



Environmental Compliance  
8am to 6pm Mon - Thurs, 8am to 5pm Fri  
Phone 9970 1111

16 November 2005

Sunrise Pools Pty Ltd  
5/8 Victoria Avenue  
CASTLE HILL NSW 2154

**COPY**

Dear Sir/Madam

**Re: Construction Certificate CC0539/05**  
**Property: 277 LOWER PLATEAU ROAD BILGOLA PLATEAU NSW 2107**

Please find enclosed your approved Construction Certificate and stamped plans.

**Did you know that work is unable to commence until such time as a completed Notification of Commencement Form has been submitted to Council at least two (2) days prior to starting work? Not to do so is a breach of the Environmental Planning and Assessment Act, which would result in a Penalty Infringement Notice (on-the-spot fine) being issued to you and the builder.**

To assist you please find enclosed a "Notification of Commencement and Principal Certifying Authority Service Agreement" form to enable you to appoint Pittwater Council as your Principal Certifying Authority (PCA). Please complete this form and return it to Council's Customer Service together with the PCA appointment fee as detailed in the form.

If appointed as the PCA, Council would carry out various inspections as indicated in Part 6 of the enclosed "Notification of Commencement and Principal Certifying Authority Service Agreement" form and ultimately issue an Occupation Certificate for your development. Appointment and inspection fees are also detailed in the enclosed form

Council will endorse your "Notice of Commencement and Principal Certifying Authority Service Agreement" form and return a copy to the applicant with advice as to the required critical stage and other inspections to be carried out by Council.

Council is committed to providing a quality service and would value your business in being appointed as the Principal Certifying Authority for your development.

An Officer will contact you in the next few days to discuss your development and help ensure your development progresses smoothly.

Yours faithfully  
**Development Compliance Group**

Per:



# Pittwater Council

## Construction Certificate No: CC0539/05

Site Details: **277 LOWER PLATEAU ROAD BILGOLA PLATEAU NSW 2107**

Legal Description: **Lot 7 DP 221637**

Type of Development: **Building Work**

Description: **A swimming pool**

**COPY**

Associated Development Consent No: **N0443/05**

Dated: **29/08/2005**

Building Code of Australia Certification: **Class 10b**

Details of plans, documents or Certificates to which this Certificate relates:

- Architectural plans prepared by Right Angle Drafting, Drawing No's. SRP0506-1A, SRP0506-2 and SRP0506-3 dated 5 June 2005.
- Sydney Water Quick Check Approval stamp dated 21 July 2005.
- Structural Engineers details, prepared by Swimming Pools Consultants, trading as Geoff Ninnies, Fong & Partners, Pty. Ltd, Drawing No's. SUN0530/1, SUN0530/2 and SUN0530/3 dated September 2005. .
- Form No. 2 of Geotechnical Risk Management Policy For Pittwater, prepared by Brad Fong of Geoff Ninnies, Fong and Partners and endorsed by Jack Hodgson Consultants Pty.Limited, dated 4 November 2005.
- Arborist report and plan of management, prepared by Urban Forestry Australia dated September 2005.
- Site plan drawing No.SRP0506-1 dated 5 June 2005 indicating the location of three canopy trees to be planted, in accordance with condition 16.

I hereby certify that the above plans, documents or Certificates satisfy:

- The relevant provisions of the Building Code of Australia.
- The relevant conditions of Development Consent No: **N0443/05**

Further that the work, completed in accordance with the Building Code of Australia, all relevant Australian Standards and these plans and specifications, will comply with the requirements of Section 81A(5) of the Environmental Planning and Assessment (Amendment) Act, 1997.

  
Darren Greenow  
Development Compliance Group

16 November 2005  
Date of Endorsement

**Note:** You are reminded that pursuant to provisions of Clause 81A, you must nominate whether Council or an accredited certifier will be the principal certifying authority, also you must give notice to Council of your intention to commence work at least two days beforehand.

**RESIDENCE**  
**No.275**

- CONFIRM ALL DIMENSIONS AND SERVICES ON SITE PRIOR TO STARTING WORK.
- ALL BUILDING WORKS SHALL COMPLY WITH THE BUILDING CODE OF AUSTRALIA.
- POOL FENCING TO BE DESIGNED, LOCATED AND MAINTAINED IN ACCORDANCE WITH THE SWIMMING POOL ACT 1992, AS1928.1-1993 FENCING FOR SWIMMING POOLS, AS1928.1-1995 LOCATION OF FENCING FOR SWIMMING POOLS.
- A RESUSCITATION AND EXTERNAL CARDIAC COMPRESSION CHART IS TO BE AFFIXED AND MAINTAINED IN A PROMINENT LOCATION ADJACENT TO THE POOL.
- ALL POOL OVERFLOW WATER AND WASTE WATER FROM THE FILTRATION PROCESS IS TO BE DIRECTED TO THE SEWER.
- NOISE FROM ANY PLANT OR EQUIPMENT SHALL NOT EXCEED 5dB(A) ABOVE THE BACKGROUND NOISE LEVEL.

**NEW POOL FENCE  
AND GATE TO COMPLY  
WITH NSW SWIMMING  
POOL ACT 1992 AND  
AS1926.1-1993  
FENCING FOR SWIMMING POOLS,  
AS1926.1-1995 LOCATION OF  
FENCING FOR SWIMMING POOLS.**

**NEW POOL FENCE  
AND GATE TO COMPLY  
WITH NSW SWIMMING  
POOL ACT 1992 AND  
AS1926.1-1993**

DATUM: ROCK OUTCROP.  
STRUCTURAL COPING TO BE  
LEVEL WITH THE DATUM.

**A 19.10.05 POOL FENCING REVISED**

**RIGHT ANGLE**

ROBYN GOOD  
UNIT 273 / 8 LACHLAN STREET  
WATERLOO NSW 2017

PH/FAX: (02) 8399-0072  
MOBILE: 0426 227-065  
EMAIL: [robyn.g@rightangle.com.au](mailto:robyn.g@rightangle.com.au)  
ABN: 72 864 786 455

**ROBYN GOOD**  
UNIT 273 / 8 LACHLAN STREET  
WATERLOO NSW 2017

**PH/FAX:** (02) 8399-0072  
**MOBILE:** 0425 227-055  
**EMAIL:** robyn.g@bigpond.com.au  
**ABN:** 72 884 788 455

**PROPOSED NEW SWIMMING POOL  
JOHN & CERIAN BRONDUM  
277 LOWER PLATEAU ROAD  
BILGOLA PLATEAU**

**DWG NAME**  
**SITE PLAN**

DATE JUNE 05 SCALE AT A3 1:200 DRAWING NUMBER SRP0506-1A

FITTING ROOM CONSTRUCTION CERTIFICATE

Number: CC 0539/05

This is a copy of submitted plans, documents or Certificates associated with the submission of the Construction Certificate.

Endorsed by: 

Date: 16 NOV 2005

16 NOV 2005

100

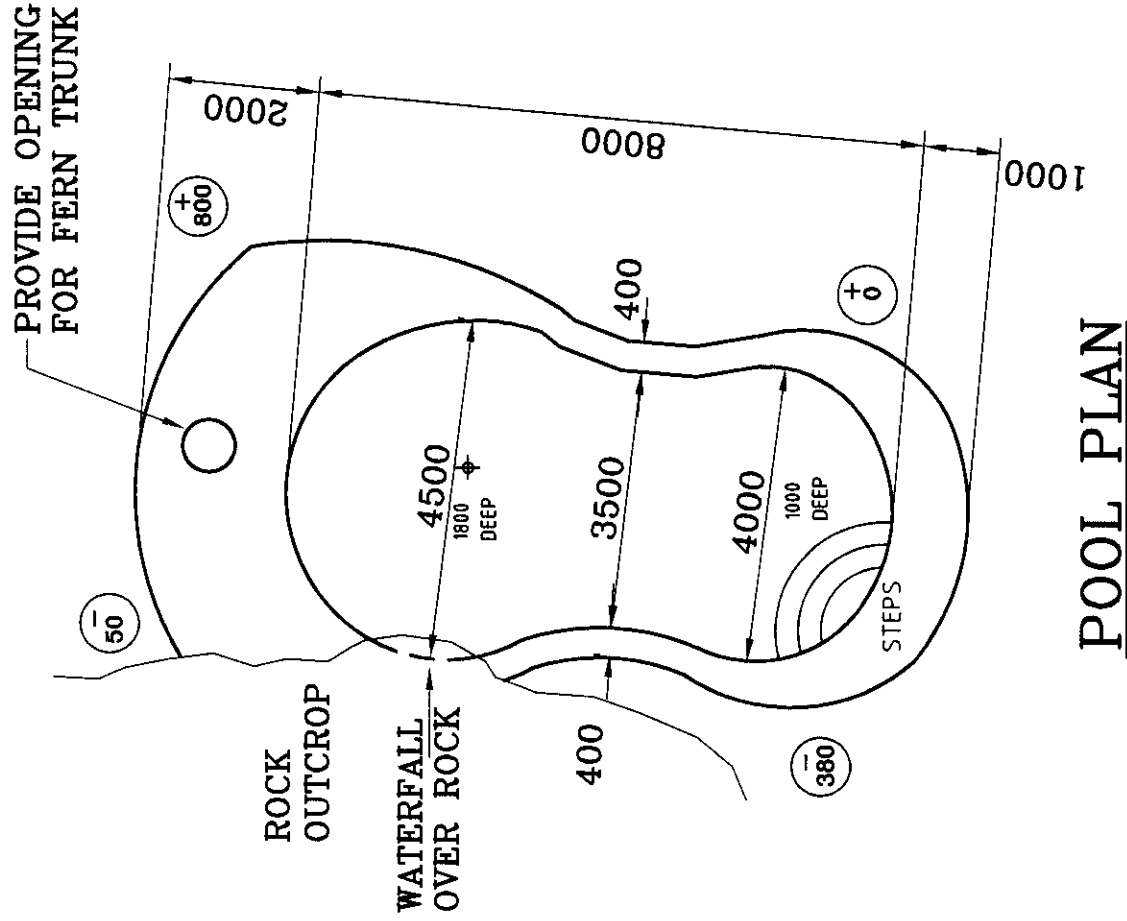
## LANDSCAPE CALCULATION

## HARD SURFACE

|               |                      |
|---------------|----------------------|
|               | LAND SCAM FOL        |
| HOUSE         | =126.5m <sup>2</sup> |
| DECK          | = 63.8m <sup>2</sup> |
| PATIO         | = 35.8m <sup>2</sup> |
| PATHS         | = 37.2m <sup>2</sup> |
| DRIVE         | = 37.2m <sup>2</sup> |
| PROPOSED POOL | = 51.1m <sup>2</sup> |

**TOTAL HARD SURFACE  
OR 49% OF THE SITE** = 351.6m<sup>2</sup>

TOTAL SOFT SURFACE = 51% OF SITE



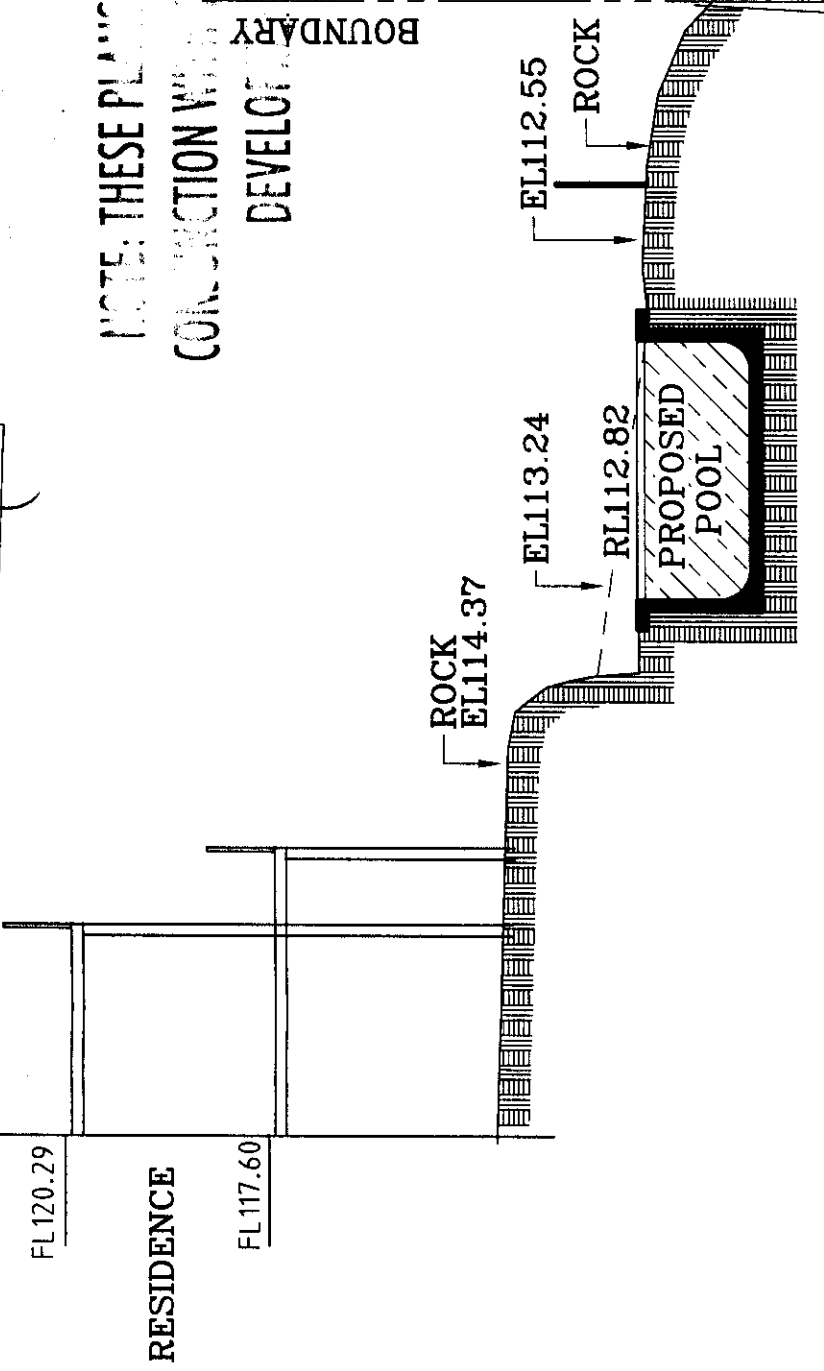
## POOL PLAN

⊕<sub>100</sub> DENOTES TOP OF POOL RELATIVE TO GROUND LEVEL

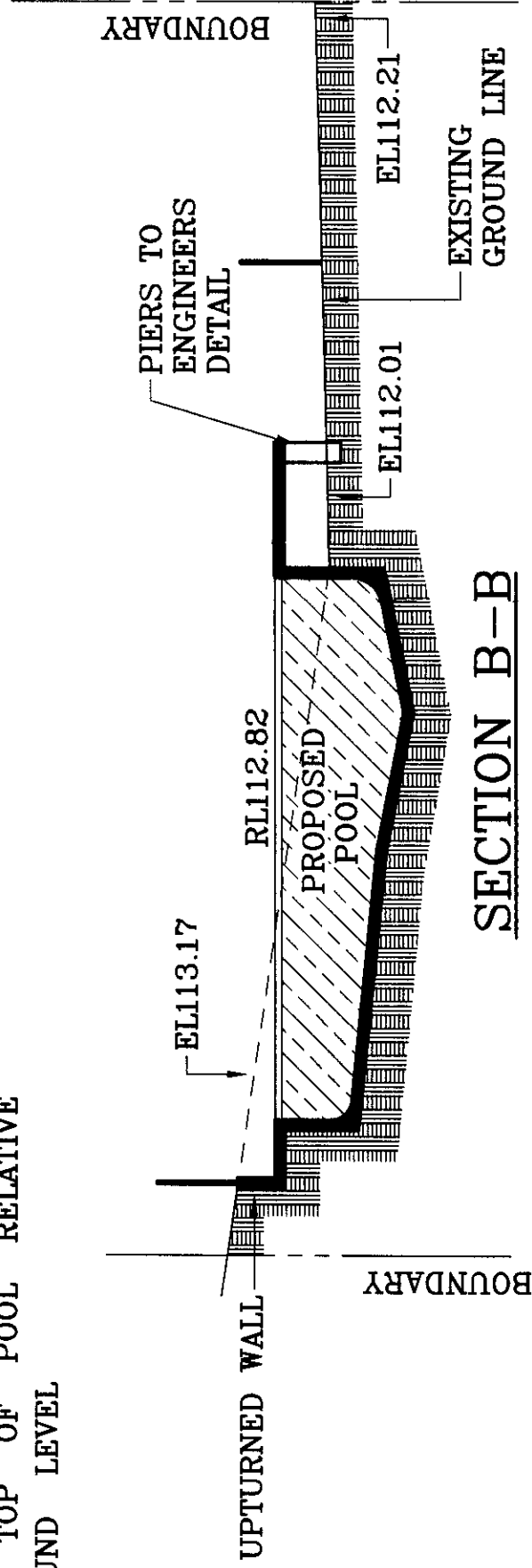
|                                                                                                                       |                   |
|-----------------------------------------------------------------------------------------------------------------------|-------------------|
| PITTSBURGH CONSTRUCTION CERTIFICATE                                                                                   |                   |
| Number: 0539/05                                                                                                       | Date: 16 NOV 2005 |
| This Certificate is issued to the documents of Construction Certificate and the sole of the Construction Certificate. |                   |
| Endorsed by:                                                                                                          |                   |

PITTSBURGH COUNCIL  
APPROVED DEVELOPMENT CONSENT PLANS

NOTE: THESE PLANS MUST BE READ IN CONNECTION WITH THE CONDITIONS OF DEVELOPMENT CONSENT



## SECTION A-A



## SECTION B-B

**RIGHT ANGLE DRAFTING**

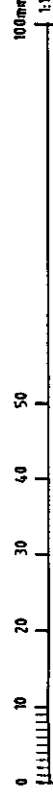
ROBYN GOOD  
UNIT 273 / 8 LACHLAN STREET  
WATERLOO NSW 2017  
PH/FAX: (02) 8399-0072  
MOBILE: 0425 227-065  
EMAIL: robyn.g@ihugdsl.com.au  
ABN: 72 884 786 455

PROPOSED NEW SWIMMING POOL  
JOHN & CERIAN BRONDUM  
277 LOWER PLATEAU ROAD  
BILGOLA PLATEAU

DWG NAME

POOL PLAN AND SECTIONS

DATE: JUNE 05  
SCALE: AT A3  
DRAWING NUMBER: SRP0506-2

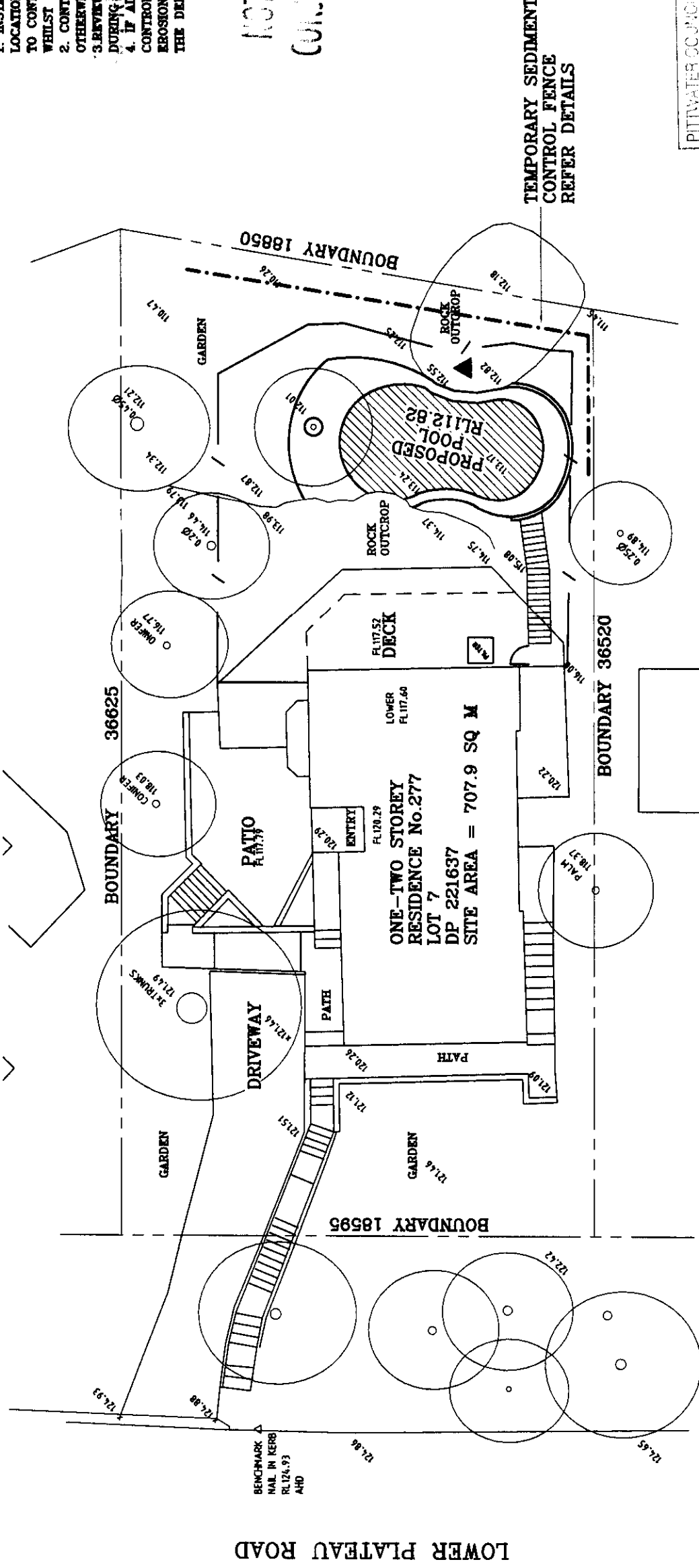


SEDIMENT CONTROL

1. INSTALL SEDIMENT CONTROL STRUCTURES IN LOCATIONS INDICATED ON PLANS AND OTHERWISE REQUIRED TO CONTROL SEDIMENT DURING ALL EXCAVATIONS AND WHILST AREAS OF THE SITE ARE EXPOSED TO EROSION.
2. CONTROL STRUCTURES TO BE AS DETAILED ON PLANS OTHERWISE REQUIRED BY CERTIFYING AUTHORITY.
3. REVIEW CONTROL MEASURES AND MAINTAIN STRUCTURES DURING CONSTRUCTION.
4. IF ADDITIONAL MEASURES ARE REQUIRED FOR EROSION CONTROL OR BY COUNCIL REQUIREMENTS REFER TO 'URBAN EROSION AND SEDIMENT CONTROL' GUIDELINES PREPARED BY THE DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT.

CONSENT PLANS

NOTE: THESE PLANS MUST BE READ IN CONJUNCTION WITH THE CONDITIONS OF DEVELOPMENT CONSENT



SILT AND SEDIMENT CONTROL PLAN

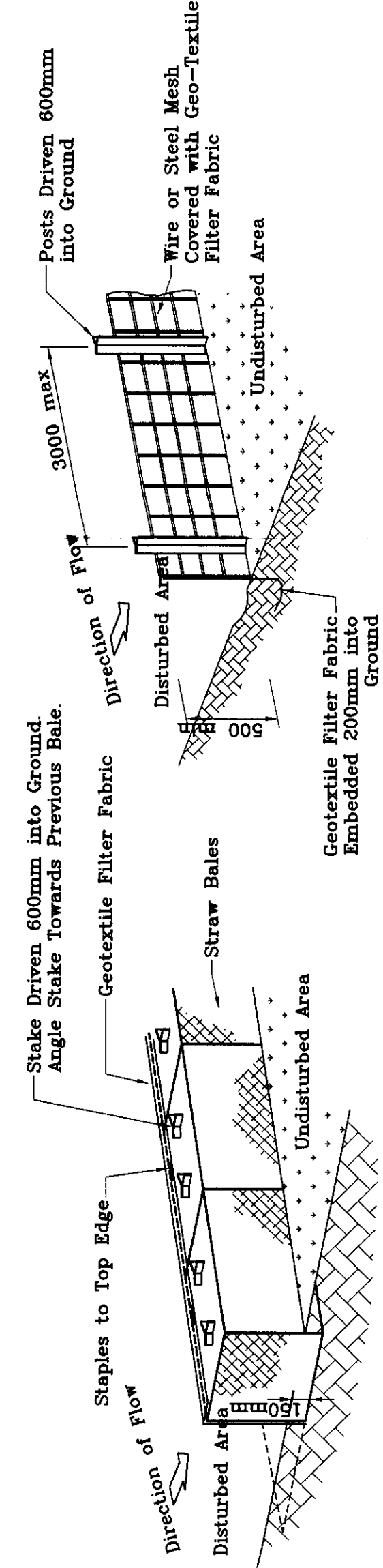
PITTWATER COUNCIL CONSTRUCTION CERTIFICATE

Number: **CIC 0539/05**

This is a copy of submitted plans, documents or Certificates associated with the issue of the Construction Certificate.

Endorsed by: **16 NOV 2005**

Date:



STRAW BALE SEDIMENT FILTER

SEDIMENT FENCE DETAIL

**RIGHT ANGLE DRAFTING**

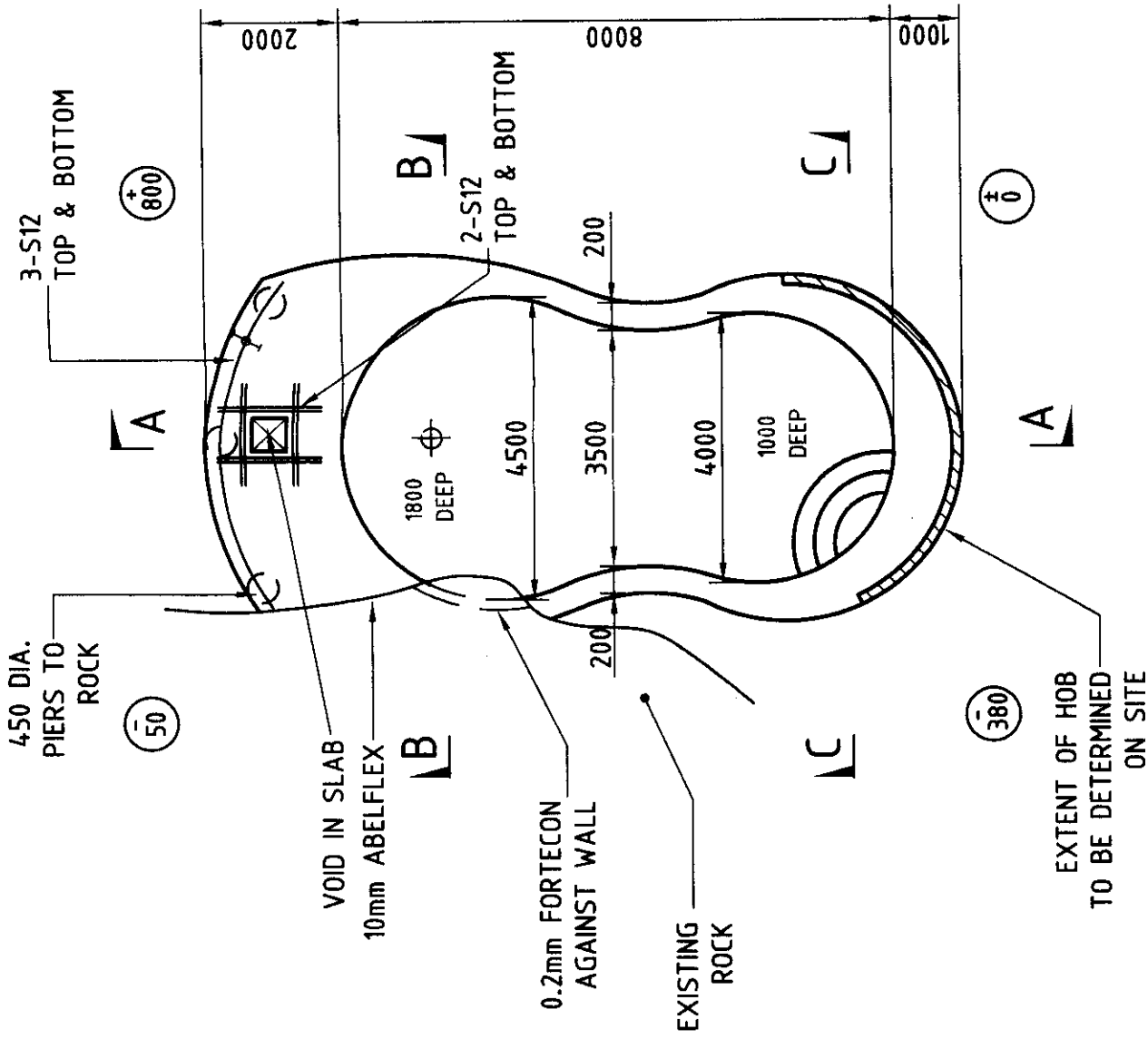
ROBYN GOOD  
UNIT 273 / 8 LACHLAN STREET  
WATERLOO NSW 2017  
PH/FAX: (02) 8399-0072  
MOBILE: 0425 227-055  
EMAIL: robyn.g@thugdal.com.au  
ABN: 72 884 786 455

PROPOSED NEW SWIMMING POOL  
JOHN & CERIAN BRONDUM  
277 LOWER PLATEAU ROAD  
BILGOLA PLATEAU

DWG NAME

SILT AND SEDIMENT CONTROL PLAN

DATE: JUNE 05  
SCALE AT A3: 1:200  
DRAWING NUMBER: SRP0506-3



## POOL PLAN

○ DENOTES APPROX. HEIGHT OF POOL ABOVE EXISTING GROUND LEVEL.

NOTE: THIS POOL IS NOT DESIGNED FOR DIVING

PIT/WATER JOINT/CONSTRUCTION CERTIFICATE  
 Number: CC 0539/05  
 This is a copy of submitted plans. Occupants of Certificates associated with the issue of the Construction Certificate.  
 Endorsed by: 16 NOV 2005  
 Date:

| Rev No | Revision Description | By | Date | Approval |
|--------|----------------------|----|------|----------|
|        |                      |    |      |          |
|        |                      |    |      |          |
|        |                      |    |      |          |



5/8 Victoria Avenue,  
 Castle Hill 2154  
 Phone: 9880 2574, 9880 2688  
 Fax: 98894450

AS/NZS 003 088 803  
 Gold Licence No. 407230  
 PTY LTD

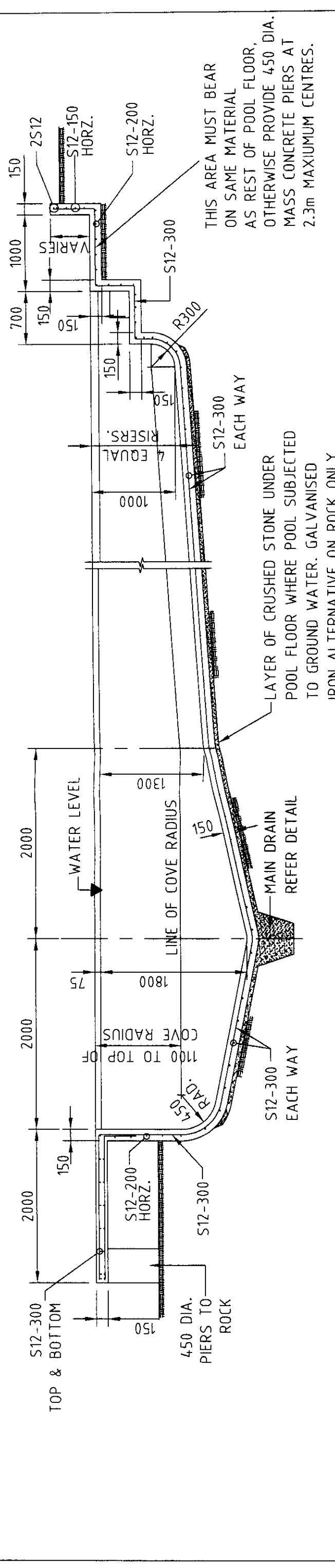
PROPOSED SWIMMING POOL FOR  
 JOHN & CERIAN BRONDUM  
 277 LOWER PLATEAU RD, BILGOLA PLATEAU

Swimming Pool Consultants Trading as  
 Geoff Ninnes, Fong  
 & Partners, Pty. Ltd.

Level 1,  
 64-78 Crown Street,  
 Woolloomooloo, N.S.W. 2011  
 Phone 9331 5100 Fax 9331 7963  
 Email: sydney@gnfp.com.au

Engineer: [Signature]  
 Date: SEPT 2005  
 Drawing No.: SUN0530/1  
 Scale: 1:100, 1:200  
 Drawn: J.F.  
 Checked: [Signature]  
 Approved: [Signature]

THIS DRAWING IS COPYRIGHT AND THE PROPERTY OF GEOFF NINNES FONG & PARTNERS PTY. LTD. AND MUST NOT BE RETAINED, COPIED OR USED WITHOUT THE AUTHORITY OF GEOFF NINNES FONG & PARTNERS PTY. LTD.



SECTION A - 1:50

1100 TO TOP OF COVE RADIUS

2000

2000

2000

1800

1300

WATER LEVEL

LINE OF COVE RADIUS

1000 TO TOP OF COVE RADIUS

75

150

S12-200 HORZ.

S12-300

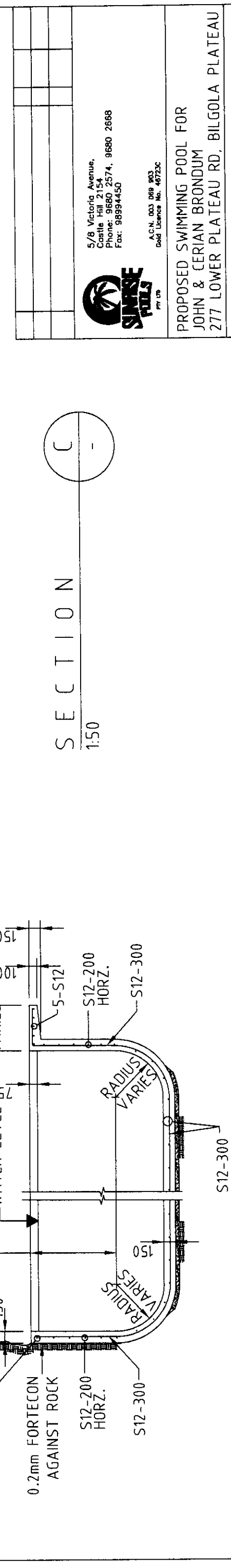
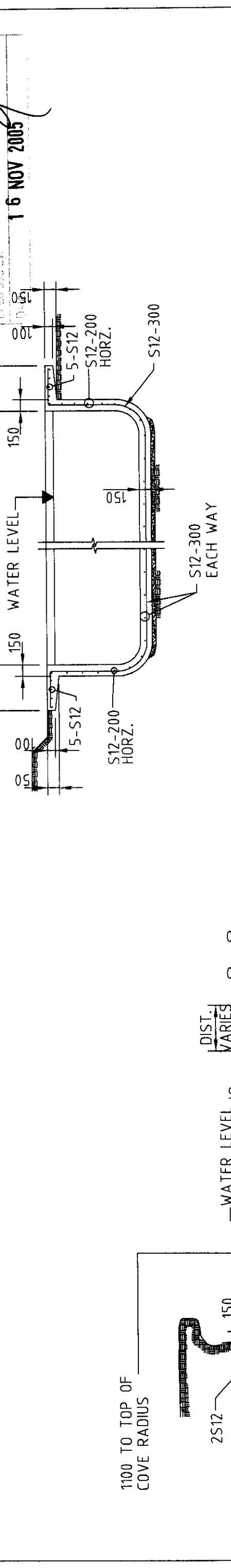
450 DIA. PIERS TO ROCK

MAIN DRAIN REFER DETAIL

LAYER OF CRUSHED STONE UNDER POOL FLOOR WHERE POOL SUBJECTED TO GROUND WATER. GALVANISED IRON ALTERNATIVE ON ROCK ONLY.

S12-300 EACH WAY

THIS AREA MUST BEAR ON SAME MATERIAL AS REST OF POOL FLOOR, OTHERWISE PROVIDE 450 DIA. MASS CONCRETE PIERS AT 2.3m MAXIMUM CENTRES.



SECTION B - 1:50

1100 TO TOP OF COVE RADIUS

2000

2000

2000

1800

1300

WATER LEVEL

LINE OF COVE RADIUS

1000 TO TOP OF COVE RADIUS

75

150

S12-200 HORZ.

S12-300

450 DIA. PIERS TO ROCK

MAIN DRAIN REFER DETAIL

LAYER OF CRUSHED STONE UNDER POOL FLOOR WHERE POOL SUBJECTED TO GROUND WATER. GALVANISED IRON ALTERNATIVE ON ROCK ONLY.

S12-300 EACH WAY

THIS AREA MUST BEAR ON SAME MATERIAL AS REST OF POOL FLOOR, OTHERWISE PROVIDE 450 DIA. MASS CONCRETE PIERS AT 2.3m MAXIMUM CENTRES.

|                                                                                                                                                       |  |                                                                                                           |  |                                                                                                                                                                                                                                                                                                                              |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>5/8 Victoria Avenue,<br/>Castle Hill 2154<br/>Phone: 9880 2574, 9880 2688<br/>Fax: 98994450</p> <p>ACN 003 089 903<br/>Gold Licence No. 40723C</p> |  | <p>PROPOSED SWIMMING POOL FOR<br/>JOHN &amp; CERIAN BRONDUM<br/>277 LOWER PLATEAU RD, BILGOLA PLATEAU</p> |  | <p>Swimming Pool Consultants Trading as<br/>Geoff Ninnies, Fong<br/>&amp; Partners, Pty. Ltd.</p> <p>ACN No. 001 849 289<br/>Consulting Engineers<br/>Civil Structural Stormwater</p> <p>Level 1,<br/>68-70 Crown Street,<br/>Woolloomooloo, N.S.W. 2011<br/>Phone 9331 5100 Fax 9331 2963<br/>Email: sydney@gnfp.com.au</p> |  |
| <p>Date: SEPT 2005</p>                                                                                                                                |  | <p>Drawn: J.F.</p>                                                                                        |  | <p>Drawing No. SUN0530/2</p>                                                                                                                                                                                                                                                                                                 |  |
| <p>Engineer: [Signature]</p>                                                                                                                          |  | <p>Scale: 1:50 1:20</p>                                                                                   |  | <p>MEIAUSTI</p>                                                                                                                                                                                                                                                                                                              |  |

NOTE:

ANY PAVING LAID ADJACENT TO POOL COPING MUST HAVE 15mm WIDE CONSTRUCTION OR EXPANSION JOINTS. IF PAVING LAID IN MORTAR, EXPANSION JOINT MUST BE INSERTED BETWEEN PAVING AND POOL COPING. LEAVE 3mm GAPS BETWEEN PAVERS LAID ON SAND.



## POOL BUILDER: GENERAL NOTES

- G1 This design applies only for ground levels as shown.  
G2 All workmanship and materials shall comply with relevant current SAA codes, By-laws and ordinances of the local Building Authority.  
G3 The overall dimensions shall be checked on site. Dimensions shown are concrete sizes and do not include finishes. These drawings are to be read in conjunction with the Contract but do not form part of the Contract. Do not scale from this drawing. Any discrepancies shall be notified to the Engineer.  
G4 The foundation material must be stable, in natural ground, and uniform and shall have a minimum bearing capacity of 150 kPa for piers 350 kPa. Any variation in foundations from that assumed shall be immediately referred to the Engineer.  
G5 Excavations shall not be permitted within 2 metres of an existing structure without prior approval or recommendations for shoring or underpinning provided by the Engineer.  
G6 Walkways have been designed for a distributed load of 3KPa. Balustrade load is 30 kg/m UNO. No additional loads shall be permitted without prior approval from the Engineer. N.B. Engineer should be notified if masonry walls, planter boxes or heavy loads are to be placed on walkways.  
G7 Provide temporary drain holes in both shallow and deep ends of pool shell. Hydro valve to be cleared of debris on completion of concreting.  
G8 Underside of pool shell to be separated from underlying material by 75mm layer of crushed stone draining to hydrostatic valve.  
Place membrane between pool shell and bluemetall.  
Corrugated iron alternative on rock only. Fill main drain sump with blue metal.  
G9 Notify Engineer if pool more than 900 above N.G.L.

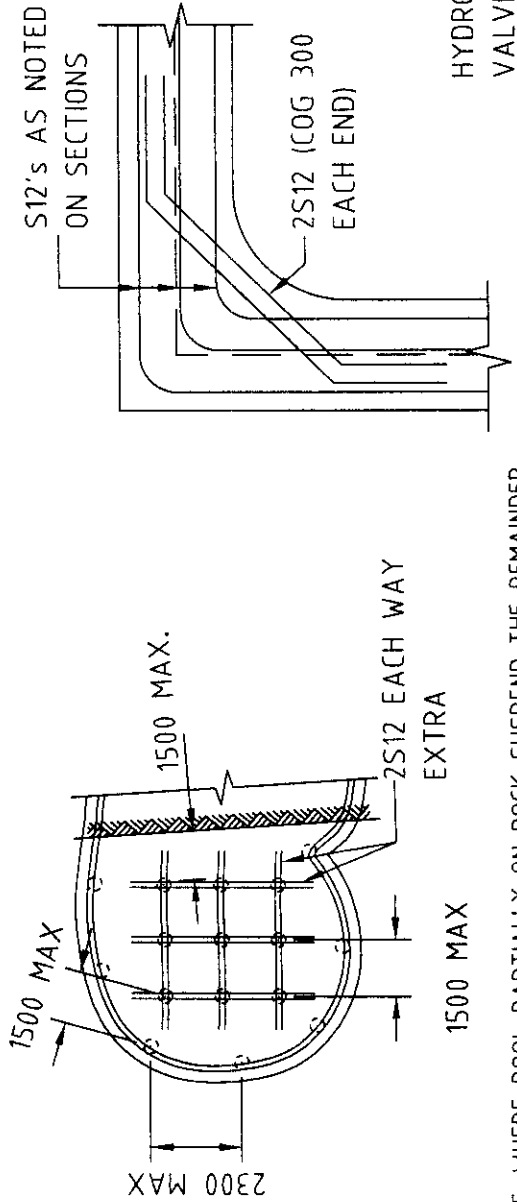
## CONCRETE NOTES

- C1 The mix shall be proportioned to produce a minimum 28 day compressive strength of 25MPa when tested in accordance with AS1012 and suitable for pneumatic application. All workmanship and materials shall be in accordance with AS2783:1994.  
C2 Exclude calcium chloride. Max aggregate size 10mm. Max slump 80mm. Cement type A.  
C3 Reinforcement cover - Soil Face Air Face Water Face  
Walkway 65 40 -  
Floor 65 50 60  
Walls 65 50 60  
Beams 50 50 -  
Piers 65 65 -  
Vibrate concrete in piers longer than 2m and all beams.  
C4 Plumbing piping to be behind reinforcement and to have minimum 65 clear cover from soil or air.  
C5 Reinforcement to comply with SAA Standards and be supported on non-rusting chairs at approximately 1m centres.  
C6 Reinforcement to be adequately wire tied with wire ends flattened into plane of bars. Separate lap bars by 75mm.  
C7 All splices to bars and fabric to be 450.  
S = Grade 230 structural grade deformed  
Y = Grade 410 tempcore deformed  
R = Grade 230 plane grade round.  
F = Grade 450 hard drawn wire fabric.  
C8 Plastic chairs that restrict entry of concrete into and around them shall not be used.

## POOL OWNER NOTES

- O1 If owner is dissatisfied with initial pool set out, location or depths, builder should be notified before steel reinforcement is fixed.  
O2 The position of skimmers, lights, return lines etc. on this drawing is indicative only and final position of be determined on site.  
O3 The pool concrete should be cured by hosing four times per day for seven days (10 days in summer) to keep exposed concrete continually wet after concrete placement.  
O4 Safety fencing should be in accordance with Local Councils requirements and conform to Australian Standards.  
O5 The pool is not designed for diving. Provide safety signage to SAA code and Council requirements and AS2416, AS2899.2.  
O6 Notify engineer if pool to be emptied after finishing.

WIRE CHAIRS (PLASTIC TIPPED) TO BE USED IN ALL OUT OF GROUND WALLS AND COPINGS. PLASTIC CHAIRS SHALL NOT BE USED. WHERE PLASTIC CHAIRS ARE USED ELSEWHERE IN POOL, PARTICULAR CARE TO BE TAKEN TO ENSURE CONCRETE IS COMPACTED AROUND AND UNDER CHAIR.

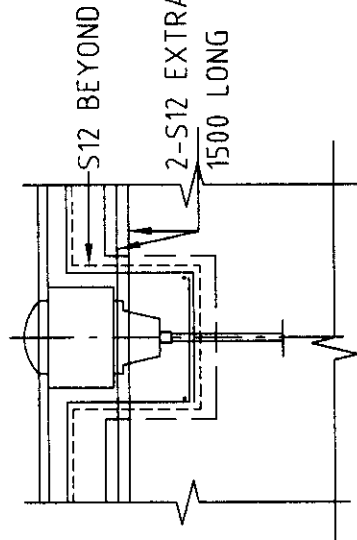


NOTE: WHERE POOL PARTIALLY ON ROCK SUSPEND THE REMAINDER OF THE POOL ON 450Ø MASS CONCRETE PIERS TO ROCKS. PIERS UNDER WALLS @ 2300 MAX. CTRS. PIERS UNDER FLOOR @ 1500 MAX. CTS. PIERS LONGER THAN 1000 TO BE REINFORCED WITH 6S12 & R10-300 TIES.

## ALTERNATIVE SUPPORT DETAIL

(THIS POOL IS NOT DESIGNED FOR DIVING)

## COPING CORNER DETAIL (FOR 300mm COPINGS OR SMALLER)



## ELEVATION

## SKIMMER DETAIL

## SECTION

PROPOSED SWIMMING POOL FOR  
JOHN & CERIAN BRONDUM  
277 LOWER PLATEAU RD, BILGOLA PLATEAU

Number: UC 0539/05

This is a copy of submitted plans, documents or Certificates associated with the issue of the Construction Certificate.

Endorsed by: 16 NOV 2005

Page: 1

5/8 Victoria Avenue,  
Castle Hill 2154  
Phone: 9680 2574, 9680 2668  
Fax: 98994450

ACN 003 089 903  
Gold Licence No. 487230

PROPOSED SWIMMING POOL FOR  
JOHN & CERIAN BRONDUM  
277 LOWER PLATEAU RD, BILGOLA PLATEAU

Swimming Pool Consultants Trading as  
Geoff Ninnies, Fong  
& Partners, Pty. Ltd.

Level 1,  
48-78 Crown Street,  
Woolloomooloo, N.S.W. 2011  
Phone 9331 5100 Fax 9331 2963  
Email: sydney@gnfp.com.au

ACN No. 001 849 289  
Consulting Engineers  
Civil Structural Stormwater

Engineer: [Signature]  
Date: SEPT 2005  
Drawn: J.F.  
Scale: 1:50 1:20

Drawing No. SUN0530/3



**GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER**  
**FORM NO. 2 – To be submitted with detailed design for construction certificate**

Development Application for \_\_\_\_\_

Name of Applicant \_\_\_\_\_

Address of site

277 Lower Plateau Rd, Bilgola Plateau

Declaration made by Structural or Civil Engineer in relation to the incorporation of the Geotechnical issues into the project design

I, Brad Fong

on behalf of

Geoff Ninnes Fong & Partners

(Insert name)

(trading or company name)

on this the

4-11-05

(date)

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

**Geotechnical Report Details:**

Report Title:

Report Date:

Author:

Risk Management for proposed pool at 277 Lower Plateau Rd  
19-7-05  
J. Hodgson  
Bilgola Plateau

**Structural Documents list:**SUN 0530/1, SUN 0530/2, SUN 0530/3

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

BRAD FONG

(name)

[Signature]

(signature)

Declaration made by Geotechnical Engineer or Engineering Geologist in relation to Structural Drawings

I prepared and/or technically verified the abovementioned Geotechnical Report as per Form 1 dated \_\_\_\_\_ and now certify that I have viewed the above listed structural documents prepared for the same development. I am satisfied that the recommendations given in the Geotechnical Report have been appropriate taken into account by the structural engineer in the preparation of these structural documents. I am aware that Pittwater Council relies on the processes covered by the Geotechnical Risk Management Policy, including this certification as the basis for ensuring that the geotechnical risk management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature .....

Name .....

Chartered Professional Status .....

Membership No. ....

J. Hodgson  
J. HODGSON  
MEMBER FIEAust  
149 788

PITTWATER COUNCIL CONSTRUCTION CERTIFICATE

Number 0539/05

This is a copy of submitted plans, documents or Certificates associated with the issue of the Construction Certificate

Endorsed by

Date

16 NOV 2005

## SYDNEY WATER

### FILLING OF SWIMMING POOLS

The water supply to the pool must be drawn from a metered service and any tap or hose used to fill the pool must be at least 150mm above the highest possible water level of the pool.

### EMPTYING OF SWIMMING POOLS

Pools emptying into Sydney Water's Sewer must:

- Discharge into a gully through a pipe.
- Discharge only in dry weather, with prior approval from Sydney Water's Customer Centre.

**NOTE: IT IS PROHIBITED TO DISCHARGE POOL WATER INTO ANY OF SYDNEY WATER'S VACUUM SYSTEM SEWERS.**

Cooks, Castle Hill,  
Quick Check, Agent on behalf of  
SYDNEY WATER

Per: *Dan McCreary* 21.09.05

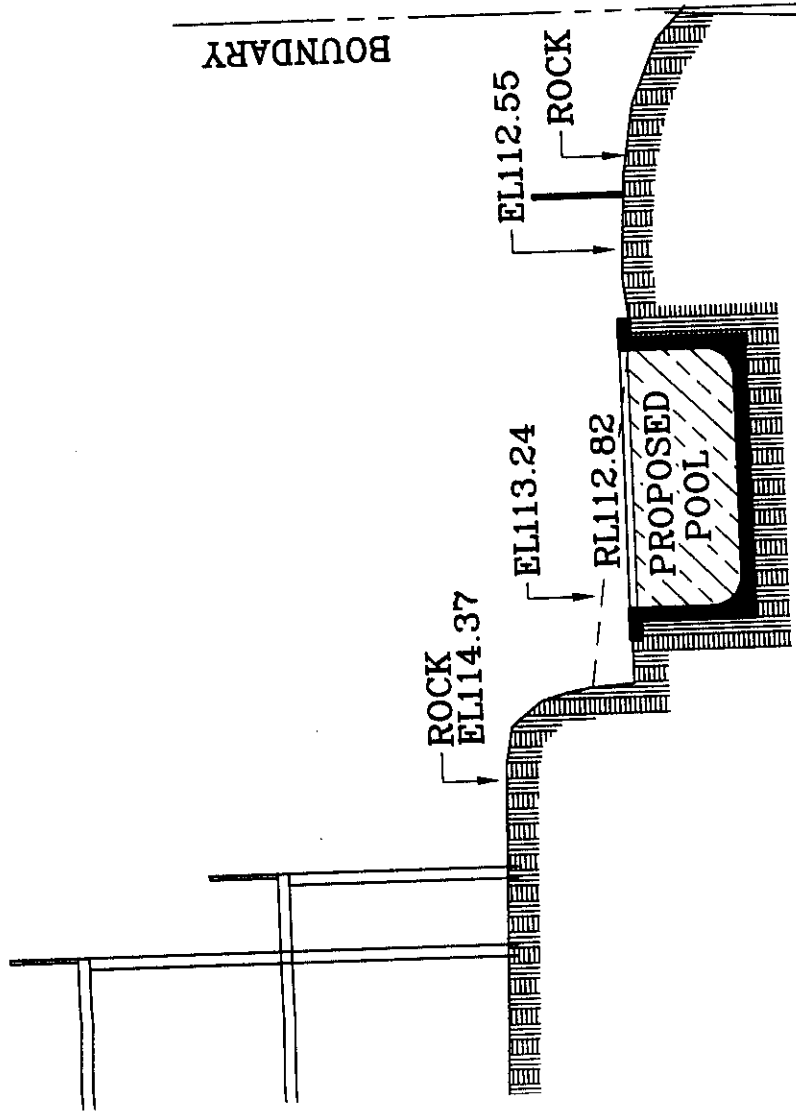
## SYDNEY WATER APPROVED

- Position of structure in relation to Sydney Water's assets is satisfactory.
- Connections to Sydney Water sewer/water services may only be made following the issue of a permit to a licenced plumber/drainier.
- It is the owner's responsibility to ensure that all proposed fittings will drain to Sydney Water's sewer.
- Any Plumbing and/or Drainage Work to be carried out in accordance with the Sydney Water Act 1994, AS 3500 and the NSW Code of practice.
- Gullies, Inspection Shafts and Boundary Traps shall not be placed under any Roof, Balcony, Verandah, Floor or other cover unless otherwise approved by Sydney Water.
- Property No. 344-6209

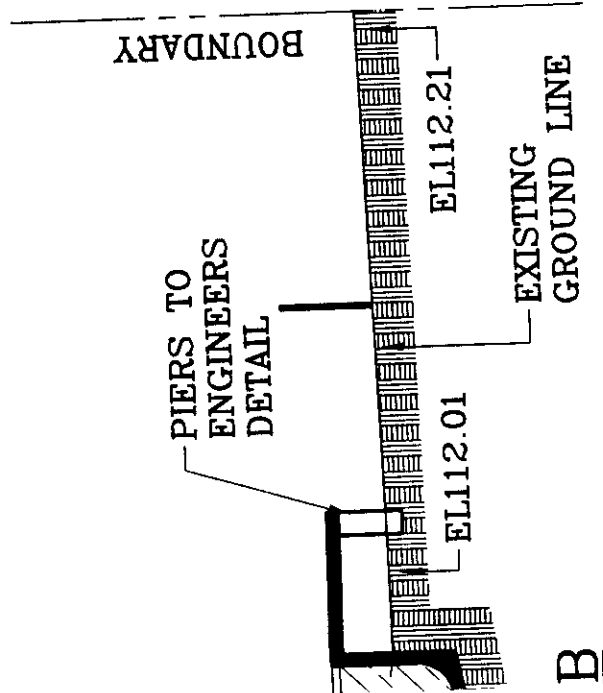
Cooks, Castle Hill,  
Quick Check Agent on behalf of  
SYDNEY WATER

Per: *Dan McCreary* 21.09.05

|                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------|
| PIT/WATER COVERING/CONCRETE/CONCRETE                                                                                    |
| Number: <u>000539/05</u>                                                                                                |
| This is a copy of submitted plans, documents or Certificates associated with the issue of the Construction Certificate. |
| Endorsed by: <i>[Signature]</i>                                                                                         |
| Date: <u>16 NOV 2005</u>                                                                                                |



SECTION A-A



B

**RIGHT ANGLE DRAFTING**



ROBIN GOOD  
UNIT 273 / 8 LACHLAN STREET  
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EMAIL: robyn.g@rightangle.com.au  
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PROPOSED NEW SWIMMING POOL  
JOHN & CERIAN BRONDUM  
277 LOWER PLATEAU ROAD  
BILGOLA PLATEAU

DWG NAME

POOL PLAN AND SECTIONS

DATE

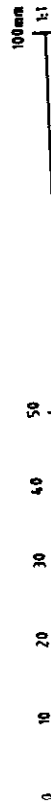
JUNE 05

SCALE AT A3

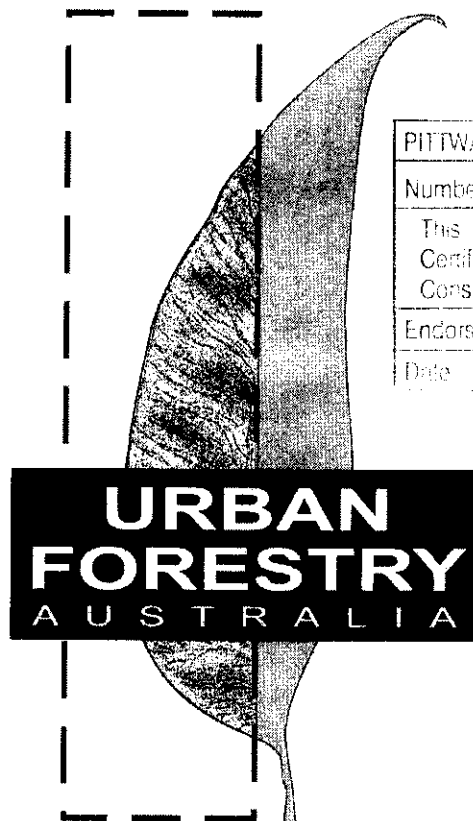
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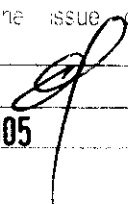
DRAWING NUMBER

SRP0506-2







|                                                                                                                         |                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| PITTWATER COUNCIL CONSTRUCTION CERTIFICATE                                                                              |                                                                                     |
| Number:                                                                                                                 | CC 0539/05                                                                          |
| This is a copy of submitted plans, documents or Certificates associated with the issue of the Construction Certificate. |                                                                                     |
| Endorsed by:                                                                                                            |  |
| Date:                                                                                                                   | 16 NOV 2005                                                                         |

**TREE MANAGEMENT CONSULTING ARBORICULTURISTS**

**ARBORICULTURAL ASSESSMENT  
AND  
PLAN OF MANAGEMENT FOR TREES WITHIN 5 METRES  
OF A PROPOSED POOL**

for

Sunrise Pools Australia Pty Ltd  
5/8 Victoria Avenue  
CASTLE HILL NSW 2154

**SITE ADDRESS**  
277 LOWER PLATEAU ROAD  
BILGOLA PLATEAU NSW

**SEPTEMBER 2005**

MEMBER OF  
INSTITUTE OF AUSTRALIAN  
**I A C A**  
CONSULTING ARBORICULTURISTS

URBAN FORESTRY AUSTRALIA

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## **1 INTRODUCTION**

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- 1.1** This Arboricultural Assessment was commissioned by Ms Kelly Robinson of Sunrise Pools Australia Pty Ltd., on behalf of the owners of the subject site.
- 1.2** The subject site is identified as 277 Lower Plateau Road, Bilgola Plateau, New South Wales.
- 1.3** This Arboricultural Assessment addresses the proposed construction of an approved swimming pool in the rear yard of the subject site.
- 1.4** This Arboricultural Assessment reports on the health and condition of surveyed trees, and examines the possible development impacts on trees in proximity to the proposal.  
  
This Arboricultural Assessment gives recommendations as to the retention or removal of trees on the site based on their Safe Useful Life Expectancy, comments on the nature of the development, and gives recommendations to minimize any identified impacts from the proposed development.
- 1.5** A Plan of Management has been prepared for the trees to be retained on the site, and is included in the Recommendations section of this assessment.
- 1.6** Information contained in this Arboricultural Assessment covers only the trees that were examined and reflects the condition of the trees at the time of inspection.  
  
Care has been taken to obtain all information from reliable sources.  
  
All data has been verified as far as possible; however, I can neither guarantee nor be responsible for the accuracy of information provided by others.
- 1.7** This Arboricultural Assessment is not intended as an assessment of any impacts on trees by any proposed future development of the site, other than the current approved development.
- 1.8** This report is not intended to be a comprehensive hazard assessment, however the report may make recommendations, where appropriate, for further testing of trees where potential structural problems have been identified or where below-ground investigation may be required.

## 2 METHODOLOGY

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- 2.1** In preparation for this report a ground level visual tree assessment (Mattheck 1994) was undertaken by the author of this Arboricultural Assessment on Friday 26 September, 2005.
- 2.2** The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring.  
No aerial (climbing) inspections, woody tissue testing or tree root investigation was undertaken as part of this tree assessment.
- 2.3** Tree height and canopy spread of the subject trees was estimated and expressed in metres.  
Trunk diameter at breast height (*DBH*) was estimated at approximately 1.4 metres above ground level.
- 2.4** Plans and/or documents used for the preparation of this Arboricultural Assessment include:
- Site Plan, Dwg, No. SRP0506 - 1, dated June 2005, prepared by Right Angle Drafting;
  - Pool Plan and Sections, Dwg, No. SRP0506 - 2, dated June 2005, prepared by Right Angle Drafting; and
  - Excerpt of Pittwater Council Conditions of Development Consent for the construction of a swimming pool.
- 2.5** Six (6) trees inside the subject site were assessed for this report.

### 3 DISCUSSION

#### 3.1 Location of Existing Trees

- 3.1.1 The subject trees are located in the east, south and west perimeters of the site. A cleared area between two large rock outcrops is approved for the location of the proposed pool.

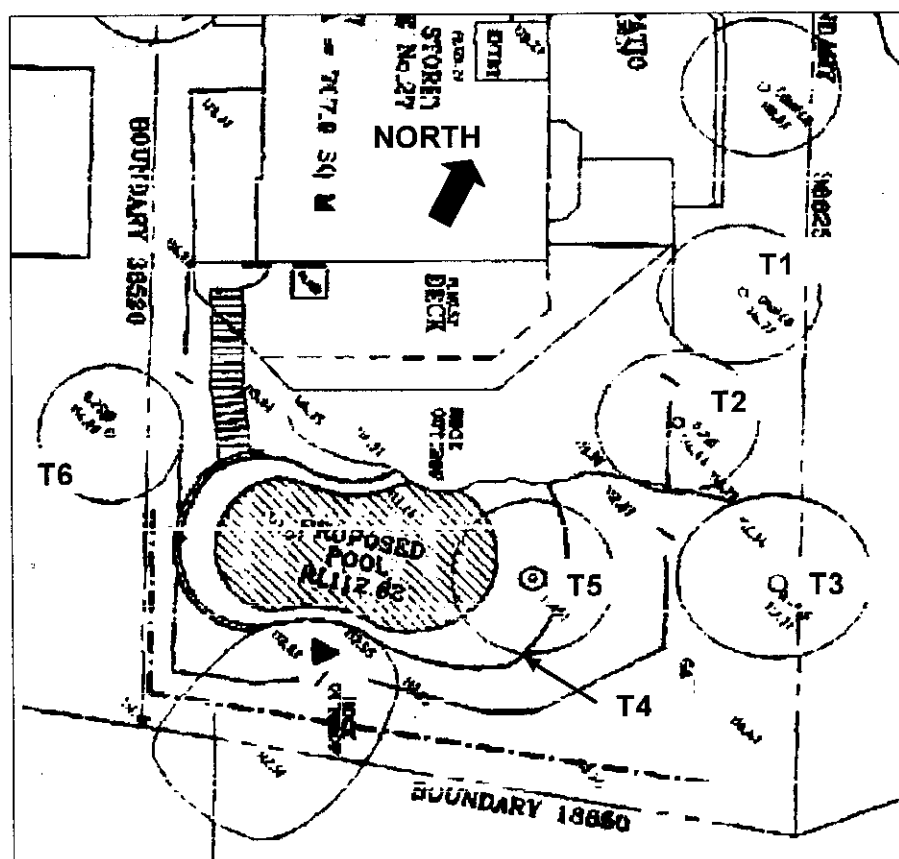


Figure 1 Location of subject trees in rear yard of subject site.



## 3.2 Tree Details

### 3.2.1 Schedule of Surveyed Trees

| Tree No. | Species and Common Name                         | Height (M) | Canopy spread (M) | DBH (mm) | Age | Health | Condition | SULE |
|----------|-------------------------------------------------|------------|-------------------|----------|-----|--------|-----------|------|
| 1        | <i>Cupressus macrocarpa</i><br>Monterey Cypress |            |                   |          |     |        |           |      |
| 2        | <i>Elaeocarpus reticulatus</i><br>Blueberry Ash | 11         | 6                 | 280      | M   | Fair   | Fair      | 3A   |
| 3        | <i>Ceratopetalum apetalum</i><br>Coachwood      | 15         | 10                | 480      | M   | Good   | Good      | 2A   |
| 4        | <i>Cyathea australis</i><br>Tree Fern x 2       | 3 – 4      | 4                 | 120      | M   | Good   | Good      | 3A   |
| 5        | <i>Livistona australis</i><br>Cabbage Tree Palm | 9          | 6                 | 400      | SM  | Good   | Good      | 1A   |
| 6        | <i>Allocasuarina torulosa</i><br>Forest Oak     | 11         | 7                 | 320      | M   | Fair   | Fair      | 3B   |

3.2.2 With the exception of Tree 1, all trees are locally indigenous species.

Tree 1 is an introduced conifer and the species is exempt from protection under the Tree Preservation and Management Order.

3.2.3 No trees meet the physical criteria defining them as significant<sup>1</sup>, however the species assemblage is typical of local rainforest communities and contributes to the local character and biodiversity of the locality.

<sup>1</sup>. Significant trees are trees that:

- are listed as Heritage Items in *Pittwater LEP 1993*; and/or
- contribute substantially, either individually or as a component of a tree group, to the landscape character, amenity, cultural values or biodiversity of their locality. (Generally trees with a girth greater than 500mm and a canopy spread of 6m radius would be considered significant however this should be confirmed by an independent arborist.) *Pittwater Council DCP – Pittwater 21*, Section A, p 16.

### **3.3 Proposed Tree Removal**

3.3.1 No trees are proposed for removal.

### **3.4 Potential Impacts on Trees to be Retained**

3.4.1 The proposed pool is set back at adequate distance from the majority of the subject trees and excavation for the pool is not expected to have a significant effect on nearby trees.

3.4.2 The excavation for the pool is about 700mm from the stem of the Cabbage Tree Palm (T5), which is enough to accommodate the root mass at the base of the tree and some space between the roots and pool wall.

3.4.3 The proposed deck around Tree 2 is to have an opening to accommodate the stem of the tree. This is easily constructed, but must allow for stem movement and expansion over time to avoid damage to the tree and deck.

3.4.4 The deck may also conflict with the location of the two (2) Tree Ferns located approximately 3 metres south of Tree 5. These tree ferns can be retained but this may require some slight amendment to the deck design to allow their retention.

3.4.5 The pool fencing location is very close to the Blueberry Ash, northeast of the pool. Final location of the fence will need to allow a minimum distance of 100 – 200 mm from the base of the tree to ensure no damage is inflicted on the tree. Locations for fence posts will need to be flexible to ensure no damage to woody support roots occurs.

These requirements are minor and can be easily incorporated without affecting the construction of the pool fence.

3.4.6 The remaining trees i.e. Trees 1, 3 and 6, are not expected to suffer any impacts as a result of the excavation and construction of the approved pool.

## **4 CONCLUSIONS**

---

- 4.1** There are no trees to be removed as part of this approved development.
- 4.2** Trees within proximity to the development can be retained without significant or adverse impacts on their health or condition, provided adequate protection measures are installed prior to construction.
- 4.3** Some minor adjustment to the location of the pool fence is likely, if damage to the stem or roots of trees is to be avoided.

## **5 RECOMMENDATIONS**

### **5.1 Specific**

#### **5.1.1 Tree 5**

1. Prior to commencement of work, Tree 5 must be provided with hessian wrapping of a minimum thickness of 25mm, from base to 2.0 metres above existing ground level, in order to protect the stem against physical damage.
2. The ground beneath the palm is to be covered in leaf mulch to a depth of 100mm and a radial setback of 1.5 metres to reduce soil compaction during works.
3. Allowance must be made for a minimum gap of 100mm between any parts of the proposed deck to the stem of the palm. Provision of a flexible rubber collar to this gap will prevent debris or other objects from falling through or being caught in the gap, and prevent damage to the structure and the stem of the palm.

- 5.1.2 The location of the proposed pool fencing and posts is to remain flexible, where it is indicated as being within 3 metres of Trees 2 and 6.

The fence must not be located any closer than 200mm from the stem of any tree.

## **6 PLAN OF MANAGEMENT**

### **6.1 Pre - Construction**

#### **6.1.1 Tree Protection Devices**

A Tree Protection Zone (TPZ) is to be provided to trees to be retained prior to the commencement of works on site, including any clearing or grading. The TPZ is to consist of 1.8m chain link with 50mm metal pole supports installed at no less than 3 metres around trees to be retained. The exceptions are Trees 4 and 5, where mulch and hessian wrapping is to be provided, and Trees 1, 2 and 6 where access to the site may be restricted with these setbacks to fencing. In this case, thick mulch must be provided in the areas where construction access to the rear yard is likely.

During installation of the protection fencing, care must be taken to avoid damage to significant roots.

Advice must be sought from a qualified arborist if protection fencing cannot be provided in accordance with the above.

#### **6.1.2 Mulching**

The inclusion of a temporary mulch layer of composted leaf and woodchip to a depth of 75mm within TPZ will help retain soil moisture, protect soil from contaminants and reduce soil compaction.

#### **6.1.3 Signage**

Signage should explain exclusion from the fenced off areas and carry a contact name for access or advice.

#### **6.1.4 Certification**

The TPZ must be inspected by an appropriately qualified arborist to ensure adequate tree protection is provided to the trees, prior to commencement of works. The arborist is to provide confirmation that protection measures are satisfactory and will meet minimum requirements for the protection of trees. In the event that protection is not considered adequate, the arborist is to advise on the appropriate materials and methods of protection to be provided to the trees to be retained.

## **6.2 Construction**

### **6.2.1 Maintaining Tree Protection**

The TPZ may only be removed, altered, replaced or relocated with the authorisation of the project arborist.

The contractor and supervisor of the site works must ensure that the integrity of the Tree Protection Zone is not compromised by any unauthorised activities carried out near trees to be retained.

All access to personnel and machinery, as well as storage of fuel, chemicals, cement or site sheds, is prohibited within the TPZ;

No washing of tools, wheelbarrows, etc. is to take place within 6 metres upslope of trees to be retained.

### **6.2.2 Site works**

The following must be adhered to during all works within 5 metres of trees to be retained.

- No stock-piling is to take place around the root zones of trees.
- Providing a regular supply of water to the tree during the period of works is recommended.
- During this period it is also recommended that the tree be given fortnightly applications of a rooting hormone, such as Hormone 20®, to encourage the development of new roots.
- Service trenches should not pass through a fenced area, although if this cannot be avoided a qualified arborist should be present to supervise excavation, cut torn roots cleanly or redesign around roots.  
Any roots that must be severed must be cut cleanly with a sharp handsaw or secateurs. Tearing of roots is not acceptable.
- Any excavation within the TPZ of trees to be carried out by hand i.e. a trench along the line of cut adjacent to the tree should be carefully dug by hand to expose any roots. After cutting of roots, machinery may complete the excavation.
- Do not allow excavation vehicles or equipment to rip at, or remove the roots along the face of any excavation adjacent to a tree.

In the event the vehicles 'grab' at roots during works, the machine operator must stop work immediately and allow the roots to be cut before continuing.

- Where significant tree roots are encountered which coincide with the desired location for a pier, the location should be moved so as to avoid the root/s. In the event this is not possible to achieve, an arborist should be consulted to assess the impacts on the tree's health and stability of the removal of further significant roots.
- Irrigation – An arborist should determine whether irrigation should be carried out during extended periods of drought.

#### 6.2.3 Monitoring

The trees must be monitored for signs of stress or decline in their health or condition. Any indication of stress (e.g. dull foliage, dieback of branch tips, fresh wounds or 'bleeding', etc.) must be reported to the project arborist as soon as noted.

### 6.3 **Post - Construction**

#### 6.3.1 Removal of Tree Protection devices

Tree protection fencing must not be removed until all site works are finished. Fencing must not be stockpiled near, or lean against trees, before being collected and removed off site.

#### 6.3.2 Re-mulching

Mulch must be removed after construction to remove any contaminants. Replacement with a good quality mulch and addition of 10% organic matter will improve beneficial soil micro-organisms, retain moisture and improve aeration and water infiltration.

#### 6.3.3 Landscaping

Any proposed planting locations within the TPZ of trees to be retained must remain flexible so as to avoid damage to existing roots.

In some cases, tubestock container size may be the only suitable size for planting within the root zone of a tree.

Mattocks and similar digging instruments must not be used within the dripline of trees to be retained. Planting holes should be dug by hand with a garden trowel, or similar small tool.

Should you require further assistance with this matter, or require my liaison with Council officers, please do not hesitate to contact me.

Yours faithfully,



**Catriona Mackenzie**

Consulting arboriculturist and landscape designer.

Member Australian Institute of Horticulture

Founding Member Institute of Australian Consulting Arboriculturists

Member International Society of Arborists – Australian Chapter

Certificate of Horticulture *Honours*

Associate Diploma of Applied Science (Landscape) *Distinction*

Diploma of Horticulture (Arboriculture) *Distinction*

## 7 BIBLIOGRAPHY

Barrell, J (1995) *Pre-development Tree Assessment from Trees and Building Sites*, Eds. Watson & Neely, International Society of Arboriculture, Illinois.

Mattheck, C. & Breloer, H.(1999) *The Body Language of Trees*. Research for Amenity Trees No.4 the Stationary Office, London.

Pittwater Council *Pittwater 21 Development Control Plan*, Adopted 8 December, 2003



## **APPENDIX A**

### **TERMS AND DEFINITIONS**



## TERMS AND DEFINITIONS

---

The following relates to terms or abbreviations that may have been used in this report and provides the reader with a detailed explanation of those terms.

### **Age classes**

- (I) = immature and refers to a well established but juvenile tree.
- (S) = semi-mature and refers to a tree at growth stages between immaturity and full size.
- (M) = mature and refers to a full sized tree with some capacity for further growth.
- (O) = over-mature and refers to a tree about to enter decline or already declining.

**Condition** refers to the tree's form and growth habit, as modified by its environment (aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health and it is possible for a tree to be healthy but in poor condition.

**Diameter at Breast Height (DBH)** refers to the tree trunk diameter at breast height (1.4 metres above ground level)

**Health** refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback.

### **SAFE USEFUL LIFE EXPECTANCY (SULE)**

In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. SULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner.

SULE categories are easily verifiable by experienced personnel without great disparity.

A tree's SULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give safe life expectancy), then by economics (i.e. cost of maintenance: retaining trees at an excessive management cost is not normally acceptable), effects on better trees, and sustained amenity (i.e. establishing a range of age classes in a local population).

SULE assessments are not static but may be modified as dictated by changes in tree health and environment. Trees with a short SULE may be at present be making a contribution to the landscape but their value to the local amenity will decrease rapidly towards the end of this period, prior to their being removed for safety or aesthetic reasons.

For details of SULE categories see Appendix B, adapted from Barrell 1996.

**Tree Protection Zone (TPZ)**, generally the minimum distance from the center of the tree trunk where protective fencing or barriers are to be installed to create an exclusion zone.

## **APPENDIX B**

### **SULE CATEGORIES**



**SULE CATEGORIES** (after Barrell 1996, Updated 01/04/01)

The five categories and their sub-groups are as follows:

1. **Long SULE** - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance:
  - A. structurally sound trees located in positions that can accommodate future growth
  - B. trees which could be made suitable for long term retention by remedial care
  - C. trees of special significance which would warrant extraordinary efforts to secure their long term retention
2. **Medium SULE** - tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance:
  - A. trees which may only live from 15 to 40 years
  - B. trees which may live for more than 40 years but would be removed for safety or nuisance reasons
  - C. trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
  - D. trees which could be made suitable for retention in the medium term by remedial care
3. **Short SULE** - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:
  - A. trees which may only live from 5 to 15 years
  - B. trees which may live for more than 15 years but would be removed for safety or nuisance reasons
  - C. trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting
  - D. trees which require substantial remediation and are only suitable for retention in the short term
4. **Removal** - trees which should be removed within the next 5 years
  - A. dead, dying, suppressed or declining trees
  - B. dangerous trees through instability or recent loss of adjacent trees
  - C. dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
  - D. damaged trees that are clearly not safe to retain.
  - E. trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
  - F. trees which are damaging or may cause damage to existing structures within the next 5 years.
  - G. trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
  - H. trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.
5. **Small, young or regularly pruned** - Trees that can be reliably moved or replaced.
  - A. small trees less than 5m in height.
  - B. young trees less than 15 years old but over 5m in height.
  - C. formal hedges and trees intended for regular pruning to artificially control growth.