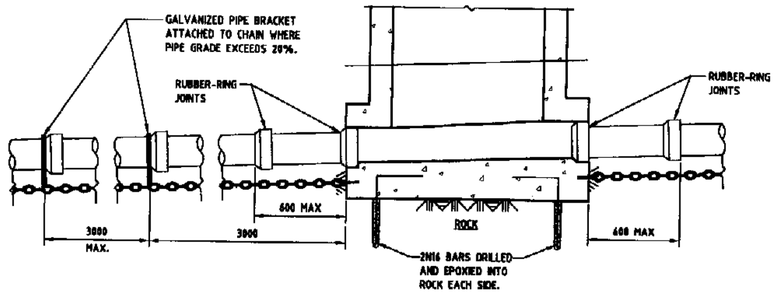


10. COLUMN LEGEND
    C12 (U) COLUMN UNDER ONLY
    C12 (O) COLUMN OVER ONLY
    C12 (U/O) COLUMN UNDER & OVER

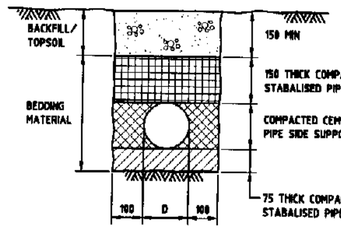


NOTE:
WHERE PIPE GRADE EXCEEDS 20%, ANCHOR BLOCKS SHALL BE USED AND SPACED AT INTERVALS NOT EXCEEDING 3m.

ANCHOR BLOCK DETAIL
SCALE 1:10



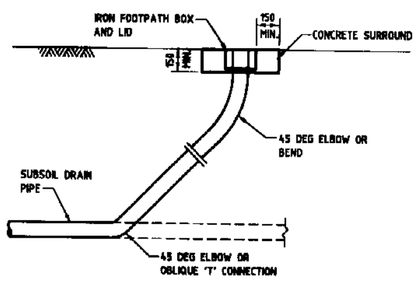
INSPECTION CHAMBER OR SIMILAR STRUCTURE PITS (30), (31), (32), (33) & (34)
NOT TO SCALE



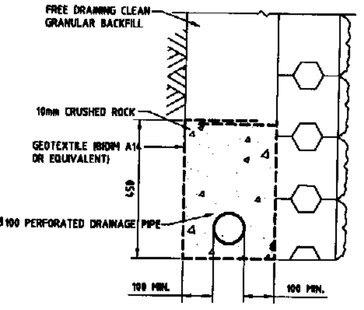
NOTE:
BEDDING MATERIAL SHALL COMPRISE OF A SUITABLE SAND, FREE FROM ROCK AND OR OTHER HARD OR SHARP OBJECTS THAT WOULD BE RETAINED ON A 13.2mm SIEVE. THE SAND SHALL BE MIXED WITH PORTLAND CEMENT TO ACHIEVE 2% CEMENT CONTENT BY MASS.

TYPICAL PIPE MSP INSTALLATION DETAIL BETWEEN PITS (30) TO (34) & INCLUSIVE OF CONNECTION TO BARRENJOEY ROAD
SCALE 1:10

NOTES:
THE INSTALLATION OF PIPE DRAINAGE BETWEEN PIT 30 TO PIT 34 SHALL BE AS FOLLOWS:
- DRAINS SHALL BE LAID IN SHALLOW TRENCHES EXCAVATED WITH THE MINIMUM GROUND DISTURBANCE, THE MINIMUM REMOVAL OF VEGETATION, AND SHALL HAVE A COVER OF ABOUT 300mm.
- HAND EXCAVATION METHODS SHALL BE EMPLOYED WHEREVER POSSIBLE AND THE USE OF EXCAVATION MACHINERY SHALL BE AVOIDED.
- DRAINS SHALL BE BEDDED DIRECTLY ON THE UNDISTURBED SOIL AT THE BASE OF THE TRENCH AND WHERE NECESSARY, SHALL BE SECURELY ANCHORED TO PREVENT THE WEIGHT OF THE PIPELINE BEING TRANSFERED TO THE DOWNSTREAM PIPELINE.
- EXCAVATED MATERIAL SHALL BE USED FOR BACKFILLING AND BE THOROUGHLY COMPACTED BY HAND METHODS, TO ACHIEVE AS NEAR TO THE ORIGINAL SOIL DENSITY AS POSSIBLE.
- THE ORIGINAL TOPSOIL SHALL BE PLACED SO THAT THE FORMATION OF WATER COURSES IS PREVENTED.
- WHERE IT IS ANTICIPATED THAT WATER FROM ANY SOURCE MAY ENTER THE TRENCH EXCAVATION, LAYING AND BACKFILLING OF THE DRAIN SHALL BE CARRIED OUT IN SECTIONS NO LONGER THAN 3m.
- EVERY EFFORT SHALL BE MADE TO MINIMIZE THE TIME THAT THE TRENCHES ARE OPEN.

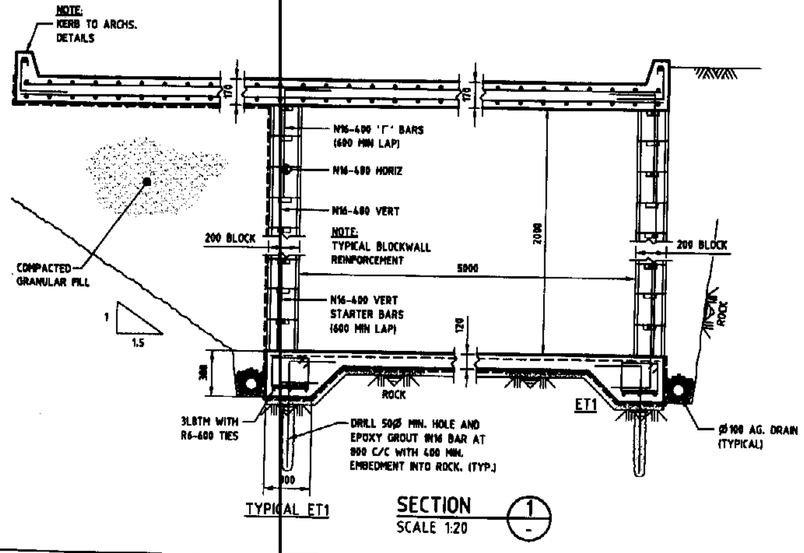


FLUSHING POINT DETAIL
SCALE 1:20 (DENOTED 'FP' ON PLAN).



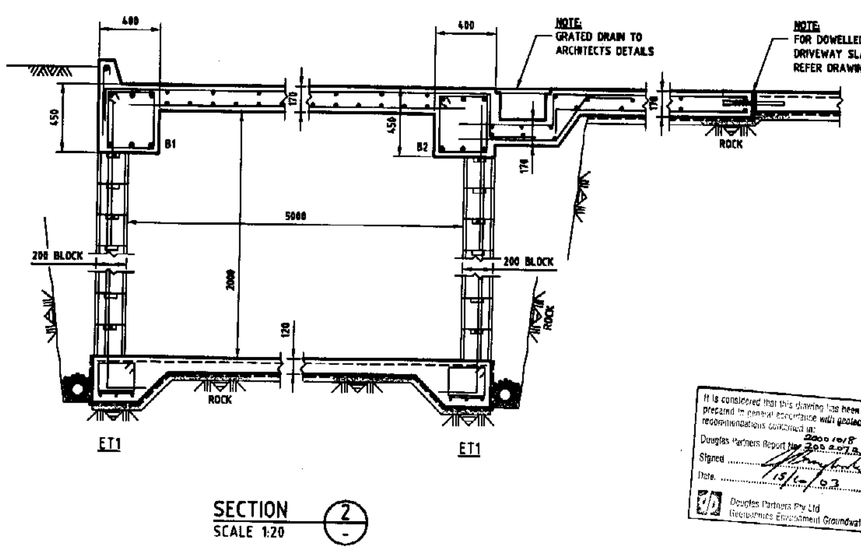
SUB-SOIL DRAINAGE DETAIL
SCALE 1:20

NOTE:
KERB TO ARCHS. DETAILS



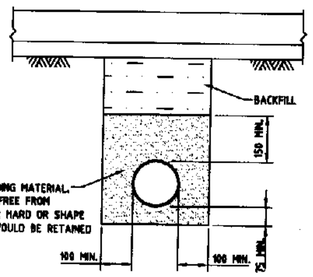
TYPICAL ET1

SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in:
Douglas Partners Report No. 30021/85
Signed
Date 15/1/03
Douglas Partners Pty Ltd Geotechnics Environment Groundwater



SWC PIPE TRENCHING DETAIL
SCALE 1:20

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

NOTES
FOR STRUCTURAL NOTES REFER DWG No.C1

DO NOT SCALE FROM THESE DRAWINGS
A1 CAD - DO NOT AMEND MANUALLY

CITY PLAN SERVICES
Title Structural File No 22375

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

No.	Revision	Init / Date
4	RE-ISSUED FOR TENDER	18.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. Checked
Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 104 881
Level 8, 411 Victoria Avenue Tel: (02) 9804 6555
Chatswood 2067 Fax: (02) 9804 6777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 5340 West Chatswood, NSW 1515 cad file : 7531-00

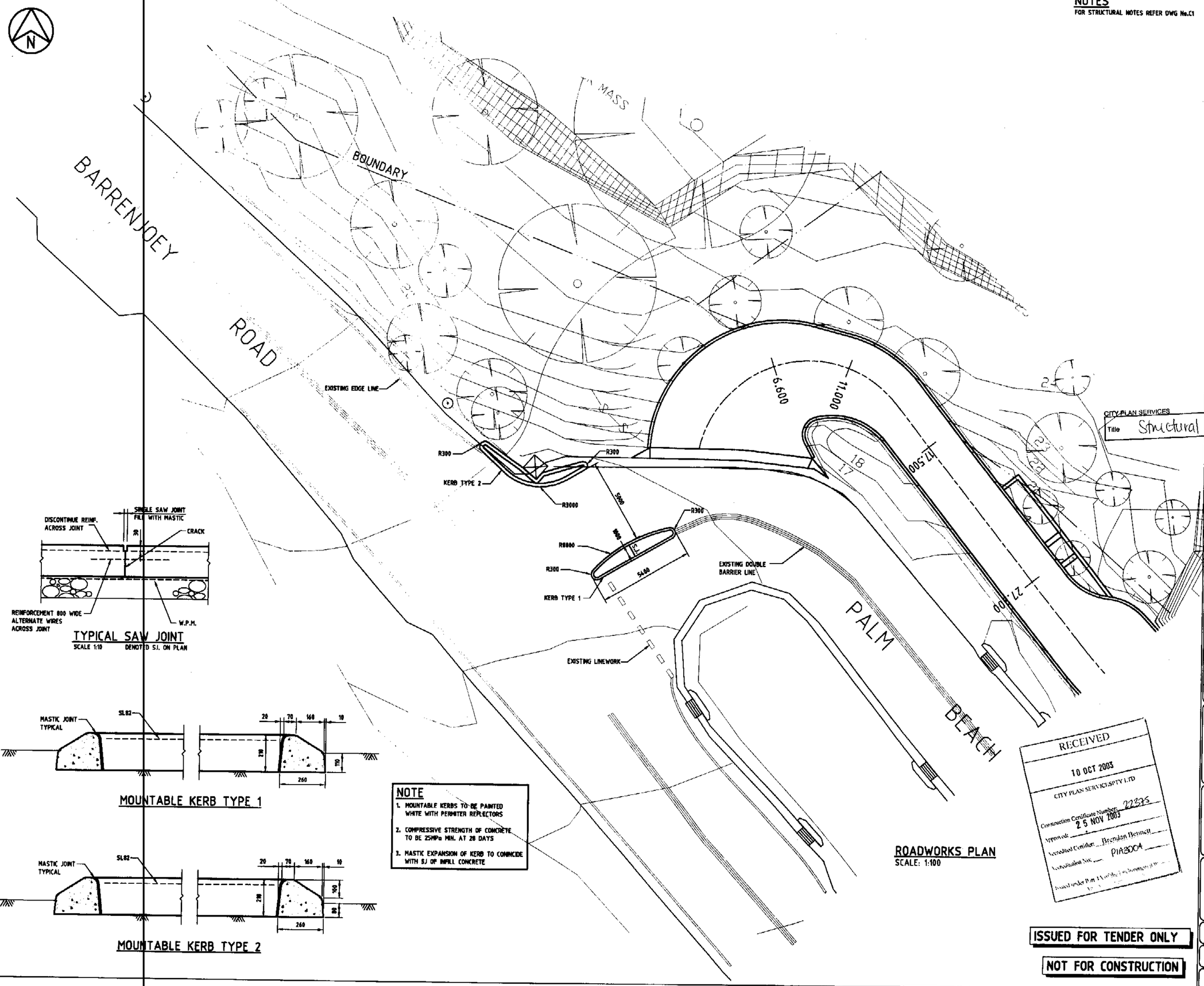
Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
ON-SITE DETENTION TANK 'DT3' AND DRAINAGE DETAILS

Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:20	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C10	4



NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

TYPICAL SAW JOINT

SCALE 1:10 DENOTED SJ. ON PLAN

MOUNTABLE KERB TYPE 1

MOUNTABLE KERB TYPE 2

NOTE

1. MOUNTABLE KERBS TO BE PAINTED WHITE WITH PERIMETER REFLECTORS
2. COMPRESSIVE STRENGTH OF CONCRETE TO BE 25MPa MIN. AT 28 DAYS
3. MASTIC EXPANSION OF KERB TO COINCIDE WITH SJ OF INFILL CONCRETE

ROADWORKS PLAN

SCALE: 1:100

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number 22335
Approved 25 NOV 2003
Accredited Certifier Brendan Bennett
Accreditation No. BPA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

CITY PLAN SERVICES
Title Structural File No 2235

No.	Revision	Int / Date
4	RE-ISSUED FOR TENDER	10.11.02
3	ISSUED FOR TENDER	30.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed SD | Checked | Approved

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 194 694
Level 5, 411 Victoria Avenue Tel: (02) 9804 8555
Chatswood 2067 Fax: (02) 9804 8777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 3648 West Chatswood, NSW 1515 cad file : 7531-R01

Project

OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title

EXTERNAL ROADWORKS PLAN AND DETAILS

Client

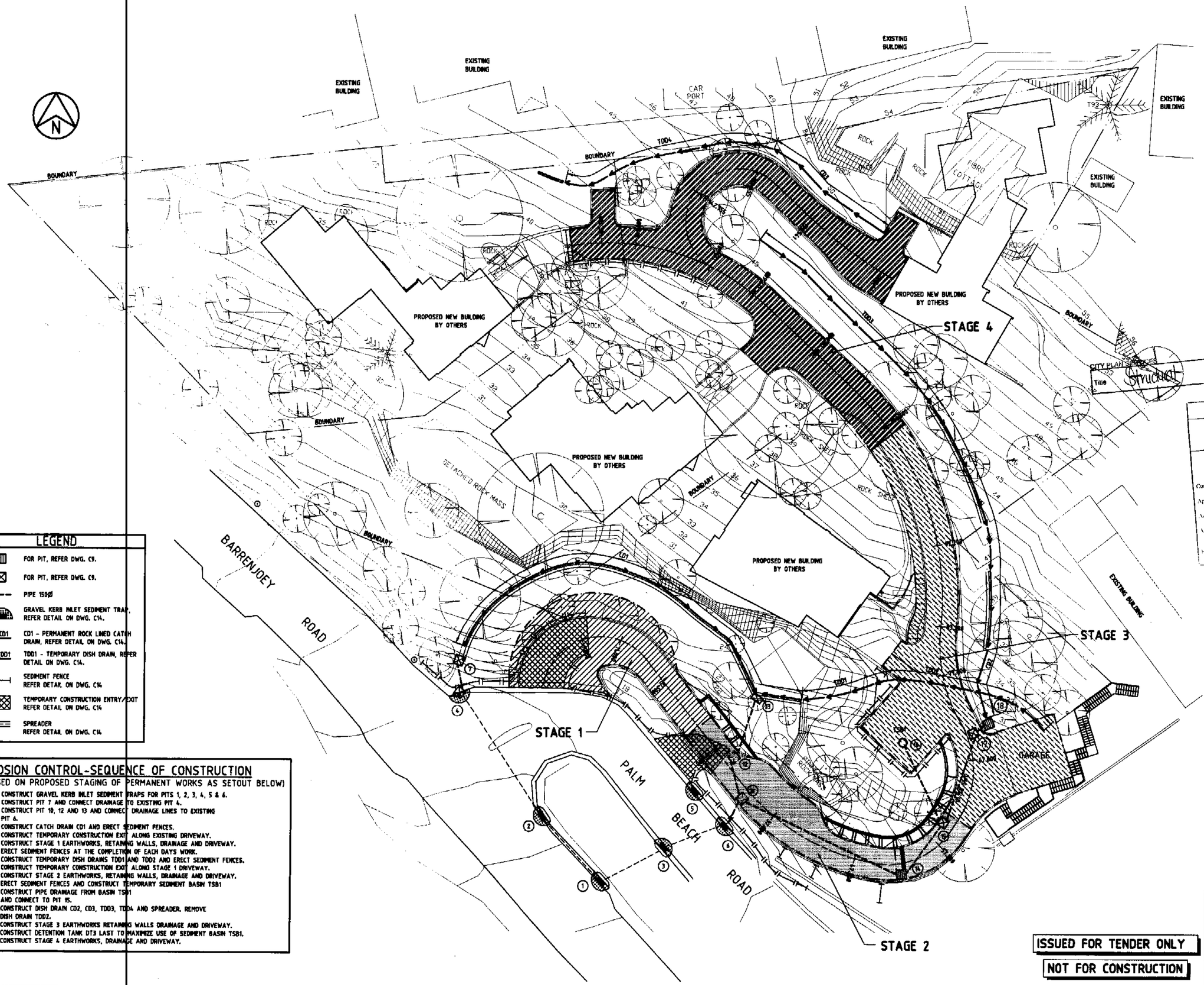
RAYPOND PTY LTD

Scale	Date	Drawn
1:200	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C11	4

NOTES

FOR STRUCTURAL NOTES REFER DWG No.C1



LEGEND

- FOR PIT, REFER DWG. C9.
- FOR PIT, REFER DWG. C9.
- PIPE 150ØI
- GRAVEL KERB INLET SEDIMENT TRAP, REFER DETAIL ON DWG. C14.
- CD1 – CD1 - PERMANENT ROCK LINED CATCH DRAIN, REFER DETAIL ON DWG. C14.
- TDD1 – TDD1 - TEMPORARY DISH DRAIN, REFER DETAIL ON DWG. C14.
- SEDIMENT FENCE REFER DETAIL ON DWG. C14
- TEMPORARY CONSTRUCTION ENTRY/EXIT REFER DETAIL ON DWG. C14
- SPREADER REFER DETAIL ON DWG. C14

EROSION CONTROL-SEQUENCE OF CONSTRUCTION

(BASED ON PROPOSED STAGING OF PERMANENT WORKS AS SETOUT BELOW)

(A) – CONSTRUCT GRAVEL KERB INLET SEDIMENT TRAPS FOR PITS 1, 2, 3, 4, 5 & 6.
(B) – CONSTRUCT PIT 7 AND CONNECT DRAINAGE TO EXISTING PIT 4.
– CONSTRUCT PIT 10, 12 AND 13 AND CONNECT DRAINAGE LINES TO EXISTING PIT 6.
(C) – CONSTRUCT CATCH DRAIN CD1 AND ERECT SEDIMENT FENCES.
(D) – CONSTRUCT TEMPORARY CONSTRUCTION EXIT ALONG EXISTING DRIVEWAY.
(E) – CONSTRUCT STAGE 1 EARTHWORKS, RETAINING WALLS, DRAINAGE AND DRIVEWAY.
(F) – ERECT SEDIMENT FENCES AT THE COMPLETION OF EACH DAYS WORK.
(G) – CONSTRUCT TEMPORARY DISH DRAINS TDD1 AND TDD2 AND ERECT SEDIMENT FENCES.
(H) – CONSTRUCT TEMPORARY CONSTRUCTION EXIT ALONG STAGE 1 DRIVEWAY.
(I) – CONSTRUCT STAGE 2 EARTHWORKS, RETAINING WALLS, DRAINAGE AND DRIVEWAY.
(J) – ERECT SEDIMENT FENCES AND CONSTRUCT TEMPORARY SEDIMENT BASIN TSB1
(K) – CONSTRUCT PIPE DRAINAGE FROM BASIN TSB1 AND CONNECT TO PIT 15.
(L) – CONSTRUCT DISH DRAIN CD2, CD3, TDD3, TDD4 AND SPREADER. REMOVE DISH DRAIN TDD2.
(M) – CONSTRUCT STAGE 3 EARTHWORKS RETAINING WALLS DRAINAGE AND DRIVEWAY. CONSTRUCT DETENTION TANK DT3 LAST TO MAXIMIZE USE OF SEDIMENT BASIN TSB1.
(N) – CONSTRUCT STAGE 4 EARTHWORKS, DRAINAGE AND DRIVEWAY.

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

File No 22375

Title STRUCTURAL

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD

Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA3004
Issued under Part IIA of the Environmental Planning

No.	Revision	Init / Date
5	RE-ISSUED FOR TENDER	18.11.02
4	ISSUED FOR TENDER	30.10.02
3	DRAFT ISSUE FOR CONSTRUCTION MANAGEMENT PLAN	16.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. | Checked | Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 190 846
Level 2, 411 Victoria Avenue Tel: (02) 9904 8855
Chatswood 2067 Fax: (02) 9904 8777
NSW Australia e-mail: tierney@tierney.com.au
P.O. Box 3540 West Chatswood, NSW 1515 ead file : 7531-SCP

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

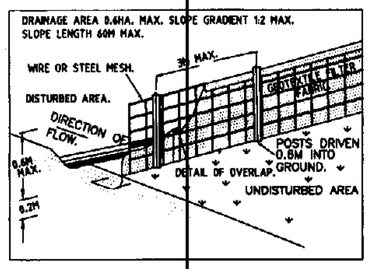
Drawing Title
SEDIMENT AND EROSION CONTROL PLAN

Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:200	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C13	5

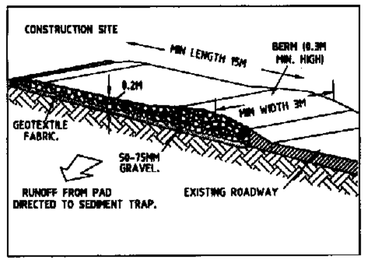
NOTES
FOR STRUCTURAL NOTES REFER DWG No.C1



SEDIMENT FENCE

CONSTRUCTION NOTES:

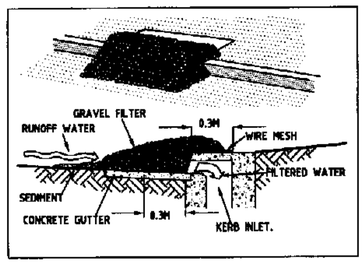
1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND, 3 METRES APART.
3. DIG A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. BACKFILL TRENCH OVER BASE OF FABRIC.
5. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES or AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
6. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.



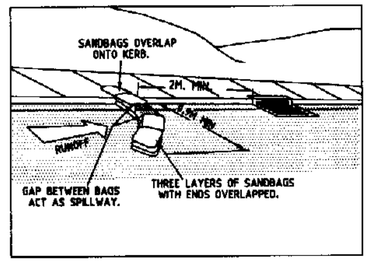
TYPICAL TEMPORARY CONSTRUCTION ENTRY/EXIT DETAIL

CONSTRUCTION NOTES:

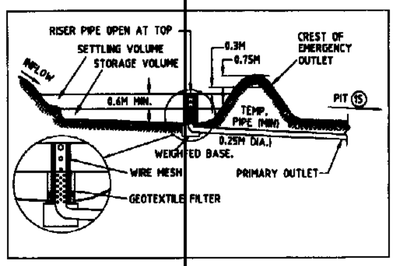
1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE or 30mm AGGREGATE. MINIMUM LENGTH 15 METRES OR TO BUILDING ALIGNMENT. MINIMUM WIDTH 3 METRES.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE or OTHER SEDIMENT TRAP.



GRAVEL KERB INLET SEDIMENT TRAP

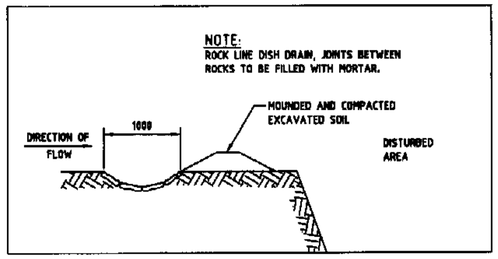


SANDBAG KERB INLET SEDIMENT TRAP



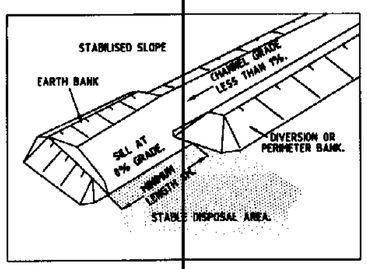
TYPICAL TEMPORARY SEDIMENT BASIN

DENOTED TSB1 ON DWG. C13

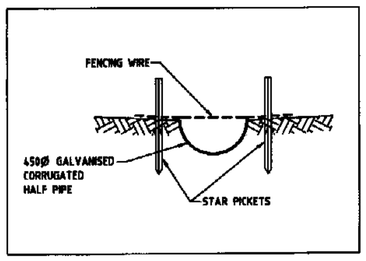


CATCH DRAIN - ROCK LINED

DENOTED CD1, CD2 & CD3 ON DWG. C13



TYPICAL SPREADER DETAIL



TEMPORARY DISH DRAIN

DENOTED TDD1, TDD2, TDD3 & TDD4 ON DWG. C13

CITY PLAN SERVICES
Title Structural
File No 22375

No.	Revision	Init / Date
5	RE-ISSUED FOR TENDER	18.11.02
4	ISSUED FOR TENDER	30.10.02
3	DRAFT ISSUE FOR CONSTRUCTION MANAGEMENT PLAN	16.10.02
2	ISSUED FOR INFORMATION	25.09.02
1	ISSUED FOR INFORMATION	30.08.02

Designed S.D. | Checked | Approved

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPB0004
Issued under Part 3A of the Environmental Planning and Assessment Act 1979

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS
A1 | CAD - DO NOT AMEND MANUALLY

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 494 684
Level 5, 411 Victoria Avenue
Chatswood 2067
NSW Australia
P.O. Box 5840 West Chatswood, NSW 1515
Tel: (02) 9904 8855
Fax: (02) 9904 8777
e-mail: tierney@tierney.com.au
cad file : 7531-SCD

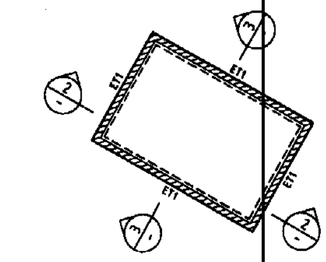
Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
SEDIMENT AND EROSION DETAILS

Client
RAYPOND PTY LTD

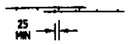
Scale	Date	Drawn
1:20	AUG '02	BRB

Project No.	Drawing No.	Revision
7531	C14	5

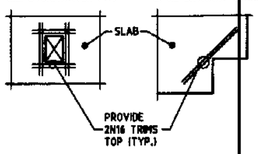


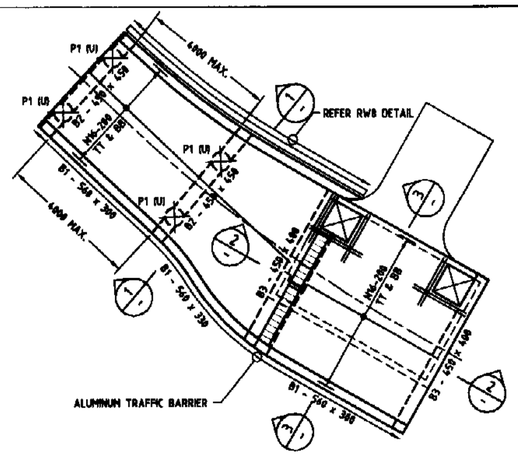
DETENTION TANK DT4 FLOOR PLAN
SCALE 1:100

SLAB ON GROUND NOTES
1. ALL SLABS TO BE 120 THICK WITH SL72 PLACED 30 FROM TOP ON 50 NOM. SAND BLINDING LAYER. (U.N.O.)
   ALL REINFORCEMENT TO BE POSITIONED ON BAR CHAIRS WITH CORRECT COVER AND NOT TO BE WALKED IN
2. TYPICAL FABRIC LAP ;



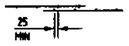
3. ALL SLABS TO BE POURED ON APPROVED VAPOUR BARRIER MEMBRANE (V.B.M.)
4. ALL EXISTING FILL TO BE PROOF ROLLED.
5. a) PENETRATIONS (I.E: STORMWATER PIT) b) RE-ENTRANT CORNER



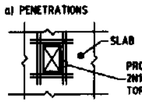


DETENTION TANK DT4 ROOF AND SUSPENDED DRIVEWAY SLAB PLAN AND TOP AND BOTTOM REINFORCEMENT
SCALE 1:100

SLAB NOTES
1. ALL SLABS TO BE 180 THICK U.N.O.
2. (000) DENOTES SLAB THICKNESS
3. PROVIDE N12-300 CROSSRODS TO REINFORCEMENT WHERE REQUIRED. LAP 450 WHERE NECESSARY.
4. TYPICAL FABRIC LAP ;

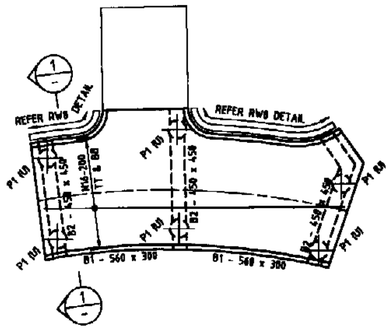


5. DEPTH OF SETDOWN TO BE MEASURED FROM TOP OF STRUCTURAL SLAB LEVEL.
6. BAR LAYING SEQUENCE
   BB LAID 1ST IN BTM.
   B LAID 2ND IN BTM.
   T LAID 1ST IN TOP.
   TT LAID LAST IN TOP.
7. PREFIX ALL BEAMS '2' ie 2B6, 2B7
8. PROVIDE SL72 TOP WHERE NO OTHER REINFORCEMENT SHOWN.
9. a) PENETRATIONS

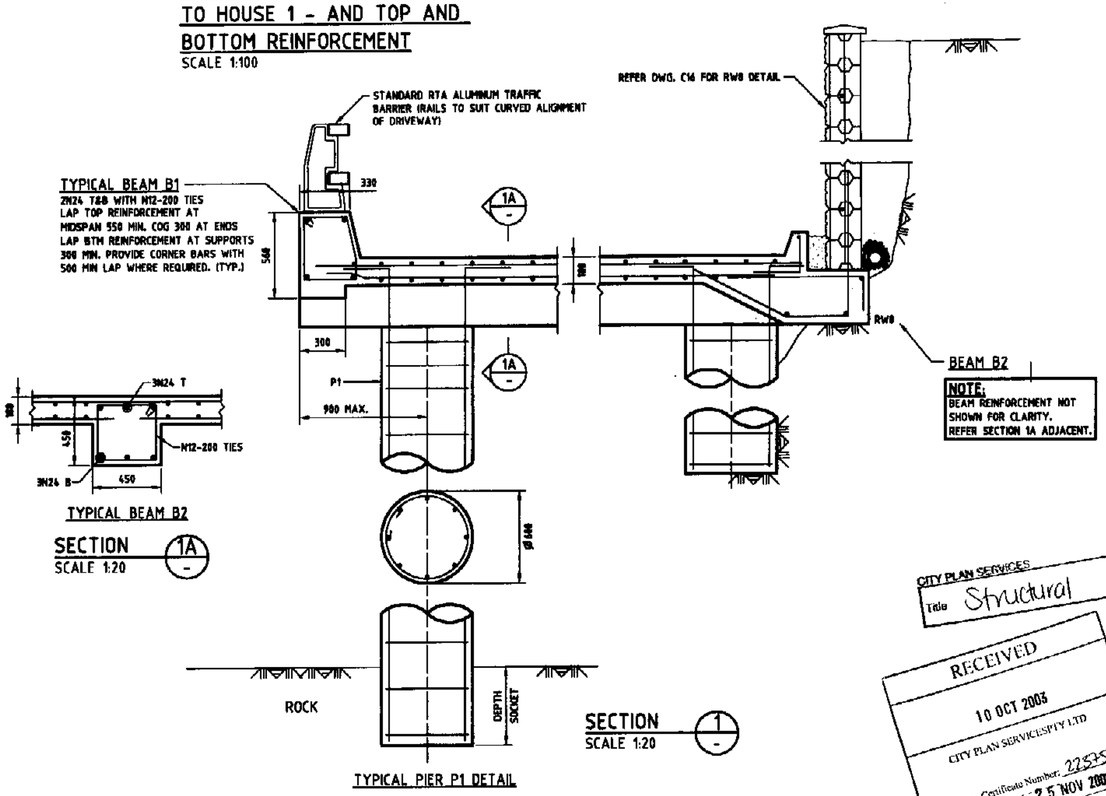


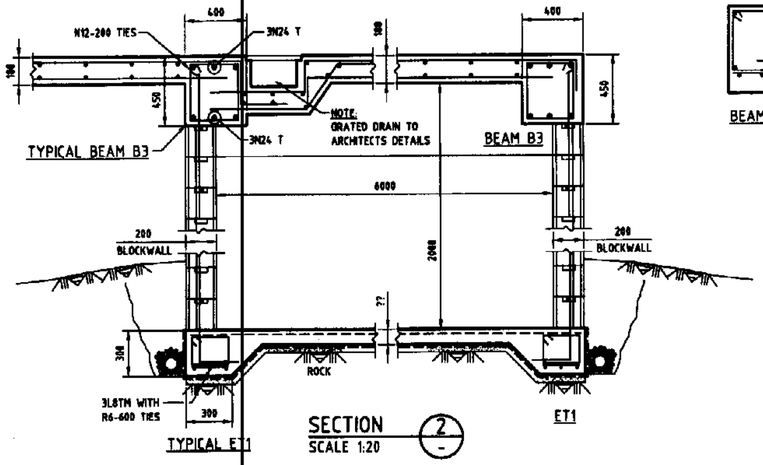
10. COLUMN LEGEND
    C12 (U) COLUMN UNDER ONLY
    C12 (O) COLUMN OVER ONLY
    C12 (U/O) COLUMN UNDER & OVER

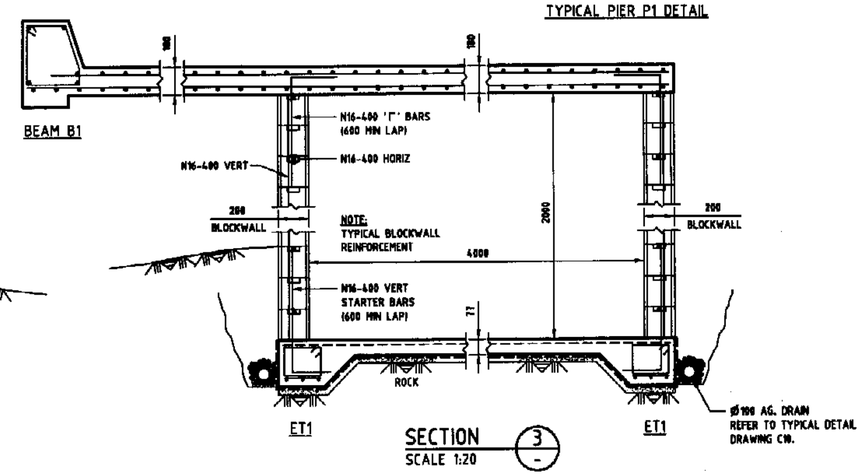
NOTE:
BEAMS B1, B2 & B3 REINFORCEMENT NOT SHOWN FOR CLARITY, REFER SECTION 1 & 2 FOR REINFORCEMENT.



SUSPENDED DRIVEWAY SLAB PLAN TO HOUSE 1 - AND TOP AND BOTTOM REINFORCEMENT
SCALE 1:100







CITY PLAN SERVICES
File No 22375
Title Structural

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22535
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA9001
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in report Ref: SCE 20001/8 dated 28/8/2002 prepared by Douglas Partners Pty Ltd
Signed
Date: 15/10/03
Douglas Partners Pty Ltd
Geotechnics Environment Groundwater

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS
A1 CAD - DO NOT AMEND MANUALLY
0 10 20 30 40 50 60

No.	Revision	Init / Date
2	RE-ISSUED FOR TENDER	18.11.02
1	ISSUED FOR TENDER	30.10.02

Designed S.D. | Checked | Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 101 191 624
Level 5, 411 Victoria Avenue
Chatswood 2067
NSW Australia
P.O. Box 5346 West Chatswood, NSW 1515
Tel: (02) 9904 6555
Fax: (02) 9904 6777
e-mail: tierney@tierney.com.au
Job file: 7531-01C

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
ONSITE DETENTION TANK 'DT4' PLAN AND SECTIONS AND HOUSE 1 SLAB PLAN, SECTIONS

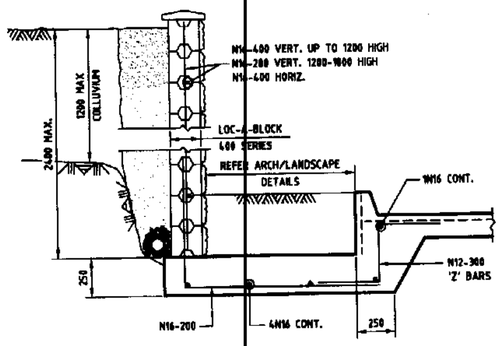
Client
RAYPOND PTY LTD

Scale	Date	Drawn
1:20	AUG '02	T.S.J.

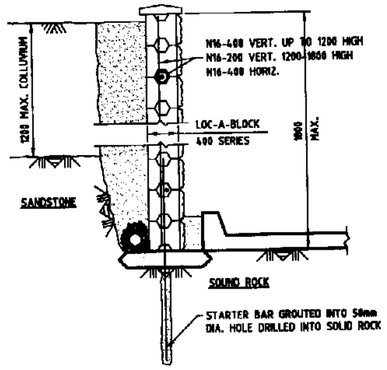
Project No.	Drawing No.	Revision
7531	C15	2

NOTES
FOR STRUCTURAL NOTES REFER DWG No.C1

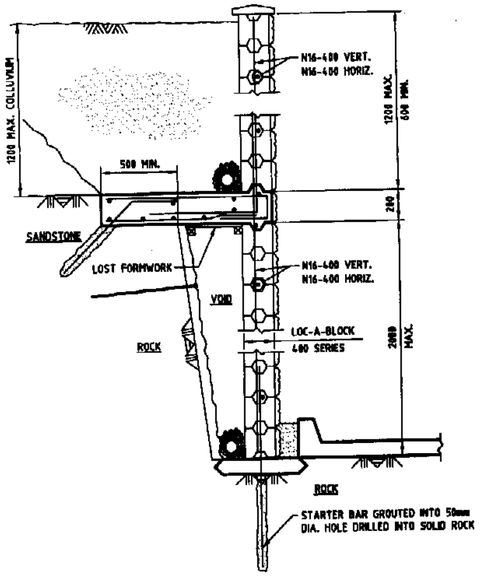
NOTES
FOR STRUCTURAL NOTES REFER DWG No.S1



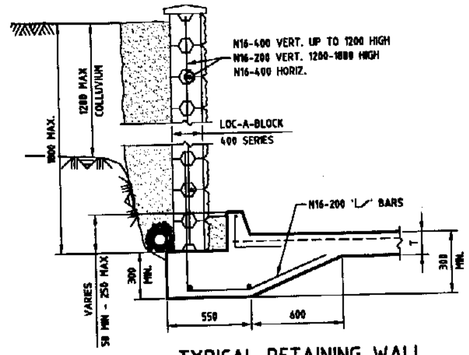
TYPICAL RETAINING WALL
'RW4' DETAIL
SCALE 1:20



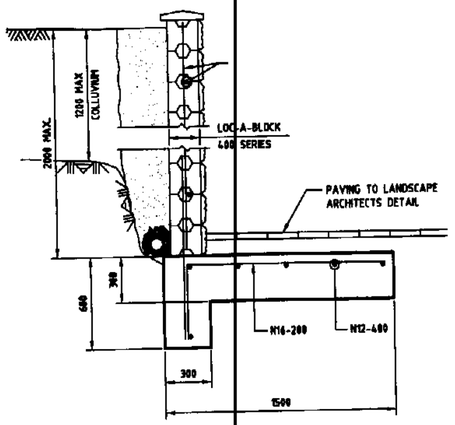
TYPICAL RETAINING WALL
'RW6' DETAIL
SCALE 1:20



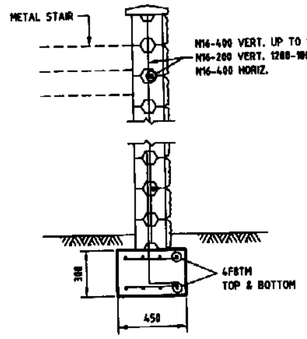
TYPICAL RETAINING WALL
'RW7' DETAIL
SCALE 1:20



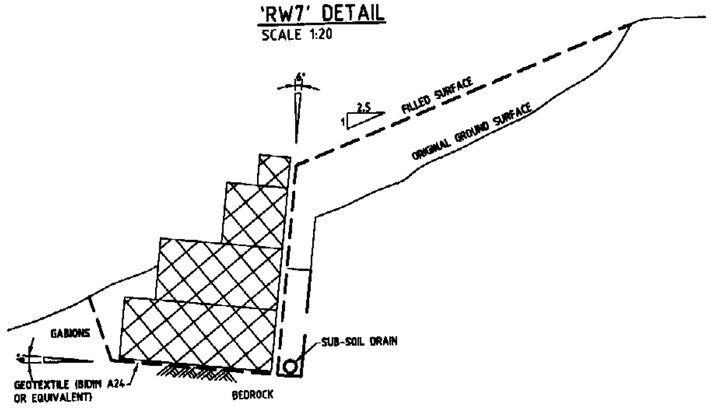
TYPICAL RETAINING WALL
'RW8' DETAIL
SCALE 1:20



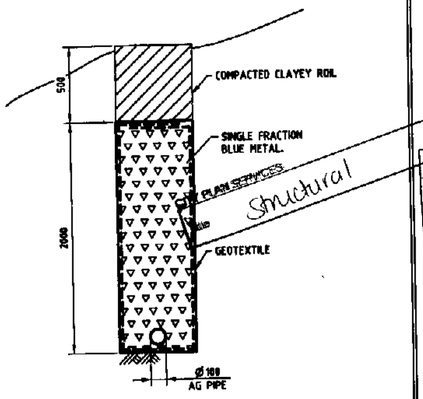
TYPICAL RETAINING WALL
'RW9' DETAIL
SCALE 1:20



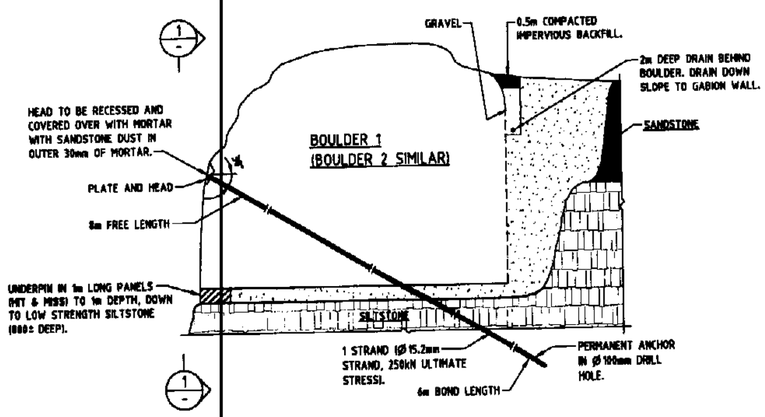
TYPICAL RETAINING WALL
'RW10' DETAIL
SCALE 1:20



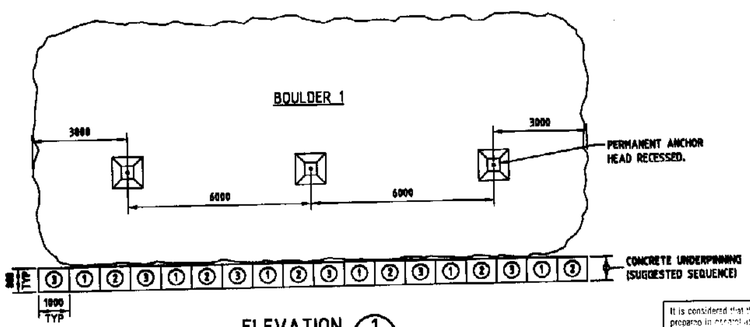
GABION WALL
SCALE 1:50



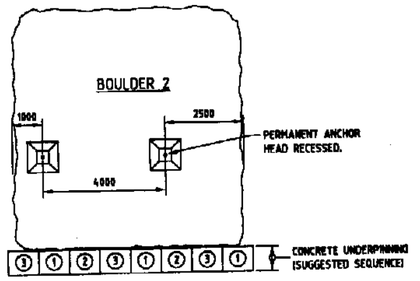
SUB-SOIL DRAIN
SCALE 1:20



TYPICAL ROCK ANCHOR CROSS SECTION
SCALE 1:100



ELEVATION (1)
SCALE 1:100



BOULDER 2 ELEVATION
SCALE 1:100

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in:
Report No. 12000 rpt 1
Douglas Partners Report No. 12000/2
Signed
Date: 15/12/03
Douglas Partners Pty Ltd
Geotechnical Environmental Groundwater

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS
A1 CAD - DO NOT AMEND MANUALLY

File No 22375

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPIA3004
Issued under Part IIA of the Environmental Planning & Assessment Act 1979

No.	Revision	Init / Date
2	RE-ISSUED FOR TENDER	18.11.02
1	ISSUED FOR TENDER	30.10.02

Designed S.D. | Checked | Approved

TIERNEY CONSULTING ENGINEERS
SYDNEY • ARMIDALE • UVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 184 691
Level 8, 411 Victoria Avenue
Chatswood 2067
NSW Australia
P.O. Box 5540 West Chatswood, NSW 1515
Tel: (02) 9904 6555
Fax: (02) 9904 6777
e-mail: tierney@tierney.com.au
cad file : 7531-RWS

Project
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

Drawing Title
RETAINING WALL DETAILS
SHEET 3

Client
RAYPOND PTY LTD

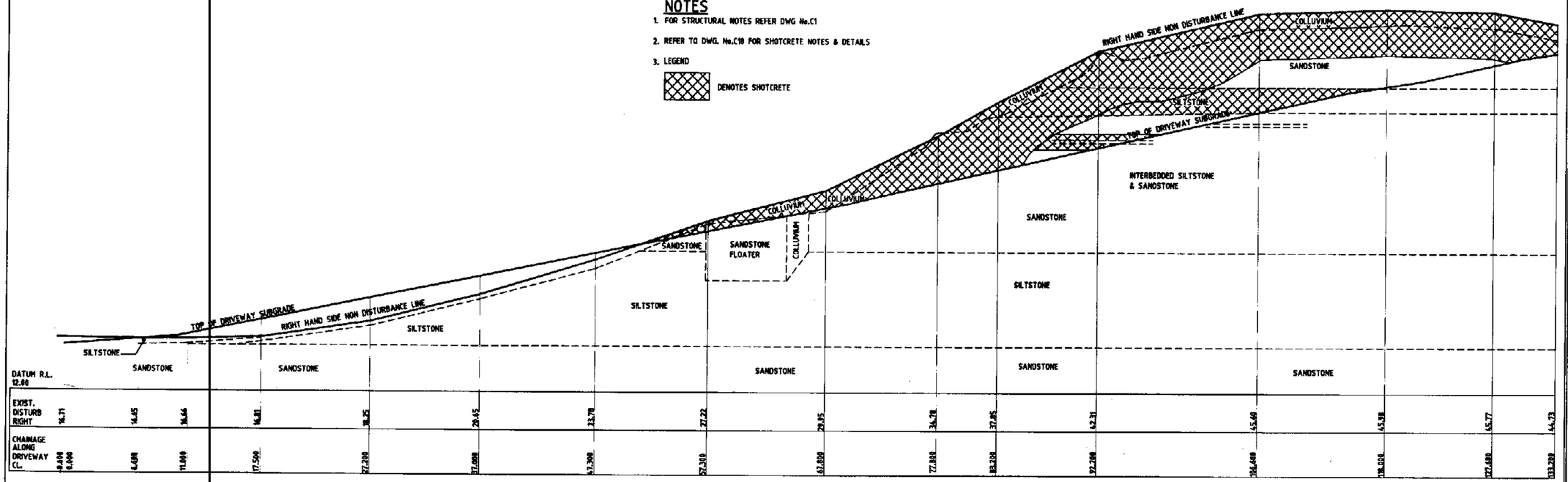
Scale	Date	Drawn
-	OCT '02	T.S.J.

Project No.	Drawing No.	Revision
7531	C16	2

NOTES

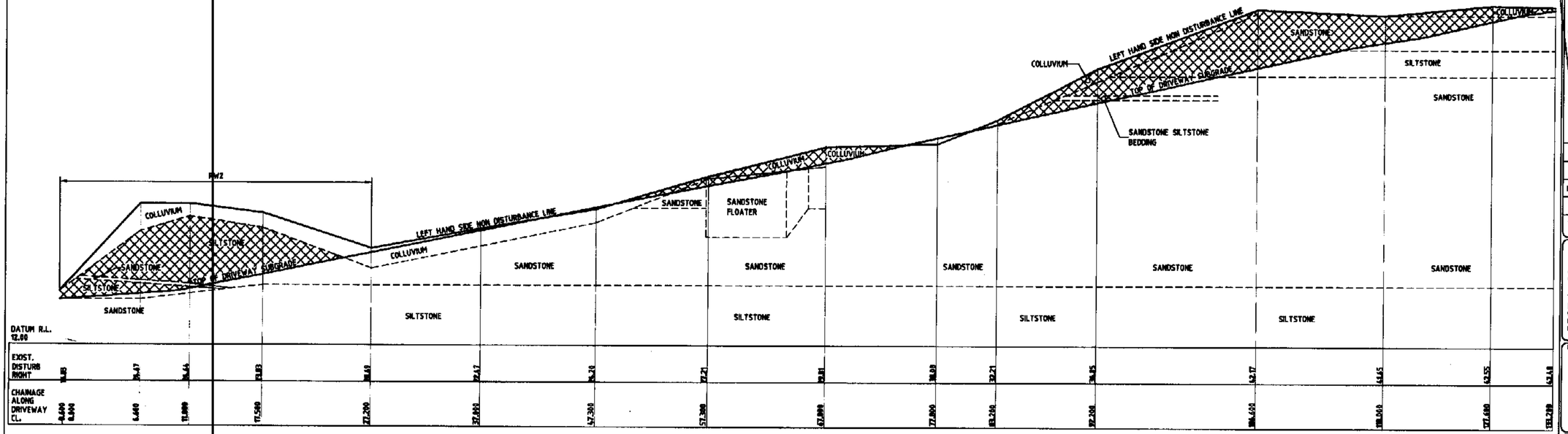
1. FOR STRUCTURAL NOTES REFER DWG No.C1
2. REFER TO DWG. No.C19 FOR SHOTCRETE NOTES & DETAILS
3. LEGEND

DENOTES SHOTCRETE



DRIVEWAY ELEVATION RIGHT HAND SIDE VIEW

SCALE 1:200



DRIVEWAY ELEVATION LEFT HAND SIDE VIEW

SCALE 1:200

NOTE:
ELEVATION OF ROCK STRATUM, EXTENT OF SHOTCRETE AND STABILISATION OF CUT BATTERS REPRODUCED FROM ADVICE PROVIDED BY DOUGLAS PARTNERS.

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

CITY PLAN SERVICES

File No 22375

Title Structural

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

NO.	REVISION	INIT / DATE
2	RE-ISSUED FOR TENDER	18.11.02
1	ISSUED FOR TENDER	30.10.02

DESIGNED SD | CHECKED | APPROVED

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 184 894
LEVEL 5, 411 VICTORIA AVENUE TEL: (02) 9904 8555
CHATSWOOD 2067 FAX: (02) 9904 8777
NSW AUSTRALIA E-MAIL: TIERNEY@TIERNEY.COM.AU
P.O. BOX 5340 WEST CHATSWOOD, NSW 1818 CAD FILE: 7531-RE1

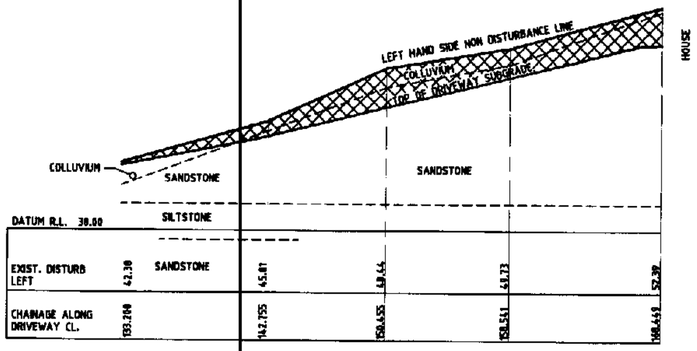
PROJECT
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

DRAWING TITLE
DRIVEWAY ELEVATIONS
SHEET - 1

Client
RAYPOND PTY LTD

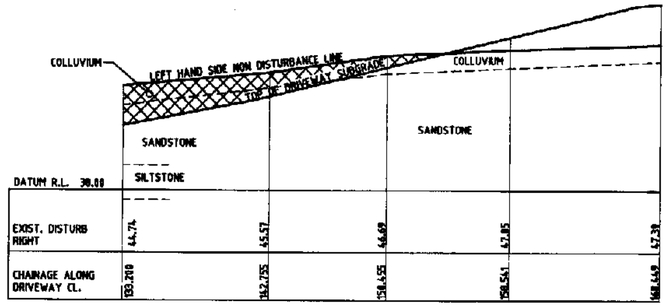
SCALE	DATE	DRAWN
1:200	AUG '02	JND

PROJECT NO.	DRAWING NO.	REVISION
7531	C17	2



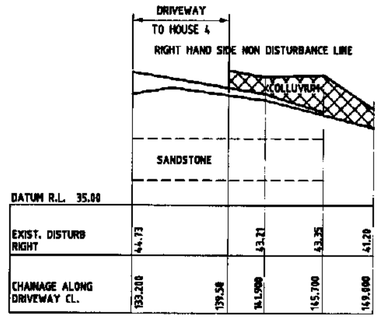
DRIVEWAY ELEVATION LEFT HAND SIDE VIEW

SCALE 1:200



DRIVEWAY ELEVATION RIGHT HAND SIDE VIEW

SCALE 1:200



LOWER DRIVEWAY ELEVATION RIGHT HAND SIDE VIEW

SCALE 1:200

NOTES

1. FOR STRUCTURAL NOTES REFER DWG No.C1
2. LEGEND

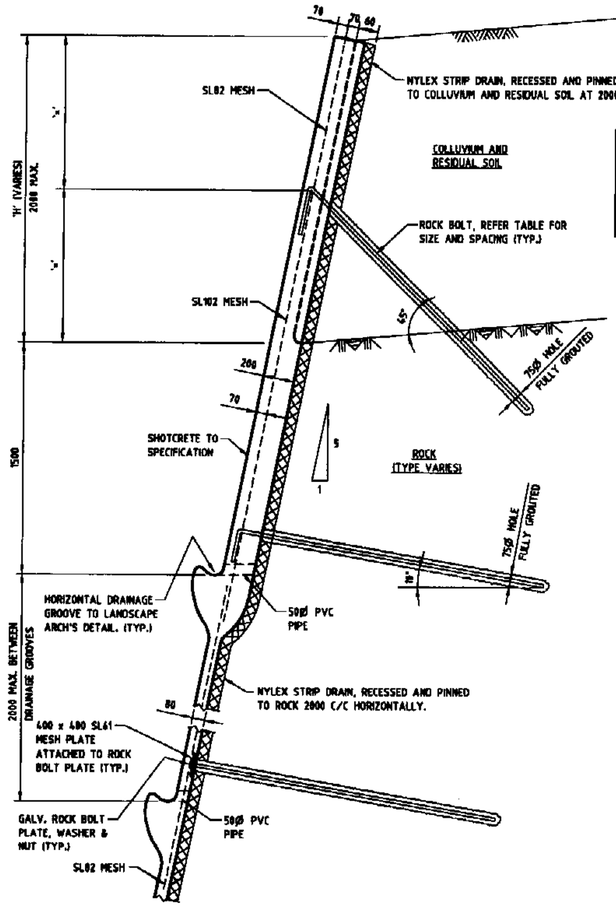
DENOTES SHOTCRETE

ANCHOR BOLTING SCHEDULE FOR BATTER IN COLLUVIUM SOIL

MATERIAL	SLOPE HEIGHT (H)	BOLTING REQUIREMENTS
COLLUVIUM AND RESIDUAL SOIL	UP TO 1.5m	1 x 2.5m LONG GALV. N24 COGGED DOWEL SPACED AT 2.0m CENTRES HORIZONTALLY & DIPPING AT 45°. INSTALLED IN 75Ø HOLE BLOWN CLEAN & FULLY GROUTED.
	1.5m TO 2.0m	1 x 3.0m LONG GALV. N24 COGGED DOWEL SPACED AT 2.0m CENTRES HORIZONTALLY & DIPPING AT 45°. INSTALLED IN 75Ø HOLE BLOWN CLEAN & FULLY GROUTED.
SILTSTONE/SANDSTONE EXTREMELY WEATHERED HIGHLY WEATHERED MODERATELY WEATHERED	-	1 x 2.0m LONG GALV. N24 COGGED DOWEL SPACED AT 1.5m CENTRES BOTH HORIZONTALLY & VERTICALLY & DIPPING AT 10°. INSTALLED IN 75Ø HOLES BLOWN CLEAN & FULLY GROUTED.
SILTSTONE SLIGHTLY WEATHERED FRESH	-	1 x 1.0m LONG GALV. N24 COGGED DOWEL SPACED AT 1.5m CENTRES BOTH HORIZONTALLY & VERTICALLY & DIPPING AT 10°. INSTALLED IN 75Ø HOLES BLOWN CLEAN & FULLY GROUTED.

ANCHOR BOLTING SCHEDULE FOR BATTER IN ROCK

MATERIAL	SLOPE HEIGHT (H)	BOLTING REQUIREMENTS
SANDSTONE/SILTSTONE MEDIUM TO HIGH STRENGTH WITH 60° DAY LIGHTING JOINTS	1.5m	1 x 2.5m LONG 24Ø CT BOLT (R24HT OR APPROVED EQUIVALENT) INSTALLED AT 2.0m CENTRES DIPPING AT 10°, INSTALLED IN 45Ø HOLES, BLOWN CLEAN & FULLY GROUTED & TENSIONED TO 50kN.
SANDSTONE/SILTSTONE MEDIUM TO HIGH STRENGTH WITH 60° DAY LIGHTING JOINTS	3.0m	2 x 2.5m LONG 24Ø CT BOLT (R24HT OR APPROVED EQUIVALENT) INSTALLED AT 1.5m CENTRES DIPPING AT 10°, INSTALLED IN 45Ø HOLES, BLOWN CLEAN & FULLY GROUTED & TENSIONED TO 50kN.
SANDSTONE/SILTSTONE MEDIUM TO HIGH STRENGTH WITH 60° DAY LIGHTING	4.5m	3 x 3.0m LONG 24Ø CT BOLT (R24HT OR APPROVED EQUIVALENT) INSTALLED AT 1.5m CENTRES DIPPING AT 10°, INSTALLED IN 45Ø HOLES, BLOWN CLEAN & FULLY GROUTED & TENSIONED TO 50kN.
SANDSTONE/SILTSTONE MEDIUM TO HIGH STRENGTH WITH 60° DAY LIGHTING	6.0m	4 x 3.0m LONG 24Ø CT BOLT (R24HT OR APPROVED EQUIVALENT) INSTALLED AT 1.5m CENTRES DIPPING AT 10°, INSTALLED IN 45Ø HOLES, BLOWN CLEAN & FULLY GROUTED & TENSIONED TO 50kN.
SANDSTONE/SILTSTONE MEDIUM TO HIGH STRENGTH WITH 60° DAY LIGHTING	9.0m	7 x 3.0m LONG 24Ø CT BOLT (R24HT OR APPROVED EQUIVALENT) INSTALLED AT 1.3m CENTRES DIPPING AT 10°, INSTALLED IN 45Ø HOLES, BLOWN CLEAN & FULLY GROUTED & TENSIONED TO 50kN.



TYPICAL SHOTCRETE & ROCK BOLT DETAIL FOR BATTER IN COLLUVIUN SOIL

CONSTRUCTION SEQUENCE FOR BATTER IN COLLUVIUM SOIL

1) EXCAVATE COLUVIUM AND PIN STRIP DRAINS.
2) PLACE 60mm THICK "SHOTCRETE"
3) INSTALL MESH AS DETAILED ON ABOVE DETAIL.
4) PIN MESH TO "SHOTCRETE" WITH ROCK BOLT. REFER TO TABLE.
5) APPLY SECOND PASS OF "SHOTCRETE" TO DEPTHS ON ABOVE DETAIL.

NOTE:
ELEVATION OF ROCK STRATUM, EXTENT OF SHOTCRETE AND STABILISATION OF CUT BATTERS, REPRODUCED FROM ADVICE PROVIDED BY 'DOUGLAS PARTNERS'.

It is considered that this drawing has been prepared in general accordance with geotechnical recommendations contained in SC & Douglas Partners Report No 36572/5
Signed
Date 15/10/03
Douglas Partners Pty Ltd Geotechnics & Environment Groundwater

ISSUED FOR TENDER ONLY

NOT FOR CONSTRUCTION

DO NOT SCALE FROM THESE DRAWINGS

A1 CAD - DO NOT AMEND MANUALLY

0 10 20 30 40 50 60

CITY PLAN SERVICES

Title Structural

File No 22375

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA3004
Issued under Part 4A of the Environmental Planning And Assessment Act 1979

NO.	REVISION	INIT / DATE
2	RE-ISSUED FOR TENDER	18.11.03
1	ISSUED FOR TENDER	30.10.03

DESIGNED SD | CHECKED | APPROVED

TIERNEY
CONSULTING ENGINEERS
SYDNEY • ARMIDALE • SUVA • KUALA LUMPUR
TIERNEY & PARTNERS PTY LTD ACN 001 104 884
LEVEL 8, 411 VICTORIA AVENUE TEL: (02) 9904 6555
CHATSWOOD 2067 FAX: (02) 9904 6777
NSW AUSTRALIA E-MAIL: TIERNEY@TIERNEY.COM.AU
P.O. BOX 5040 WEST CHATSWOOD, NSW 1515 CAD FILE: 7531-R2

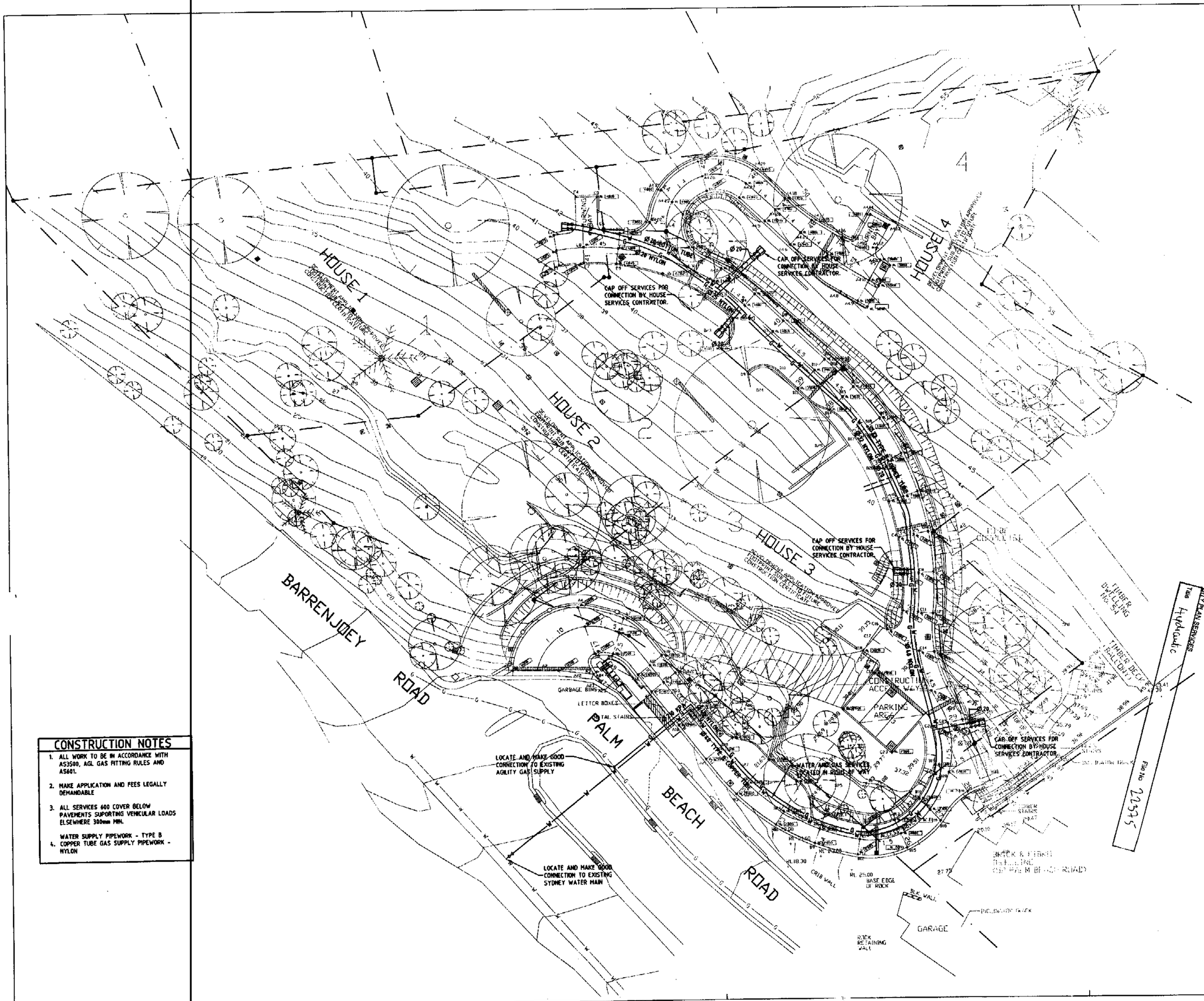
PROJECT
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD
PALM BEACH

DRAWING TITLE
DRIVEWAY ELEVATIONS
SHEET - 2

Client
RAYPOND PTY LTD

SCALE	DATE	DRAWN
1:200	AUG '02	JND

PROJECT NO.	DRAWING NO.	REVISION
7531	C18	2



CONSTRUCTION NOTES

1. ALL WORK TO BE IN ACCORDANCE WITH AS3500, AGL GAS FITTING RULES AND AS601.
2. MAKE APPLICATION AND FEES LEGALLY DEMANDABLE
3. ALL SERVICES 600 COVER BELOW PAVEMENTS SUPORTING VEHICULAR LOADS ELSEWHERE 300mm MIN.

   WATER SUPPLY PIPEWORK - TYPE B
4. COPPER TUBE GAS SUPPLY PIPEWORK - NYLON

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

C	RE-ISSUE FOR TENDER	19.11.02
B	ISSUE FOR TENDER	15.12.02
A	ISSUE FOR COMMENT	06.11.02

client
Raypond Pty. Ltd.

po.box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

services engineers
acor consultants acor@acor.com.au
level 1, 47 falcon st, crows nest nsw 2065
ph: + 61 2 8920 0477 fax: + 61 2 8920 1170

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatwood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
shirley consulting engineers Pty Ltd.
895 pacific highway, pymble, nsw 2073
ph: + 61 2 9449 5577 fax: + 61 2 9449 5136

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD

drawn	date	checked	plot date
ps	OCT 2002		

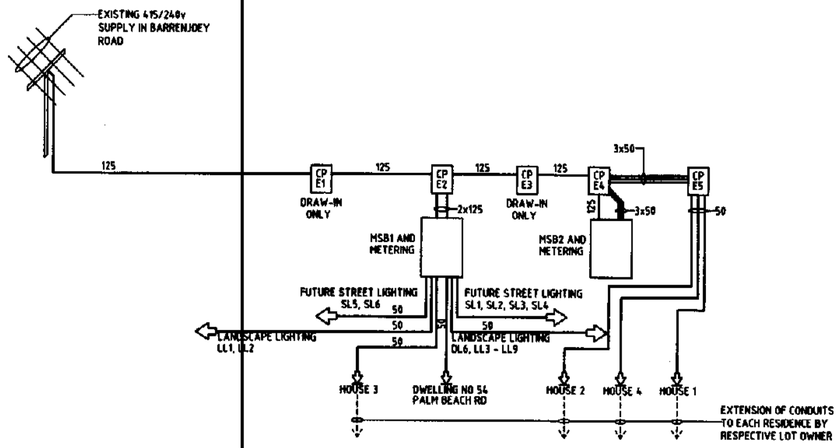
file name
SITE WATER & GAS SUPPLY

job no.
SY02.0431

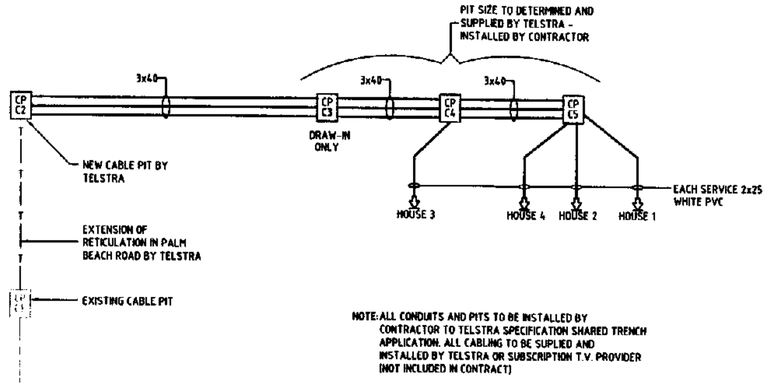
scale
1:200

revision/drawing no.
H1.01 C

364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1000 fax + 61 2 9262 3388
syd@cronenation.com
ACN 059 980 272
crone nation architects



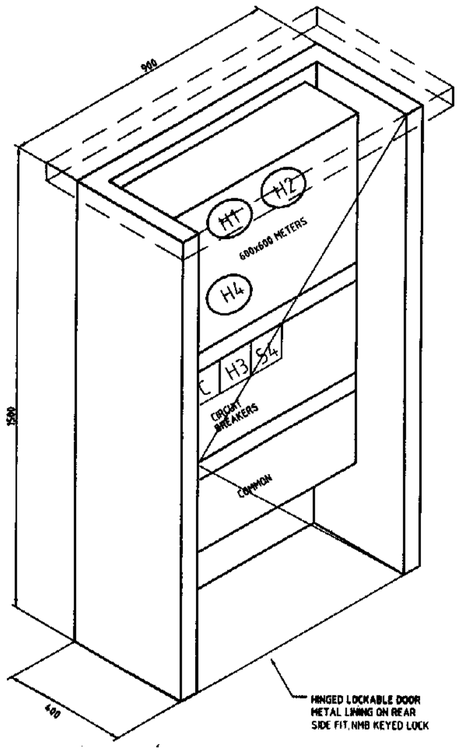
SCHEMATIC ARRANGEMENT
CONDUITS AND CABLE PITS
ELECTRICAL SERVICES
NOT TO SCALE



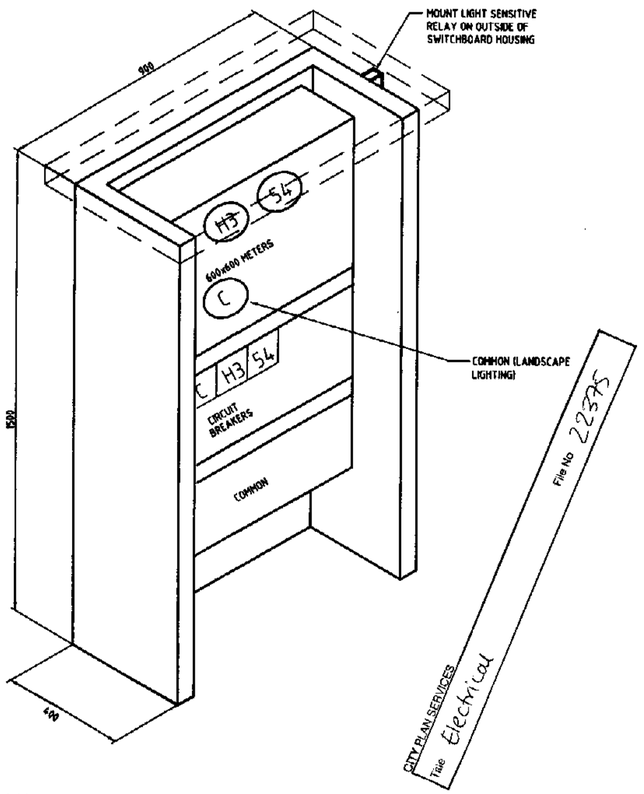
NOTE:ALL CONDUITS AND PITS TO BE INSTALLED BY CONTRACTOR TO TELSTRA SPECIFICATION SHARED TRENCH APPLICATION. ALL CABLING TO BE SUPLIED AND INSTALLED BY TELSTRA OR SUBSCRIPTION T.V. PROVIDER (NOT INCLUDED IN CONTRACT)

SCHEMATIC ARRANGEMENT
CONDUITS AND CABLE PITS
COMMUNICATION SERVICES
NOT TO SCALE

SINGLE LINE DIAGRAM
ELECTRICAL SERVICES
NOT TO SCALE



ELECTRICAL MSB2 & KIOSK
NOT TO SCALE



ELECTRICAL MSB1 & KIOSK
NOT TO SCALE

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

C	RE-ISSUE FOR TENDER	19.11.02
B	ISSUE FOR TENDER	15.12.02
A	ISSUE FOR COMMENT	06.11.02

client
Raypond Pty. Ltd.
po.box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

services engineers
acor consultants acor@acor.com.au
level 1, 47 falcon st, crows nest nsw 2065
ph: + 61 2 8920 0477 fax: + 61 2 8920 1170

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatwood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
shirley consulting engineers Pty Ltd.
895 pacific highway, pymble, nsw 2073
ph: + 61 2 9449 5577 fax: + 61 2 9449 5136

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD

drawn	date	checked	plot date
ps	OCT 2002		

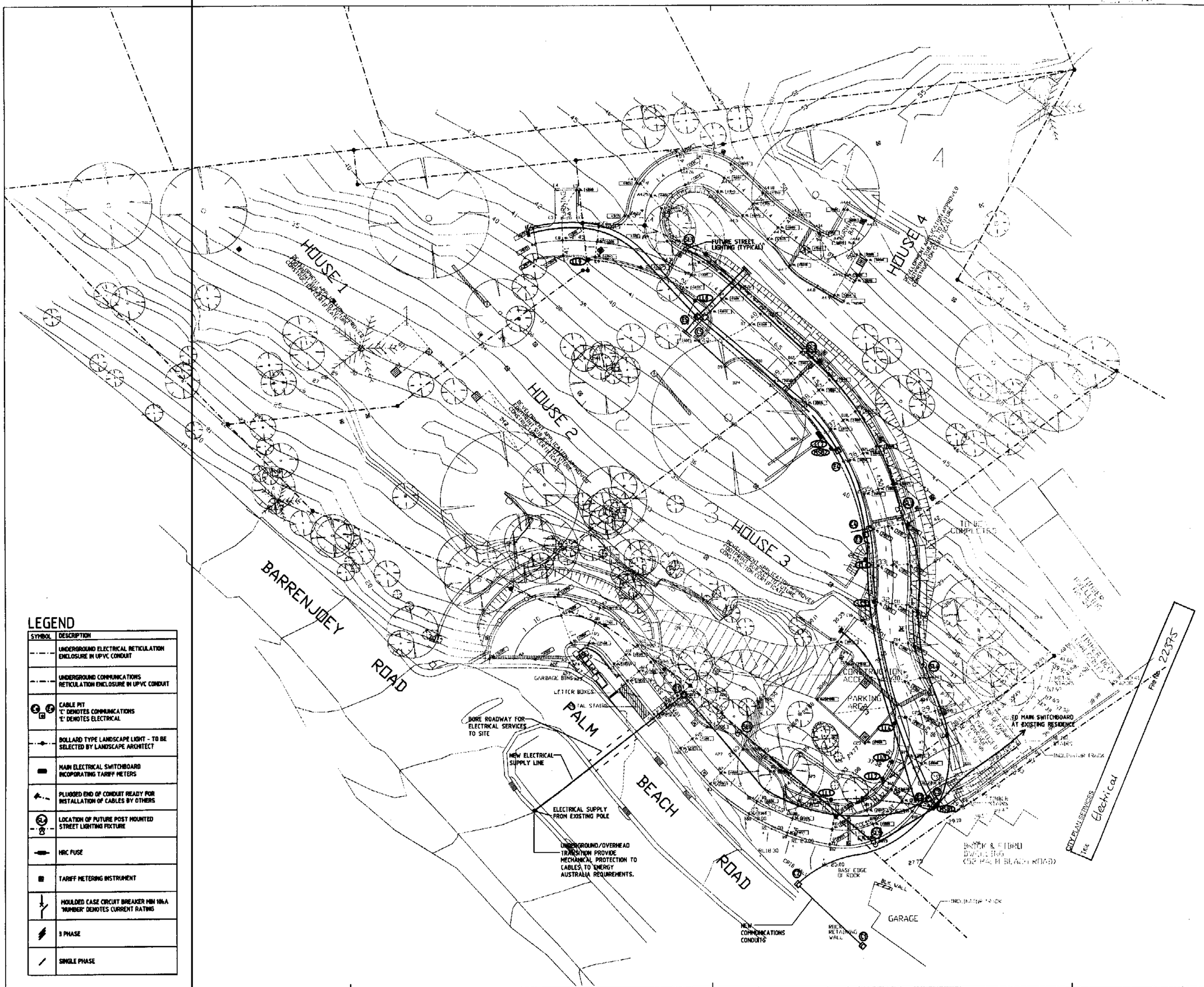
file name
SITE ELECTRICAL AND
COMMS. SCHEMATICS

job no.
SY02.0431

scale
N.T.S.

revision/drawing no.
E2.01
C

366 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3288
syd@cronenation.com
ACN 059 989 272
crone nation architects



LEGEND

SYMBOL	DESCRIPTION
	UNDERGROUND ELECTRICAL RETICULATION ENCLOSURE IN UPVC CONDUIT
	UNDERGROUND COMMUNICATIONS RETICULATION ENCLOSURE IN UPVC CONDUIT
C E	CABLE PIT 'C' DENOTES COMMUNICATIONS 'E' DENOTES ELECTRICAL
	BOLLARD TYPE LANDSCAPE LIGHT - TO BE SELECTED BY LANDSCAPE ARCHITECT
	MAIN ELECTRICAL SWITCHBOARD INCOPORATING TARIFF METERS
	PLUGGED END OF CONDUIT READY FOR INSTALLATION OF CABLES BY OTHERS
SL	LOCATION OF FUTURE POST MOUNTED STREET LIGHTING FIXTURE
	HRC FUSE
	TARIFF METERING INSTRUMENT
	MOULDED CASE CIRCUIT BREAKER MIN 10kA 'NUMBER' DENOTES CURRENT RATING
	3 PHASE
	SINGLE PHASE

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

C	RE-ISSUE FOR TENDER	19.11.02
B	ISSUE FOR TENDER	15.12.02
A	ISSUE FOR COMMENT	06.11.02

client
Raypond Pty. Ltd.

po box 1364, dee why, nsw 2099
mobile ph: + 61 2 9412 226 044 fax: + 61 2 9944 0316

services engineers
acor consultants acor@acor.com.au
level 1, 47 falcon st, crows nest nsw 2065
ph: + 61 2 8920 0477 fax: + 61 2 8920 1170

structural & civil engineers
hemsy & partners
level 5, 411 victoria avenue, chatwood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
shirley consulting engineers Pty Ltd.
895 pacific highway, pymble, nsw 2073
ph: + 61 2 9449 5577 fax: + 61 2 9449 5136

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pitt&dredigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 6500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT
1148-1152 BARRENJOEY ROAD
56 PALM BEACH ROAD

drawn	date	checked	plot date
ps	OCT 2002		

file name
SITE ELECTRICAL AND COMMUNICATIONS PLAN

job no.
SY02.0431

scale
1:200

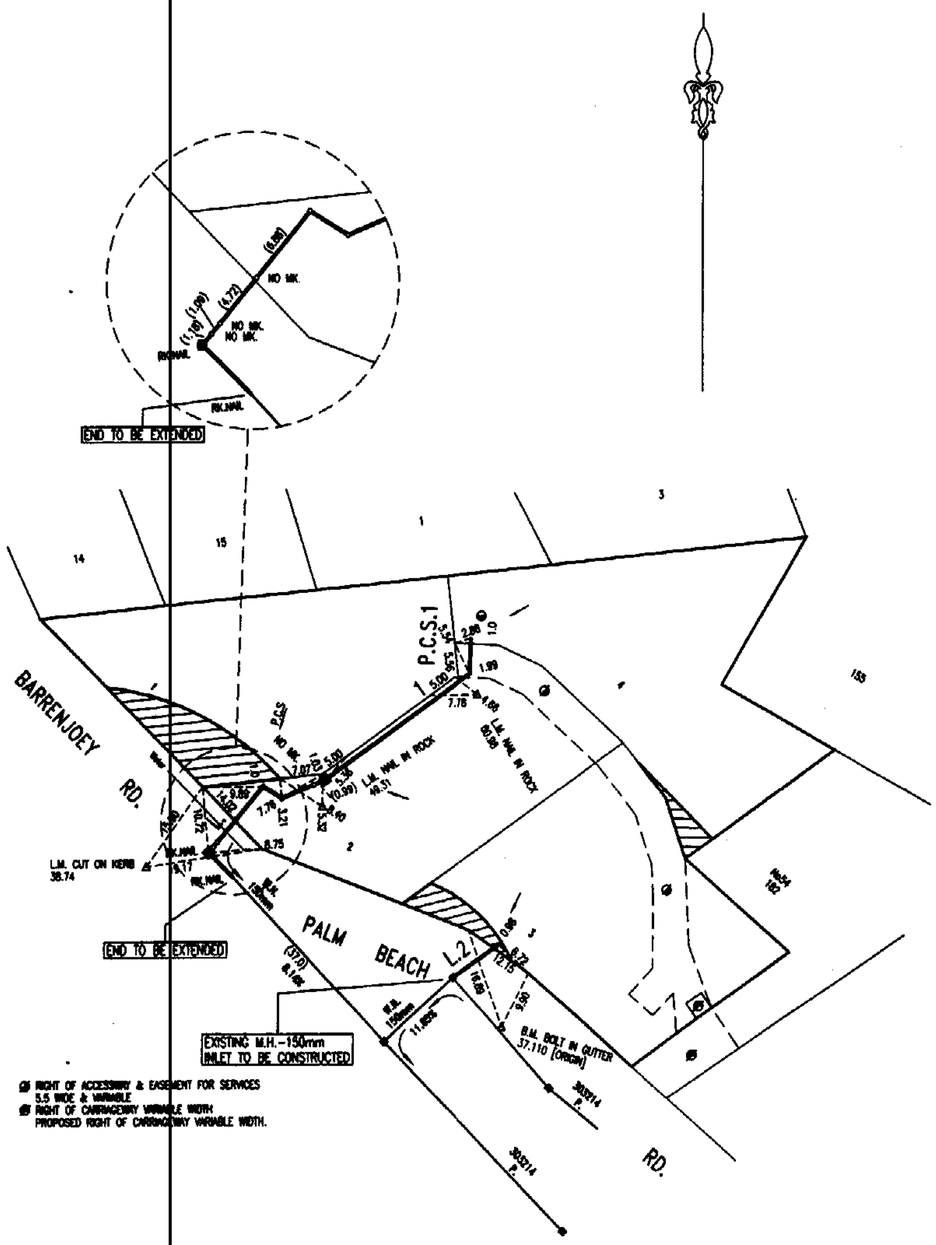
revision/drawing no.
E1.01

C

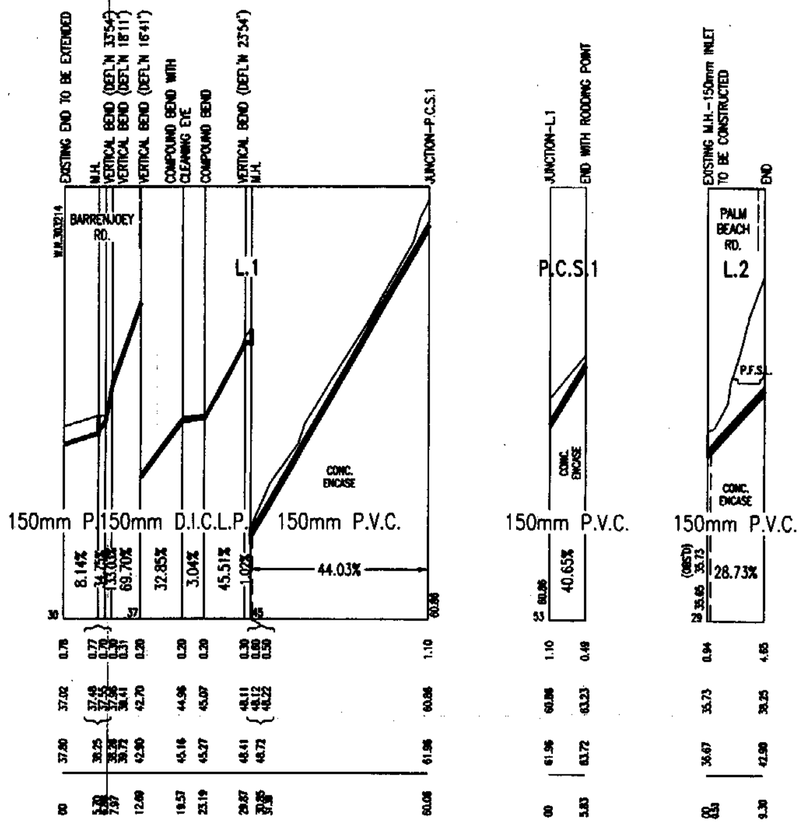
364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1900 fax + 61 2 9262 3300
syd@cronenation.com
ACN 069 909 272
crone nation architects

A1

DEVELOPER CONTRACT PLAN



Ⓐ RIGHT OF ACCESSWAY & EASEMENT FOR SERVICES 5.5 WIDE & VARIABLE
Ⓑ RIGHT OF CARRIAGEWAY VARIABLE WIDTH
PROPOSED RIGHT OF CARRIAGEWAY VARIABLE WIDTH.



0 10 20 30 40 50 METRES

NOTES :-

1. SURVEY, DESIGN & FINAL PLANS PREPARED BY
   MICHAEL BELL & PARTNERS PTY LTD
   P.O. BOX 478 ROSEVILLE N.S.W. 2069
   FOR
   RAYPOND DEVELOPMENTS
   P.O. BOX 1364
   DEE WHY N.S.W. 2099
2. ALL STRUCTURES TO BE CONSTRUCTED TO PROPOSED FINISHED SURFACE LEVELS.
3. PIPES TO BE CONCRETE ENCASED SHOWN ACCORDINGLY:
4. AREAS HATCHED THUS NOT DRAINED.
5. Ⓔ DENOTES END WITH RODDING POINT.
6. ALL LEVELS ELECTRONICALLY GENERATED. NO LEVEL BOOK AVAILABLE.
7. THE MINIMUM NUMBER OF COMPACTION TESTS REQUIRED TO SATISFY SECTION SC 13.2.5 OF THE SYDNEY WATER SUPPLEMENT (PART 4: CONSTRUCTION) ARE:

PIPE EMBEDMENT ZONE	TRENCH FILL ZONE
L.1 1	1
L.2 1	4
P.C.S.1 1	2

CITY PLAN SERVICES
File No 2237
Title Electrical

RELEASED

The proposed works detailed here on must be constructed in accordance with Water Services Association of Australia (W.S.A.A.) National Codes and applicable Sydney Water Supplements. The sub-contractor must have a copy of these documents on site at all times. The following documents refer:-

SEWER Sewer Reticulation Code of Australia–W.S.A. 02–1999
Sydney Water Supplement to S.R.C.A.–March 2000

PLAN TO BE READ IN CONJUNCTION WITH CURRENT SYDNEY WATER STANDARDS

PRIOR TO COMMENCEMENT OF EXCAVATION FOR PROPOSED AND EXISTING SERVICES CONTACT :–
ELECTRICITY ..... Ph. .....
NATURAL GAS Co. ..... Ph. .....
TELSTRA ..... Ph. .....
..... Ph. .....
Dial AT LEAST 48 HOURS BEFORE

UTILITIES

TYPE	DATE	REF.	TYPE	DATE	REF.

WORK AS EXECUTED CERTIFICATION

DEVELOPER .....
PROJECT MANAGER .....
CONSTRUCTOR .....
COMPLETED ..... W.A.E. PREPARED .....

DESIGNER
I CERTIFY THAT THE WORKS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE WORK AS EXECUTED DRAWINGS.
FOR SIGNATURE AUTHORIZATION/S REFER TO PRACTICAL COMPLETION REPORT SOACS /DESIGN DEVELOPMENT CHECKLIST

PIPE SCHEDULE

SIZE mm	TYPE	CLASS	LENGTH	NOTES
150	V.C.P.	4	5.70	
150	D.I.C.L.P.		28.19	
150	P.V.C.	S.N.8	44.37	

DESIGNLAND ..... m

NO BOUNDARY TRAPS REQUIRED.

ALL LEVELS REFER TO A PLANE 20 BELOW AUSTRALIAN HEIGHT DATUM

SCALES
PLAN 1:500 SECTION (HOR. 1:500, VERT. 1:125)
CROSS SECTIONS ..... NATURAL
LENGTHS, DEPTHS & LEVELS ARE IN METRES

NO AMENDMENTS ARE TO BE MADE TO THIS PLAN WITHOUT REFERENCE TO SYDNEY WATER. INFORMATION SHOWN IS SUBJECT TO ALTERATION DURING CONSTRUCTION.

U.B DIRECTORY 78 P15 (34th ed)
SUB No. 197

SHEET 1 OF 1 | File No. 13701

Sydney WATER EASTERN REGION
Proj. No. 13701WW | SYSTEM CODE 028

PITTWATER SEWERAGE
DRAINS TO
PALM BEACH CARRIER VIA BARRENJOEY VACUUM SEWERAGE SCHEME
WARRIEWOOD OCEAN OUTFALL

02051(19/08/02)

SHEET 1 OF 1 SHEETS Proj. No.13701WW

SUB-DIVISION WORKS
TENDER ONLY
20 NOV 2002

20006 / ADDS 0006 / 4	SUB-DIVISION SITE SETOUT PLAN
20006 / ADDS 0007 / 4	SITE WORKS - SHEET 1
20006 / ADDS 0008 / 4	SITE WORKS - SHEET 2
20006 / ADDS 0010 / 4	SITE SETOUT - SHEET 1
20006 / ADDS 0011 / 4	SITE SETOUT - SHEET 2
20006 / ASAS 3001 / 2	SUB-DIVISION DRIVEWAY CROSS SECTIONS
20006 / ASAS 3002 / 3	STAIRS - GARBAGE BINS - LETTER BOXES - RETAINING WALL
20006 / ADA5 1001/ 4	HOWARD'S GARAGE SITE/GROUND/ROOF PLAN ELEVATIONS/SECTION
20006 / ADA5 1002/ 4	HOWARD'S GARAGE SITE/GROUND/ROOF PLAN ELEVATIONS/SECTION

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Benacci
Accreditation No: PIA 8004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

client
Raypond Pty.Ltd.

po box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde, nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4796

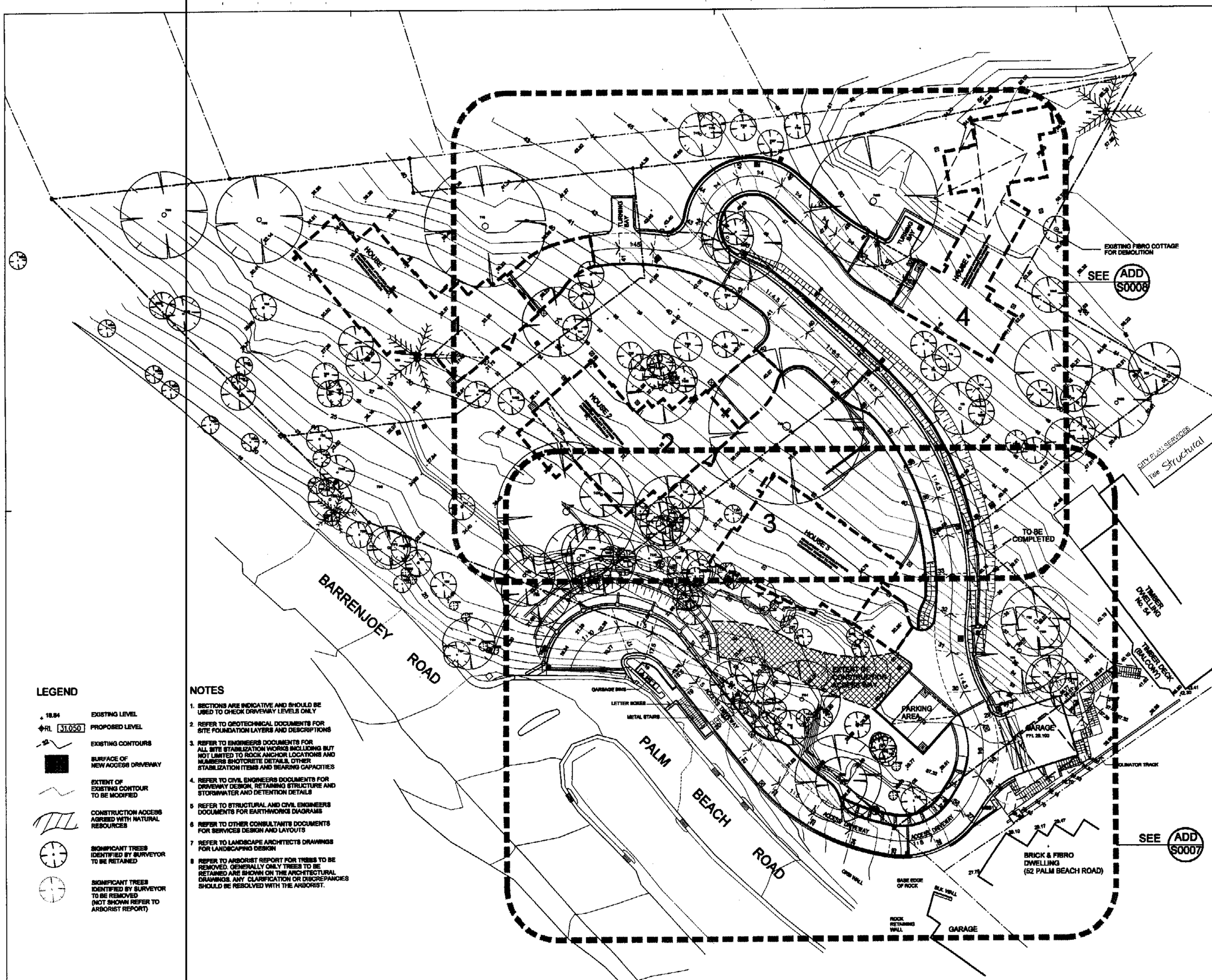
landscape
pittendrigh whitfield & bruce
380 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

CITY PLAN SERVICES
File No 22735
Title Structural

344 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3288
syd@cronenation.com ACN 089 789 272
crone nation architects
crone design partnership



LEGEND

- 18.84 — EXISTING LEVEL
- RL 31.050 — PROPOSED LEVEL
- EXISTING CONTOURS
- SURFACE OF NEW ACCESS DRIVEWAY
- EXTENT OF EXISTING CONTOUR TO BE MODIFIED
- CONSTRUCTION ACCESS AGREED WITH NATURAL RESOURCES
- SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE RETAINED
- SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE REMOVED (NOT SHOWN REFER TO ARBORIST REPORT)

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYERS AND DESCRIPTIONS
3. REFER TO ENGINEERS DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN
8. REFER TO ARBORIST REPORT FOR TREES TO BE REMOVED. GENERALLY ONLY TREES TO BE RETAINED ARE SHOWN ON THE ARCHITECTURAL DRAWINGS. ANY CLARIFICATION OR DISCREPANCIES SHOULD BE RESOLVED WITH THE ARBORIST.

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	06-9-02	Issued for Information & Co-Ordination
2	02-10-02	Revise Entry Stair and Letter Box Revise Retaining Wall and Pathway Issue for Information
3	15-10-02	Preliminary Issue for inclusion in Construction Management Plan
4	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA 3004
Issued under Part 4A of the Environmental Planning

File No 22375

CITY PLAN SERVICES
Title Structural

client
Raypond Pty.Ltd.

po.box 1384, dee why, nsw 2099
mobile ph: + 61 2 0412 228 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde, nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
plitteridgh shinfield & bruce
389 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vhn	July-2002	QF number	11 nov 2002

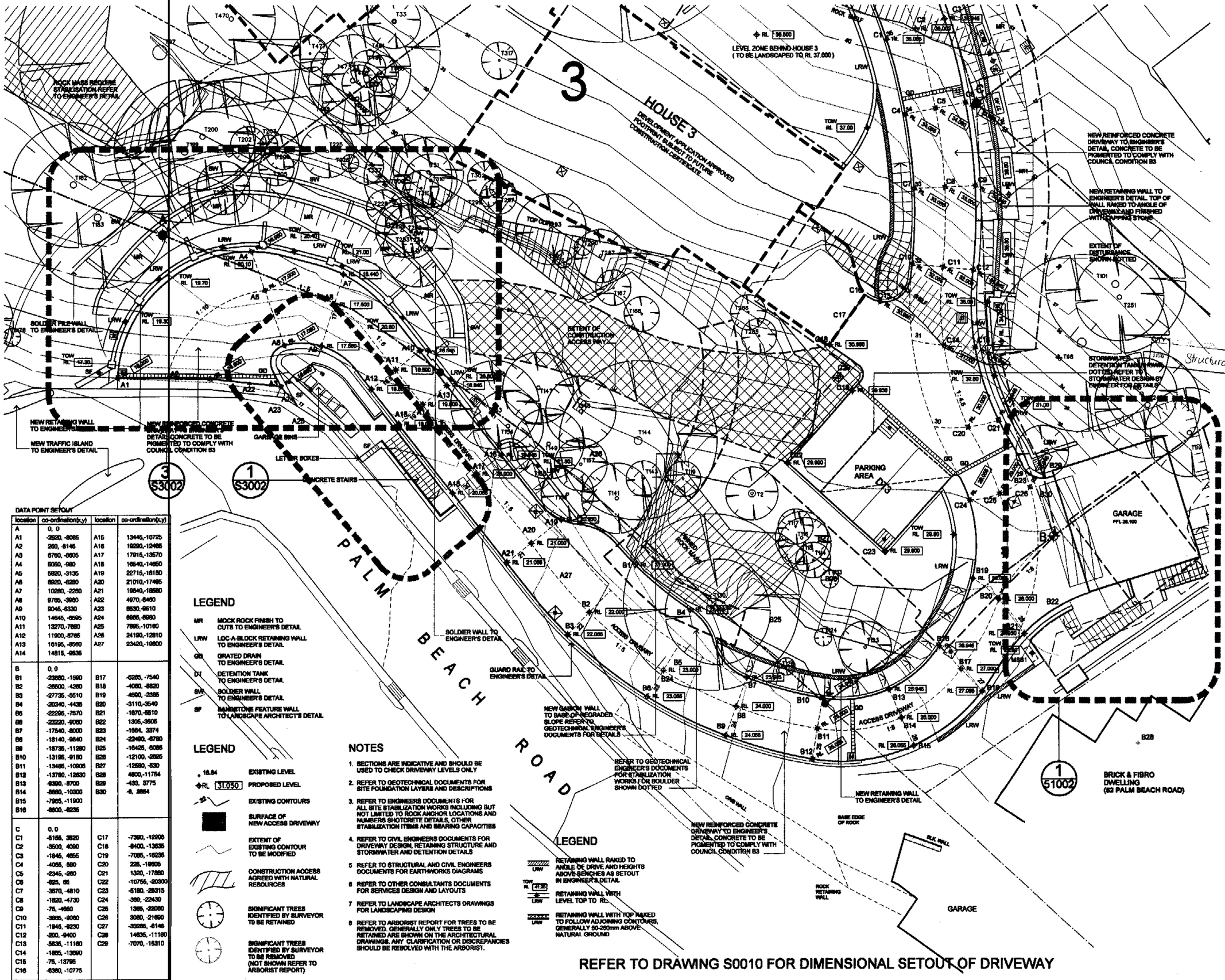
file name
SUB-DIVISION
SITE SETOUT - KEY PLAN

job no. 20006

scale
1:200 @ A1
1:400 @ A3

revision/drawing no.
4 design development
ADD S0006

364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1589 fax + 61 2 9262 3266
syd@cronenation.com ACN 057 787 272
crone nation architects
crone design partnership



DATA POINT SETOUT

location	co-ordination(x,y)	location	co-ordination(x,y)
A	0, 0		
A1	-2520, -8085	A15	13445,-10725
A2	260, -8145	A16	16280,-12485
A3	6760, -8605	A17	17915,-13570
A4	8060, -980	A18	18540,-14650
A5	5820, -3135	A19	22715,-16180
A6	6920, -6280	A20	21010,-17495
A7	10280, -2250	A21	19840,-18580
A8	9765, -3980	A22	4970,-6460
A9	9045,-6330	A23	8530,-9510
A10	14645, -6595	A24	6985,-8980
A11	13270,-7880	A25	7995,-10160
A12	11900,-8765	A26	24180,-12810
A13	16195, -8560	A27	23420,-19800
A14	14815, -9835		
B	0, 0		
B1	-23680, -1590	B17	-5265, -7540
B2	-26500, -4260	B18	-4080, -8820
B3	-27735, -5510	B19	-4560, -2385
B4	-20340, -4435	B20	-3110,-3540
B5	-22295, -7570	B21	-1870,-5510
B6	-23220, -9060	B22	1305,-3505
B7	-17540, -8000	B23	-1664, 3374
B8	-18140, -9840	B24	-22460, -6780
B9	-18735, -11280	B25	-16425, -5085
B10	-13195, -9180	B26	-12100, -2925
B11	-13485, -10905	B27	-12580, -530
B12	-13780, -12630	B28	4800,-11754
B13	-9300, -8700	B29	-433, 3775
B14	-8680, -10300	B30	-6, 2954
B15	-7905, -11900		
B16	-8800, -8235		
C	0, 0		
C1	-5155, 3520	C17	-7380, -12905
C2	-3500, 4080	C18	-8400, -13635
C3	-1845, 4655	C19	-7095, -16235
C4	-4065, -580	C20	225, -19005
C5	-2345, -260	C21	1320, -17880
C6	-825, 65	C22	-10755, -20300
C7	-3570, -4810	C23	-5180, -25315
C8	-1620, -4730	C24	-350, -22430
C9	-75, -4660	C25	1365, -22080
C10	-3895, -9060	C26	3080, -21690
C11	-1945, -9230	C27	-33295, -8145
C12	-200, -9400	C28	14635, -11180
C13	-5835, -11180	C29	-7070, -15310
C14	-1805, -13590		
C15	-75, -13798		
C16	-6360, -10775		

LEGEND

MR	MOCK ROCK FINISH TO CUTS TO ENGINEER'S DETAIL
LRW	LOC-A-BLOCK RETAINING WALL TO ENGINEER'S DETAIL
GD	GRATED DRAIN TO ENGINEER'S DETAIL
DT	DETENTION TANK TO ENGINEER'S DETAIL
SW	SOLDIER WALL TO ENGINEER'S DETAIL
SF	SANDSTONE FEATURE WALL TO LANDSCAPE ARCHITECT'S DETAIL

LEGEND

18.84	EXISTING LEVEL
RL 31.050	PROPOSED LEVEL
	EXISTING CONTOURS
	SURFACE OF NEW ACCESS DRIVEWAY
	EXTENT OF EXISTING CONTOUR TO BE MODIFIED
	CONSTRUCTION ACCESS AGREED WITH NATURAL RESOURCES
	SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE RETAINED
	SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE REMOVED (NOT SHOWN REFER TO ARBORIST REPORT)

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYERS AND DESCRIPTIONS
3. REFER TO ENGINEERS DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN
8. REFER TO ARBORIST REPORT FOR TREES TO BE REMOVED. GENERALLY ONLY TREES TO BE RETAINED ARE SHOWN ON THE ARCHITECTURAL DRAWINGS. ANY CLARIFICATION OR DISCREPANCIES SHOULD BE RESOLVED WITH THE ARBORIST.

LEGEND

LRW	RETAINING WALL RAKED TO ANGLE OF DRIVE AND HEIGHTS ABOVE BENCHES AS SETOUT IN ENGINEER'S DETAIL
TOW RL 21.80 LRW	RETAINING WALL WITH LEVEL TOP TO RL
LRW	RETAINING WALL WITH TOP RAKED TO FOLLOW ADJOINING CONTOURS, GENERALLY 50-250mm ABOVE NATURAL GROUND

REFER TO DRAWING S0010 FOR DIMENSIONAL SETOUT OF DRIVEWAY

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	06-9-02	Issued for Information & Co-Ordination
2	02-10-02	Revise Retaining Wall
3	15-10-02	Issue for Information Preliminary Issue for Inclusion in Construction Management Plan
4	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPB 3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

Structural
File No 22375

client
Raypond Pty.Ltd.

po box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
Nerney & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9804 6666 fax: + 61 2 9804 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde. nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta. nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
philendrigh shirkfield & bruce
380 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vhn	July-2002	QF number	11 nov 2002

file name
SITE WORKS SHEET 1

job no.
20006

scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
4 design development
ADD S0007

304 kent street sydney nsw 2000 australia
tel + 61 2 9262 1700 fax + 61 2 9262 3288
syd@crownation.com ACN 067 757 272
crone nation architects
crone design partnership

LEGEND

- 18.84 EXISTING LEVEL
- RL 31.050 PROPOSED LEVEL
- EXISTING CONTOURS
- SURFACE OF NEW ACCESS DRIVEWAY
- EXTENT OF EXISTING CONTOUR TO BE MODIFIED
- CONSTRUCTION ACCESS AGREED WITH NATURAL RESOURCES
- SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE RETAINED
- SIGNIFICANT TREES IDENTIFIED BY SURVEYOR TO BE REMOVED (NOT SHOWN REFER ARBORIST REPORT)

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYERS AND DESCRIPTIONS
3. REFER TO ENGINEERS DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN
8. REFER TO ARBORIST REPORT FOR TREES TO BE REMOVED. GENERALLY ONLY TREES TO BE RETAINED ARE SHOWN ON THE ARCHITECTURAL DRAWINGS. ANY CLARIFICATION OR DISCREPANCIES SHOULD BE RESOLVED WITH THE ARBORIST.

LEGEND

- MR MOCK ROCK FINISH TO CUTS TO ENGINEER'S DETAIL
- LRW LOC-A-BLOCK RETAINING WALL TO ENGINEER'S DETAIL
- GD GRATED DRAIN TO ENGINEER'S DETAIL
- DT DETENTION TANK TO ENGINEER'S DETAIL
- SW SOLDIER WALL TO ENGINEER'S DETAIL
- SF SANDSTONE FEATURE WALL TO LANDSCAPE ARCHITECT'S DETAIL

LEGEND

- RETAINING WALL RAKED TO ANGLE OF DRIVE AND HEIGHTS ABOVE BENCHES AS SETOUT IN ENGINEER'S DETAIL
- RETAINING WALL WITH LEVEL TOP TO RL
- RETAINING WALL WITH TOP RAKED TO FOLLOW ADJOINING CONTOURS, GENERALLY 50-250mm ABOVE NATURAL GROUND

REFER TO DRAWING S0011 FOR DIMENSIONAL SETOUT OF DRIVEWAY

NEW RETAINING WALLS TO ENGINEER'S DETAILS

EXTENT OF DISTURBANCE LINE SHOWN DOTTED

REINFORCED CONCRETE DRIVEWAY REFER TO DETAILS

GUARD RAIL TO ENGINEER'S DETAIL EXTENT SHOWN INDICATIVELY

STORMWATER DIRECTION TANK SHOWN DOTTED, REFER TO STORMWATER DESIGN BY ENGINEER FOR DETAILS

EXISTING COTTAGE TO BE DEMOLISHED. PRINCIPAL'S OFFICE DURING CONSTRUCTION OF ROAD

GUARD RAIL TO ENGINEER'S DETAIL

NEW REINFORCED CONCRETE DRIVEWAY TO ENGINEER'S DETAIL. CONCRETE TO BE PIGMENTED TO COMPLY WITH COUNCIL CONDITION D3

REFER TO ENGINEER'S DETAILS FOR CUT ANGLES AND STABILISATION WORKS

NEW RETAINING WALL TO ENGINEER'S DETAILS TOP OF WALL RAKED TO FOLLOW DRIVEWAY AND FINISHED WITH CAPPING STONE

LEVEL ZONE BEHIND HOUSE 3 (TO BE LANDSCAPED TO RL 37.000)

HOUSE 2 DEVELOPMENT APPLICATION APPROVED FOOTPRINT SUBJECT TO FUTURE CONSTRUCTION CERTIFICATE

HOUSE 4 DEVELOPMENT APPLICATION APPROVED FOOTPRINT SUBJECT TO FUTURE CONSTRUCTION CERTIFICATE

HOUSE 3 DEVELOPMENT APPLICATION APPROVED FOOTPRINT SUBJECT TO FUTURE CONSTRUCTION CERTIFICATE

DT1 DT2 DT3 DT4

DATA POINT SETOUT

location	co-ordinates(x,y)	location	co-ordinates(x,y)
A4	0, 0		
A4-0	6365,-4315	A4-21	-490, 4810
A4-1	2845, -1840	A4-22	-1885, 1090
A4-2	1990, 1850	A4-23	3325, -1665
A4-3	4760, 4615	A4-24	371, -1214
A4-4	8520, 3815	A4-25	720, 3415
A4-5	11455, 1090	A4-26	4270, 6295
A4-6	12365, -1645	A4-27	8990, 5420
A4-7	16055, -4870	A4-28	12850, 2405
A4-8	20215, -7045	A4-29	16980, -295
A4-9	22175, -5165	A4-30	18680, -2730
A4-10	23510, 6820	A4-31	3250, -4545
A4-11	24845, -3475	A4-32	-4095, 2205
A4-12	24135, -2090	A4-33	3590, 670
A4-13	23025, -515	A4-34	8955, -7795
A4-14	23730, 1790	A4-35	9610, -27875
A4-15	22655, -855	A4-36	22670, 185
A4-16	20320, -905	A4-37	21365, -1975
A4-17	18585, 1155	A4-38	25300, 2590
A4-18	13795, 3580	A4-39	31118,21715
A4-19	10075, 7015		
A4-20	3790, 7975		

DATA POINT SETOUT

location	co-ordinates(x,y)	location	co-ordinates(x,y)
D	0, 0		
D1	-18980, 8495	D15	-405, -3365
D2	-15020, 9975	D16	1165, -6180
D3	-12755, 5720	D17	1630, -7670
D4	-11400, 7205	D18	2780, -8880
D5	-10220, 8495	D19	4185, -8845
D6	-14100, 2290	D20	3835, -11505
D7	-8180, 4210	D21	5925, -10705
D8	-6925, 5430	D22	6660, -9905
D9	-11105, -420	D23	-18075, 4760
D10	-7580, -270	D24	-9285, -2100
D11	-5300, -2385	D25	-3215, -8470
D12	-3380, -280	D26	-440, 490
D13	-2165, 1000		
D14	-1635, -4840		
E	0, 0		
E1	-19605, -375	E7	-18535, -70
E2	-20110, 3105	E8	-16095, 1675
E3	-17540, 4325	E9	-12905, -225
E4	-17895, 7450	E10	-12700, 1510
E5	-15085, 7480		
E6	-15040, 4325		

RECEIVED
18 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number 22375
Approved 25 NOV 2003
Accredited Certifier Brendan Bennett
Accreditation No PIA 3004
Issued under Part 4A of the Environmental Planning and Assessment Act 1979

File No 22375
Structural

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	08-9-02	Issued for Information & Co-Ordination
2	02-10-02	Revise Retaining Wall Issue for Information
3	15-10-02	Preliminary Issue for Inclusion in Construction Management Plan
4	12-11-02	Issue for Tender & Construction Certificate

client
Raypond Pty.Ltd.
po.box 1354, dee why, nsw 2099
mobile ph: + 61 2 0412 228 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 6, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6655 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde. nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinfield & bruce
380 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1146-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vhn	july-2002	OF number	11 nov 2002

file name
SITE WORKS SHEET 2

job no.
20006

scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
4 design development
ADD S0008

364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3208
sydney@cronenation.com ACN 089 789 272
crone nation architects
crone design partnership

3

HOUSE 3

DEVELOPMENT APPLICATION APPROVED
FOOTPRINT SUBJECT TO FUTURE
CONSTRUCTION CERTIFICATE

ROCK MASS REQUIRE STABILISATION REFER TO ENGINEER'S DETAIL

TOP OF BANK

TOP OF KERB

ROCK SHELF

EXPOSED ROCK FACE

ACCESS DRIVEWAY 1:5

PALM BEACH ROAD

GARAGE
FFL 28.100

BRICK & FIBRO DWELLING
(52 PALM BEACH ROAD)

REFER TO DRAWING ADD 51002 FOR GARAGE SET OUT

DRAWING FOR DIMENSIONAL SETOUT OF DRIVEWAY ONLY

DATA POINT SETOUT

location	co-ordination(x,y)	location	co-ordination(x,y)
A	0, 0		
A1	2520, -8095	A15	13445,-10725
A2	280, -8145	A16	19290,-12465
A3	5760, -8605	A17	17915,-13530
A4	8050, -960	A18	16540,-14600
A5	5820, -3135	A19	22715,-16150
A6	6920, -6280	A20	21040,-17400
A7	10280, -2250	A21	19640,-18560
A8	9765, -3980	A22	4970, -8460
A9	9045,-6330	A23	4630, -8510
A10	14645,-6595	A24	6955, -8080
A11	13270,-7680	A25	7895,-10195
A12	11900,-8765	A26	24190,-12810
A13	16195, -9580	A27	23020,-19660
A14	14815, -9635		
B	0, 0	B17	-25095, -7540
B1	-23880, -1590	B18	-26080, -8620
B2	-26500, -4280	B19	-25850, -2360
B3	-27735, -5510	B20	-25170, -3250
B4	-20340, -4435	B21	-870, -5500
B5	-22295, -7570	B22	2960, -6310
B6	-23220, -9080	B23	-9, 540
B7	-17540, -9000	B24	-22460, -8700
B8	-18140, -9640	B25	-18425, -5035
B9	-16735, -11280	B26	-12100, -2855
B10	-13195, -9180	B27	-12580, -530
B11	-13485, -10905	B28	2990, -12015
B12	-13780, -12630	B29	-3160, 3585
B13	-9995, -8700	B30	485, 1485
B14	-9880, -10300		
B15	-7985, -11900		
B16	-6500, -9235		
C	0, 0	C17	-7580, -12005
C1	-5185, 3520	C18	-8400, -13035
C2	-3500, 4080	C19	-7085, -16235
C3	-1845, 4655	C20	225, -19905
C4	-4085, -860	C21	1320, -17680
C5	-2345, -280	C22	-10755, -20300
C6	-625, 65	C23	-5180, -25315
C7	-3570, -4810	C24	-350, -22430
C8	-1820, -4730	C25	1365, -22680
C9	-75, -4650	C26	3080, -21690
C10	-3885, -9080	C27	-33695, -9145
C11	-1945, -9230	C28	14835, -11180
C12	-200, -9400	C29	-7070, -15310
C13	-5635, -11180		
C14	-1885, -13690		
C15	-75, -13795		
C16	-5380, -10775		

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	06-9-02	Issue for Information & Co-Ordination
2	02-10-02	Revise Entry Stair and Letter Box
3	15-10-02	Issue for Information Preliminary Issue for Inclusion in Construction Management Plan
4	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD

Construction Certificate Number: 22315
Approved: 25 NOV 2003
Accredited Certifier: Brendan Gleeson
Accreditation No: PIA 3004
Issued under Part IA of the Environmental Planning and Assessment Act 1979

CITY PLAN SERVICES
title Structural
File No 22375

client
Raypond Pty.Ltd.
po box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde. nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9635 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shirtcliff & bruce
386 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4600 fax: +61 2 9906 4479

address
1146-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vnn	july-2002	QF number	11 nov 2002

file name
SITE SETOUT
SHEET 1

job no.
20006

scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
4 design development
ADD | S0010

366 kent street sydney new 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3289
syd@cronenation.com ACN 057 189 272
crone nation architects
crone design partnership

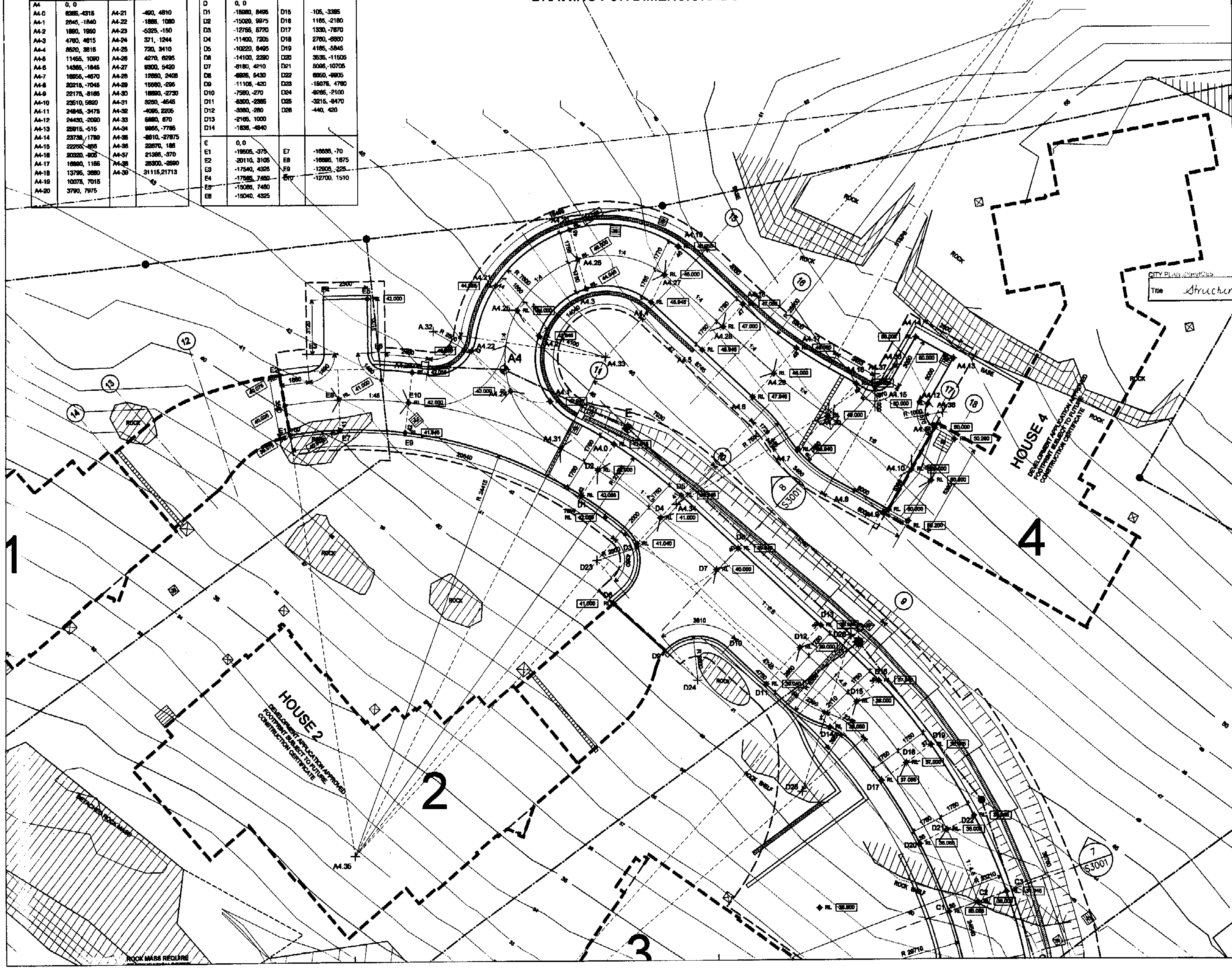
DRAWING FOR DIMENSIONAL SETOUT OF DRIVEWAY ONLY

DATA POINT SETOUT

location	co-ordination(x,y)	location	co-ordination(x,y)
A4	0, 0		
A4-0	6365,-4315	A4-21	-490, 4810
A4-1	2645, -1640	A4-22	-1865, 1080
A4-2	1880, 1950	A4-23	-5325, -150
A4-3	4760, 4615	A4-24	371, -1244
A4-4	8620, 3815	A4-25	720, 3410
A4-5	11455, 1090	A4-26	4270, 6295
A4-6	14365, -1645	A4-27	9300, 5420
A4-7	18956, -4670	A4-28	12650, 2405
A4-8	20215, -7045	A4-29	15560, -295
A4-9	22175, -8165	A4-30	18690, -2730
A4-10	23510, 5820	A4-31	8250, -4645
A4-11	24845, -3475	A4-32	-4095, 2205
A4-12	24430, -2090	A4-33	6880, 670
A4-13	25915, -515	A4-34	9965, -7785
A4-14	23730, 1780	A4-35	-8610, -27875
A4-15	22265, -855	A4-36	22670, 185
A4-16	20320, -905	A4-37	21385, -370
A4-17	16880, 1165	A4-38	25300, -2590
A4-18	13795, 3880	A4-39	31115,21713
A4-19	10075, 7015		
A4-20	3790, 7975		

DATA POINT SETOUT

location	co-ordination(x,y)	location	co-ordination(x,y)
D	0, 0		
D1	-15980, 8495	D15	-105, -3385
D2	-15020, 9975	D16	1165, -2180
D3	-12755, 5720	D17	1330, -7870
D4	-11400, 7205	D18	2760, -6860
D5	-10220, 8495	D19	4185, -5845
D6	-14100, 2290	D20	3535, -11505
D7	-8160, 4210	D21	5095,-10705
D8	-6825, 5430	D22	6650, -9905
D9	-11105, -420	D23	-15075, 4760
D10	-7580, -270	D24	-9265, -2100
D11	-6300, -2365	D25	-3215, -8470
D12	-3380, -260	D26	-440, 420
D13	-2165, 1000		
D14	-1835, -4840		
E	0, 0		
E1	-19505, -375	E7	-16635, -70
E2	-20110, 3105	E8	-16695, 1675
E3	-17540, 4325	E9	-12805, -225
E4	-17585, 7480	E10	-12700, 1510
E5	-15085, 7480		
E6	-15040, 4325		



notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	05-9-02	Issue for Information & Co-Ordination
2	02-10-02	Revise Entry Stair and Letter Box Issue for Information
3	15-10-02	Preliminary Issue for inclusion in Construction Management Plan
4	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA 3004

CITY PLAN SERVICES
Title Structural File No 22375

client
Raypond Pty.Ltd.
po.box 1384, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde, nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shinkfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

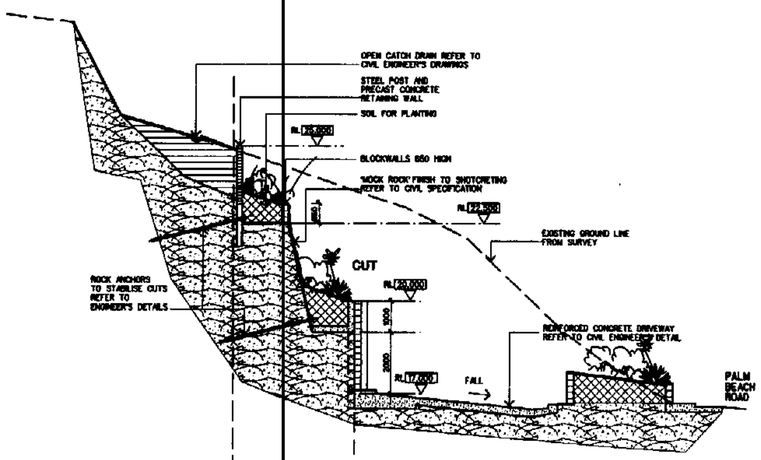
drawn	date	checked	plot date
vhn	july-2002	CF number	11 nov 2002

file name	job no.
SITE SETOUT SHEET 2	20006

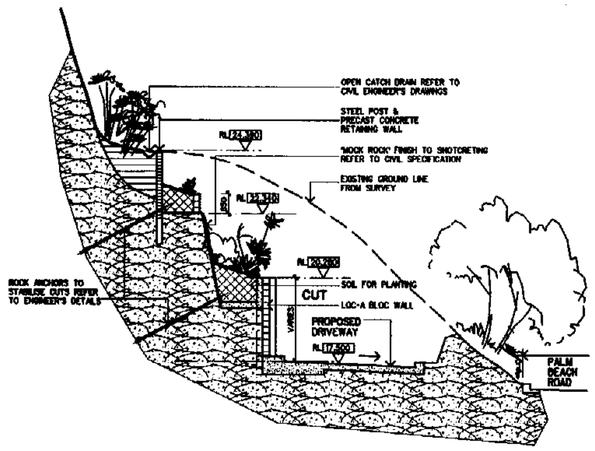
scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
4 design development
ADD S0011

341 kent street sydney nsw 2000 australia
tel + 61 2 9262 1788 fax + 61 2 9262 3283
sydney@cronenation.com ACN 089 989 272
crone nation architects
crone design partnership



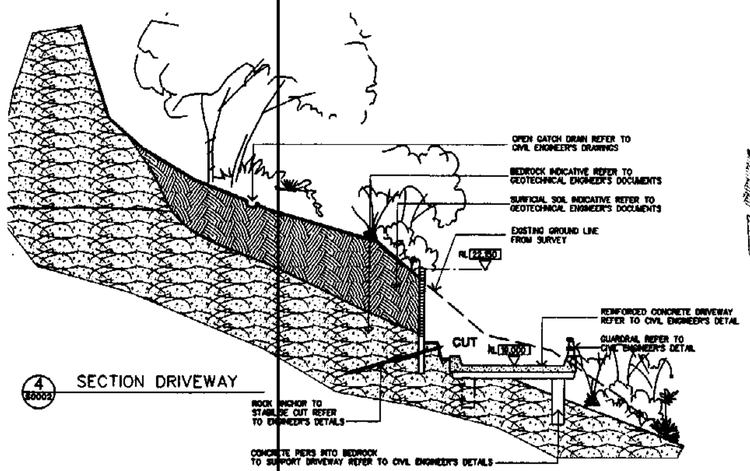
1 SECTION DRIVEWAY
50002



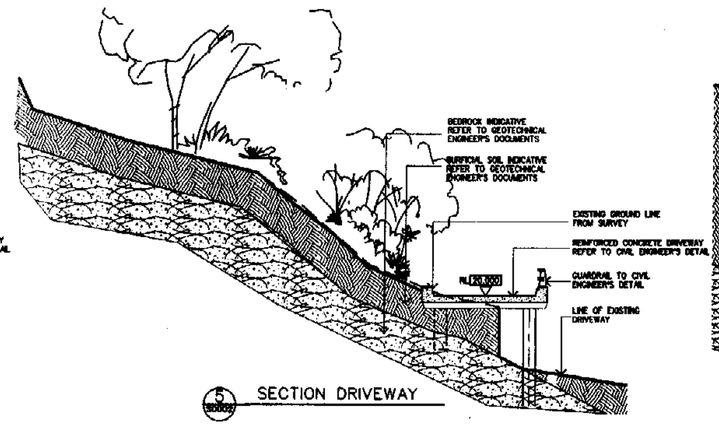
2 SECTION DRIVEWAY
50002

NOT USED

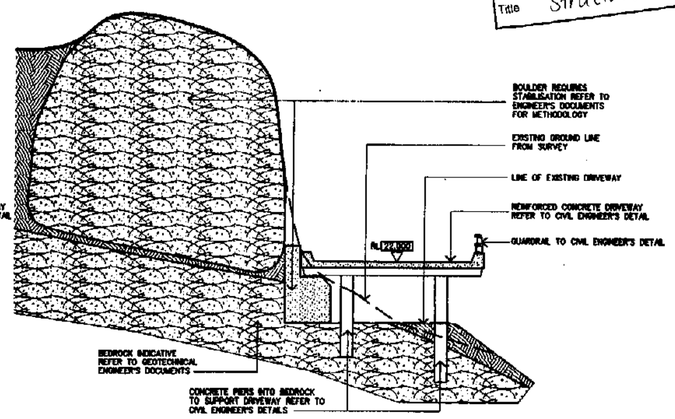
3 SECTION DRIVEWAY
50002



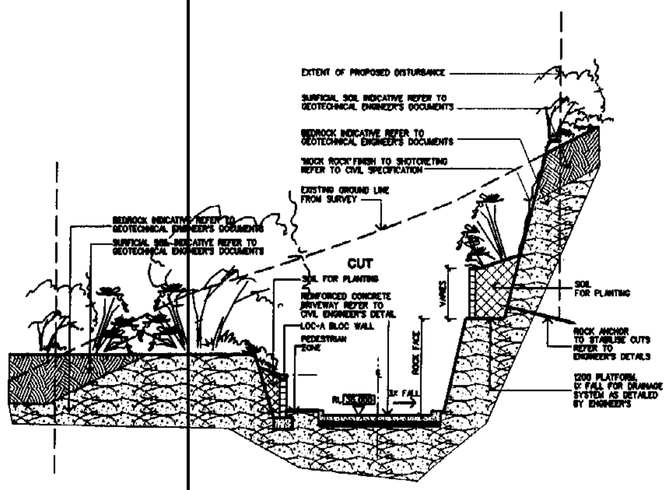
4 SECTION DRIVEWAY
50002



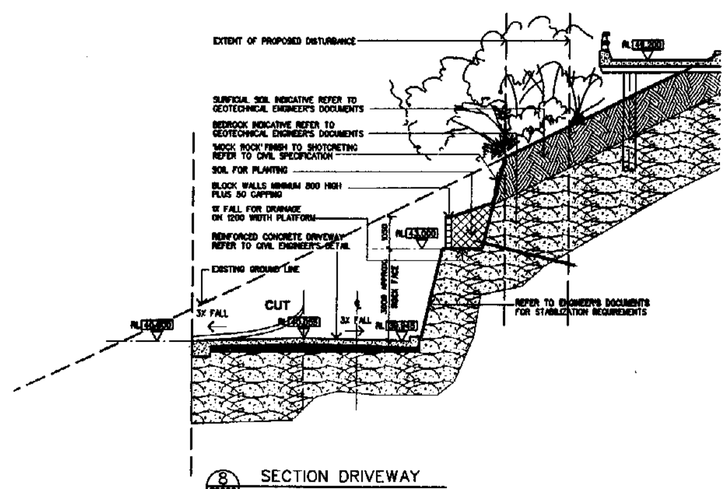
5 SECTION DRIVEWAY
50002



6 SECTION DRIVEWAY
50002



7 SECTION DRIVEWAY
50002



8 SECTION DRIVEWAY
50002

NOTES

1. SECTIONS ARE INDICATIVE AND SHOULD BE USED TO CHECK DRIVEWAY LEVELS ONLY
2. REFER TO GEOTECHNICAL DOCUMENTS FOR SITE FOUNDATION LAYERS AND DESCRIPTIONS
3. REFER TO ENGINEERS DOCUMENTS FOR ALL SITE STABILIZATION WORKS INCLUDING BUT NOT LIMITED TO ROCK ANCHOR LOCATIONS AND NUMBERS& SHOTCRETE DETAILS, OTHER STABILIZATION ITEMS AND BEARING CAPACITIES
4. REFER TO CIVIL ENGINEERS DOCUMENTS FOR DRIVEWAY DESIGN, RETAINING STRUCTURE AND STORMWATER AND DETENTION DETAILS
5. REFER TO STRUCTURAL AND CIVIL ENGINEERS DOCUMENTS FOR EARTHWORKS DIAGRAMS
6. REFER TO OTHER CONSULTANTS DOCUMENTS FOR SERVICES DESIGN AND LAYOUTS
7. REFER TO LANDSCAPE ARCHITECTS DRAWINGS FOR LANDSCAPING DESIGN
8. REFER TO ARBORIST REPORT FOR TREES TO BE REMOVED. GENERALLY ONLY TREES TO BE RETAINED ARE SHOWN ON THE ARCHITECTURAL DRAWINGS. ANY CLARIFICATION OR DISCREPANCIES SHOULD BE RESOLVED WITH THE ARBORIST.

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	15-10-02	Preliminary Issue for Inclusion in Construction Management Plan
2	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA 3004

CITY PLAN SERVICES
Title: Structural
File No: 22375

client
Raypond Pty.Ltd.

po.box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 228 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 6, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6666 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
98 hermitage road, west ryde, nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4788

landscape
pittendrigh shinkfield & bruce
380 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
58 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vhn	july-2002	QF number	11 nov 2002

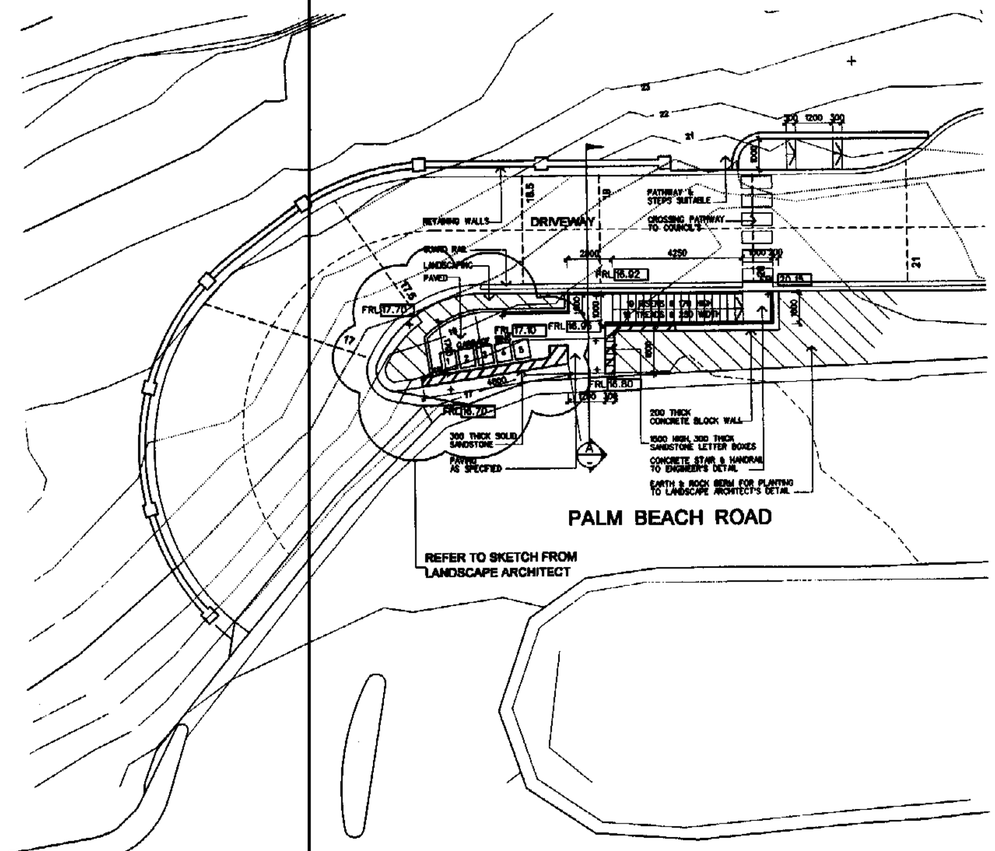
file name
SUB-DIVISION DRIVEWAY CROSS SECTIONS

job no.
20006

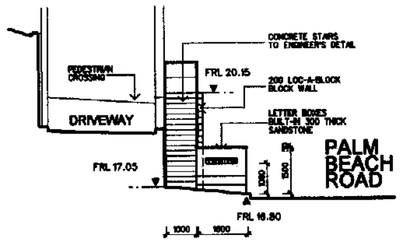
scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
2 design development
ASA S3001

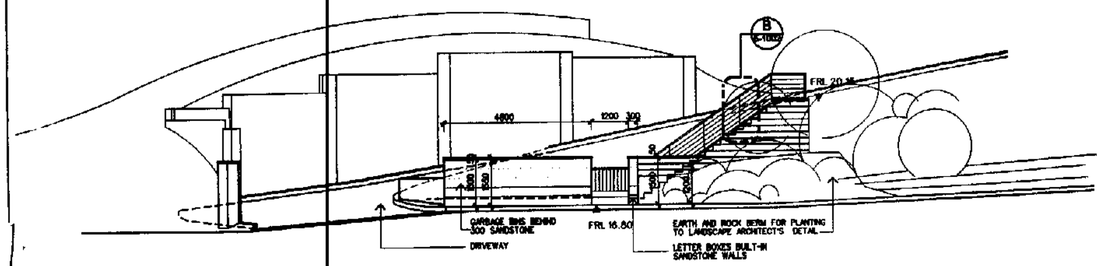
364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3288
syd@cronenation.com ACN 087 989 272
crone nation architects



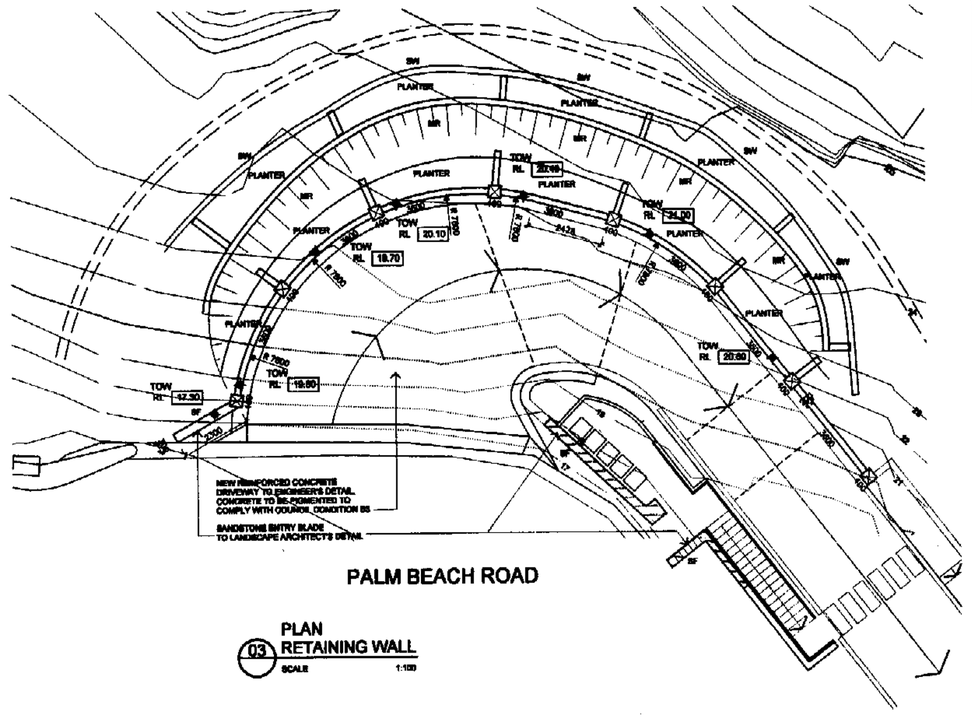
01 PEDESTRIAN PATHWAY STAIRS - LETTERBOXES
SCALE 1:100



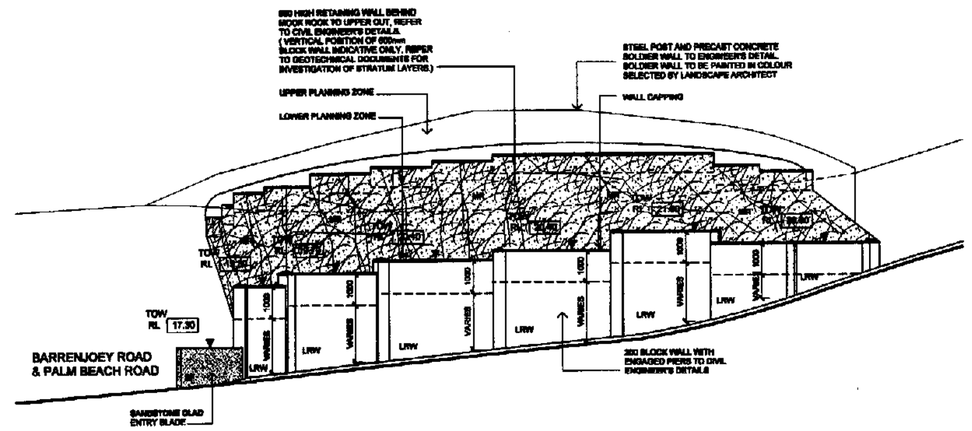
A SECTION A
PALM BEACH ROAD
SCALE 1:100



02 ELEVATION
PALM BEACH ROAD
SCALE 1:100



03 PLAN
RETAINING WALL
SCALE 1:100



04 TRUE ELEVATION
RETAINING WALL
SCALE 1:100

LEGEND

MR	MOCK ROCK FINISH TO CUTS TO ENGINEER'S DETAIL
LRW	LOC-A-BLOCK RETAINING WALL TO ENGINEER'S DETAIL
GD	GRATED DRAIN TO ENGINEER'S DETAIL
DT	DETENTION TANK TO ENGINEER'S DETAIL
SW	SOLDIER WALL TO ENGINEER'S DETAIL
SF	SANDSTONE FEATURE WALL TO LANDSCAPE ARCHITECT'S DETAIL

CITY PLAN SERVICES
Title Structural File No 22375

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	02-10-02	Issue for Information
2	15-10-02	Revise Wall and Retaining Wall
3	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA 3004
Issued under Part 4A

client
Raypond Pty.Ltd.

po.box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatwood nsw 2067
ph: + 61 2 9904 6666 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde. nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pitendrigh shinkfield & bruce
980 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vhn	oct 2002	OF number	11 nov 2002

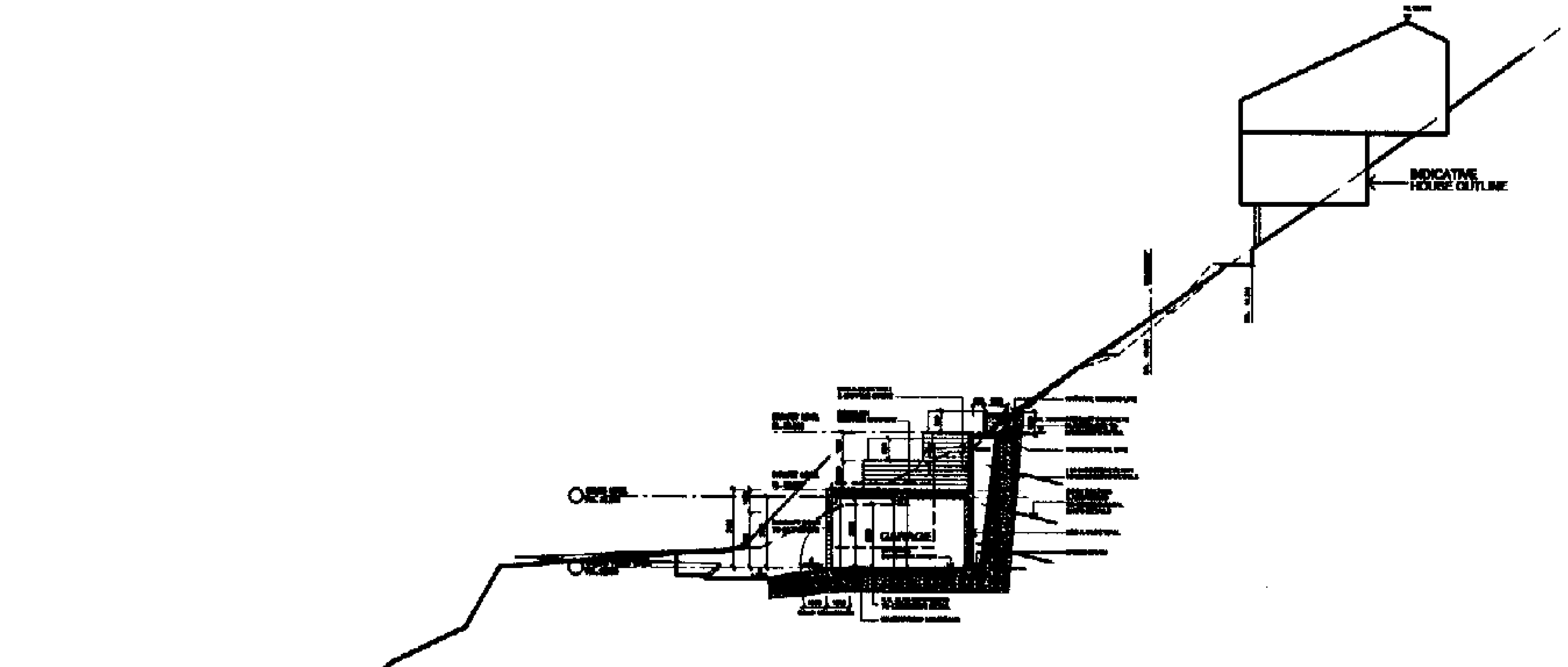
file name
STAIR-GARBAGE BINS AND LETTER BOXES ENTRY DRIVEWAY RETAINING WALL

job no.
20006

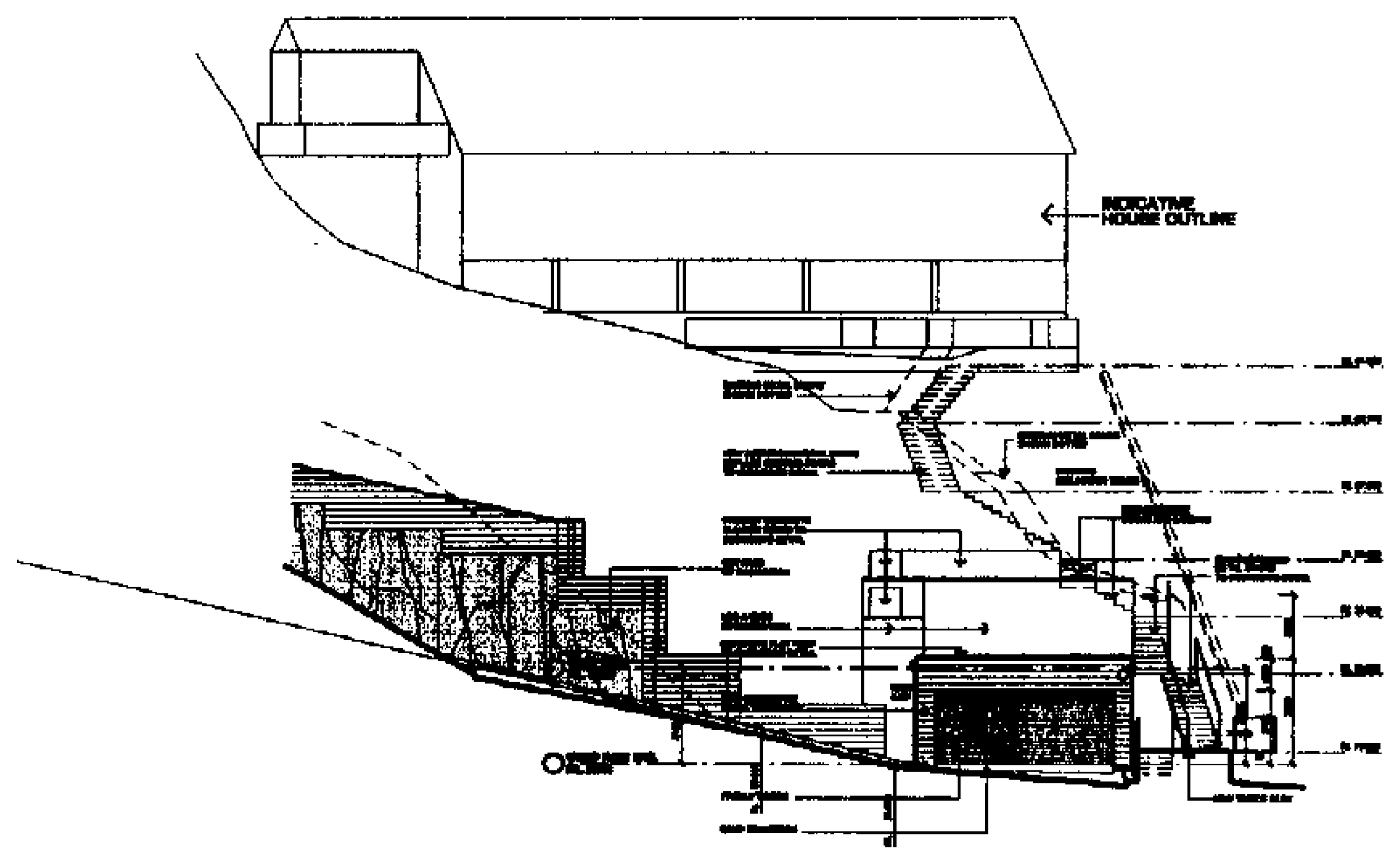
scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
3 design development
ASA | S3002

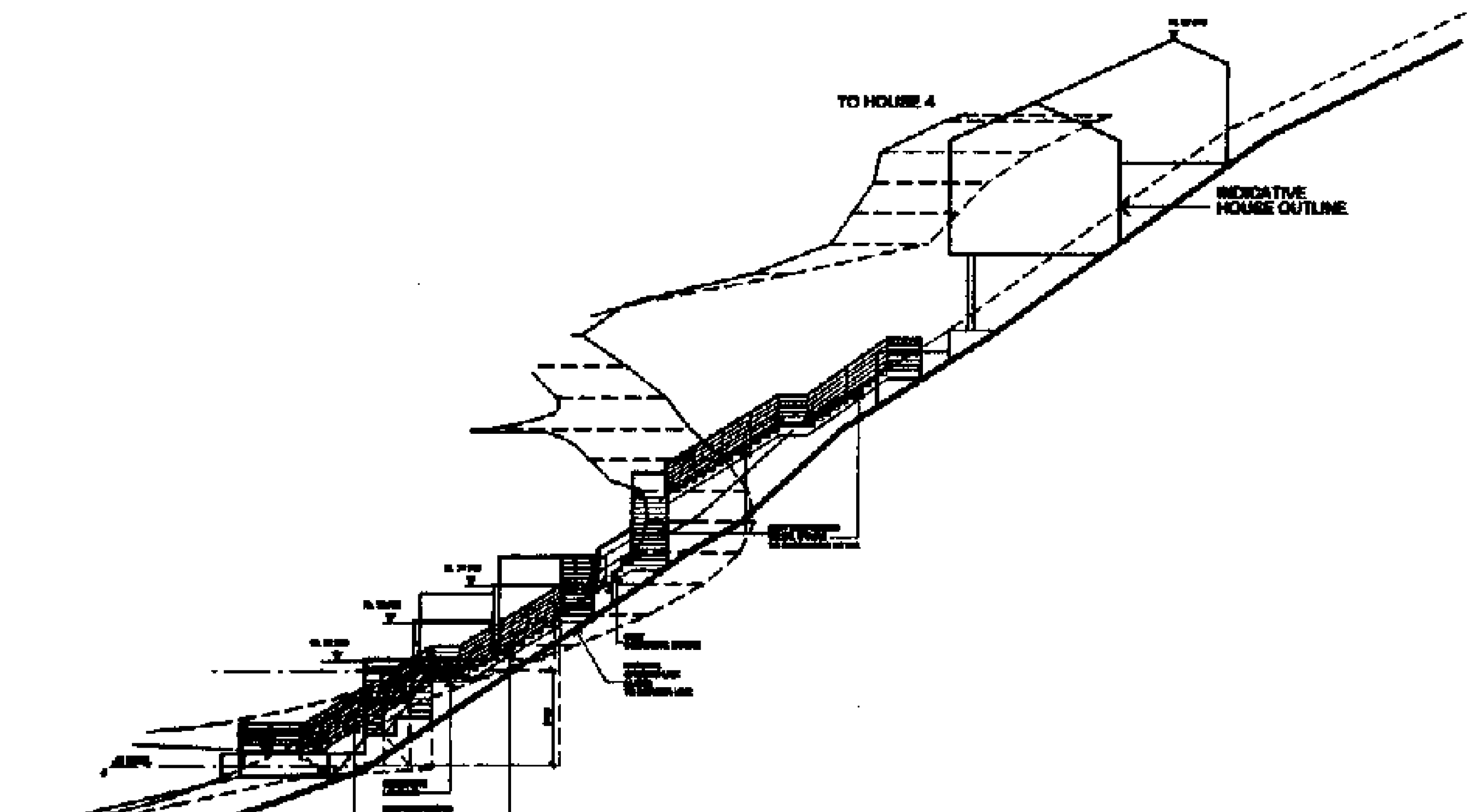
364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3288
syd@cronenation.com ACN 089 909 272
crone nation architects
crone design partnership



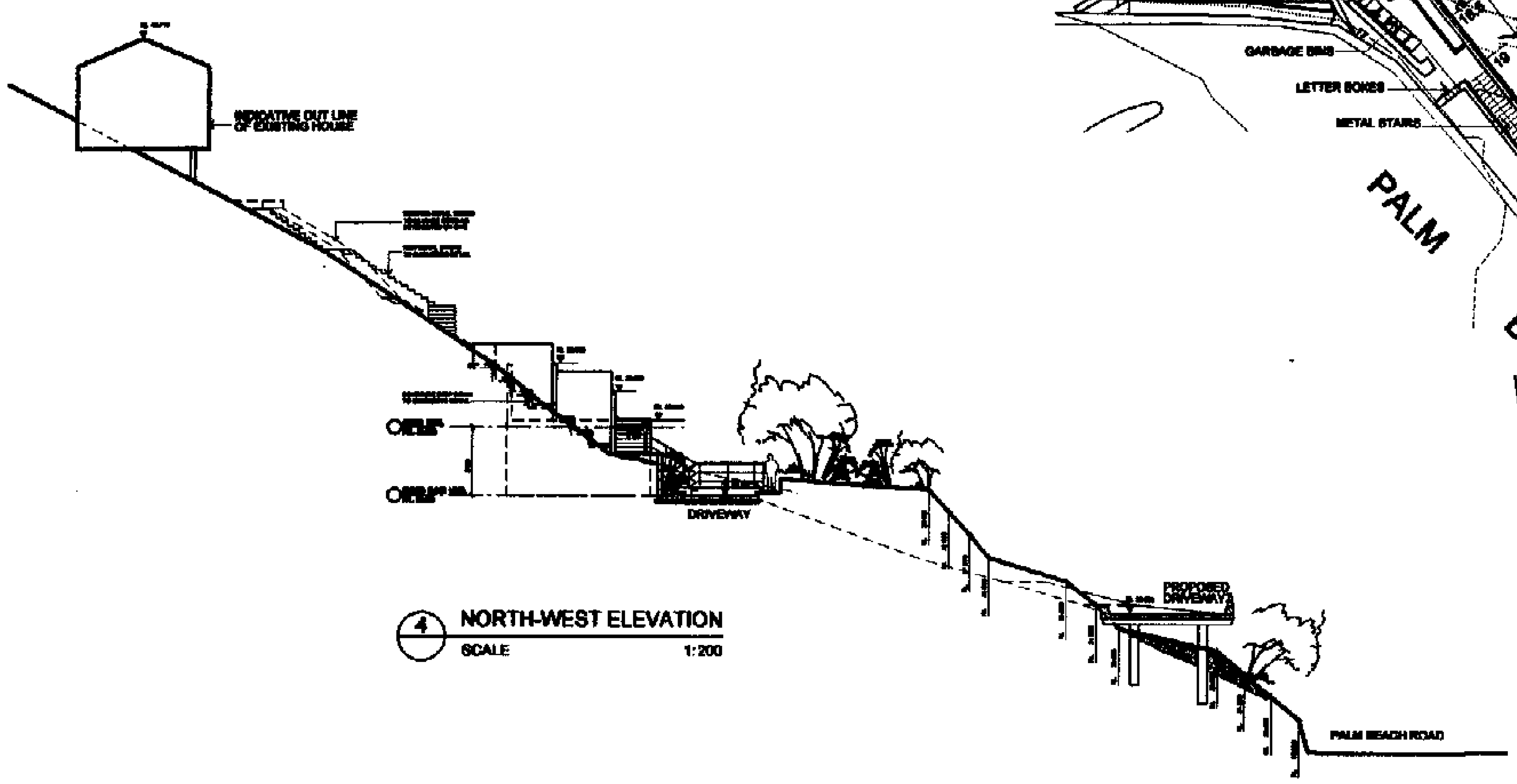
(A) FULL CROSS SECTION
SCALE 1:200



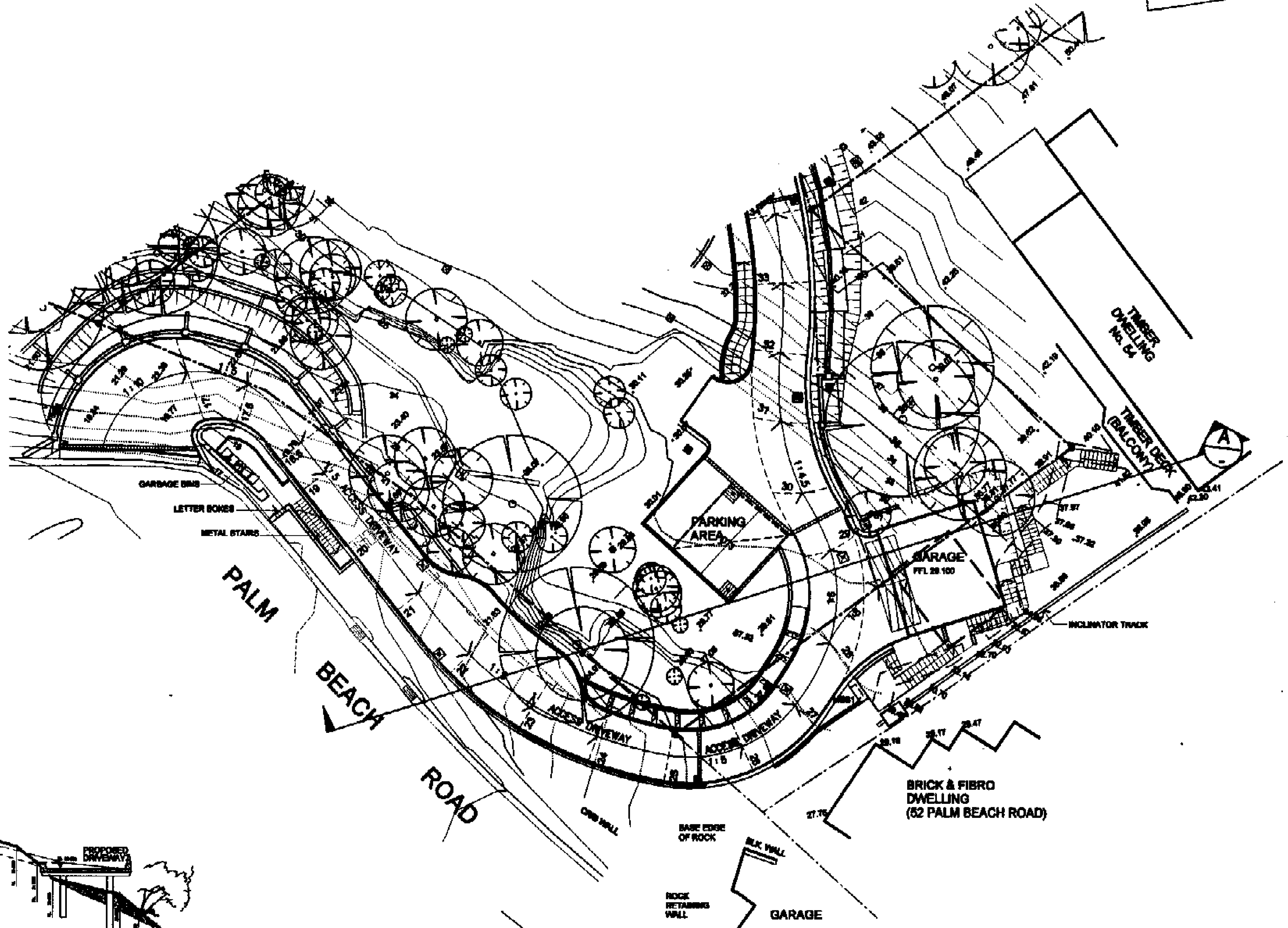
(2) FRONT ELEVATION
SCALE 1:200



(3) SOUTH-EAST ELEVATION
SCALE 1:200



(4) NORTH-WEST ELEVATION
SCALE 1:200



(1) SITE/AREA PLAN
SCALE 1:200

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	16-8-02	Issue to Engineer for Information and Comment
2	03-9-02	Issue for Information Rear of Garage Amended
3	10-09-02	Issued for Information & Co-ordination. Planter Box added and door widened.
4	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: PIA 3004

CITY PLAN SERVICES
Title Structural
File No 22375

client
Raypond Pty.Ltd.
po box 1364, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 5, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
96 hermitage road, west ryde, nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
phendrigh shinfield & bruce
360 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
54 & 56 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vw	aug 2002	QF number	11 nov 2002

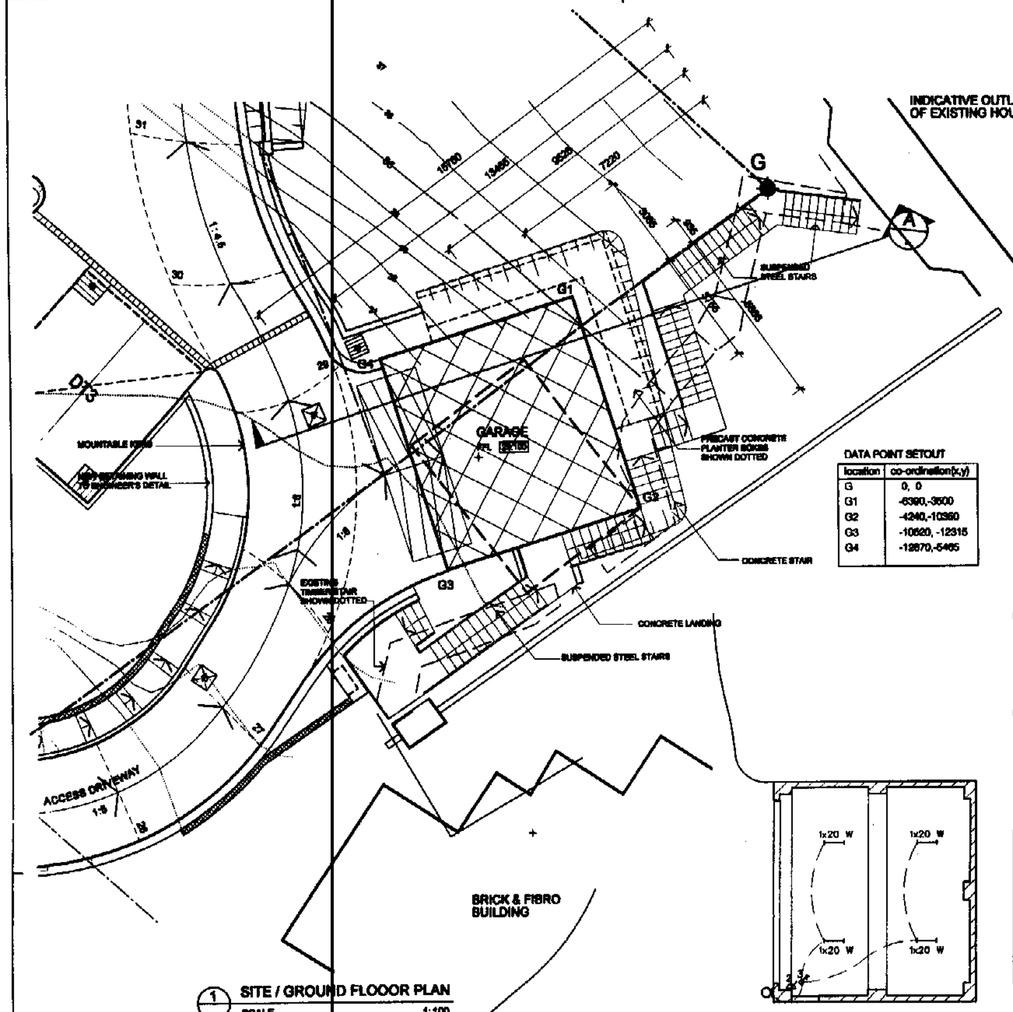
file name
HOWARD'S GARAGE
SITE PLAN-GROUND/ROOF PLAN
ELEVATIONS-SECTION

job no.
20006

scale
1:200 @ A1
1:400 @ A3

revision/drawing no.
4 DEVELOPMENT APPLICATION
ADA 51001

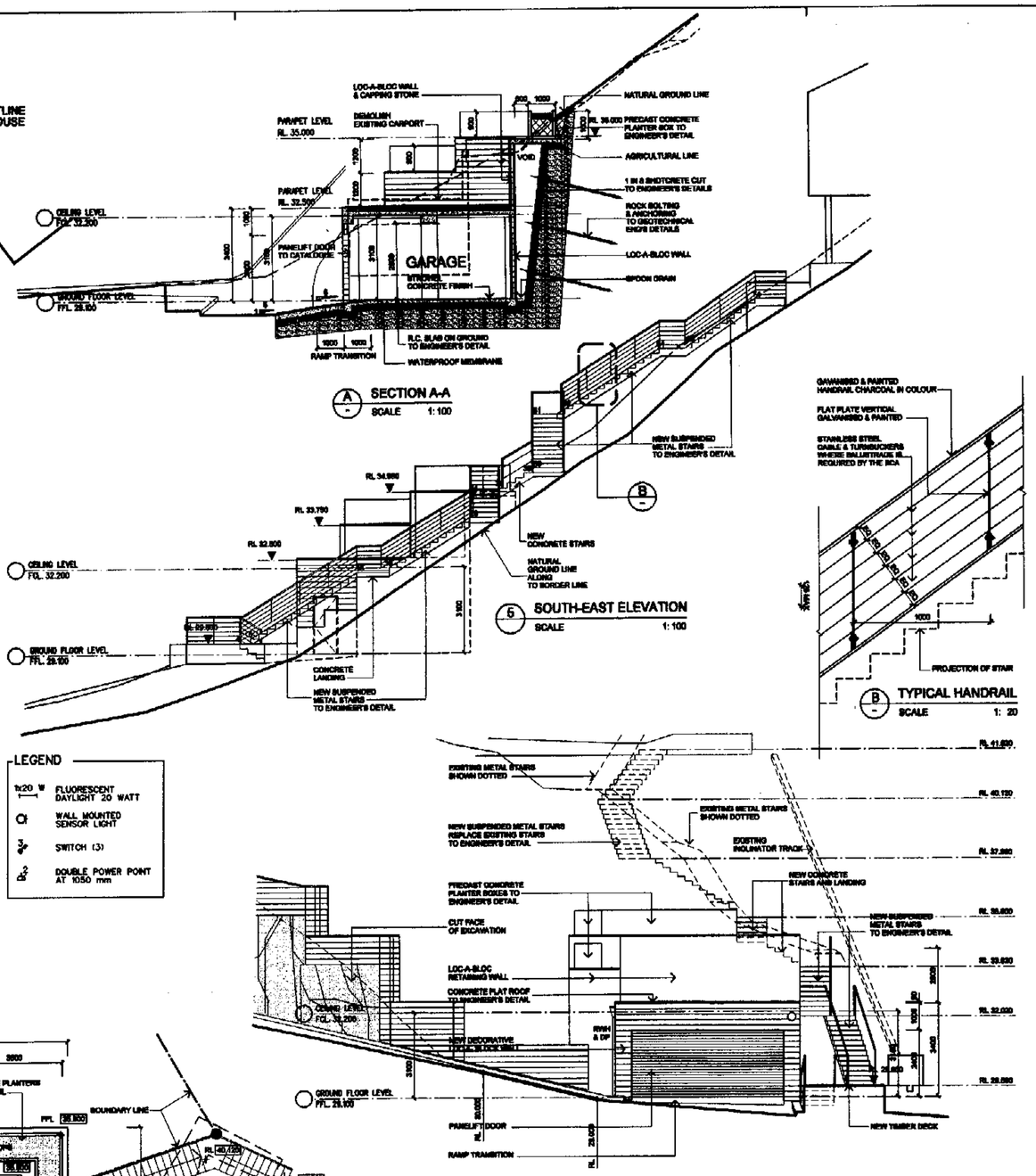
364 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 3288
eml@cronenation.com ACN 059 989 272
crone nation architects
crone design partnership



DATA POINT SETOUT

location	co-ordinates(x,y)
G	0, 0
G1	-6360,-3500
G2	-4240,-10360
G3	-10920, -12315
G4	-12870,-5405

1 SITE / GROUND FLOOR PLAN
SCALE 1:100

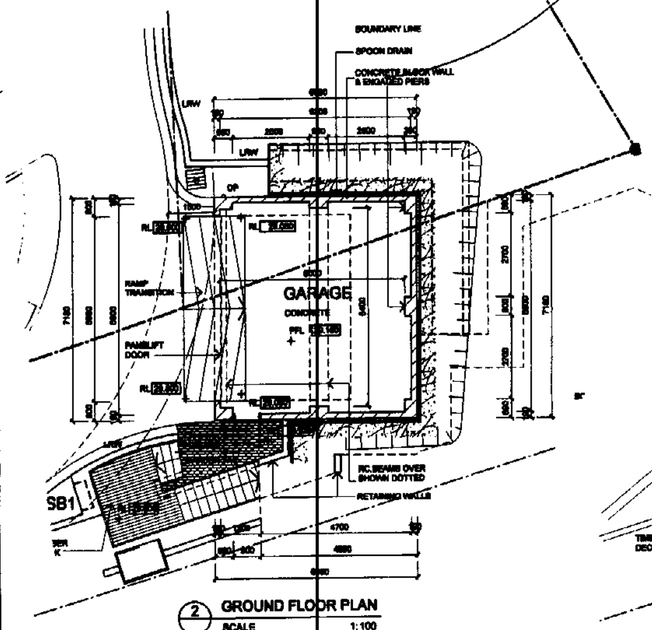


A SECTION A-A
SCALE 1:100

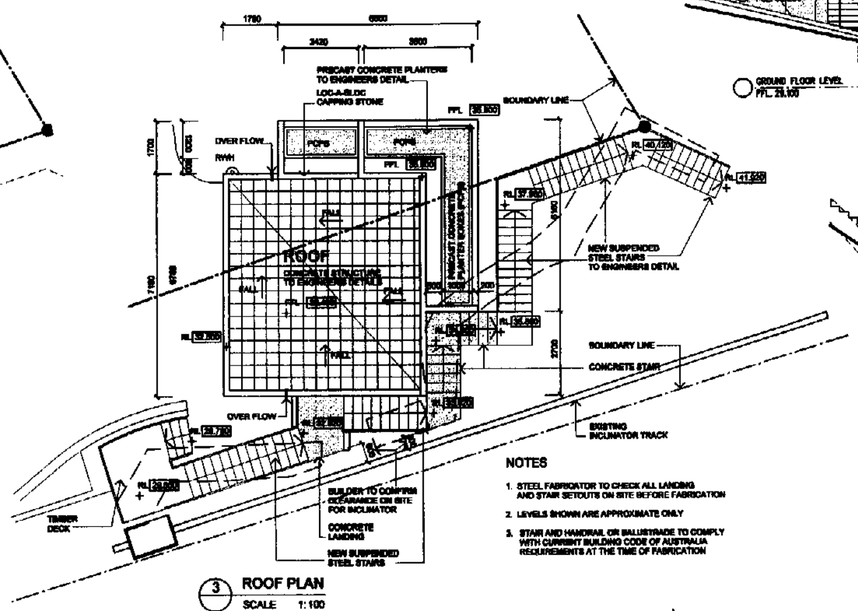
5 SOUTH-EAST ELEVATION
SCALE 1:100

B TYPICAL HANDRAIL
SCALE 1: 20

6 FRONT ELEVATION
SCALE 1:100



2 GROUND FLOOR PLAN
SCALE 1:100



3 ROOF PLAN
SCALE 1:100

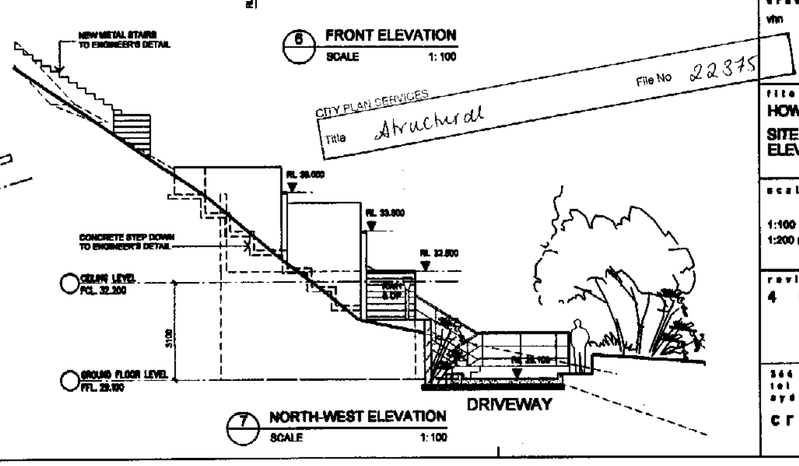
NOTES

1. STEEL FABRICATOR TO CHECK ALL LANDING AND STAIR SETOUTS ON SITE BEFORE FABRICATION
2. LEVELS SHOWN ARE APPROXIMATE ONLY
3. STAIR AND HANDRAIL OR BALUSTRADE TO COMPLY WITH CURRENT BUILDING CODE OF AUSTRALIA REQUIREMENTS AT THE TIME OF FABRICATION

4 ELECTRIC LAYOUT
SCALE 1:100

LEGEND

- 1x20 W — FLUORESCENT DAYLIGHT 20 WATT
- WALL MOUNTED SENSOR LIGHT
- SWITCH (3)
- DOUBLE POWER POINT AT 1050 mm



7 NORTH-WEST ELEVATION
SCALE 1:100

CITY PLAN SERVICES File No 22375
Title Structural

notes

Check & verify all dimensions prior to commencement of work. This drawing shall be read in conjunction with all other contract documents, including those by other consultants / subcontractors, including specifications. Seek clarification of inconsistencies / conflicts. Figured dimensions shall take preference to scaled dimensions. This drawing is copyright & shall remain the property of Crone Nation Architects.

revision

No	Date	Description
1	16-8-02	Issue to Engineer for Information and Comment
2	03-9-02	Issue for Information Rear of Garage Amended
3	10-09-02	Issued for Information & Co-ordination. Planter Box added and door widened.
4	12-11-02	Issue for Tender & Construction Certificate

RECEIVED
10 OCT 2003
CITY PLAN SERVICES PTY LTD
Construction Certificate Number: 22375
Approved: 25 NOV 2003
Accredited Certifier: Brendan Bennett
Accreditation No: BPA 3604
Issued under Part 4A of the Environmental Planning & Assessment Act 1979

client
Raypond Pty.Ltd.
po.box 1384, dee why, nsw 2099
mobile ph: + 61 2 0412 226 044 fax: + 61 2 9944 0316

structural & civil engineers
tierney & partners
level 6, 411 victoria avenue, chatswood nsw 2067
ph: + 61 2 9904 6555 fax: + 61 2 9904 6777

geotechnical engineers
douglas & partners
98 hermitage road, west ryde, nsw 2114
ph: + 61 2 9809 0666 fax: + 61 2 9809 4095

surveyor
bowdens group
12 wentworth street, parramatta, nsw 2124
ph: + 61 2 9633 2277 fax: + 61 2 9891 4798

landscape
pittendrigh shirtcliff & bruce
380 pacific highway, crows nest, nsw 2065
ph: +61 2 9906 4500 fax: +61 2 9906 4479

address
1148-1152 barrenjoey road
54 & 58 palm beach road, Palm Beach

project/title
OBSERVATION POINT

drawn	date	checked	plot date
vhn	aug 2002	QF number	11 nov 2002

file name
HOWARD'S GARAGE
SITE PLAN-GROUND/ROOF PLAN ELEVATIONS-SECTION

job no.
20006

scale
1:100 @ A1
1:200 @ A3

revision/drawing no.
4 DEVELOPMENT APPLICATION
ADA 51002

564 kent street sydney nsw 2000 australia
tel + 61 2 9262 1988 fax + 61 2 9262 9288
syd@cronenation.com ACN 089 909 272
crone nation architects
crone nation partnership