



LOCAL

Certificate No.: 5001547

Construction Certificate

issued under the Environmental Planning and Assessment Act, 1979

your's locally

Sydney North West
21/5 Inglewood Place
Baulkham Hills 2153
PO Box 7321 Baulkham Hills BC NSW 2153
DX 8461 Castle Hill
p 02 9836 5711 f 02 9836 5722
web www.localgroup.com.au

Subject Land: H/N: 40
Lot: 144
DP/SP/CP: 270385
Street: SHEARWATER DRIVE
Suburb: WARRIEWOOD 2102

Applicant: CLARENDON RESIDENTIAL PTY LTD
UNIT 3, GROUND FLOOR, 21 SOLENT CIRCUIT
BAULKHAM HILLS NSW 1755

Development: DWELLING (TWO STOREY)

Limitations &/or Exclusions:

Building Classification: 1A

Development Consent: N0411/07
6 SEPTEMBER, 2007

Documentation accompanying the application:

Plans:

PLANS PREPARED BY CLARENDON RESIDENTIAL GROUP DATED 11/7/07, REVISION B DATED 14/9/07, JOB # 242067, SHEETS 1 TO 11, 2.1 TO 2.3.

Specifications:

GENERAL HOUSING SPECIFICATION PREPARED BY HIA.

Other Documents:

APPLICATION FORM; OWNERS CONSENT; HOW CERTIFICATE; COUNCIL RECEIPT; BASIX CERTIFICATE # 159730S ISSUED 18/9/07; ENGINEERS DETAILS PREPARED BY D'AMICI COLOMBO PTY LTD DATED 18/10/07, JOB # 19245, SHEETS 1 TO 14; SYDNEY WATER APPROVAL; LANDSCAPE PLAN PREPARED BY DANIELL, DAGGER DESIGN LANDSCAPES DATED 30/07/07, REVISION B, DWG # 242067/LP1-2; WASTE MANAGEMENT PLAN DATED 11/7/07; KOPPERS RETAINING WALL TECHNICAL DESIGN GUIDE; EXTERNAL COLOURS CHART.

Determination:

This application for Construction Certificate has been approved.

Date of Determination:

10 October, 2007

Certificate:

This Construction Certificate has been determined as **APPROVED** in accordance with the procedures outlined in Clause 142 of the Environmental Planning and Assessment Regulation 2000. In making this determination, I certify that the work if completed in accordance with the documentation accompanying the application for the Certificate (with such modifications verified by the certifying authority as may be shown on that documentation) will comply with the requirements of this Regulation as referred to in Section 81A(5) of the Environmental Planning and Assessment Act, 1979.

Attached/-

1. Documentation accompanying the application as listed above.
2. Fire Safety Schedule

Signature:

Name:
Accreditation Number:
Accreditation Body:

Andrew Dean
bpb0087
Building Professionals Board

30.00 Rept 226501 16/10/07



LOCAL

RECEIVED
20/9/07

APPLICATION FORM

✓ Principal Certifying Authority

✓ Construction Certificate
✓ Complying Development Certificate
✓ Occupation Certificate

Compliance Certificate

500547

THE APPLICATION

DATE OF APPLICATION: 18.09.07

LAND TO BE DEVELOPED

Lot No.: 144 Deposited Plan: 270385
 House No.: 40 Street Name: Shearwater Dr.
 Suburb: Warriewood Post Code: 2102
 Area (m²): 312.30m2

22033

THE DEVELOPMENT

Proposed Building Work: Residential ☒ Commercial ☐ Industrial ☐
 Description of Development: TWO STOREY DWELLING, ATTACHED GARAGE
 Value of Work: \$322,508
 Type of work: Erection of a Building

CONSENTS

Consent Authority: Pittwater
 Development Consent No.: N0411/07 Date of Issue: 11.09.07
 Builder or Owner/Builder Name: Clarendon Homes NSW P/L
 Licence No.: 2298C

THE APPLICANT

Surname: CLARENDON Residential
 First Name:
 Street: Unit 3, 21 Solent Circuit
 Suburb: Baulkham Hills 2153
 Contact No's.: 8850 9904

THE OWNER/S

	Owner 1	Owner 2	Owner 3	Owner 4
First Name:	Clarendon Residential			
Surname:				
Street:				
Address:				
Contact No.:				

Local South Coast
 48b Princes Highway
 Fairy Meadow NSW 2519
 P - 02 4284 4709
 F - 02 4284 4208

Local Norwest
 Suite 21, 5 Inglewood Place
 Baulkham Hills NSW 2153
 P - 02 9836 5711
 F - 02 9836 5722

Local Central Coast
 Suite 2/162 The Entrance Road
 Erina NSW 2250
 P - 02 4365 6051
 F - 02 4365 4846

Local Macarthur
 PO Box 3190
 Narellan DC NSW 2567
 P - 02 4648 5666
 F - 02 4648 5755

E - info@localgroup.com.au
 Web - http://localgroup.com.au
 ABN - 30 735 366 565

LETTER OF CONSENT

OWNERS CONSENT

I/we the owners of the subject property hereby give consent for the lodgement all relevant applications (i.e. for Construction Certificate/s, Complying Development Certificate/s, Occupation Certificate/s, Compliance Certificate/s) and associated documentation to Local Certification Services Unit Trust for consideration.

I/we also declare that all documentation presented as part of an application for a Construction Certificate has remained unaltered from that issued with any Development Consent or that any changes have been documented and Local Certification Services Unit Trust have been advised accordingly.

PRINCIPAL CERTIFYING AUTHORITY

With reference to this proposed development I/we the owners of the subject property hereby advise of our decision to appoint ☒ Andrew Dean ☐ Callan Blackwell ☐ Craig Hardy ☐ Danial Powell ☐ Michael Shanahan ☐ Paul Gearin ☐ Trent McCurley ☐ _____ (please select by ticking the box) to fulfil the role of Principal Certifying Authority (PCA) as outlined in the Environmental Planning and Assessment Act, 1979 (as amended).

I/we understand that this engagement shall be subject to the Terms and Conditions outlined in this application and the associated Schedule and I/we further understand that he will carry out all mandatory inspections required by the Act during the course of construction along with any others that he deems to be necessary and referred to the abovementioned Agreement.

I/we also advise that I/we are aware of the conditions attached to any Development Consent (i.e. Local Development Consent or Complying Development Consent) and are aware of our responsibilities in relation to those conditions.

SIGNATURES

APPLICANT

Signed: _____

Name (Please Print):

Clarendon Residential

Date: **18.09.07**

OWNER/S

Signed: _____

Name (Please Print):

Clarendon Residential

Date: **18.09.07**

Signed: _____

Name (Please Print):

Date: _____

Signed: _____

Name (Please Print):

Date: _____

Signed: _____

Name (Please Print):

Date: _____



LOCAL

AUSTRALIAN BUREAU OF STATISTICS**ALL NEW BUILDINGS***(Please complete the following)*How many storeys (*incl. underground floors*) will the proposed building consist of ? ☐1 ☒2 ☐__What is the gross area of the new building ? _____ 254.37m²What is the gross area of the site on which the proposal will be constructed ? _____ 312.30m²**RESIDENTIAL BUILDINGS ONLY***(Please complete the following for residential buildings)*How many dwellings will be constructed ? _____ ☐0 ☒1 ☐2How many pre-existing dwellings are there on the site already ? _____ ☒0 ☐1 ☐2How many dwellings will be demolished ? _____ ☒0 ☐1 ☐2If the proposal includes a new dwelling/s is it be attached to another new building ? ☐Yes ☒NoIf the proposal includes a new dwelling/s is it be attached to another new building ? ☐Yes ☒No

Does the site contain a Dual Occupancy ?

(A dual occupancy is defined as two dwellings on the one site) _____ ☐Yes ☒No**MATERIALS***Please indicate the materials to be used in the construction of the new building/s***Walls****Code**

Brick (Double) _____ ☐ 11
 Brick (Veneer) _____ ☒ 12
 Concrete or Stone _____ ☐ 20
 Fibre Cement _____ ☐ 30
 Timber _____ ☐ 40
 Curtain (Glass) _____ ☐ 50
 Steel _____ ☐ 60
 Aluminium _____ ☐ 70
 Other _____ ☐ 80
 Not Specified _____ ☐ 90

Floor**Code**

Concrete or Slate _____ ☒ 20
 Timber _____ ☐ 40
 Other _____ ☐ 80
 Not Specified _____ ☐ 90

Roof**Code**

Tiles _____ ☐ 10
 Concrete or Slate _____ ☒ 20
 Fibre Cement _____ ☐ 30
 Steel _____ ☐ 60
 Aluminium _____ ☐ 70
 Other _____ ☐ 80
 Not Specified _____ ☐ 90

Frame**Code**

Timber _____ ☒ 40
 Steel _____ ☐ 60
 Aluminium _____ ☐ 70
 Other _____ ☐ 80
 Not Specified _____ ☐ 90

Local South Coast
 48b Princes Highway
 Fairy Meadow NSW 2519
 P - 02 4284 4709
 F - 02 4284 4208

Local Norwest
 Suite 21, 5 Inglewood Place
 Baulkham Hills NSW 2153
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 Suite 2/162 The Entrance Road
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 P - 02 4365 6051
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Local Macarthur
 PO Box 3190
 Narellan DC NSW 2567
 P - 02 4648 5666
 F - 02 4648 5755

E - info@localgroup.com.au
 Web - <http://localgroup.com.au>
 ABN - 30 735 366 565

LOT 144
D.P: 270385
L.G.A: PITTWATER

AREAS:

P.O.S 66.52 Sq.m
TURF 180.02 Sq.m
DRIVE 4.97 Sq.m
XOVER 4.45 Sq.m
PATH 8.62 Sq.m

KEY:

RET. WALL - CONSISTENT HGHT
RET. WALL - DIMINISHING HGHT
BUILDING PLATFORM/ BATTER LINE
MAX. FALL - BATTER 1:7
FALL - BATTER 1:5
CUT / FILL LINE

LEGEND :-

4.28 DENOTES SPOT HEIGHT.
5.51 TK DENOTES TOP OF KERB & LEVEL.
SS LID DENOTES METAL LID WITH MARKING SS
W LID DENOTES METAL LID WITH MARKING W
G DENOTES STAMP ON KERB WITH MARKING G
V DENOTES STAMP ON KERB WITH MARKING V

NOTES

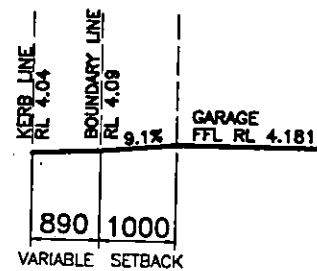
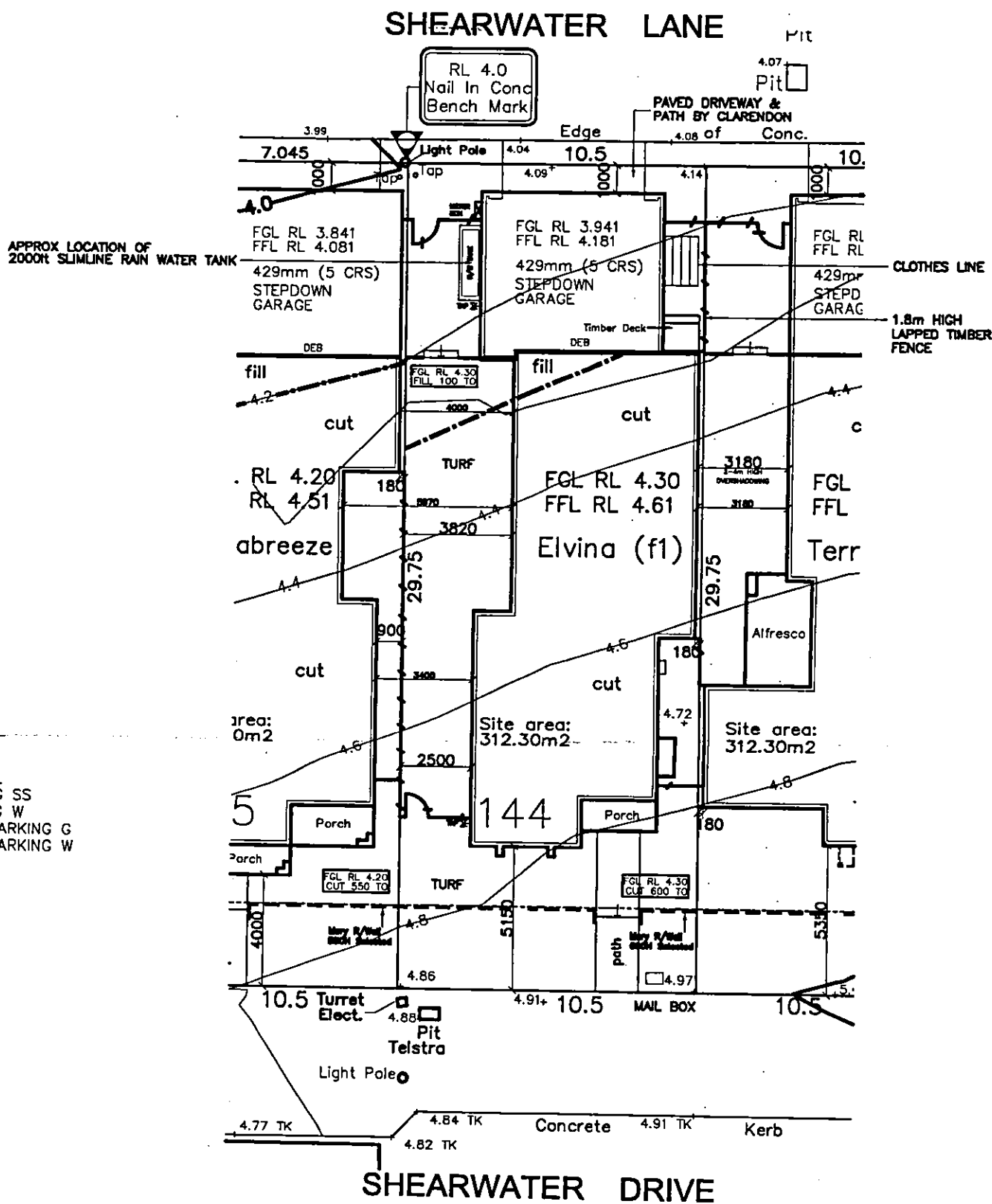
THESE LEVELS ARE APPROXIMATES
ONLY & ARE TO BE CONFIRMED ON
SITE WITH SUPERVISOR PRIOR TO
COMMENCEMENT OF ANY EXCAVATIONS.

SILTATION CONTROL TO COUNCIL
REQUIREMENTS.

EXISTING VEGETATION ON SITE TO BE REMOVED

NO WATERWAY OR WATERCOURSES
ON SITE.

TERMITE PROTECTION TO AS3660.



DRIVEWAY PROFILE

SAFETY WARNING
ING 1100 "DIAL BEFORE YOU DIG"
FOR TO ANY EXCAVATIONS.
REGISTERED EASEMENT WITHIN THE LOT
SHOWN ON THIS SITE PLAN.

SIGNATURE:

DATE:

Clarendon
Residential Group
Clarendon Homes (NSW) P/L
Solent Circuit, Baulkham Hills NSW 2153
(02) 8851 5300 F: (02) 8851 5333

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permission from
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DIMENSIONS TO BE READ IN
PREFERENCE TO SCALING

PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential

SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive

CC PLAN

DRAWN: T.L	DATE: 11.07.07	Rev: B
RATIO @ A3: 1:200	CHECKED:	
SHEET:	JOB No:	



See reverse of form for instructions

PART A - DETAILS OF PERSON/COMPANY/ORGANISATION LIABLE TO PAY LEVY

Surname (if person)
or Company/Organisation name **CLARENDON RESI**

Given names (if person) **CLARENDON RESI**

ABN (if applicable) **CLARENDON RESI**

POSTAL ADDRESS
No. and street or PO Box **DX 9952 NORWES
PARK**

Town/suburb **BAULKHAM HILLS**

State **NSW** Postcode **2153** Bus. hours

Pittwater Council

ABN: 61340837871

**TAX INVOICE
OFFICIAL RECEIPT**

07/08/2007 Receipt No 220505

To CLARENDON RESIDENTIAL

DX 9952
NORTHWEST BUSINESS PARK
BAULKHAM HILLS NSW 2453

PART B - ADDRESS OF BUILDING/CONSTRUCTION WORK

Number and street **40 SHEARWATER**

Town/suburb **WARRIEWOOD**

State **NSW** Postcode **2102**

Estimated start date **01 M 10 Y 2007** Estimated finish

Qty/ Applic	Reference	Amount
GL Rec	TDEV-DA F 1 X D/A N0411/07	\$1,329.70
1	TADV-T/P1	\$68.18
GL Rec	1 X D/A N0411/07	
	BST	\$6.82
GL Rec	1 RMIC-Rord	\$54.55
GL Rec	1 X D/A N0411/07	
	BST	\$5.45
GL Rec	QLSL-Buil 1 X D/A N0411/07	\$1,129.00
1	HKER-RR A	\$193.64
GL Rec	1 X D/A N0411/07	
	BST	\$19.36
GL Rec	1 NODP-Noti	\$31.82
GL Rec	1 X D/A N0411/07	
	BST	\$3.18
GL Rec	To GL Receipt:	

PART C - DETAILS OF WORK - To be completed by consenting/certifying authority with

Local Council Area **PITTWATER COUN**

DA/CC/CDC No. **N0411/07**

Estimated value
of work (see note on back) \$ **322,508.00**

¹ If you have provided a CC above, please provide DA number here **000000**

Signature of Officer/Private Certifier **J. Lyons**

Name of Officer/Private Certifier **JULIAN LYONS** Business hours

PART D - DETAILS - To be completed by Dept/Authority where applicable -

Department/Authority **0000000000000000**

Contract/DA No (circle which) **0000000000000000** Contract amount \$ **0000000000**

Levy payable \$ **0000000000**

Contact person (Print) _____ Phone _____

Contact person (Signature) _____

PART E - DECLARATION - To be signed by person liable to pay levy on autho

Any false or misleading information provided on this form may result in prosecution and I hereby declare that the information provided on this form is true and correct to the best of my knowledge.

Name **B. EL DANEH** Signature **B. El DANEH**

PART F - TO BE COMPLETED WHERE APPLICABLE - SEE REVERSE

Exemption Approval Certificate No. _____



HOME WARRANTY INSURANCE

Local Authority Copy

CGU POLICY CERTIFICATE NUMBER: 02.HWI.0054519.02

Home Building Regulation 2004 Clause 66(1)

Schedule 1 - Forms, Form 1

HOME BUILDING ACT 1989 Section 92

CERTIFICATE IN RESPECT OF INSURANCE RESIDENTIAL BUILDING WORK BY CONTRACTORS

A contract of insurance complying with section 92 of the Home Building Act 1989 has been issued by CGU Insurance Ltd ABN 27 004 478 371:

in respect of:

Construction of new residential dwelling

at:

144 Shearwater Drive, Warriewood, Nsw 2102

Builder Job Number:

242067

carried out by:

Clarendon Homes (NSW) Pty Ltd ACN.003892706 ABN.18003892706

for:

CLARENDON RESIDENTIAL GROUP

Subject to the Act and the Home Building Regulation 2004 and the conditions of the insurance contract, cover will be provided to a beneficiary described in the contract and successors in title to the beneficiary.

Date: 18th September 2007

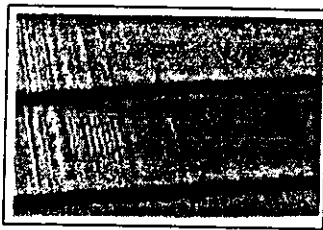
Signed for and on behalf of the Insurers:

This Certificate in respect of Insurance is issued for the building contract
dated 18/09/2007
for the contract sum of \$322,508

CGU ELIGIBILITY NUMBER: 0002458

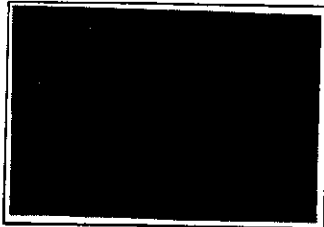
MULCH

Lot 144

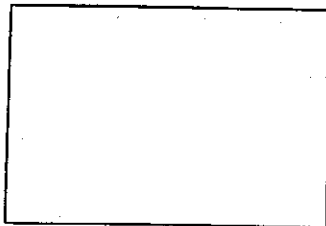


Roof

Boral Striata Storm Grey or
Colorbond Ironstone

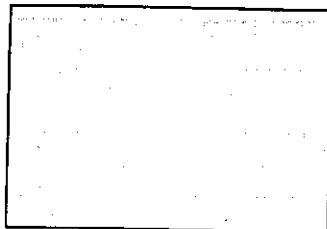


Gutter, Fascia, Garage
Colorbond Ironstone



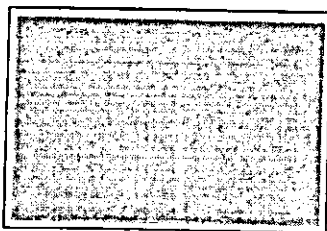
Paint Colour

Taubmans Kid Skin T111-3W



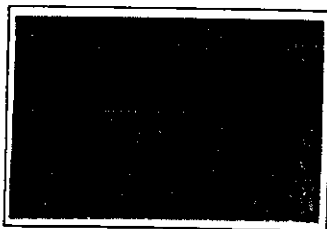
Paint Colour

Taubmans Twiggy T111-4W



Paint Colour

Taubmans Bowerbird T111-6A



Paint Colour

Taubmans Elsa Karga T149-7A

Windows:

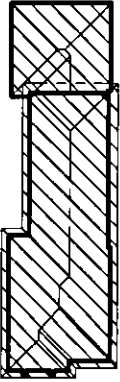
Notre Dame

Louvres:

Charcoal

Eaves:

Hazel Snow T111-2W

PROPOSED AREAS	
SITE:	312.30 m²
BUILDING FOOTPRINT:	150.60 m²
DRIVEWAY & PATHWAYS:	13.41 m²
SWIMMING POOL AREA:	N/A m²
ENTERTAINMENT AREA:	N/A m²
TOTAL:	164.01 m²
No. of Beds:	4
GROUND FLOOR:	113.59 m²
FIRST FLOOR:	101.79 m²
GARAGE:	37.16 m²
PATIO:	2.83 m²
BALCONY:	N/A m²
Spare 1:	N/A m²
Spare 2:	N/A m²
TOTAL:	255.37 m²
TOTAL LIVING AREA: (Excl. Garage/Patio etc.)	215.38 m²
FLOOR SPACE RATIO:	0.689 : 1 69.0 %
SITE COVERAGE:	52.52 %
LANDSCAPED AREA:	148.28 m² 47.48 %
BUILDING PLATFORM:	280.0 m²
NETT CONDIT. FLOOR AREA:	175.0 m²
UNCONDITIONED FLOOR AREA:	17.5 m²
TOTAL ROOF AREA:	177.38 m²
HARVESTED ROOF AREA:	177.38 m²
	
HARVESTED ROOF AREA - NTS	
FUTURE FLOOR COVERINGS	
GROUND FLOOR:	FIRST FLOOR:
KITCHEN TILES	BEDROOMS CARPET
DINING CARPET	HALLWAYS CARPET
LIVING CARPET	BATHROOMS TILES
ENTRY TILES	TV/RUMPUS CARPET
FAMILY TILES	
LAUNDRY TILES	
STUDY CARPET	
GAMES CARPET	
EXTERNAL COLOURS	
ROOF:	DARK EXT WALLS: LIGHT

WINDOW/DOOR REQUIREMENTS		
UNIT CODE	AREA (m2)	TYPE
W1	1.95	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W2	3.15	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W3	0.90	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W4	3.15	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W5	2.94	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W6	5.07	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W7	1.80	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W8	8.40	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W9	11.50	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W10	5.20	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W11	1.68	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.
W12	2.73	IMPROVED ALUMINIUM, SINGLE CLEAR. U VALUE: 6.44, SHGC: 0.75.

FLUORESCENT LIGHTING TO BEDROOMS, KITCHENS, MEALS, FAMILY, BATHROOMS AND LAUNDRY.
AC DUCTING ONLY TO DWELLING
OUTDOOR CLOTHES LINE (LOCATION TO BE DETERMINED)
5 STAR GAS HOT WATER UNIT.
GAS COOKTOP & ELECTRIC OVEN.
SARKING TO UNDERSIDE OF ROOF TILES.
R3.0 CEILING INSULATION (EXCLUDES GARAGE).
R1.5 WALL INSULATION (EXCLUDES GARAGE).
3 STAR BATH TAP SETS.
3 STAR SHOWER HEADS, TOILETS, KITCHEN & VANITY TAP SETS.
SCHEDULE OF BASIX COMMITMENTS


2.3	SHADOW DIAGRAM
2.2	STORMWATER PLAN
2.1	SITE ANALYSIS PLAN
11	WET AREA DETAILS
10	SLAB PLAN
9	FIRST FLOOR ELECTRICAL
8	GROUND FLOOR ELECTRICAL
7	SECTION
6	ELEVATIONS
5	ELEVATIONS
4	FIRST FLOOR PLAN
3	GROUND FLOOR PLAN
2	SITE PLAN
1	COVER SHEET
SHEET	DESCRIPTION

This information relates to
Construction/Complying Development Certificate

5001547

Issued by Andrew Dean (02) 9919 5711
Building Professionals Board (BPD0007)

B	14/09/07	ISSUED FOR CC	TL
A	6.07.07	DA PLAN	BE
REV	DATE	AMENDMENTS	BY



Clarendon Residential Group

Clarendon Homes (NSW) P/L

21 Solent Circuit, Baulkham Hills NSW 2153

T: (02) 8851 5300 F: (02) 8851 5333

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permission from
CLARENDON HOMES (NSW) PTY LTD

DIMENSIONS TO BE READ IN
PREFERENCE TO SCALING

PRODUCT:

ELVINA

Facade 1

Rear Loaded Garage

CLIENT:

Clarendon Residential

SITE ADDRESS:

Lot 144 (DP 270385)

Shearwater Drive

WARRIEWOOD, 2102

CC PLAN

DRAWN: T.L	DATE: 11.07.07	Rev: B
RATIO @ A3: N/A	CHECKED:	
SHEET: 1	JOB No: 242067	

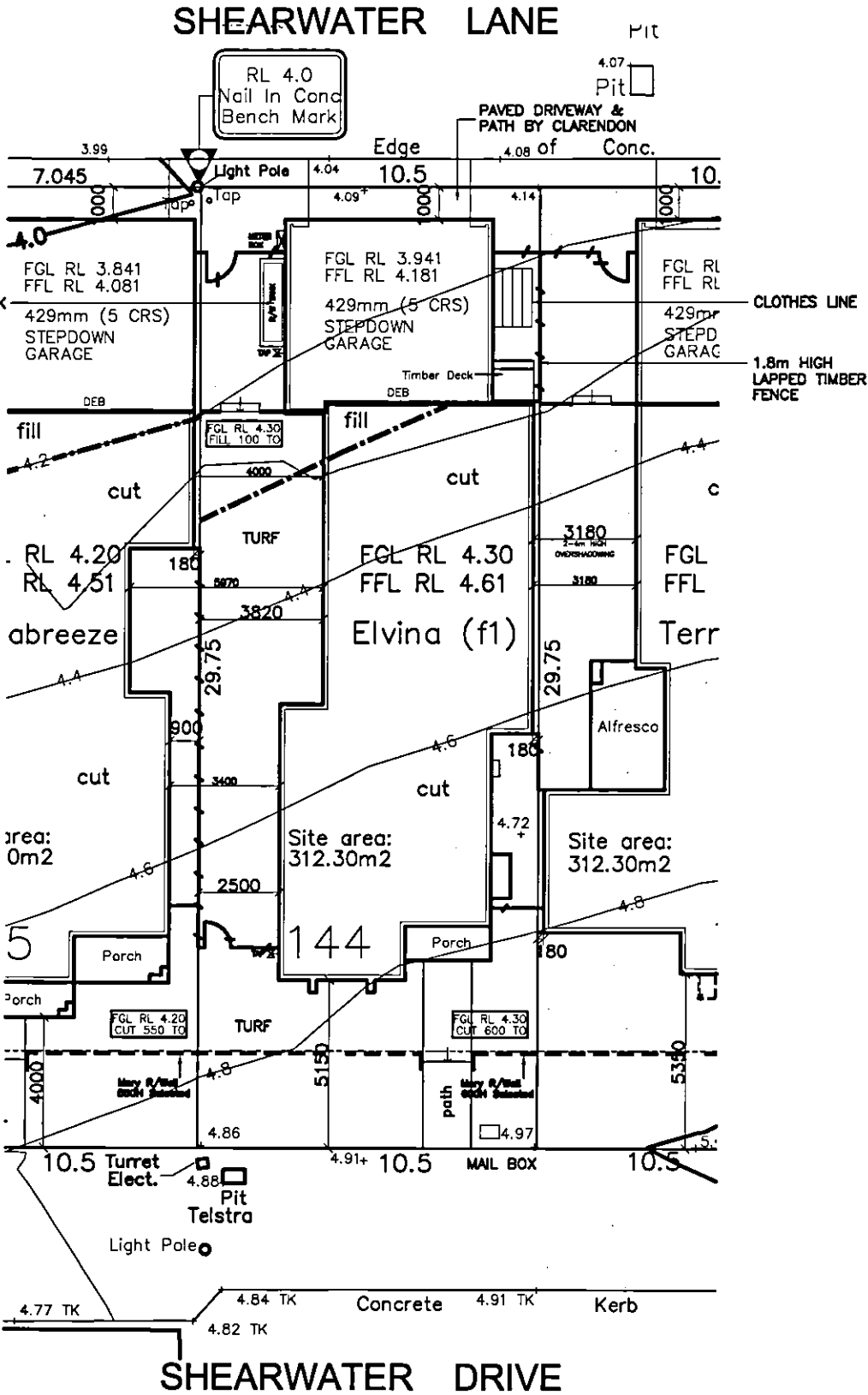
LOT 144
D.P: 270385
L.G.A: PITTWATER

AREAS:
P.O.S 66.52 Sq.m
TURF 180.02 Sq.m
DRIVE 4.97 Sq.m
XOVER 4.45 Sq.m
PATH 8.62 Sq.m

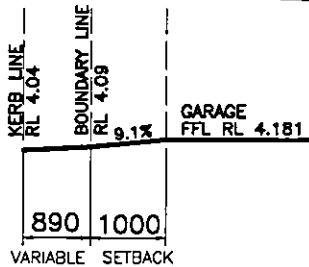
KEY:
RET. WALL - CONSISTENT HGHT
RET. WALL - DIMINISHING HGHT
BUILDING PLATFORM/ BATTER LINE
MAX. FALL - BATTER 1:7
FALL - BATTER 1:5
CUT / FILL LINE

LEGEND :-
+4.28 DENOTES SPOT HEIGHT.
+5.51 TK DENOTES TOP OF KERB & LEVEL.
SS LID DENOTES METAL LID WITH MARKING SS
W LID DENOTES METAL LID WITH MARKING W
G DENOTES STAMP ON KERB WITH MARKING G
W DENOTES STAMP ON KERB WITH MARKING W

NOTES
1) THESE LEVELS ARE APPROXIMATES ONLY & ARE TO BE CONFIRMED ON SITE WITH SUPERVISOR PRIOR TO COMMENCEMENT OF ANY EXCAVATIONS.
2) SILTATION CONTROL TO COUNCIL REQUIREMENTS.
3) EXISTING VEGETATION ON SITE TO BE REMOVED
4) NO WATERWAY OR WATERCOURSES ON SITE.
5) TERMITE PROTECTION TO AS3660.



This information relates to
Construction/Complying Development Certificate
5001547
Issued by Andrew Dean (02) 9536 5711
Building Professionals Board (2280007)

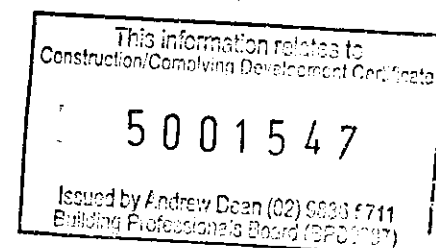


DRIVEWAY PROFILE

SAFETY WARNING
RING 1100 "DIAL BEFORE YOU DIG"
PRIOR TO ANY EXCAVATIONS.
ANY REGISTERED EASEMENT WITHIN THE LOT
IS SHOWN ON THIS SITE PLAN.

CLIENT'S SIGNATURE: _____		DATE: _____																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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ARTICULATION JOINTS TO ENGINEERS DETAILS



CLIENT'S SIGNATURE:

DATE:

Clarendon Homes (NSW) P/L
21 Solent Circuit, Baulkham Hills NSW 2153
T: (02) 8851 5300 F: (02) 8851 5333

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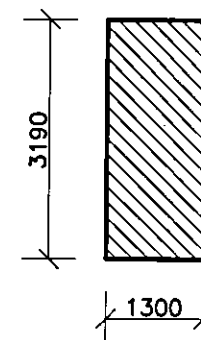
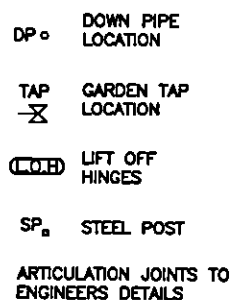
PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential

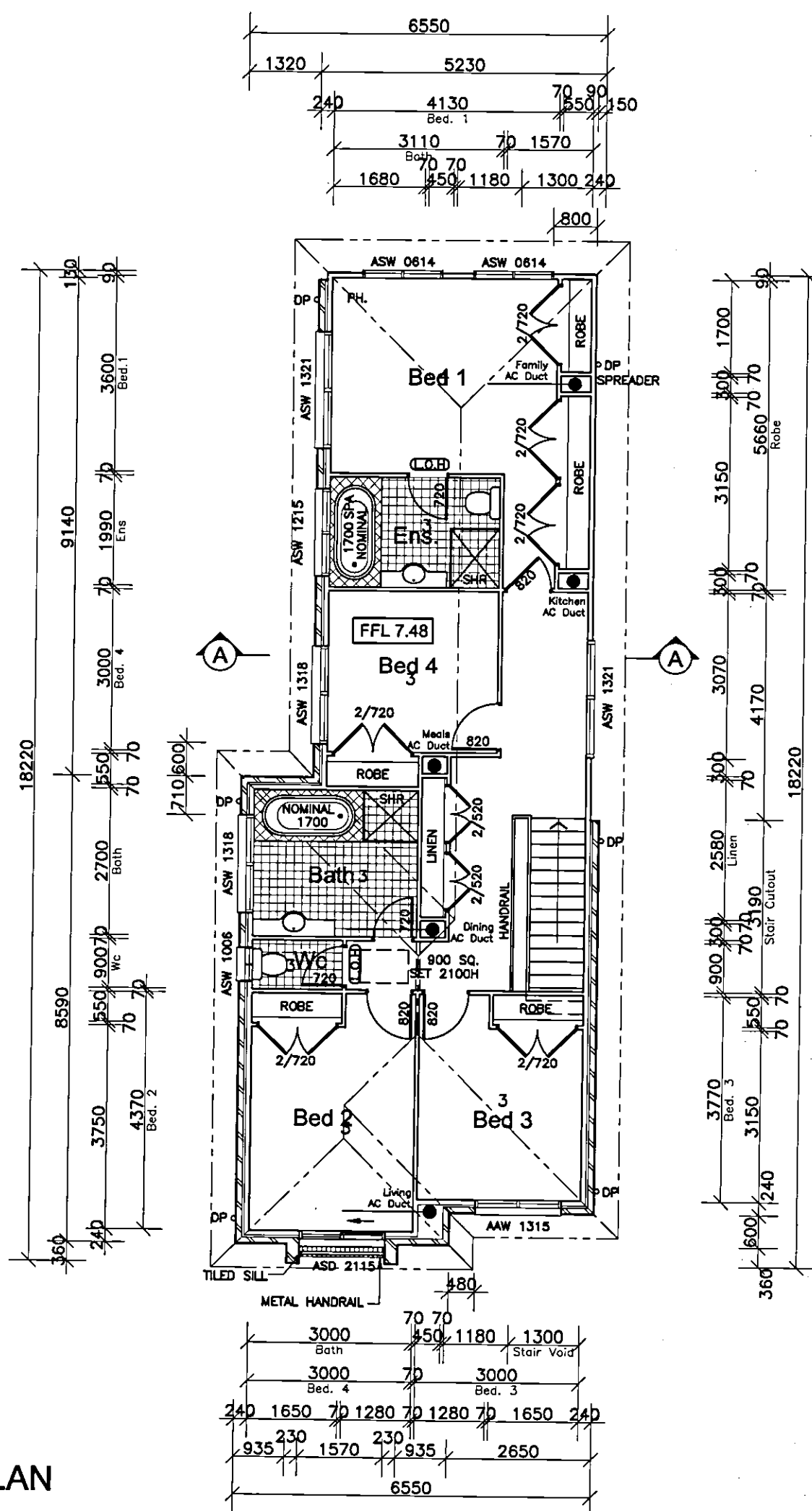
SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

CC PLAN

DRAWN: T.L	DATE: 11.07.07	Rev: B
RATIO @ A3: 1:100	CHECKED:	
SHEET: 3	JOB No: 242067	



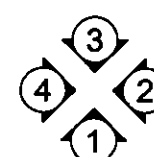
STAIR CUTOUT
SCALE 1:100



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Building Professionals Board (BPP00027)



FIRST FLOOR PLAN

CLIENT'S SIGNATURE: _____ DATE: _____



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PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential

SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

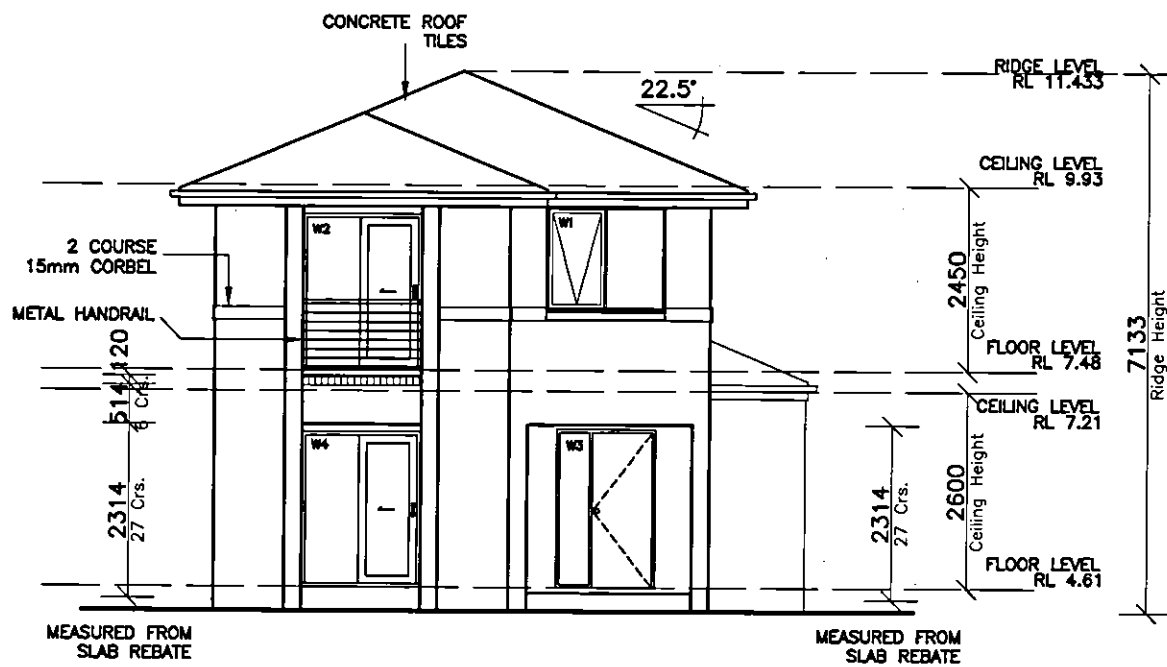
CC PLAN

DRAWN: T.L	DATE: 11.07.07	Rev. B
RATIO @ A3: 1:100	CHECKED:	
SHEET: 4	JOB No: 242067	

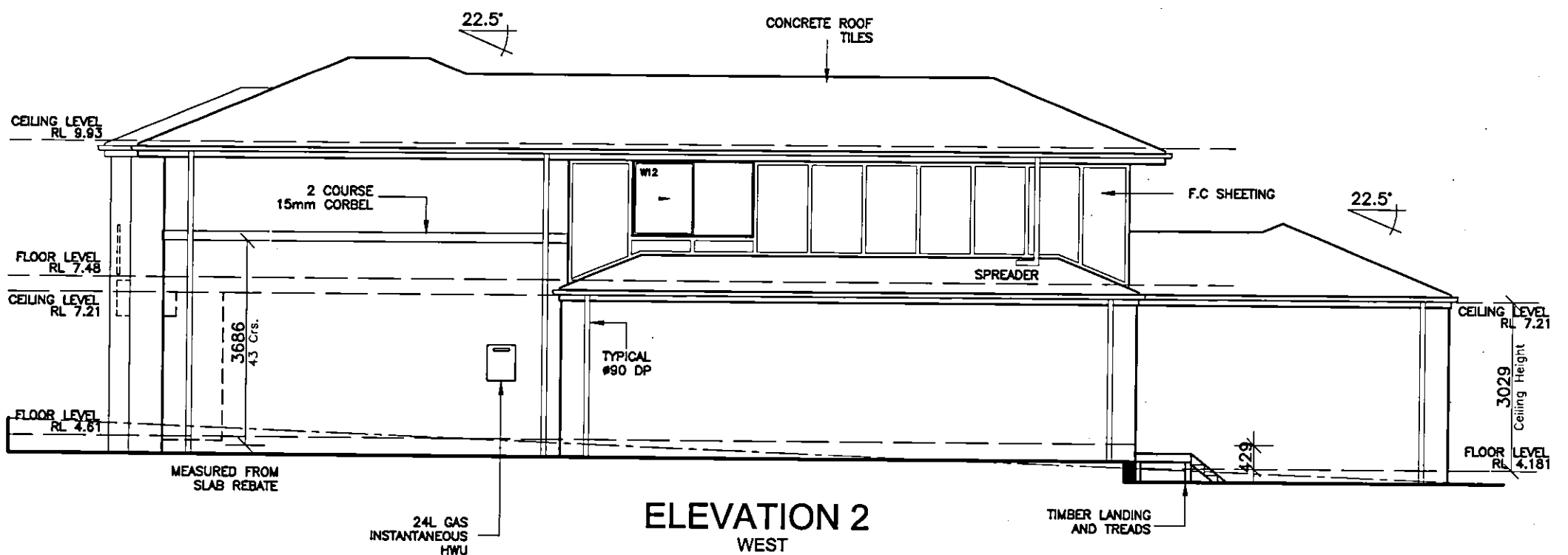
PROVIDE APPLIED PAINT
FINISH TO BRICKWORK

DOWNPipes PAINTED TO
MATCH WALL.

WIND CLASSIFICATION: " - "
SLAB CLASSIFICATION: " M "



ELEVATION 1
NORTH



ELEVATION 2
WEST

This information relates to
Construction/Complying Development Certificate

5001547

Issued by Andrew Dean (02) 9330 5711
Building Professionals Board (BPP0007)

CLIENT'S SIGNATURE: _____ DATE: _____

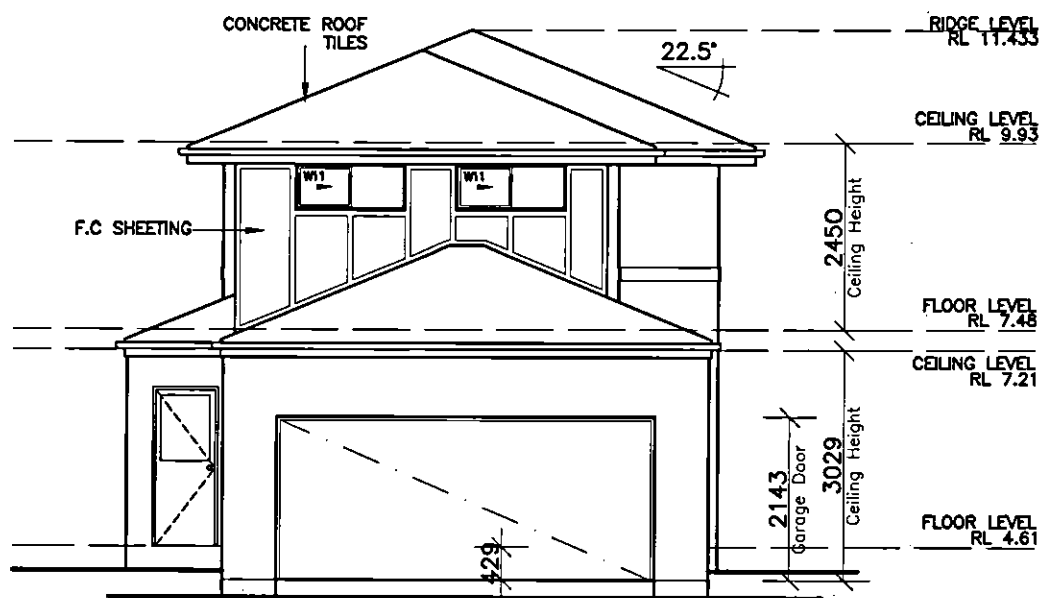
Clarendon
Residential Group
Clarendon Homes (NSW) P/L
21 Solent Circuit, Baulkham Hills NSW 2153
T: (02) 8851 5300 F: (02) 8851 5333

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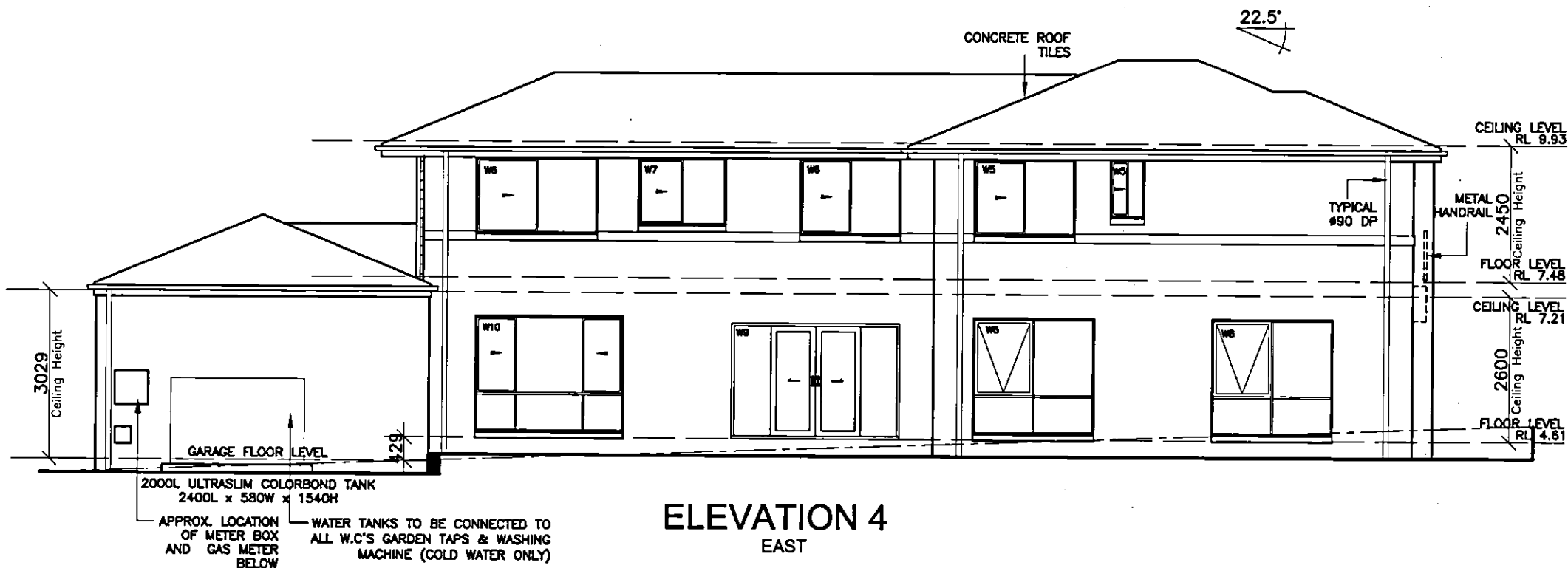
PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential
SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

CC PLAN		
DRAWN: T.L.	DATE: 11.07.07	Rev: B
RATIO @ A3: 1:100	CHECKED:	
SHEET: 5	JOB No: 242067	



ELEVATION 3
SOUTH



ELEVATION 4
EAST

This information relates to
Construction/Complying Development Certificate

5001547

Issued by Andrew Dean (02) 9836 5711
Building Professionals Board (BPB00087)

CLIENT'S SIGNATURE: _____

DATE: _____



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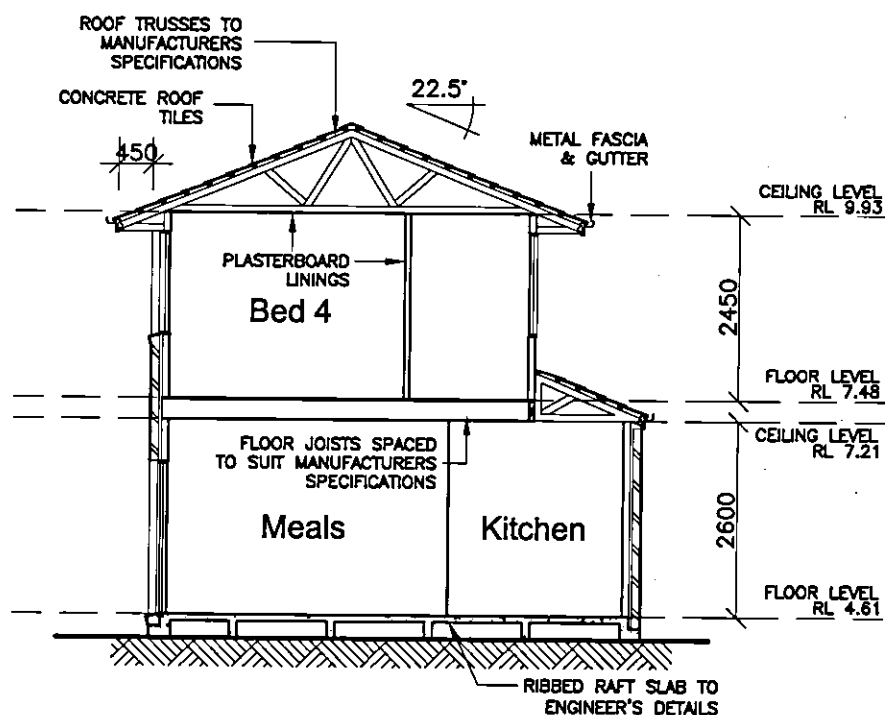
PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential

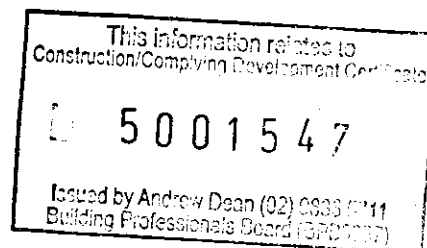
SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102


CC PLAN

DRAWN: T.L.	DATE: 11.07.07	Rev:
RATIO @ A3: 1:100	CHECKED:	B
SHEET: 6	JOB No: 242067	



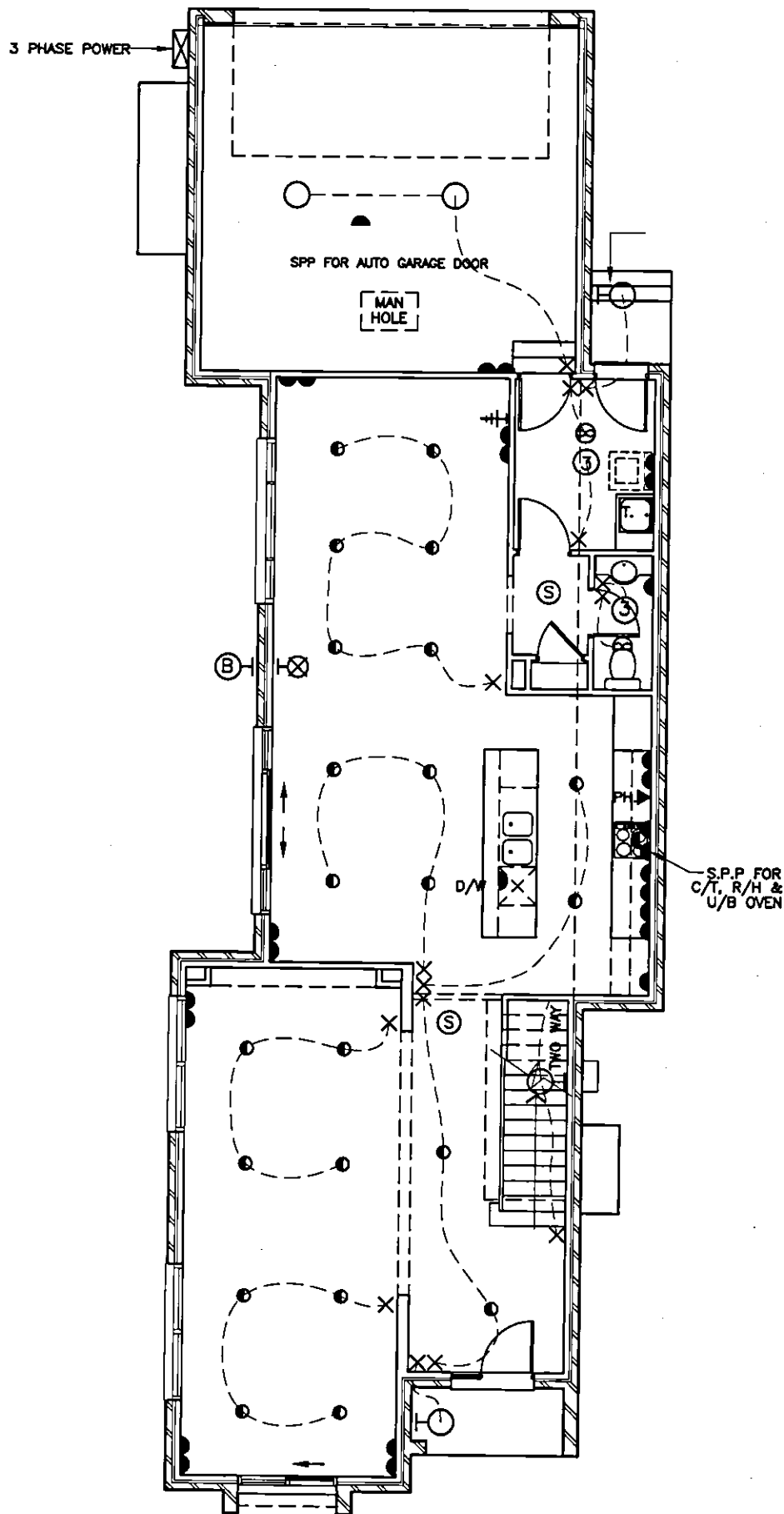
SECTION A-A.



CLIENT'S SIGNATURE: _____		DATE: _____			
 Clarendon Homes (NSW) P/L 21 Solent Circuit, Baulkham Hills NSW 2153 T: (02) 8851 5300 F: (02) 8851 5333		© ALL RIGHTS RESERVED This plan is the property of CLARENDON HOMES (NSW) PTY LTD Any copying or altering of the drawing shall not be undertaken without written permission from CLARENDON HOMES (NSW) PTY LTD # DIMENSIONS TO BE READ IN PREFERENCE TO SCALING		PRODUCT: ELVINA Facade 1 Rear Loaded Garage	
				CLIENT: Clarendon Residential SITE ADDRESS: Lot 144 (DP 270385) Shearwater Drive WARRIEWOOD, 2102	
				CC PLAN	
				DRAWN: T.L.	DATE: 11.07.07
				RATIO @ A3: 1:100	CHECKED: B
				SHEET: 7	JOB No: 242067

Ⓢ SMOKE DETECTOR


⊗ SELF CLOSING EXHAUST FAN



●	DOWNLIGHT
○	BATTEN HOLDER - CEILING
⊖	BATTEN HOLDER - WALL
×	SWITCH POSITION
⊗	PERMANENT POWER
●	SINGLE POWER POINT
●●	DOUBLE POWER POINT
⊗H	GAS HEATING POINT
⊗	EXHAUST FAN
Ⓢ	SMOKE DETECTOR
Ⓜ	PHONE POINT
Ⓜ	T.V. POINT
⊗H	GAS BBQ POINT
⊗H	COMPUTER POINT

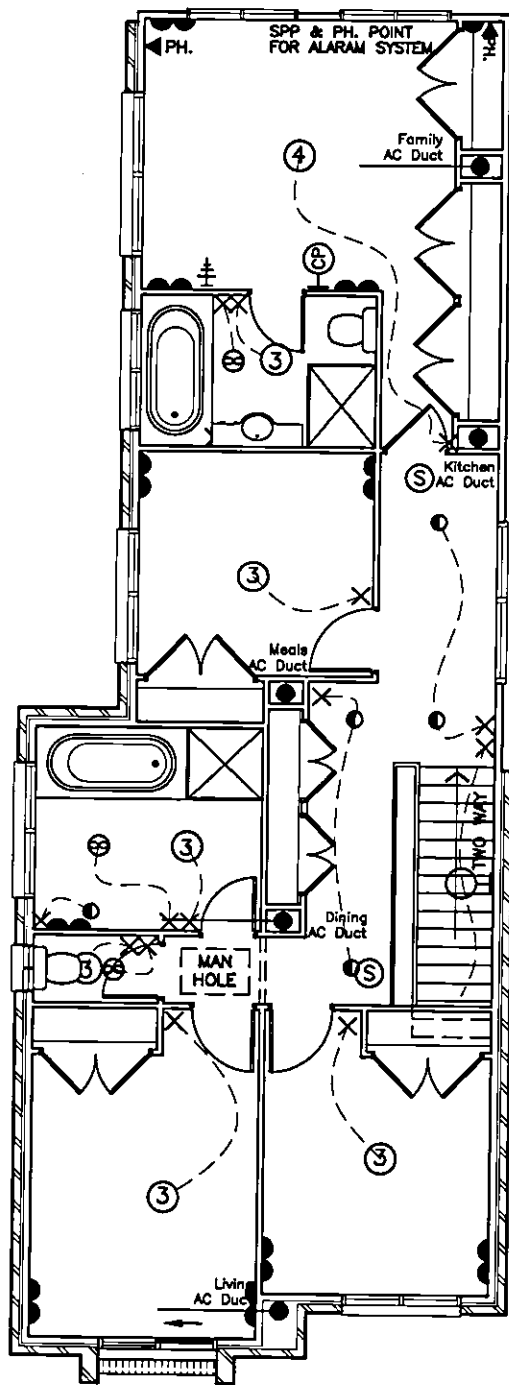
GROUND FLOOR
ELECTRICAL LAYOUT

This information relates to
Construction/Complying Development Certificate
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Issued by Andrew Deon (02) 9335 0711
Building Professionals Board (BPPB)

CLIENT'S SIGNATURE: _____		DATE: _____				
<div><p>Clarendon Homes (NSW) P/L 21 Solent Circuit, Baulkham Hills NSW 2153 T: (02) 8851 5300 F: (02) 8851 5333</p><p>BL No. 2298C A.B.N. 18003892706</p></div>		© ALL RIGHTS RESERVED This plan is the property of CLARENDON HOMES (NSW) PTY LTD Any copying or altering of the drawing shall not be undertaken without written permission from CLARENDON HOMES (NSW) PTY LTD # DIMENSIONS TO BE READ IN PREFERENCE TO SCALING		PRODUCT:		
				ELVINA Facade 1 Rear Loaded Garage		
		CLIENT: Clarendon Residential		CC PLAN		
		SITE ADDRESS: Lot 144 (DP 270385) Shearwater Drive WARRIEWOOD, 2102		DRAWN: T.L.	DATE: 11.07.07	Rev: B
				RATIO @ A3: 1:100	CHECKED:	
				SHEET: 8	JOB No: 242067	

Ⓢ SMOKE DETECTOR

⊗ SELF CLOSING EXHAUST FAN



●	DOWNLIGHT
○	BATTEN HOLDER - CEILING
⊖	BATTEN HOLDER - WALL
X	SWITCH POSITION
⊗	PERMANENT POWER
●	SINGLE POWER POINT
●	DOUBLE POWER POINT
⊗	GAS HEATING POINT
⊗	EXHAUST FAN
Ⓢ	SMOKE DETECTOR
PH.	PHONE POINT
⊕	T.V. POINT
⊗	GAS BBQ POINT
⊗	COMPUTER POINT
PROVIDE SPP TO ROOF SPACE FOR TV ANTENNA BOOSTER	

FIRST FLOOR
ELECTRICAL LAYOUT

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Construction/Complying Development
5001547
Issued by Andrew Dean (02) 8851 5300
Building Professionals Board

CLIENT'S SIGNATURE: _____

DATE: _____

Clarendon
Residential Group
Clarendon Homes (NSW) P/L
21 Solent Circuit, Baulkham Hills NSW 2153
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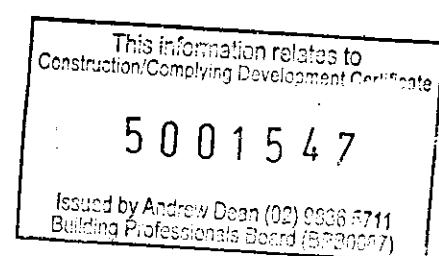
PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential
SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

CC PLAN

DRAWN: T.L.	DATE: 11.07.07	Rev: B
RATIO @ A3: 1:100	CHECKED:	
SHEET: 9	JOB No: 242067	

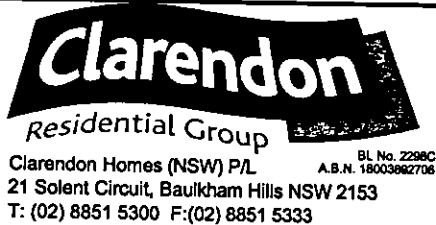
TAP GARDEN TAP
—X LOCATION



SLAB PLAN

CLIENT'S SIGNATURE:

DATE:



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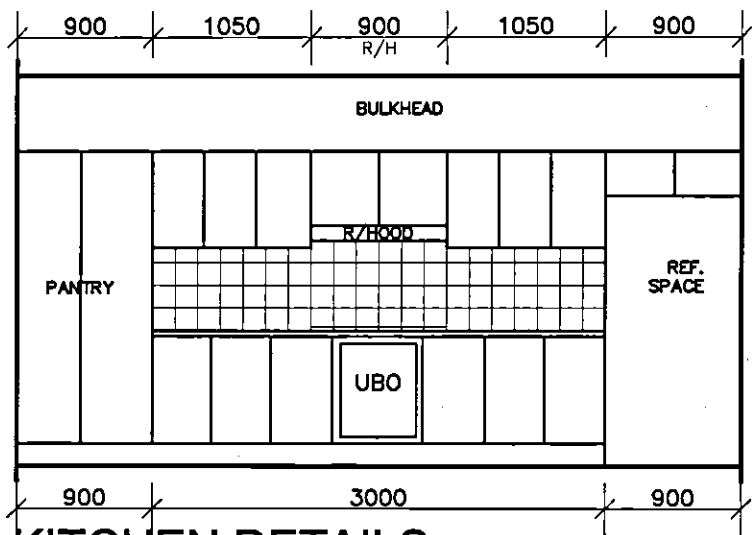
PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential

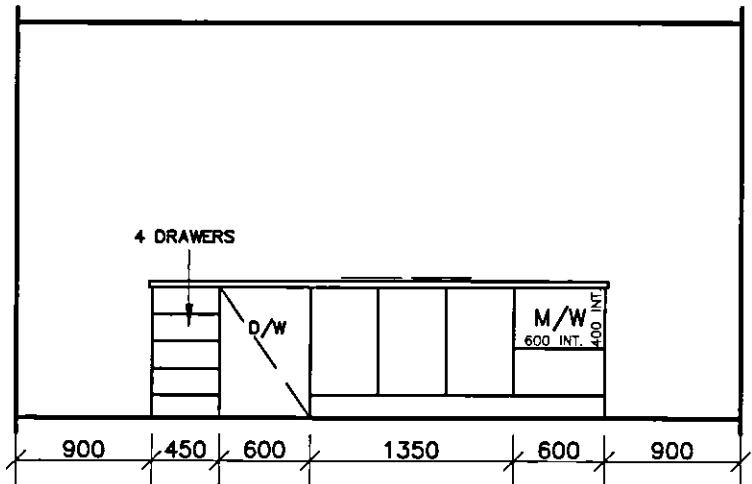
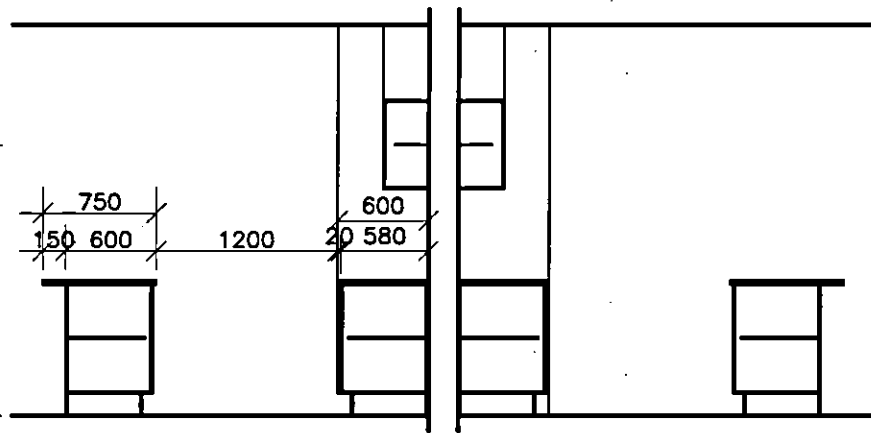
SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

CC PLAN

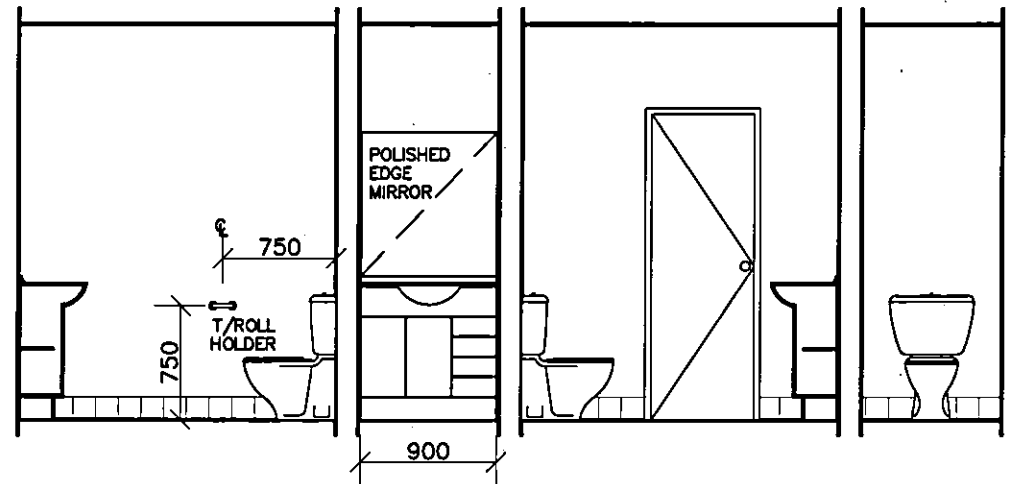
DRAWN: T.L	DATE: 11.07.07	Rev:
RATIO @ A3: 1:100	CHECKED:	E
SHEET: 10	JOB No: 242067	



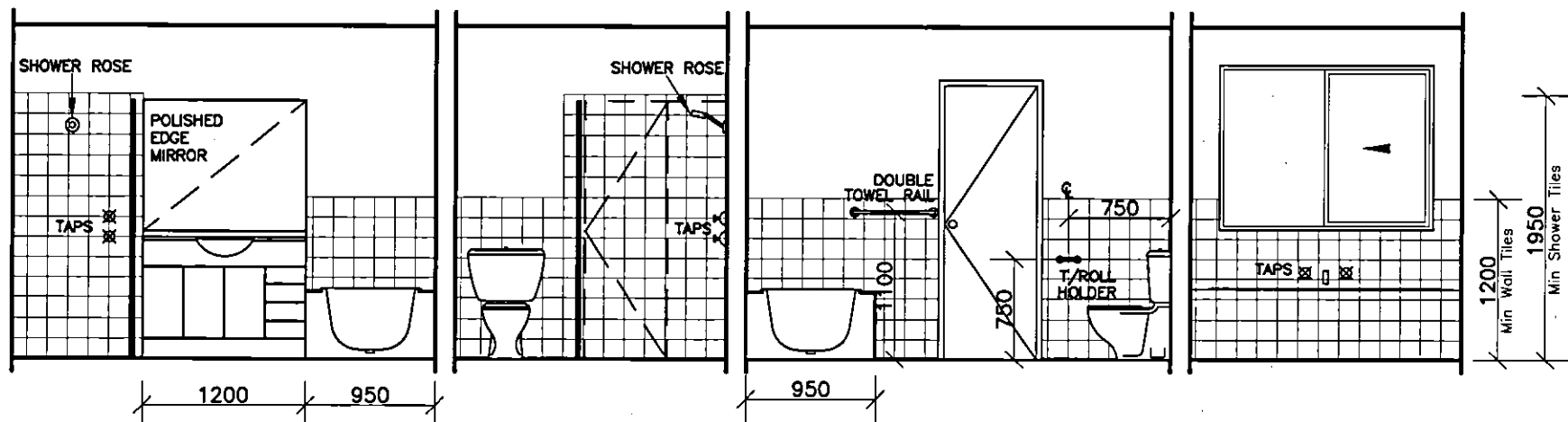
KITCHEN DETAILS



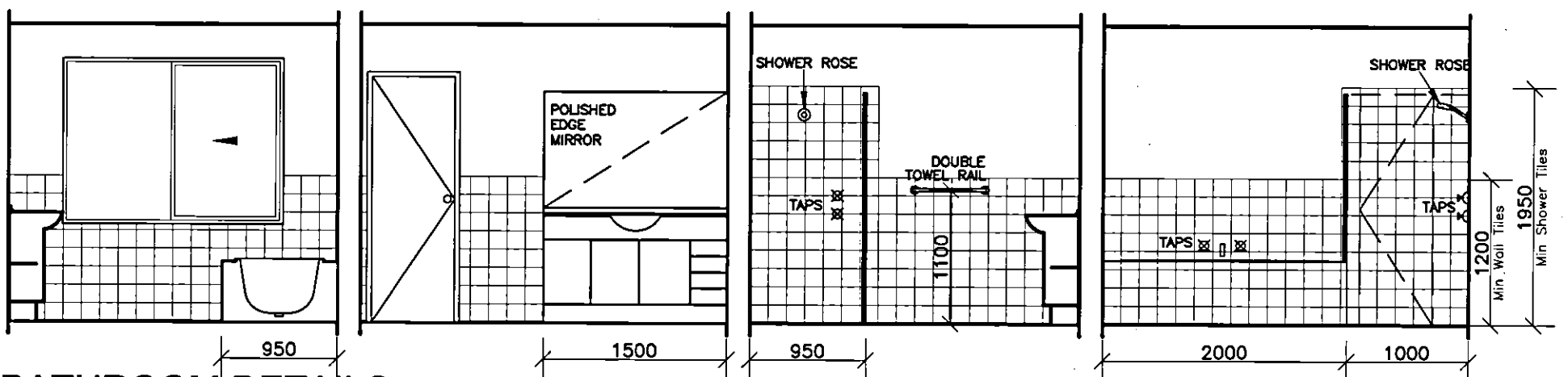
KITCHEN DETAILS (Cont.)



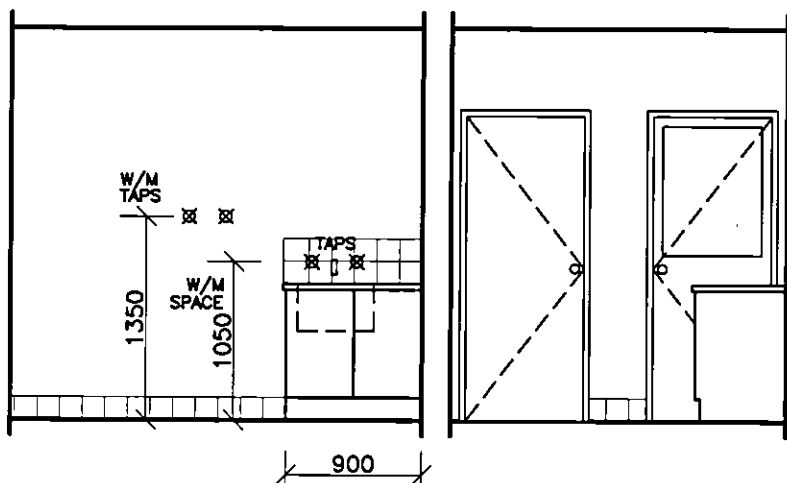
POWDER ROOM DETAILS



ENSUITE DETAILS



BATHROOM DETAILS



LAUNDRY DETAILS

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Construction/Complying Development Certificate
5001547
Issued by Andrew Dean (02) 9936 5711
Building Professionals Board (SPB0007)

CLIENT'S SIGNATURE: _____ DATE: _____

Clarendon
Residential Group

Clarendon Homes (NSW) P/L
21 Solent Circuit, Baulkham Hills NSW 2153
T: (02) 8851 5300 F: (02) 8851 5333

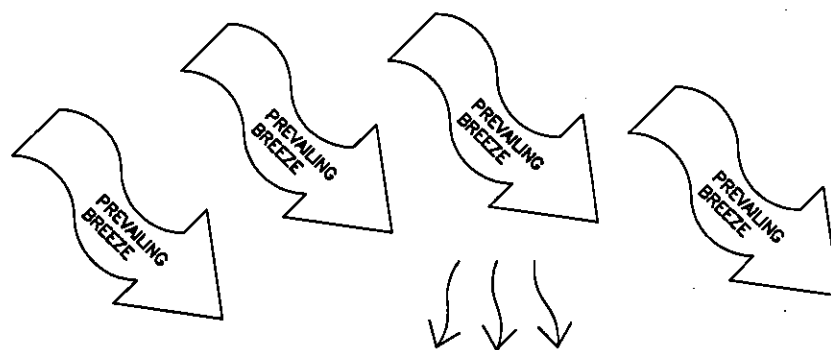
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PRODUCT:
ELVINA
Facade 1
Rear Loaded Garage

CLIENT:
Clarendon Residential
SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

CC PLAN

DRAWN: T.L.	DATE: 11.07.07	Rev:
RATIO @ A3: 1:50	CHECKED:	B
SHEET: 11	JOB No: 242067	



Fit

NOTE: ALL GROUND LINES ARE APPROXIMATE. EXTENT OF FILL & BATTER WILL BE DETERMINED ON SITE. SEDIMENT BARRIERS ARE TO BE CUSTOMISED SITE SPECIFIC

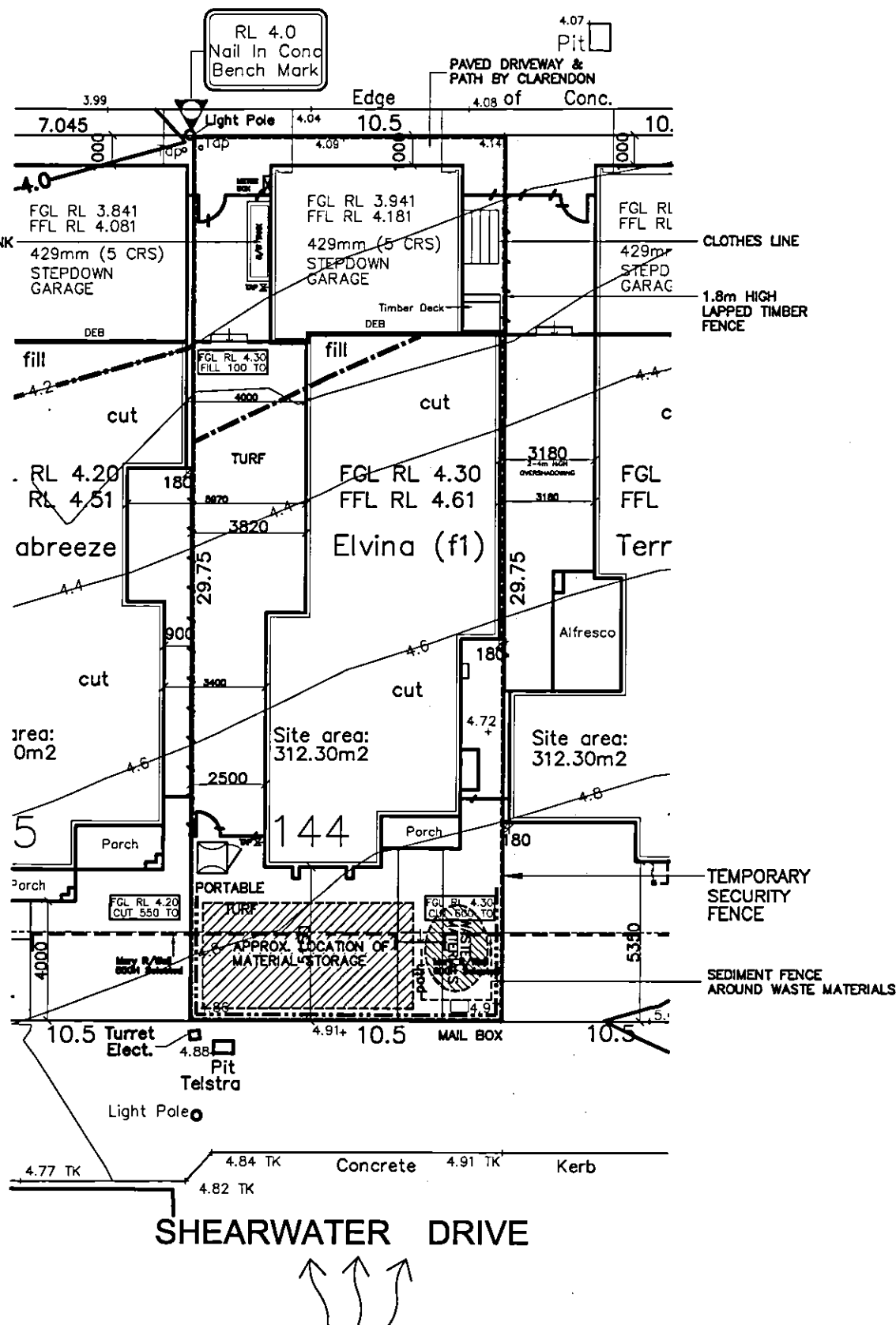
----- SEDIMENT CONTROL


**ONGOING
WASTE MANAGEMENT**

PREVAILING
BREEZE



APPROX LOCATION OF
2000lt SLIMLINE RAIN WATER TANK



S I T E A N A L Y S I S AND C O N S T R U C T I O N M A N A G E M E N T P L A N.

CLIENT'S SIGNATURE:

DATE:



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DIMENSIONS TO BE READ IN
PREFERENCE TO SCALING

PRODUCT:

TERRAIN
Facade 2
Rear Loaded Garage

CLIENT:
Clarendon Residential

SITE ADDRESS:
Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

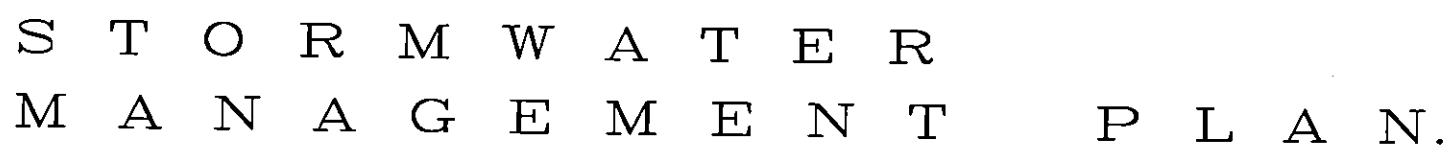
CC PLAN

DRAWN: T.L	DATE: 11.07.07	Rev:
RATIO @ A3: N/A	CHECKED:	E
SHEET: 2.1	JOB No: 242067	

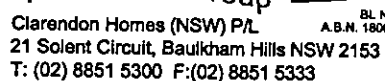
This information relates to
Construction/Complying Development Certificate

5001547

Issued by Andrew Dean (02) 9396 5711
Building Professionals Board (02) 9396 3371



CLIENT'S SIGNATURE: _____ DATE: _____



PRODUCT:
TERRAIN
Facade 2
Rear Loaded Garage

CLIENT: Clarendon Residential
SITE ADDRESS: Lot 144 (DP 270385) Shearwater Drive WARRIEWOOD, 2102

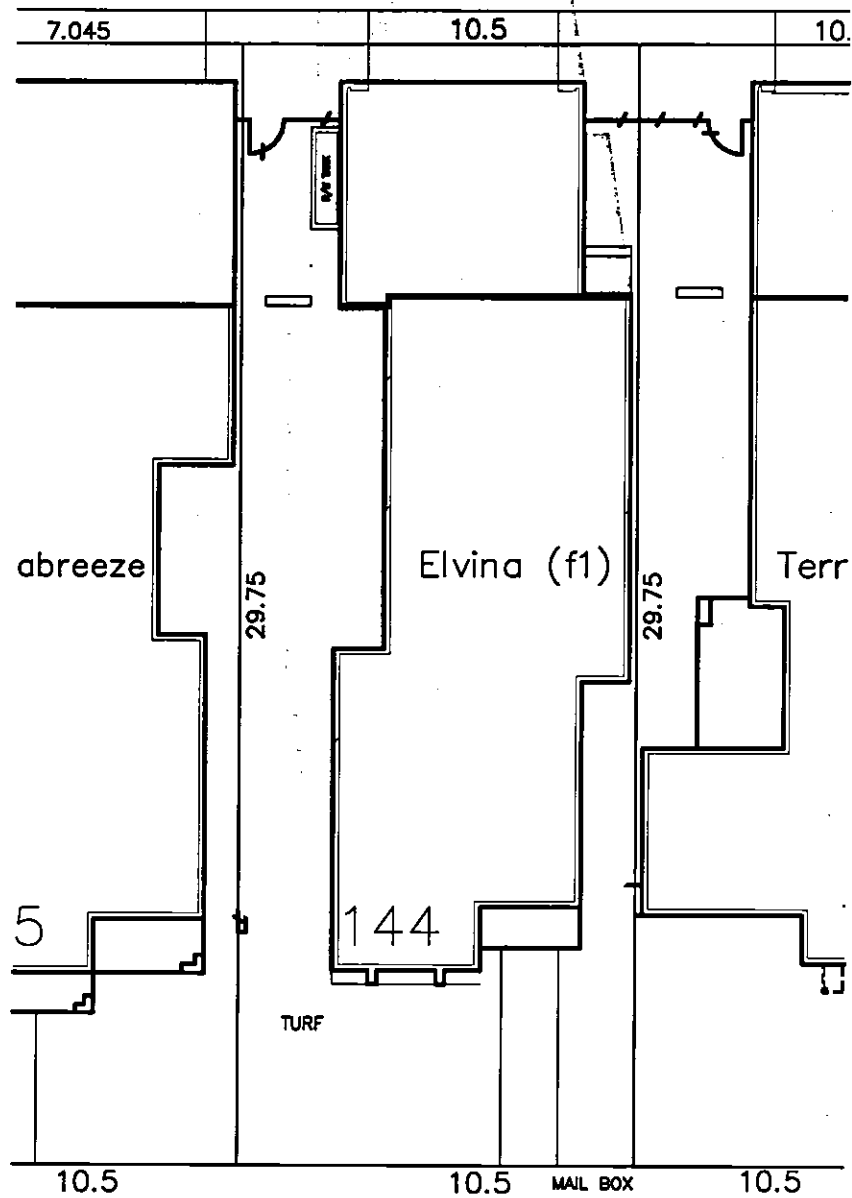
DRAWN: T.L	DATE: 11.07.07	Rev. B
RATIO @ A3: N/A	CHECKED:	
SHEET: 2.2	JOB No: 242067	

SHEARWATER LANE

SHADOW LINE 9am

SHADOW LINE 12pm

SHADOW LINE 3pm



SHEARWATER DRIVE

This information relates to
Construction/Complying Development Certificate

5001547

Issued by Andrew Dean (02) 8833 5711
Building Professionals Board (BPP00007)

SHADOW DIAGRAM
JUNE 21st

CLIENT'S SIGNATURE:

DATE:



Clarendon Homes (NSW) P/L
21 Solent Circuit, Baulkham Hills NSW 2153
T: (02) 8851 5300 F: (02) 8851 5333

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DIMENSIONS TO BE READ IN
PREFERENCE TO SCALING

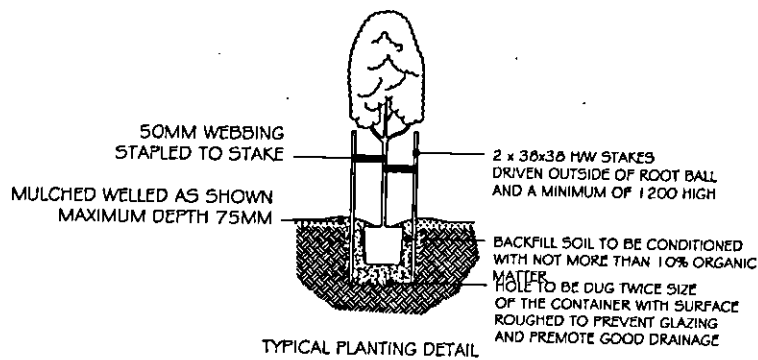
PRODUCT:
TERRAIN
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Lot 144 (DP 270385)
Shearwater Drive
WARRIEWOOD, 2102

CC PLAN

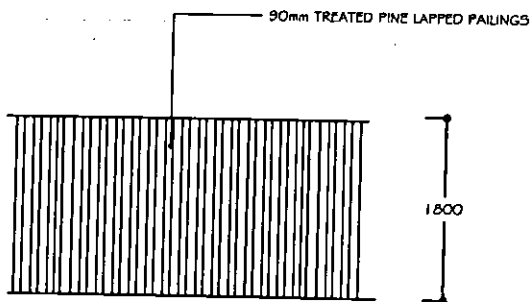
DRAWN: T.L.	DATE: 11.07.07	Rev: B
RATIO @ A3: N/A	CHECKED:	
SHEET: 2.3	JOB No: 242067	



TYPICAL PLANTING DETAIL

AFTER PLANTING WATER IN PLANT WELL USING 4 TIME THE PLANT CONTAINER CAPACITY OF WATER

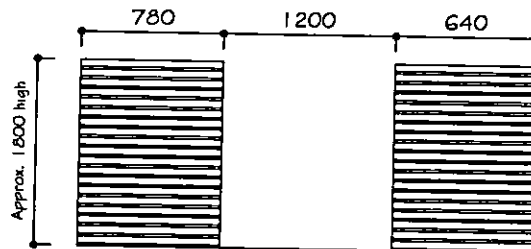
IF SOIL IS COMPACTED INSERT A 60MM DIA AG PIPE UNDER PLANT IN BACKFILL TO PROMOTE GOOD AERATION IN SOIL



TIMBER FENCE DETAIL

NOTE:

GATES TO BE MADE FROM SAME MATERIAL AS FENCE
ALL FIXINGS TO BE GALVANISED
ALL GATES TO HAVE GALVANISED LATCHES FITTED
POSTS TO BE SET IN 600 MINIMUM DEEP HOLES WITH CONCRETE

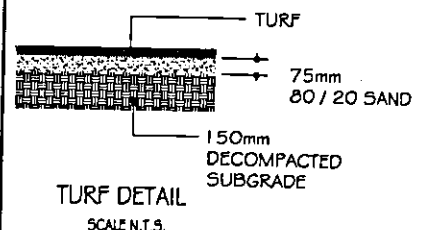
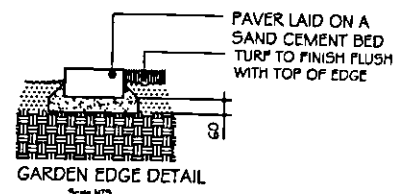


TIMBER SCREEN DETAIL
N.T.S.

NOTES:
65x12 DELIAN SLAT FIXED TO METAL POST (15MM GAP) BOTH SIDES.
METAL POSTS TO BE 65MM SHS GALVANISED CONCRETE MINIMUM 600 INTO BLOB FOOTING.
METAL POST FIXED TO DWELLING USING MECHANICAL ANCHORS.
INSIDE FACE OF PASSAGE TO BE UNED.

Plant Schedule

Symbol	Botanic Name	Common Name	Number	Pot Size	Mature Height	Spacing
Tree						
EE	Eleocharis emundii	Quondong	1	45lit	6m	-
SJ	Syzygium jambos	Lillypilly	1	75lit	9m	1.2m
TLT	Tristanopsis laurina 'Luscious'	Water Gum	1	100lit	9m	2.0m
WIF	Waterhousea floribunda	Weeping Lilly Pilly	1	75lit	15m	2m
Shrubs						
AC	Alpinia caerulea 'Red Back'	Ginger	8	200mm	2.0m	0.6m
ABB	Austrorhynchus 'Blushing Beauty'	Austrorhynchus	5	300mm	1m	1.2m
AFB	Agonis flexuosa 'Burgandy'	Willow Myrtle	10	200mm	1.5m Hedged	0.75m
HWI	Hebe 'Winnie Sugar'	Hebe	23	200mm	0.6m	0.6m
PTP	Phormium tenax 'Purpureum'	NZ Flax	6	200mm	2.0m	1.5m
WJG	Westringia 'Jervis Gem'	Coastal rosemary	11	200mm	1.2m Hedged	0.75m
Ground Covers						
DTR	Dianella tasmanica 'Tasred'	Dianella	30	150mm	0.4m	0.4m
G	Gazania	Pink	45	150mm	0.2m	0.2m
LN	Lomandra longifolia 'Nyalia'	Lomandra	12	150mm	0.8m	0.8m
PAE	Pennisetum alopecuroides 'Purple Lea'	Pennisetum	41	150mm	1.2m	0.5m
TURF	Sir Walter Buffalo	Soft Leaf Buffalo	-	-	-	-



Rev	Description	Date
1	CC amendments	3/10/07
2	Final design for DA	30/07/07

General Notes:

Drawings shall not be used for construction purposes without the written approval of the Designer. The Designer shall not be responsible for any errors or omissions in the drawings or for any damage to property or persons arising from the use of the drawings. The Designer shall not be responsible for any damage to property or persons arising from the use of the drawings.

Scale: AS SHOWN @ A3

Print Date:

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Project: Shearwater Estate
New Residence

Client: Clarendon Residential

Project Address: Lot 144 Shearwater Drive
Warrenwood NSW 2102

Drawing Title: Landscape Plan

Drawing No: 242067/AP2-2

Drawn: MAF

Issue: CC

Approved: CMD

Daniel, Daggar Design Landscapes
Horticulture & Landscaping Designers

tel: +61 2 9907 1099
fax: +61 2 9939 6444
design@daggardesign.com.au
Suite 324, 20 Oak Street, Brookvale NSW 2100
Structural Landscape Licence #115075C

WASTE MANAGEMENT PLAN

RESIDENTIAL

WASTE MANAGEMENT PLAN

DEMOLITION, CONSTRUCTION AND USE OF PREMISES

The applicable sections of this table are completed and submitted with the Development Application.

The following table will assist in identifying the type of waste that will be generated and in advising Council the intent to reuse, recycle or dispose of the waste.

The information provided on the form (and on plans) will be assessed against the objectives of the DCP.

Outline of Proposal

Site Address: Lot 144 (DP 270385) 40 Shearwater Drive, Warriewood

Applicant's Name & Address: Clarendon Residential Group

DX 9952 Baulkham Hills

Telephone 8851 5499

Facsimile 9841 0414

Buildings and other structures currently on the site: Vacant

Brief Description of Proposal: Two Storey Residential Dwelling

The details provided on this form are the intentions for managing waste relating to this project.

Signed: 

Date: 11/7/07

SECTION ONE – DEMOLITION

This is the stage with the greatest potential for waste minimisation, particularly in Sydney where there are high levels of development, relatively high tipping charges and where alternative quarry materials are located on the outskirts.

The first consideration taken is whether or not, it is possible to re-use existing buildings, or parts thereof, for the proposed use.

With careful on site sorting and storage and by staging work programs, it is possible to re-use many materials, either on site or off site.

In other words, Council is seeking to move from the attitude of "trashing the building" to "total recycling on site". This requires a number of colour-coded or clearly labelled bins on site (rather than one size fits all).

The following table relates to any proposed demolition work.
The following details are indicated on the plans:

- Location of on site storage space for materials (for re-use) and containers for recycling and disposal
- Vehicle access to the site and to storage and container areas

WASTE MANAGEMENT PLAN

RESIDENTIAL

Demolition, Stage 1 – No demolition of any existing structures is proposed.
The site only requires minor cut and fills.

Note: Details of site area to be used for on site separations, treatment and storage (including weather protection) are provided on the plan drawings accompanying application.

SECTION TWO – CONSTRUCTION AND USE**Section 2(a) – Potential for Waste Minimisation During Construction Stage**

You should consider the following measures that may also save resources and minimise waste at the construction stage.

- Purchasing Policy – considering measures such as ordering the right quantities of materials and prefabrication of materials where possible;
- Re-using form work
- Minimising site disturbance, limiting unnecessary excavation
- Careful source separation of off-cuts to facilitate re-use, resale or efficient recycling
- Co-ordination / sequencing of various trades

The following details should be shown on your plans:

- Location of temporary storage space within each dwelling unit
- Location of Waste Storage and recycling Area(s), per dwelling unit or located communally on site; In the latter case, this could be a Garbage or Recycling room
- Details of design for Waste Storage and Recycling Area(s) or Garbage and Recycling Room(s) and any conveyance or volume reduction equipment
- Location of communal composting area

Section 2(b) – Design of Facilities

The following details should be shown on your plans:

- Location of Waste Storage and Recycling Area(s) per unit or located communally on site
- Details of design of Waste Storage and Recycling Area(s)
- Where appropriate, design details of Garbage and Recycling Room(s)
- Access for vehicles

Every building shall be provided with a Waste Storage and recycling Area which is flexible in size and layout to cater for future changes in use. The size is to be calculated on the basis of waste generation rates and proposed bin sizes.

Section 2(c) – Ongoing Management

This section will enable you to describe how you intend to ensure ongoing management of waste on site (ie: lease conditions, care-taker/manager on site)

WASTE MANAGEMENT PLAN

RESIDENTIAL

Materials On-Site		DESTINATION		
Type of Material	Estimated Volume (m³) or Area (m²)	RE-USE & RECYCLING		
		ON SITE • Specify proposed re-use or on site recycling methods	OFF SITE • Specify contractor and recycling outlet	DISPOSAL • Specify contractor and land fill site
Excavation Material		spread on site		
Green Waste	N/A			
Bricks	4 Tonne	Crushed Material	Contractor/Recycler Collex (Cubs) Terry Hills	
Concrete	0.5 Tonne	Crushed Material returned to site for all weather access	Contractor/Recycler Collex (Cubs) Terry Hills	
Timber – please specify	0.1 Tonne			Contractor: Collex (Cubs) Landfill: Castlereagh
Plasterboard	0.5 Tonne		CSR Plasterboard	

WASTE MANAGEMENT PLAN**RESIDENTIAL**

Materials On-Site		DESTINATION		
		RE-USE & RECYCLING		
Type of Material	Estimated Volume (m ³) or Area (m ²)	ON SITE • Specify proposed re-use or on site recycling methods	OFF SITE • Specify contractor and recycling outlet	DISPOSAL • Specify contractor and land fill site
Metals – please specify				
Fascia/Gutter	0.2 Tonne		Longer lengths (1Mt) returned to Sramit for recycling	Smaller offcuts to Terrey Hills landfill
Other – please specify				
Waffle Pods/Pallets			Returned to Supplier	
General packaging/containers/rubbish	10 Tonne			To Terrey Hills landfill

Note: Details of site area to be used for on site separations, treatment and storage (including weather protection) should e provided on the plan drawings accompanying application.

WASTE MANAGEMENT PLAN**RESIDENTIAL**

TYPE OF WASTE BEING GENERATED	EXPECTED VOLUME PER WEEK	PROPOSED ON SITE STORAGE AND TREATMENT FACILITIES	DESTINATION
Please specify, eg: glass, paper, food waste, off-cuts etc	Litre or m ³	For example: <ul style="list-style-type: none">• Waste storage & recycling area• Garbage chute• On-site composting• Compaction equipment	<ul style="list-style-type: none">• Recycling• Disposal• Specify contractor
Glass, paper, aluminium, plastic containers	0.05 m ³	On Site composting	Recycled by Council Contractor
Food and Green Waste	0.005m ³		
Packaging and other general rubbish	0.2m ³		To Landfill by Council Contractor

Note: Details of on-site waste management facilities should be provided on the plan drawings accompanying application.

WASTE MANAGEMENT PLAN

RESIDENTIAL

Ongoing Management – Stage 2(c)

Describe how you intend to ensure ongoing management of waste on site (eg: lease conditions, caretaker/manager on site)

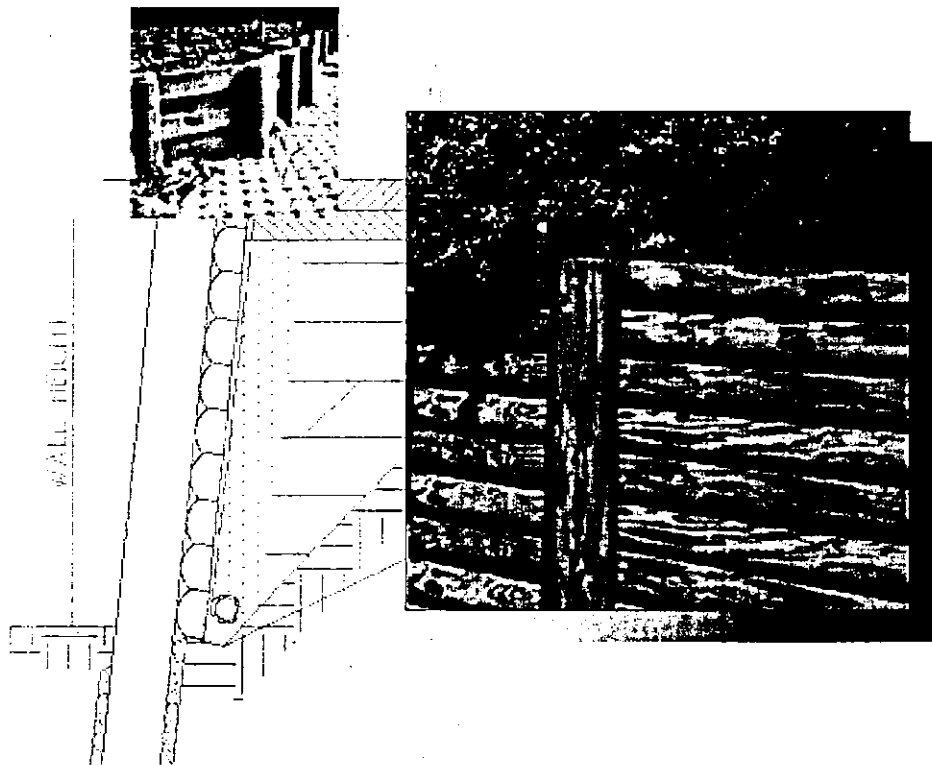
The new building is a two storey dwelling designed for domestic use and activity. The dwelling will be owner occupied with the owner managing all ongoing waste

Management tasks.

Thank you for the information.

TECHNICAL DESIGN GUIDE

CANTILEVER RETAINING WALLS - KOPPERS ROUNDWOOD POSTS FOR WALL HEIGHTS 0.3m to 1.8m



THESE TABLES ARE ENGINEERED FOR KOPPERS® SLASH/CARIBAEA HYBRID SPECIES ROUNDWOOD POSTS ONLY AND ARE NOT SUITABLE FOR OTHER SPECIES.

- ◆ Koppers® treated logs carry a written guarantee and each is individually branded with the Koppers® name.
- ◆ Koppers® products are pressure treated to relevant Australian Standards.
- ◆ A building approval may be required from the Local Council before constructing a retaining wall.
- ◆ 175mm to 250mm posts are treated to Hazard Level 5. Please see Product Information note.
- ◆ New 170mm roundback sleeper option for waling available in H5.

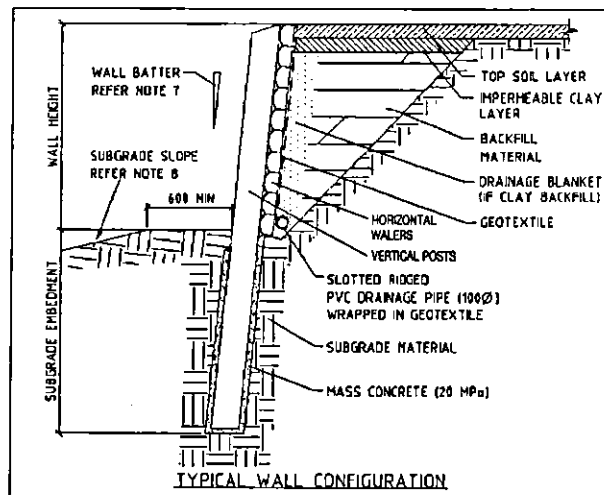
DESIGNING THE WALL

I. WALL SELECTION CRITERIA

- Select the correct design table by identifying the backfill/subgrade type:

◆ Backfill with 100% Crushed Igneous Rock or recycled concrete (+25mm to 80mm particle size)	Table 1
◆ Gravel	Table 2
◆ Medium Dense Sand (Medium grained)	Table 3
◆ Medium Dense Silty Sand/Fine Sand/Shales	Table 4
◆ Stiff Clay	Table 5
◆ Soft Clay	Table 6

- Subgrade is defined as the material into which the post is to be embedded.
- Decide on the height of the wall
- Check the table you have selected to find out the range of post spacings. Choose the most suitable post spacing.
- Now that you have resolved the soil type, wall height and post spacing, the remainder of the specification can be read off from the chart. Example: I plan to build a 0.9m wall in a stiff clay with crushed igneous rock or recycled concrete as backfill. After checking Table 1, I decide to use posts at 1.5m spacing. I then read off the remainder of the specification by checking the relevant column, shown by the shaded figures in Table 1. Refer to the embedment depth note for embedment details. For clay subgrade, a reduction factor of 20% is allowed when using crushed igneous rock or recycled concrete backfill. Therefore, the minimum embedment depth reduces to $1.4 - (20\% \times 1.4) = 1.12\text{m}$.
- The tables show minimum sizes.
- The general configuration of the wall with drainage installed behind the wall should conform with the diagram adjacent.



2. HARD SOUND IGNEOUS ROCK

Embedment depths for hard sound igneous rock (free of weather plains, joints, etc) are 2.5 times the post diameter.

3. TWIN POST DESIGN

By using twin posts in lieu of single posts it is possible to reduce the post diameters as follows:

Single Post Diameter	Twin Post Diameter
175mm	150mm
200mm	175mm
225mm	200mm
250mm	225mm

NOTE: 250mm posts subject to availability at time of order.

4. SOIL PARAMETERS

The formulation of the cantilever log retaining wall design sheets have been undertaken based on the following soil parameters:

Soil Type	Density (kN/m ³)	Angle of Internal Friction	Cohesion (kPa)
Crushed igneous rock	18	40	-
Gravel	19	35	-
Sand	20	32	-
Silty sand	18	30	-
Stiff clay	20	-	75
Soft clay	18	-	18

The sizes and dimensions shown in the design sheets have assumed that the structure classification (AS4678-2002) is Type A. This assumes failure would only result in minimal damage and loss of access. For higher structure classifications, engineering advice should be obtained.

The design sheets have assumed the backfill and subgrade to be a Controlled Fill - Class 1 (AS 4678-2002). For any backfill in a lower class, engineering advice should be obtained.

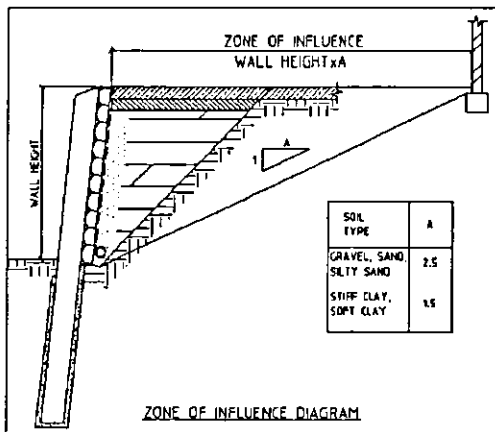
5. POST HOLE SIZES

It is assumed that the cantilever posts will be set in bored holes and encased in concrete. The following bored post hole sizes have been assumed:

Post diameter(mm)	Post hole diameter(mm)
125-150	300
175-250	400

6. SURCHARGE

The cantilever log retaining walls specified have been designed based on a 2.5 kPa surcharge load in accordance with AS4678-2002. For retaining walls where a higher surcharge loading is applied within the zone of influence (refer to diagram below), engineering advice should be obtained.



7. RETAINING WALL BATTERING

Retaining walls of height greater than 1000mm, should be battered back from vertical in the following amounts:

Backfill/Subgrade type	Batter	
	H:V(%)	V:H (ratio)
Gravel, sand, silty sand	5.0 %	1:20
Stiff clay, soft clay	6.7 %	1:15

8. SUBGRADE BATTERING

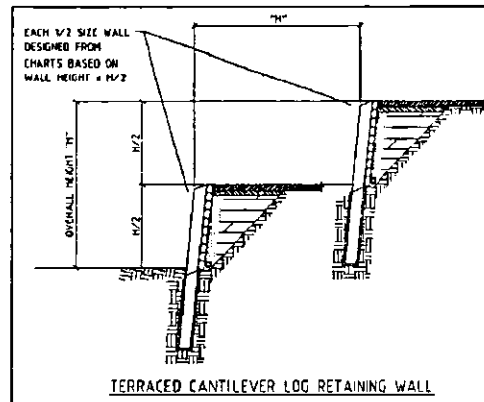
The information in the tables has been based on a maximum subgrade slope from 600mm beyond the base of the wall of 1 vertical to 6 horizontal away from the wall. If the subgrade slope is beyond this amount, engineering advice should be obtained. Refer to Typical Wall Configuration diagram.

9. BACKFILL SLOPE

The information on the tables has been based on a horizontal backfill slope only. For backfill slopes beyond this amount, engineering advice should be obtained.

10. WALL TERRACING

Utilising two terraced cantilever walls of half height instead of a single wall of full height is permitted so long as the distance between the two terraced walls conforms with the diagram below.



11. ATTACHMENT OF PALING FENCES

Paling fences can be installed adjacent to the retaining wall in a conventional manner (embedded within a mass concrete post hole) however, the retaining wall under shall be designed so that an additional 300mm is added to the wall height (1.8 metre high fence assumed). For example, for a 900mm wall with a 1.8m paling fence attached, work from the 1200mm high retaining wall table.

12. FURTHER ASSUMPTIONS

The formulation of these design sheets has been undertaken on the following assumptions:

- The retaining wall is not subject to vibrations
- The water table is, in all cases, below the underside of the cantilever posts
- The subgrade is in a medium dense state and is undisturbed during the construction of the retaining wall.
- For walls with post spacings of 1.2 and 1.5 metres it is assumed that winged split horizontals are used in a twin span continuous arrangement with staggered joints for deflection control. Where this cannot be achieved and a simple span arrangement is required, either reduce the post spacing by 150mm or use the equivalent size slab horizontal for this span.

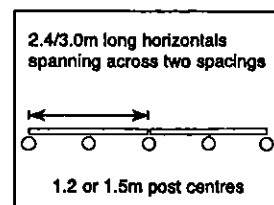


TABLE I

(Most cost effective method)

TABLE I (Most cost effective method)	Distance between post centres		1.2m							1.5m							1.8m							2.4m						
	Wall Height	Metres	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	0.3	0.6	0.9	1.2	1.5	0.3	0.6	0.9	1.2	1.5	
	Embedment depth	Metres	REFER TO NOTE																											
WALLS BACKFILLED WITH CRUSHED IGNEOUS ROCK, OR RECYCLED CONCRETE (+25mm to 80mm particle size)	Post diameters	Millimetres	100	125	150	175	225	250	100	125	175	200	225	2x225	100	125	175	225	250	100	125	175	200	225	250	100	175	200	225	2x225
	Winged Split Waling	Millimetres	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125	-	100	100	125	-	-	-	100	125	-	-	-
	Slab Waling	Millimetres	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Half Round Waling	Millimetres	75	75	75	100	100	100	100	75	75	100	100	125	125	75	75	100	150	-	125	150	150	-	-	150	-	-	-	-
	Rounds	Millimetres	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	75	75	75	75	90	75	100	125	125	125
	Budget Winged Split	Millimetres	100	100	100	100	100	100	100	100	100	100	100	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Budget Slab	Millimetres	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	-	-
	Round Back Sleeper	Millimetres	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	-	-	-	-

TABLE 2

GRAVEL
SUBGRADE
AND BACKFILL

TABLE 2	Distance between post centres	1.2m						1.5m						1.8m						2.4m					
		0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	0.3	0.6	0.9	1.2	1.5		
GRAVEL SUBGRADE AND BACKFILL	Wall Height																								
	Embedment depth																								
	Post diameters	100	125	175	200	225	2x225	100	150	175	225	250	2x250	100	150	200	225	2x225	100	150	200	250	2x250		
	Winged Split Waling	100	100	100	100	100	100	100	100	100	100	100	125	100	125	-	-	-	100	100	100	100	125		
	Slab Waling	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	125		
	Half Round Waling	75	75	100	100	100	125	100	100	100	125	125	125	125	150	-	-	-	100	100	100	100	125		
	Rounds	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	90	100	90	125	125	150	150		
	Budget Winged Split	100	100	100	100	100	100	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Budget Slab	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	-	-		
	Round Back Sleeper	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	170	-	-	-		

TABLE 3

**MEDIUM DENSE
SAND (MEDIUM
GRAINED)
SUBGRADE AND
BACKFILL**

	Distance between post centres		1.2m					1.5m					1.8m					2.4m							
		Metres	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5
MEDIUM DENSE SAND (MEDIUM GRAINED)	Wall Height	Metres	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5
	Embedment depth	Metres	0.5	0.7	0.8	0.9	1.1	1.2	0.5	0.7	0.8	1.0	1.1	-	0.5	0.7	0.9	1.1	1.2	-	0.5	0.7	1.0	1.1	-
	Post diameters	Millimetres	100	125	175	225	250	2x250	100	150	200	225	2x225	-	100	150	200	250	2x250	-	100	150	225	2x225	-
	Winged Split Waling	Millimetres	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100	-	100	100	100	100	-
	Slab Waling	Millimetres	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100	-	100	100	100	100	-
SUBGRADE AND BACKFILL	Half Round Waling	Millimetres	75	75	100	100	125	125	75	100	125	125	150	-	125	150	-	-	-	-	125	150	-	-	-
	Rounds	Millimetres	75	75	75	75	75	75	75	75	75	75	75	-	75	75	90	100	100	-	90	125	125	150	-
	Budget Winged Split	Millimetres	100	100	100	100	100	-	-	100	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-
	Budget Slab	Millimetres	100	100	100	100	100	100	100	100	100	100	100	-	100	100	100	100	100	-	100	100	-	-	-
	Round Back Sleeper	Millimetres	170	170	170	170	170	170	170	170	170	170	170	170	-	170	170	170	170	-	170	170	-	-	-

TABLE 4 MEDIUM DENSE SILTY SAND / FINE SAND / SHALES SUBGRADE AND BACKFILL	Distance between post centres		1.2m				1.5m				1.8m				2.4m			
	Wall Height	Metres	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	0.3	0.6	0.9	1.2	1.5
	Embedment depth	Metres	0.5	0.7	0.8	1.0	1.2	1.3	0.5	0.7	0.9	1.1	1.2	0.5	0.8	1.1	1.2	-
	Post diameters	Millimetres	100	125	175	225	250	2x250	100	150	200	225	2x225	100	150	200	250	2x250
	Winged Split Waling	Millimetres	100	100	100	100	100	100	100	100	100	100	125	100	125	-	-	-
	Slab Waling	Millimetres	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	Half Round Waling	Millimetres	75	75	100	100	125	125	75	100	125	125	150	125	150	-	-	-
	Rounds	Millimetres	75	75	75	75	75	75	75	75	75	75	75	75	75	90	125	150
	Budget Winged Split	Millimetres	100	100	100	100	100	-	100	100	100	-	-	-	-	-	-	-
	Budget Slab	Millimetres	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	-
	Round Back Sleeper	Millimetres	170	170	170	170	170	170	170	170	170	170	170	170	170	-	-	-

TABLE 5 STIFF CLAY SUBGRADE AND BACKFILL	Distance between post centres		1.2m				1.5m				1.8m				2.4m			
	Wall Height	Metres	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	0.3	0.6	0.9	1.2	1.5
	Embedment depth	Metres	0.5	0.7	0.8	1.0	1.2	-	0.5	0.7	0.9	1.1	1.3	0.5	0.7	1.0	1.2	-
	Post diameters	Millimetres	125	175	200	225	2x250	-	125	200	225	250	2x250	125	200	225	2x225	-
	Winged Split Waling	Millimetres	100	100	100	100	100	-	100	100	100	125	125	125	-	-	-	-
	Slab Waling	Millimetres	100	100	100	100	100	-	100	100	100	100	100	100	100	100	100	125
	Half Round Waling	Millimetres	75	100	100	125	125	-	100	125	125	150	150	150	-	-	-	-
	Rounds	Millimetres	75	75	75	75	75	-	75	75	75	75	75	75	90	100	125	-
	Budget Winged Split	Millimetres	100	100	100	-	-	-	100	100	-	-	-	-	-	-	-	-
	Budget Slab	Millimetres	100	100	100	100	100	-	100	100	100	100	100	100	100	100	100	-
	Round Back Sleeper	Millimetres	170	170	170	170	170	-	170	170	170	170	170	170	170	-	-	-

TABLE 6 SOFT CLAY SUBGRADE AND BACKFILL	Distance between post centres		1.2m				1.5m				1.8m				2.4m			
	Wall Height	Metres	0.3	0.6	0.9	1.2	1.5	1.8	0.3	0.6	0.9	1.2	1.5	0.3	0.6	0.9	1.2	1.5
	Embedment depth	Metres	0.6	1.0	1.3	1.7	2.1	-	0.7	1.1	1.5	1.9	-	0.7	1.1	1.6	2.0	-
	Post diameters	Millimetres	125	175	200	2x225	2x250	-	125	200	225	2x250	-	125	200	225	2x250	-
	Winged Split Waling	Millimetres	100	100	100	100	100	-	100	100	100	125	-	125	-	-	-	-
	Slab Waling	Millimetres	100	100	100	100	100	-	100	100	100	100	-	100	100	100	100	-
	Half Round Waling	Millimetres	75	100	125	125	150	-	100	125	125	150	-	150	-	-	-	-
	Rounds	Millimetres	75	75	75	75	75	-	75	75	75	75	-	75	90	100	125	-
	Budget Winged Split	Millimetres	100	100	100	-	-	-	100	-	-	-	-	-	-	-	-	-
	Budget Slab	Millimetres	100	100	100	100	100	-	100	100	100	100	-	100	100	100	100	-
	Round Back Sleeper	Millimetres	170	170	170	170	170	-	170	170	170	170	-	170	170	-	-	-

NOTE ON TABLE I

EMBEDMENT DEPTH

Embedment depth for cantilever walls is critical. A small reduction in depth results in a significant increase in stress within the foundation material. Additionally, a reduction in post hole diameter causes extra soil stress and increases the likelihood of a foundation failure.

Unless noted otherwise, post embedment depths shall not be less than 300mm. For Clays the minimum embedment depth shall be 400mm.

When using crushed igneous rock or recycled concrete backfill, the embedment depth may be obtained by reference to the table appropriate for the type of soil in which the post is to be embedded (for the wall height and post spacing selected) and reducing this embedment depth by a factor as follows:

TYPE OF SOIL	EMBEDMENT REDUCTION FACTOR
Medium Dense Sand (Medium grained)	10% Reduction
Medium Dense Silty Sand / Fine Sand / Shales	10% Reduction
Clays	20% Reduction
No reduction is allowed for gravel subgrade	

ALTERNATIVE POSTS

100mm and 125mm diameter posts may be substituted by 100mm and 125mm slabs respectively.

NOTES ON TABLES 2 to 6

The figures given in these tables assume that the same soil type is used for both backfill and embedment.

When crushed igneous rock or recycled concrete is used as backfill, refer to Table 1.

INSTALLATION NOTES

- ◆ Wherever possible, place uncut ends into the ground. Where this is not practical (eg: trimmed posts or horizontal walers), coat the ends well with a surface preservative, such as CN Emulsion or equivalent.
- ◆ Place horizontal walers behind posts and temporarily fasten to posts. Fasten top horizontal walers to posts from the rear with galvanised bridge spikes.
- ◆ Place geotextile to rear face of horizontal walers to prevent drainage material from flowing through small gaps. Lay slotted rigid PVC pipe to an outlet as detailed in Typical Wall Configuration diagram.
- ◆ Slope post tops to shed water as appropriate and coat with a surface preservative. Any cut ends above the ground should also be coated with a surface preservative.

KOPPERS PRODUCT RANGE

		1.8m	2.4m	3.0m	3.6m	H4	H5
Rounds	75 / 90mm	✓	✓	✓	-	✓	-
	100 / 125 / 150mm	✓	✓	✓	✓	✓	-
	175 / 200 / 225 / 250mm	✓	✓	✓	✓	-	✓
Slabs & Winged Splits	100mm	✓	✓	✓	-	✓	-
	125mm	✓	✓	✓	-	✓	-
Half Rounds	75mm	✓	✓	✓	-	✓	-
	100mm	✓	✓	✓	-	✓	-
	125mm	✓	✓	✓	-	✓	-
	150mm	✓	✓	✓	-	✓	-
Budget Slabs & Budget Winged Splits		-	✓	-	-	✓	-
Roundback Sleepers		-	✓	✓	-	-	✓

PRODUCT INFORMATION

- 100mm slabs and winged splits are milled from 125mm rounds
- 125mm slabs and winged splits are milled from 150mm rounds
- 100mm budget slabs and winged splits are milled from 110mm rounds

Koppers do not produce Crib and Tieback retaining wall technical design guides. These should be individually designed and engineered.

RELEVANT STANDARDS FOR THIS TYPE OF WALL:

- AS4678 - 2002 Earth-retaining structures
- AS1604.1 - 2005 Specification for preservative treatment - sawn and round timber
- AS1720.1 -1997 Timber structures, Part 1: Design Methods
- AS1170.0 : 2002 Structural design actions Part O: General Principles.

SAFETY

Koppers roundwood timber products are normally treated with Australian Pesticides & Veterinary Medicines Authority registered wood preservatives. These preservatives are fixed in the timber and is safe for normal landscaping, construction rural and utility applications. For further information on treatment preservatives, please visit www.kopperswood.com.

Koppers recommend that you take appropriate care when working with and handling all treated wood products. Wear suitable work gloves to avoid splinters and other minor hand injuries. Always wear eye protection when using power saws or other operations that generate flying particles. Avoid breathing wood dust when sanding or machining. Wash hands and face after working with the material and before eating, drinking or smoking.

Normal domestic or trade quantities of treated wood wastes and off-cuts can be disposed of through normal waste collection services.

Treated timber off-cuts must not be burnt.

These tables were compiled by Cardno consulting engineers. The information is provided for guidance purposes only in the design of retaining walls. If in doubt about the interpretation of the tables or the nature of the soil combinations at the site please seek expert advice.



Koppers Wood Products Pty Limited
A.B.N. 81 003 947 680

Level 10, 15 Blue Street, North Sydney NSW 2060
PO Box 2122, North Sydney NSW 2059

Telephone: 02 9954 5411
Fax: 02 9954 5462
www.kopperswood.com

DECEMBER 2005

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General Housing Specifications



ADDRESS OF PROPERTY :

GENERAL HOUSING

**ADDRESS – Lot 144 SHEARWATER DRIVE
WARRIEWOOD
OWNER – CLARENDON RESIDENTIAL**

OWNER:

AND

**CONTRACTOR – CLARENDON RESIDENTIAL
LICENCE NO - 2298C**

CONTRACTOR:

CONTRACTOR LICENCE NO:

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GENERAL HOUSING SPECIFICATION
(NSW version revised August 2005)

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1.0 INTRODUCTION

1.1 General

This Specification details the works to be executed and the materials to be used in carrying out those works at the site.

This Specification shall be read as a general specification only. The extent of the works shall be governed by the approved plans and other requirements under the contract.

Any works not fully detailed shall, where appropriate, be sufficiently performed if carried out in accordance with the relevant manufacturer's recommendations or Engineer's Recommendations, and the Building Code of Australia (BCA).

1.2 Preliminary Use

This Specification forms part of the contract and should be read in conjunction with the other contract documents.

1.3 Prevailing Documents

Where there is a difference between the plans and this specification, the plans will take precedence. The Contractor must at all times maintain a legible copy of the plans and this Specification bearing the approval of the relevant Local Authority.

1.4 Size and Dimensions

All sizes and dimensions given in this Specification are in millimetres unless otherwise stated and are nominal only.

1.5 Prime Cost and Provisional Sum Items

Prime cost items and provisional sum items are listed in the Schedule of Works.

1.6 Definitions

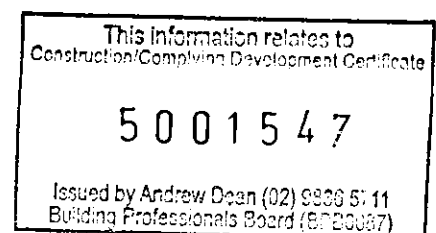
In this Specification:

"Engineer's Recommendations" includes any soil classification report, preliminary footing report, construction footing report and any other report, recommendation, site or other instruction, calculations or plans prepared by an engineer in respect of the works.

Where the words "Local Authority" are mentioned they shall mean the local council, or other governing authority or private certifier with statutory responsibility for the compliance of the work performed.

Where referred to in this Specification, "regulations" shall mean the building regulations and codes (including the BCA, as amended) statutorily enforceable at the time application is made for a construction certificate or other permits, consents or approvals relating to the contract.

Unless the context suggests otherwise, terms used in this Specification shall have the same meaning as in the HIA NSW Residential Building Contract between the Owner and the Builder ("contract").



2.0 STATUTORY REQUIREMENTS

2.1 The Building Works

The building works shall be constructed in accordance with:

- a. the regulations and in particular the Performance Requirements of the BCA, Housing Provisions, Volume 2,
- b. any conditions imposed by the relevant development consent or complying development certificate,
- c. commitments outlined in the relevant BASIX Certificate,

in so far as the Builder is required in accordance with the Schedule of Works addended to this Specification.

2.2 Compliance with Requirements of Authorities

The Builder is to comply with the requirements of all legally constituted authorities having jurisdiction over the building works and the provisions of the Home Building Act.

2.3 Electricity

Where there is no existing building, the Builder is to make arrangements for any electrical power to be used in the construction of the building works and is to pay fees and costs incurred therein. The cost of providing and installing any additional poles, wiring, service risers or underground wiring etc., as may be required by the electricity supply authority, shall be borne by the Owner.

2.6 Sanitary Accommodation

Prior to the commencement of the building works, unless toilet facilities exist on the site, the Builder shall provide temporary toilet accommodation for the use of subcontractors. Where the Local Authority requires the temporary toilet to be connected to sewer mains, the additional cost of this work shall be borne by the Owner. On completion the Builder shall remove the convenience.

3.0 OWNER'S OBLIGATIONS

3.1 Engineer's Recommendations

If the contract so indicates, the Owner shall, at the Owner's expense, provide the Builder with reports and recommendations (including soil classification) as to the foundations or footings requirements for the building works prepared by an engineer.

In these circumstances, if the Builder instructs any party to provide such recommendations, the Builder does so only as agent for the Owner.

3.3 Trades Persons Engaged by Owner

The Owner shall not engage or employ any tradesperson, trade-contractor or any other person to work on the site without the consent of the Builder which consent may be subject to such terms and conditions as the Builder may stipulate.

3.4 Items Supplied by Owner

For all items referred to in this Specification to be supplied by the Owner, it is the responsibility of the Owner to arrange payment for delivery of and protection against damage and theft of all these items.

3.5 Water Supply

Where there is no existing building on the site, the Owner shall, at the Owner's expense, supply adequate water to the site for construction purposes. Unless otherwise specified, the Builder shall pay the standard water meter connection fee to the water supply authority providing this service is prelaid to the site ready for use. The Owner shall be responsible for any fee to be paid in excess of the standard water meter connection fee.

3.6 Sanitation

Unless otherwise specified:

- (a) the Owner shall, at the Owner's expense, supply sewerage connection riser or common effluent drainage connection riser on the site;
- (b) the Builder shall pay the standard sewer connection fee to the sewerage supply authority providing this service is prelaid to the site and ready for use; and
- (c) the Owner shall be responsible for any fee to be paid in excess of the standard sewer connection fee.

4.0 PLANS, PERMITS AND APPLICATION FEES

4.1 Permits and Fees

Subject to a contrary requirement under the contract, the Builder shall lodge all necessary application notices, plans and details with the Local Authority for approval prior to commencement of construction.

4.2 Mines Subsidence

In areas affected by mines subsidence the appropriate authority is to be consulted and any work carried out in accordance with the authority's requirements.

4.3 Setting Out

The Builder shall accurately set out the building works in accordance with the site plan and within the boundaries of the site.

5.0 EXCAVATIONS

5.1 Excavations

The part of the site to be covered by the proposed building or buildings and an area at least 1000mm wide around that part of the site or to the boundaries of the site, whichever is the lesser, shall be cleared or graded as indicated on the site works plan.

Top soil shall be cut to a depth sufficient to remove all vegetation.

Excavations for all footings shall be in accordance with the Engineer's Recommendations and BCA Volume 2, Housing Provisions, Part 3.2.2.

6.0 FOUNDATIONS AND FOOTINGS

6.1 Underfloor Fill

Underfloor fill shall be in accordance with BCA Volume 2, Housing Provisions, Part 3.2.2 or Performance Requirements P2.1, P2.2.3 and Clause 1.0.10.

6.2 Termite Risk Management

Termite treatment shall be carried out in accordance with BCA Volume 2, Housing Provisions, Part 3.1.3 or Performance Requirement P2.1 and Clause 1.0.10.

6.3 Vapour Barrier

The underfloor vapour barrier shall be 0.2 mm nominal thickness, high impact resistance polyethylene film installed in accordance with BCA Volume 2, Housing Provisions, Part 3.2.2 or Performance Requirements P2.1, P2.2.3 and Clause 1.0.10.

6.4 Reinforcement

Reinforcement shall conform and be placed in accordance with the Engineer's Recommendations and BCA Volume 2, Housing Provisions, Part 3.2.3 or Performance Requirements P2.1 and Clause 1.0.10.

Support to all reinforcement shall be used to correctly position and avoid any undue displacement of reinforcement during the concrete pour.

6.5 Concrete

Structural concrete shall not be less than Grade N20 except where otherwise approved by the engineer and in accordance with BCA Volume 2, Housing Provisions, Part 3.2.3 or Performance Requirements P2.1 and Clause 1.0.10.

Pre-mixed concrete shall be manufactured in accordance with AS1379 with delivery dockets kept on site and available for inspection by the engineer.

Concrete shall be placed and compacted in accordance with good building practice.

6.6 Curing

All concrete slabs shall be cured in accordance with AS3600.

6.7 Footings and Slabs on Ground

Concrete slabs and footings shall not be poured until approval to pour concrete is given by the engineer or the Local Authority.

NOTE: Bench levels and floor levels on the site works plan shall be regarded as nominal, unless specified otherwise.

6.8 Suspended Slabs

All concrete slabs, other than those supported on solid ground or properly compacted filling, shall be constructed as suspended slabs. These slabs shall be constructed in accordance with the Engineer's Recommendations.

6.9 Foundation Walls

On footings as previously specified build brick walls to the thickness shown on plan to level underside of floor bearers or plates.

6.10 Sub- Floor Ventilation

Provide adequate cross ventilation to the space under suspended ground floor. No section of the under floor area wall to be constructed in such a manner that will hold pockets of still air and to meet with the requirements of BCA, Volume 2, Housing Provisions, Part 3.4.1 or Performance Requirement P2.2.3 and Clause 1.0.10.

6.11 Sub-Floor Access

Provide access under suspended floors in position where indicated on plan.

7.0 RETAINING WALLS

7.1 Retaining Walls

Where the Builder is required by the Schedule of Works addended to this Specification, the Builder shall construct retaining walls as shown on the approved plans. Where a retaining wall is not included in the Schedule of Works, the construction of the retaining wall shall be the responsibility of the Owner.

8.0 EFFLUENT DISPOSAL/DRAINAGE

8.1 Effluent Disposal/Drainage

In both sewerred and unsewerred areas, fit bath, wash basin, kitchen, wash tubs, pedestal pan and floor grate to shower recess in positions shown on plan (refer to Schedule of Works). Provide waste pipes with traps to the above fittings and connect to the drainage system. The whole of the work to be performed in accordance with the rules and requirements of the sewerage authority concerned.

8.2 Septic System

Provide and install a septic system where applicable to the requirements of the Local Authority and in accordance with the manufacturer's recommendations.

8.3 Storm Water Drainage

Stormwater drainage shall be carried out in accordance with BCA, Volume 2, Housing Provisions, Part 3.1.2 or Performance Requirement P2.2.1 and Clause 1.0.10.

Allow for the supplying and laying of stormwater drains where shown on the site plan

9.0 TIMBER FRAMING

9.1 Generally

All timber framework sizes, spans, spacing, notching, checking and fixing to all floor, wall and roof structures shall comply with BCA, Volume 2, Housing Provisions, Part 3.4.3 or Performance Requirement P2.1 and Clause 1.0.10 or AS1684. Alternative structural framing shall be to structural engineer's details and certification.

The work shall be carried out in a proper and tradesperson like manner and shall be in accordance with recognised and accepted building practices.

9.2 Floor Framing

All floors not specified to be concrete are to be framed at the level shown. Span and spacing of bearers is to conform to the requirements of the span tables for the appropriate member size. Deep joists to upper floors, where shown, are to be fitted with solid blocking or herringbone strutting as required. All sizes and stress grades of timber members and tie down methods are to be in accordance with AS1684.

9.3 Wall Framing

Plates may be trenched to provide uniform thickness where studs occur. Where plates are machine gauged to a uniform thickness, trenching may be omitted. Wall framing is to be erected plumb and straight and securely fastened to floor framing. Provide a clear space of 40mm between outer face of wall frame and inner face of brick veneer walls. Tie brickwork to studs with approved veneer ties. Ties are to slope downwards towards the veneer wall.

Studs in each panel of walling shall be stiffened by means of solid noggings or bridging pieces at not more than 1350mm centres over the height of the wall. Bottom plates shall be fixed to the floor structure in accordance with AS1684.

9.4 Heads Over Opening (Lintels)

All sizes, stress grade and bearing area shall conform to AS1684. Heads exceeding 175mm in depth shall be seasoned or a low shrinkage timber species used. Plywood web lintels conforming to the requirements of the Plywood Association of Australia may be used. Glue laminated beams conforming to AS1328 or, laminated veneer lumber beams to manufacturer's specification and data sheets may be used.

9.5 Roof Trusses

Where roof truss construction is used, trusses shall be designed in accordance with AS1720 and fabricated in a properly equipped factory and erected, fixed and braced in accordance with the fabricator's written instructions.

9.6 Bracing

Bracing units shall be determined and installed in accordance with AS1684 as appropriate for the design wind velocity for the site. Bracing shall be evenly distributed throughout the building.

9.7 Flooring

Cover floor joists with strip or sheet flooring as shown on plan with particular regard to ground clearance and installation in wet areas as required by the BCA. Thickness of flooring to be appropriate for the floor joist spacing.

Strip and sheet flooring shall be installed in accordance with AS1684.

When listed in Schedule of Works, floors shall be sanded to provide an even surface and shall be left clean throughout.

9.8 Roof Framing

Roofs are to be pitched to the slope shown on plan. Provide tie-down as required for the appropriate design wind speed and roof covering. Provide all rafters, ridges, hips, valleys, purlins, struts, collar ties and wind bracing as appropriate with all sizes and stress grades in accordance with AS1684.

Metal fascias shall be installed in accordance with the manufacturer's recommendations and shall meet the requirements of AS1684.

9.9 Timber Posts

Posts supporting carports, verandas and porches shall be timber suitable for external use, or as otherwise specified, supported on galvanised or treated metal post shoes, unless otherwise specified. Post shall be bolted to all adjoining beams as required by AS1684 for the wind speed classification assessed for the site.

9.10 Corrosion Protection

All metal brackets, facing plates and other associated fixings used in structural timber joints and bracing must have appropriate corrosion protection.

9.11 Hot Water Storage Tank Platforms

Where a hot water storage tank is to be installed in the roof space, the tank platform shall be supported directly off the wall plates and must not be supported on ceiling joists. Where installed in the roof space the storage tank shall be fitted with an appropriate spill tray and overflow drain pipe.

Where a hot water storage tank is supported by the roof structure the structure shall be specifically designed to support all imposed loads

10.0 STEEL FRAMING

10.1 Generally

Steel floor, wall or roof framing shall be installed in accordance with the manufacturer's recommendations and BCA, Volume 2, Housing Provisions, Part 3.4.2 or Performance Requirement P2.1 and Clause 1.0.10.

11.0 ROOFING

All roof cladding to comply with the relevant structural performance and weathering requirements of BCA, Volume 2, Housing Provisions, Part 3.5.1 or Performance Requirements P2.1, P2.2.2 and Clause 1.0.10 and be installed as per the manufacturer's recommendations.

11.1 Tiled Roofing

Cover the roof of the dwelling with approved tiles as selected. The tiles are to be fixed as required for the appropriate design wind speed to battens of sizes appropriate to the spacing of rafters/trusses in accordance with manufacturer's recommendations. Cover hips and ridges with capping and all necessary accessories including starters and apex caps. Capping and verge tiles are to be well bedded and neatly pointed. Roofing adjacent to valleys should be fixed so as to minimise water penetration as far as practicable. As roof tiles are made of natural products slight variation in colour is acceptable.

11.2 Metal Roofing

Provide and install a metal roof together with accessories all in accordance with the manufacturer's recommendations.

Except where design prohibits, sheet shall be in single lengths from fascia to ridge. Fixings of sheet shall be strictly in accordance with the manufacturer's recommendations as required for the appropriate design wind speed. Incompatible materials shall not be used for flashings, fasteners or downpipes.

11.3 Gutters and Downpipes

Gutters and downpipes shall be manufactured and installed in accordance with BCA, Volume 2, Housing Provisions, Part 3.5.2 or Performance Requirement P2.2.1 and Clause 1.0.10. Gutters and downpipes are to be compatible with other materials used.

11.4 Sarking

Sarking if used under roof coverings must comply and be fixed in accordance with AS/NZS4200.1 for materials and AS/NZS4200.2 for installation.

11.5 Sealants

Appropriate sealants shall be used where necessary and in accordance with manufacturer's recommendations.

11.6 Flashing

Flashings shall comply with, and be installed in accordance with BCA, Volume 2, Housing Provisions, Part 3.3.4 or Performance Requirement P2.2.2 and Clause 1.0.10.

12.0 MASONRY

12.1 Bricks

All clay bricks and brickwork shall comply with AS/NZS4455, AS/NZS4456, AS3700 and BCA, Volume 2, Housing Provisions, Part 3.3 or Performance Requirement P2.1 and Clause 1.0.10. Clay bricks are a natural kiln fired product and as such their individual size may vary.

Tolerances shall only be applied to the total measurements over 20 units, not to the individual units.

12.2 Concrete Blocks

Concrete blocks are to be machine pressed, of even shape, well cured and shall comply with AS3700. Concrete blockwork shall be constructed in accordance with BCA, Volume 2, Housing Provisions, Part 3.3 or Performance Requirement P2.1 and Clause 1.0.10.

Autoclaved aerated concrete blocks shall be in accordance with the manufacturer's product specification at the time the work is being carried out.

12.3 Damp Proof Courses

All damp proof courses shall comply with BCA, Volume 2, Housing Provisions, Part 3.3.4 or Performance Requirement P2.2.2 and Clause 1.0.10. The damp proof membrane shall be visible in the external face of the masonry member in which it is placed and shall not be bridged by any applied coatings, render or the like.

12.4 Cavity Ventilation (Weep Holes)

Open perpendicular joints (weepholes) must be created in the course immediately above any DPC or flashing at centres not exceeding 1.2m and be in accordance with BCA, Volume 2, Housing Provisions, Part 3.3.4 or Performance Requirement P2.2.2 and Clause 1.0.10.

12.5 Mortar and Joining

Mortar shall comply with BCA, Volume 2, Housing Provisions, Part 3.3.1 or Performance Requirement 2.1 and Clause 1.0.10. Joint tolerances shall be in accordance with AS3700.

12.6 Masonry Accessories

Masonry accessories shall comply with BCA, Volume 2, Housing Provisions, Part 3.3.3 or Performance Requirement P2.1 and Clause 1.0.10 and accepted building practices. Wall ties to meet corrosion resistant rating appropriate for the exposure conditions of the site. Provide appropriate ties to articulated joints in masonry.

12.7 Lintels

Lintels used to support brickwork opening in walls must be suitable for the purpose as required by BCA, Volume 2, Housing Provisions, Part 3.3.3 or Performance Requirement P2.1 and Clause 1.0.10. Provide one lintel to each wall leaf. Provide corrosion protection in accordance with BCA Part 3.4.4 as appropriate for the site environment and location of the lintels in the structure.

12.8 Cleaning

Clean all exposed brickwork with an approved cleaning system. Care should be taken not to damage brickwork or joints and other fittings.

13.0 CLADDING AND LININGS

13.1 External Claddings

Sheet materials or other external cladding shall be fixed in accordance with the manufacturer's recommendations and any applicable special details.

Where required in open verandas, porches and eaves soffits, material indicated on the plans shall be installed.

13.2 Internal Wall and Ceilings Linings

Provide gypsum plasterboards or other selected materials to walls and ceilings. Plasterboard sheets to have recessed edges and be a minimum of 10mm thick. Internal angles in walls from floor to ceiling to be set. Suitable cornice moulds shall be fixed at the junction of all walls and ceilings or the joint set as required. The lining of wet area walls shall be constructed in accordance with BCA, Volume 2, Housing Provisions, Part 3.8.1 or Performance Requirement P2.4.1 and Clause 1.0.10. Wet area lining is to be fixed in accordance with the manufacturer's recommendations.

The ceiling access hole shall be of similar material to the adjacent ceiling.

13.3 Waterproofing

All internal wet areas and balconies over internal habitable rooms to be waterproofed in accordance with BCA, Volume 2, Housing Provisions, Part 3.8.1 or Performance Requirement P2.4.1 and Clause 1.0.10.

14.0 JOINERY

14.1 General

All joinery work (metal and timber) shall be manufactured and installed according to accepted building practices.

14.2 Door Frames

External door frames shall be a minimum of 32mm thick solid rebated 12 mm deep to receive doors. Internal jamb linings shall be a minimum of 18mm thick fit with 12mm thick door stops. Metal door frames shall be installed where indicated on drawings in accordance with the manufacturer's recommendations.

14.3 Doors and Doorsets

All internal and external timber door and door sets shall be installed in accordance with accepted building practices Unless listed otherwise in the Schedule of Works doors and door sets shall be manufactured in accordance with AS2688 and AS2689.

14.4 Window and Sliding Doors

Sliding and other timber windows and doors shall be manufactured and installed in accordance with AS2047.

Sliding and other aluminium windows and doors shall be installed in accordance with manufacturer's recommendations and AS2047.

All glazing shall comply with BCA, Volume 2, Housing Provisions, Part 3.6 or Performance Requirements P2.1, P2.2.2 and Clause 1.0.10. and any commitments outlined in the relevant BASIX Certificate

14.5 Architraves and Skirting

Provide architraves and skirting as nominated on the plans or listed in the Schedule of Works.

14.6 Cupboards/Kitchens/Bathroom

Units shall be installed to manufacturer's recommendations. Bench tops shall be in a water resistant material.

14.7 Stairs, Balustrades and other Barriers

Provide stairs or ramps to any change in levels, and balustrades or barriers to at least one side of ramps, landings and balconies as per BCA, Volume 2, Housing Provisions, Part 3.9.1 or Performance Requirement P2.5.1 and Clause 1.0.10 for stair construction and Part 3.9.2 or Performance Requirements P2.1, P2.5.2 and Clause 1.0.10 for balustrades.

15.0 SERVICES

15.1 Plumbing

All plumbing shall comply with the requirements of the relevant supply authority and AS3500. The work is to be carried out by a licensed plumber.

Fittings as listed in the Schedule of Works shall be supplied and installed to manufacturer's recommendations. Fittings, hot water system and any rainwater harvesting facilities shall be appropriate to satisfy any commitment outlined in the relevant BASIX Certificate

15.2 Electrical

Provide all labour and materials necessary for the proper installation of electricity service by a licensed electrician in accordance with AS3000 and the requirements of the relevant supply authority. Unless otherwise specified, the electrical service shall be 240 volt, single phase supply.

15.3 Gas

All installation (including LPG) shall be carried out in accordance with the rules and requirements of the relevant supply authority.

15.4 Smoke Detectors

Provide and install smoke alarms manufactured in accordance with AS3786 as specified or as indicated on the plans and in accordance with BCA, Volume 2, Housing Provisions, Part 3.7.2 or Performance Requirement P2.3.2 and Clause 1.0.10.

15.5 Thermal Insulation

Where thermal insulation is used in the building fabric or services, such as air conditioning ducting or hot water systems, it shall be installed in accordance with manufacturer's recommendations to achieve the R-Values required by BCA Part 3.12.1 to meet Performance Requirement NSW P2.6.1 (a) or as outlined in the relevant BASIX Certificate.

16.0 TILING

16.1 Materials

Cement mortar and other adhesives shall comply with AS3958.1 or tile manufacturer's recommendations.

16.2 Installation

Installation of tiles shall be in accordance with AS3958.1, manufacturer's recommendations or accepted building practices.

Where practicable, spacing between tiles should be even and regular. Provide expansion joints where necessary. All vertical and horizontal joints between walls and fixtures e.g. bench top, bath, etc. and wall/floor junctions to be filled with flexible mould resistant sealant. All joints in the body of tiled surfaces shall be neatly filled with appropriate grout material as specified by the tile manufacturer or accepted building practice. As tiles are made of natural products a slight variation in colour is acceptable.

16.3 Walls

Cover wall surfaces where indicated on the drawings with selected tiles. Tiles are to be fixed to the wall substrate with adhesives compatible with the substrate material. Provide all required strips, vent tiles and recess fittings.

16.4 Floors

Lay selected floor tiles in sand and cement mortar, or adhesive compatible with the substrate material, to areas indicated on the drawings. Where required, fit approved edge strips or metal angle to exposed edges in doorways or hobless showers in wet areas in accordance with BCA, Volume 2, Housing Provisions, Part 3.8.1 or Performance Requirement P2.4.1 and Clause 1.0.10.. Provide adequate and even fall to wastes where required.

17.0 PAINTING

17.1 General

All paint used shall be of a quality suitable for the purpose intended and the application shall be as per the manufacturer's recommendations. The colours used shall be as listed in the Schedule of Works or other relevant contract document. All surfaces to be painted shall be properly prepared to manufacturer's recommendations.

18.0 SIGNATURES

This is the Specification referred to in the contract

No..... Date:.....

Signed by the said
Owner in the
presence of

.....
Witness

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Owner's Signature

...../...../.....
Date

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Witness

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Owner's Signature

...../...../.....
Date

Signed by the said
Builder in the
presence of

.....
Witness

.....
Builder's Signature

...../...../.....
Date