Application for Code Compliance Certificate

Form 6: Section 92, Building Act 2004

The building consent

Building consent number: 150582

Issued by: Tasman District Council

The owner

Name of owner: J & J Dick

Contact person: Jack & Jeff Dick

Mailing address: 18 Harcourt Place, Wakefield 7025

Street address/registered office:

Phone number: Landline: Mobile: 021344099

Daytime: After hours:

Facsimile number:

Email address: jackie.jeff@xtra.co.nz Website:

The following evidence of ownership is attached to this application:

☐ Copy of certificate of title

☐ Lease, agreement for sale and purchase

☐ Or other document showing full name of legal owner(s) of the building

First point of contact for communications with the council/building consent authority:
Full Name: Gowans Walters & Associates Limited

Mailing Address: PO Box 3608, Richmond

Phones:: 035449499

Email: allan@gowanswalters.co.nz

Application

All building work to be carried out under the above building consent was completed on 5-2-16

The personnel who carried out the building work are as follows:

Contractors:

Drainage & construction, Nick Steggs,

Contour Roofing, Matt Davies drain layer

TMBay Plumbing, Active Electrical

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.

The code compliance certificate should be sent to:

Email: oreillysignature.co.nz

or Postal Address

Signature of

Simon KNEEBONE
Contact Person for final inspection

Simon KNEEBONE
Name of person signing

0275 340 488
Contact Phone Number

Date: 5-2-16

Attachments

The following documents are attached to this application:

- ☐ Certificates from the personnel who carried out the work
- ☐ Certificates that relate to the energy work
- ☐ Evidence that specified systems are capable of performing to the performance standards set out in the building consent

Tasman District Council
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

Richmond
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

Murchison
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

Motueka
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

Takaka
14 Junction Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

NZ BRICK & BLOCKLAYERS ASSOCIATION

BBFNZ THINK BRICK NEW ZEALAND

Memorandum from licensed building practitioner:
Record of building work
Section 88, Building Act 2004 Form 6A

JOB No. INVOICE No. 0778

The Building

Street address of building: 130 Ridgeview Road Appleby

The project

Building consent number: 150582

The owner

Name: Dick, Jeff & Jackie

Address: Signature Homes

Telephone:

Email:

Record of work that is restricted building work

Work that is restricted building work		Description	Carried out/ supervised
Primary structure		10inch concrete Blocks	
Foundations and subfloor framing	(✓)	4x1 Brew - (SLF)	(✓) Carried out ( ) Superv
Walls	( )		( ) Carried out ( ) Supervi
Columns and beams	( )	10 by 10 Series	( ) Carried out ( ) Supervi
Other	( )	290 x 145 x 70 soapstone	( ) Carried out ( ) Supervi
External moisture management systems			
Damp proofing & Penetrations	( )	4x1 Brew with Slice	( ) Carried out ( ) Supervi
Wall cladding or wall system	(✓)	Sand/white cement + 200ml	(✓) Carried out ( ) Supervi
Other	( )	of white oxide per Brew	( ) Carried out ( ) Supervi

Issued by

Name: Standard Ties. with Flush Joi

LBP number: Class(es) licensed in

Mailing address:

Street address or registered office:

Telephone: Landline: Mobile:

Daytime: After hours:

Facsimile: Email:

Precision Bricklaying LTD
Glen Ewing
LBP 119627 B1 + B2
PO Box 9023 Annesbrook
pb@Hotmail.co.nz
027 212 8981

Declaration

Glen Ewing (name of practitioner)

carried out or supervised the restricted building work recorded on this form.

Signature: **Date:** 20/10/15

WHITE COPY - TA BLUE COPY - HOMEOWNER GREEN COPY - TRADESMAN

Memorandum from Licensed Building Practitioner:
Record of building work
Section 88, Building Act 2004

THE BUILDING

Street address:	130 RIDGEVIEW ROAD
Suburb:	APPLEBY
Town/City:	NELSON
Postcode:	

THE PROJECT

Building consent number: BC 150582

THE OWNER(S)

Name(s):	JEFF AND JACKIE DICK		
Mailing address:	130 RIDGEVIEW ROAD		
Suburb:	APPLEBY	PO Box/Private Bag:	
Town/City:	NELSON	Postcode:	
Phone number:	021344099	Email address:	

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work (Tick ✓)	Description of restricted building work If necessary, describe the restricted building work	Carried out (Tick ✓ whether you carried out the RBW or someone else.)
Foundations and subfloor framing ✓	- FLOOR ENGINEERED - STEEL IN PILES AND FOOTINGS - DPM, MESH AND STEEL IN BLOCK (HARDFILL AND BLOCK WORK BY OTHER CONTRACTORS)	○ (✓ S
Walls ✓	- FRAMING - STRUCTURAL FIXINGS - BUILDING WRAP	○ (✓ S
Roof ✓	- ROOF TRUSSES AND FRAMING - STRUCTURAL FIXINGS - BRACING	○ (✓ S
Columns and beams ✓	- POST ON NORTH END OF HOUSE CONCRETED IN AND ATTACHED TO BEAMS AS PER PLAN	○ (✓ S
Bracing ✓	- GIB BRACING TO HOUSE - PLY BRACING IN GARAGE AREA	○ (✓ S

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Damp proofing	✓	- FLOOR DPM
Roof cladding or roof cladding system	✓	ROOF CLADDING BY OTHER CONTRACTOR (CONTOUR ROOFING)
Ventilation system (for example, subfloor or cavity)	✓	- LINEA ON 20MM CAVITY
Wall cladding or wall cladding system	✓	- small sections of linea on entrance and north side gable and chimney
Waterproofing		
Other		

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted build

Name: NICHOLAS BRYAN SKEGGS	LBP number: BP121643
Class(es) licensed in: CARPENTRY	
Plumbers, Gasfitters and Drainlayers registration number (if applicable): —	
Mailing address (if different from below): PO BOX 551, NELSON, 7011	
~~Street address~~/Registered office: 8 TOKOMARU PLACE	
Suburb: STOKE	Town/City: NELSON
PO Box/Private Bag:	Postcode: 7011
Phone number: 03 5464682	Mobile: 027 337 4201
After hours: —	Fax: —

RN 50775 - Dick

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

The Building

Street address of building: '130 Ridgeview Road

Appleby

Tasman

The Project

Building consent number:

The Owner

Name: JEFF & JACKIE DICK

Address: Lot 42, 130 Ridgeview Rd, Appleby

Telephone number: 021 344 099

Email address:

Record of work that is restricted building work

Work that is restricted building work	Description	Carried out/ supervised
[Tick]	[If necessary, describe the restricted building work]	[Specify whether you carried out the restricted building work or supervised someone else carrying out the restricted building work]
Primary structure		
Foundations and subfloor framing		( ) Carried out ( ) Supervised
Walls		( ) Carried out ( ) Supervised

Roof		(r) Carried out (bfSupervised
Columns and beams		Carried out Supervised
Bracing		Carried out Supervised
Other		Carried out Supervised

External moisture management systems

Damp proofing		( ) Carried out ( ) Supervised
Roof cladding or roof cladding system (x)	Installed profiled metal tiles and associated flashings to make weather tight	(x Carried out Supervised
Ventilation system (for example, subfloor or cavity)		Carried out Supervised
Wall cladding or wall cladding system		Carried out Supervised
Waterproofing		Carried out Supervised
Other		Carried out Supervised

Signature:

Date: 4-2-16

Note: continue on another page if necessary.

Issued by

Name: Lee Rutherford

I-BP number: BPI 07677

Class(es) licensed in: R2, R3 Mailing address: 9 Giblin Street, Richmond Street address or registered office: 41 Venice Place, Stoke, Nelson (Contour Roofing Ltd)

Phone number: Landline: 03 538 0824 Mobile: 021 171 7118

Email address: sales@contourroofing.co.nz

Declaration

[1] Lee Rutherford [name of practitioner]

Carried out or supervised the restricted building work recorded on this form.

J W Tiling

12 Wilkinson Place
Richmond

Mobile: 022 699 0983
Email.: johnwilkie66@gmail.com

Applicator's Producer Statement

I, John Wilkie

Of J W Tiling, 12 Wilkinson Place, Richmond

Being an applicator for.....Mark.....-Applicators No

Confirm that I have applied.....Ramaflex.....

At.....30.....Ridgeview.....RD.....

On.....5 - 1 - 16.....

For.....Signature Homes.....

In accordance with the manufacturer's written application instructions, and clause B2 of the NZ Building Code.

I am satisfied that the substrated over which the system has been applied has been prepared and that the materials have been property Istalled.

This work has been certified

by.....Foc.....

Tasman District Council

DRAINLAYING FIRM Matt Davies Drainlayer

BUILDING CONSENT No. 15050

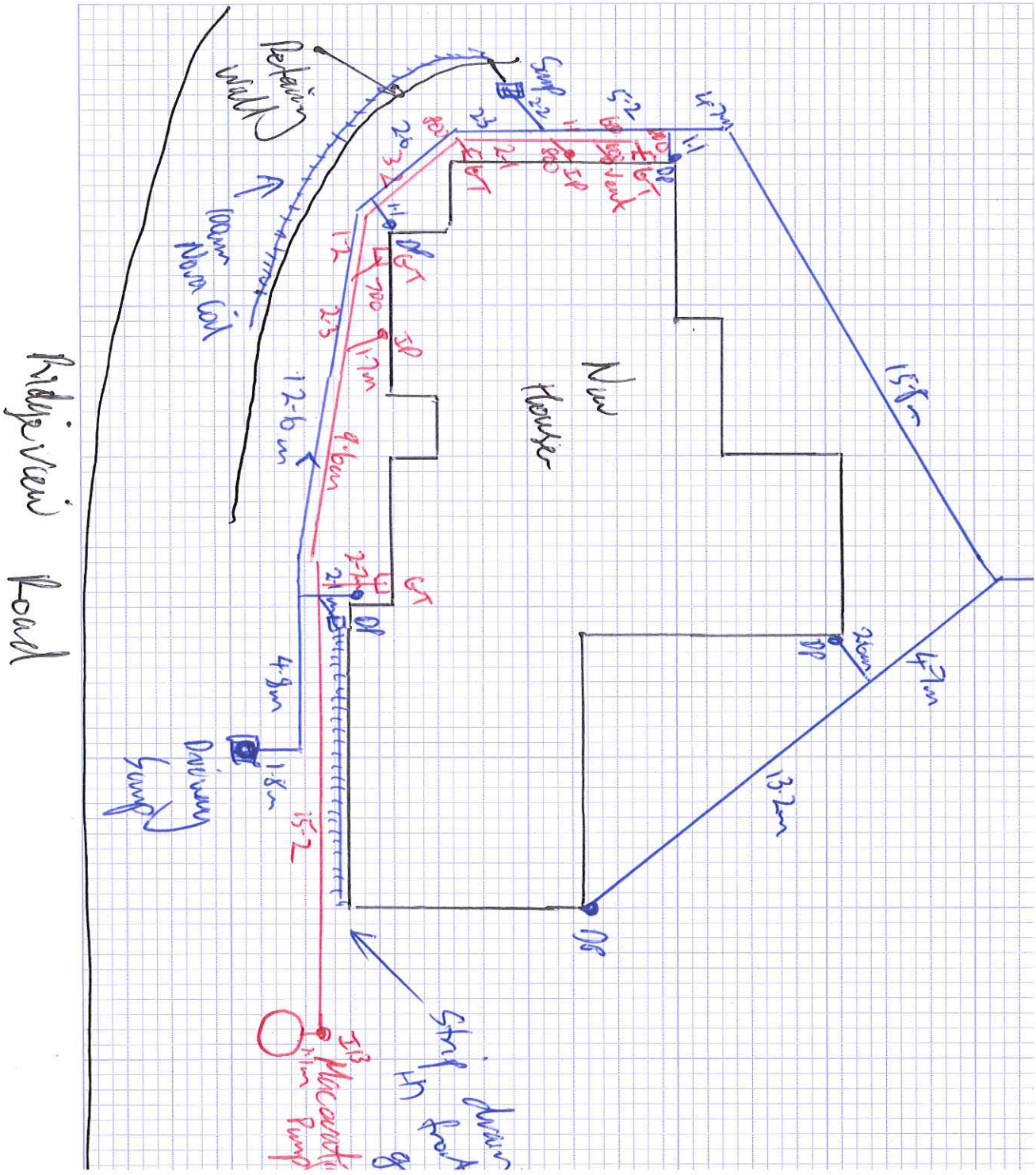
PROPERTY OWNER J & J Pirie

LOCATION/STREET Applet

DATE 14/1/16

TOWNSHIP 130 Ridgeview

DRAINAGE PLAN



Pressure Test Certificate
Piped Services at Pre-line

FORM NUMBER: BC44 **DATE REVISED: 19 Ju**

Issued by: *(print name)* Dean Lusty Registration Number: 035

To: Tasman District Council

In respect to the following:

Piped services installed in accordance with G12/AS1 or NZS/AUS3500.1 and 3 *(dele one)* as shown on the approved plans or as per the attached amendment plan.

Installed at: *(property address)* 130 Ridgeview Rd Appleby

Building consent number: BC 150582.

Pipe brand used: Bate

Type of test: as Per. Bate.

Duration: 30Min + 12 hour.

As a craftsman plumber, currently holding an annual practising licence, I certify that I, personnel under my control, have carried out the installation of the above system and believe on reasonable grounds that the installation complies with the New Zealand Building Code.

Signature of Client/Builder **Signature of Plumber**

For Council Use Only

Register checked: ☐ Date:

Combined Certificate of Compliance & Electrical Safety Certificate

MAS ELECT
Electrical Contractors A

Customer Name: Jeff & Jackie Dick

Location of Installation: 130 Ridgeview ~~Heights~~
Redwood Valley Tasman CE 76086

Description of works (or see attached): New Home.
38 Power Points, 47 light Fittings, Electric HWC
Electric Oven & Hob, Septic system, Water Pum

This work has been carried out in accordance with a Certified Design ☑ Certified Design Attached ☐

Name of Issuer of Certified Design: _____

Supplier Declaration of Conformity Attached: ☐ (please attach or list Certificate serial numbers or web address belov

Manufacturers Instructions used or relied on in this work: ☑ (please attach or list web address below)

All parts of the installation are safe to connect to a power supply
If not, please detail which parts are safe to connect: ☑

This work is:	This work has been done in accordance with:	Supply system this work is suitable for:
Low Risk (Certificate of Compliance not required) ☐	Part 2 of AS/NZS 3000 ☑	230/400V MEN system ☑
General ☐	Part 1 of AS/NZS 3000 ☐	Other (Please specify) ☐
High Risk (Record of Inspection required) ☑		

Other Standards this work complies with: _____

Record of Inspection (If Required)

Name of Inspector: John Shalders JRShalders 28-1-20

The aspects of the work which make it high risk are:

- ☑ Work on Mains
- ☑ Work on Main Earthing System
- ☐ Electromedical
- ☐ Hazardous Area
- ☐ Mains Parallel Generation
- ☐ Mines
- ☐ Photovoltaic
- ☐ Animal Stunning
- ☐ Work to Part 1 of AS/
- ☐ High Voltage *

* Certified Design Required

Date on, or period in, which the work was done: Oct 15 - Feb 16

I confirm that I am satisfied that the work detailed in this Certificate of Compliance has been done lawfully and safely, and that the information contained in this certificate is correct and accurate.

This certificate is issued by: TYRONE GALLAGHAN **Registration No:** E 10486

Signature: Gallaghan **Date:** 28.01.16

Name and Registration Numbers of Workers Under Supervision Attached ☑ Andrew Watson ETC 10

Electrical Safety Certificate To be completed once all work on the CoC above is completed.

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Referenc
(Construction Review Firm)

TO: ..... J & J Dick - Signature Homes .....
(Owner/Developer)

TO BE SUPPLIED TO: ..... Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....
(Description of Building Work)

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....
(Address)
LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** .....

Tasman Consulting Engineers Limited .....has been engaged by..... J & J Dick - Signature Homes ....
(Construction Review Firm)

To provide☐CM1☐CM2☐CM3☐CM4☐CM5*(Engineering Categories)* or ☐ observation as per agreement with owner/devel

or ☒other ..... observation of the items listed in the attached schedule .....
(Extent of Engagement)

in respect of clause(s) .....B1.....of the Building Code for the building work described ir

documents relating to Building Consent No ..... 150582 ..... and those

Building Consent Amendment(s) Nos. .... issued

course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No .... (copies

or by the attached Schedule ☒ have been issued during the course of the works.

On by the basis of ☐this ☒these review(s) and information supplied by the contractor during the course of and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐ only of the building works have been completed in accordance with the relevant requirements of the Buildin and Building Consent Amendments identified above, with respect to Clause(s) .....B1..... of the Buil

I also believe on reasonable grounds that the persons who have undertaken this construction review have the n competency to do so.

I, ...David King..... am:
(Name of Construction Review Professional)

☒CPEng No. .....145511 .

☐Reg Arch No. .....

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications: ..... ME(Civil) .....

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance than $200,000*.

The Construction Review Firm is a member of ACENZ : ☐

SIGNED BY .....David King..... **ON BEHALF OF** .....Tasman Consulting Engineers Limit

Date:..... 7 December 2015 ..... Signature: ..... David King .....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrue: Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to t Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum c $200,000.*

PO Box 3631
Richmond 7050
NELSON
t: +64 3 544 6404
w: www.tcel.co.nz

TAS CONS ENGI CIVIL & S

PRODUCER STATEMENT – PS4 – ATTACHMENTS

(To be read in conjunction with Page 1)

ISSUED BY:.....Tasman Consulting Engineers Limited.....[File Referenc

TO: .....J & J Dick - Signature Homes .....[Issue Date: 7/

TO BE SUPPLIED TO:.....Tasman District Council.....

IN RESPECT OF:.....Proposed new house foundations and retaining wall.....

AT:.....130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON.....

Items covered by this Producer Statement:

1	Foundations including piled foundations outside the approved 3604 area. NOTE: over-height found wall not required or built
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

The following significant changes were authorised to the design during the course of works:

None ☒ or as shown on the attached sheets numbered..... .....

INSPECTION RECORDS

The following is a record of inspections and observations carried out during construction.

Item	Comments
1	Inspect site excavations and old sub-soil removal and approve. (22-07-15 and 27-07-15)
2	Inspect foundation excavations, pile holes and soil strength and approve. (05-08-15, 07-08-15, and 11-08-15)
3	Inspect foundation reinforcing and approve. (17-08-15 and 18-08-15)
4	Inspect foundation upper reinforcing and approve. (20-08-15)
5	Inspect stripping to floor slab area and approve. (24-08-15)
6	Inspect hardfill compaction and floor slab reinforcing and approve. (28-08-15 and 01-09-15)
7	Inspect retaining wall pole holes and approve. (07-09-15)
8	Inspect retaining wall drainage and cloth and approve. (09-09-15)
9	Inspect structural fixings, advise on remedial work, review photos showing repairs and approve. 15 & 26-11-15)
10	

Tasman District Co
APPROVED 09/07/

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

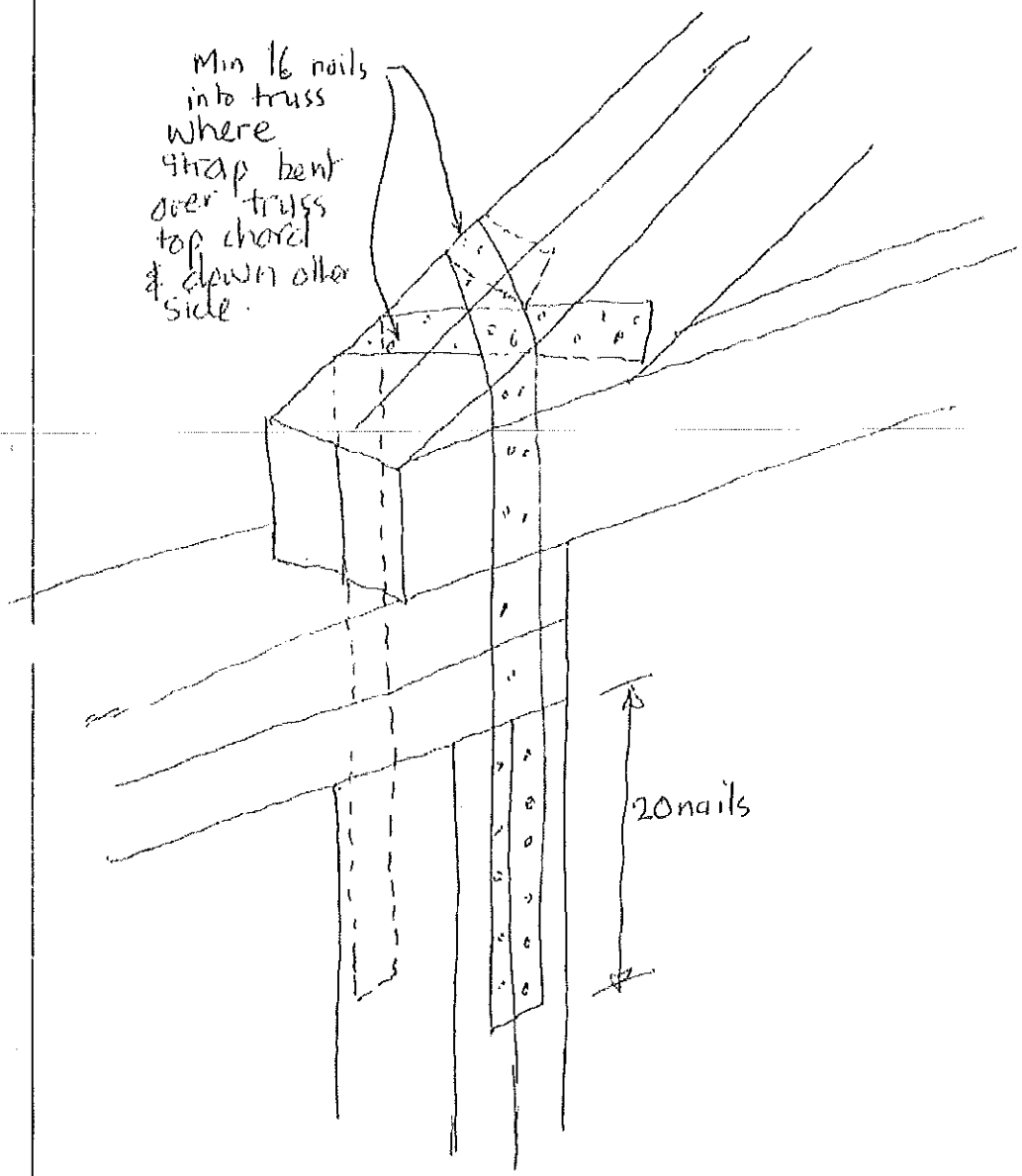
Project: Dick

File Ref: 15165

Page No: 1

Date: 30-

By: R



POST to TRUSS CONNECTION

nts.

For (1) & (2)

Tasman District Cou
APPROVED 09/07/2

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

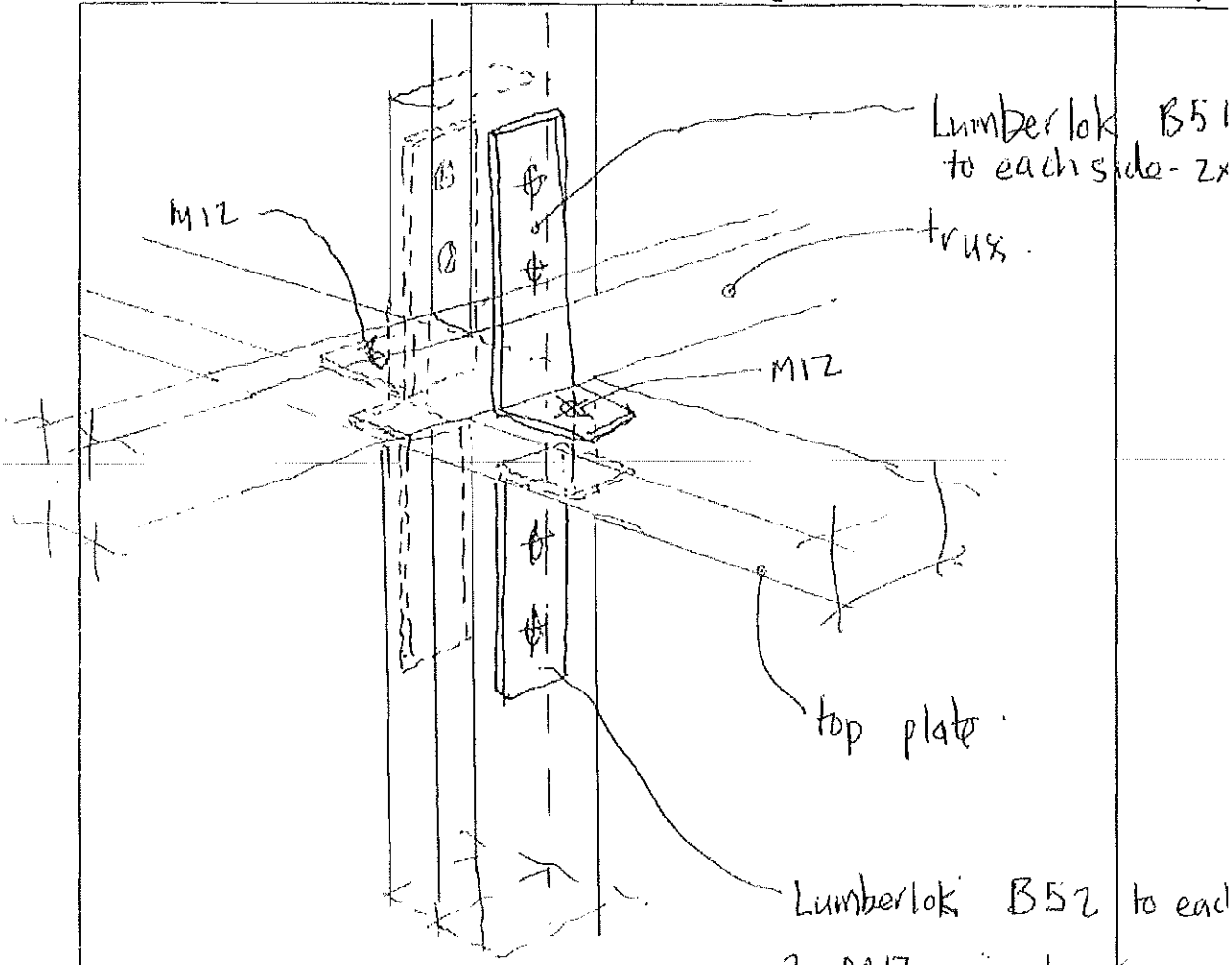
Project: Dick

File Ref: 15165

Page No:

Date: 30

By: E



TRUSS TO POST CONNECTION

FOR (3)

Tasman District Co
APPROVED 09/07

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

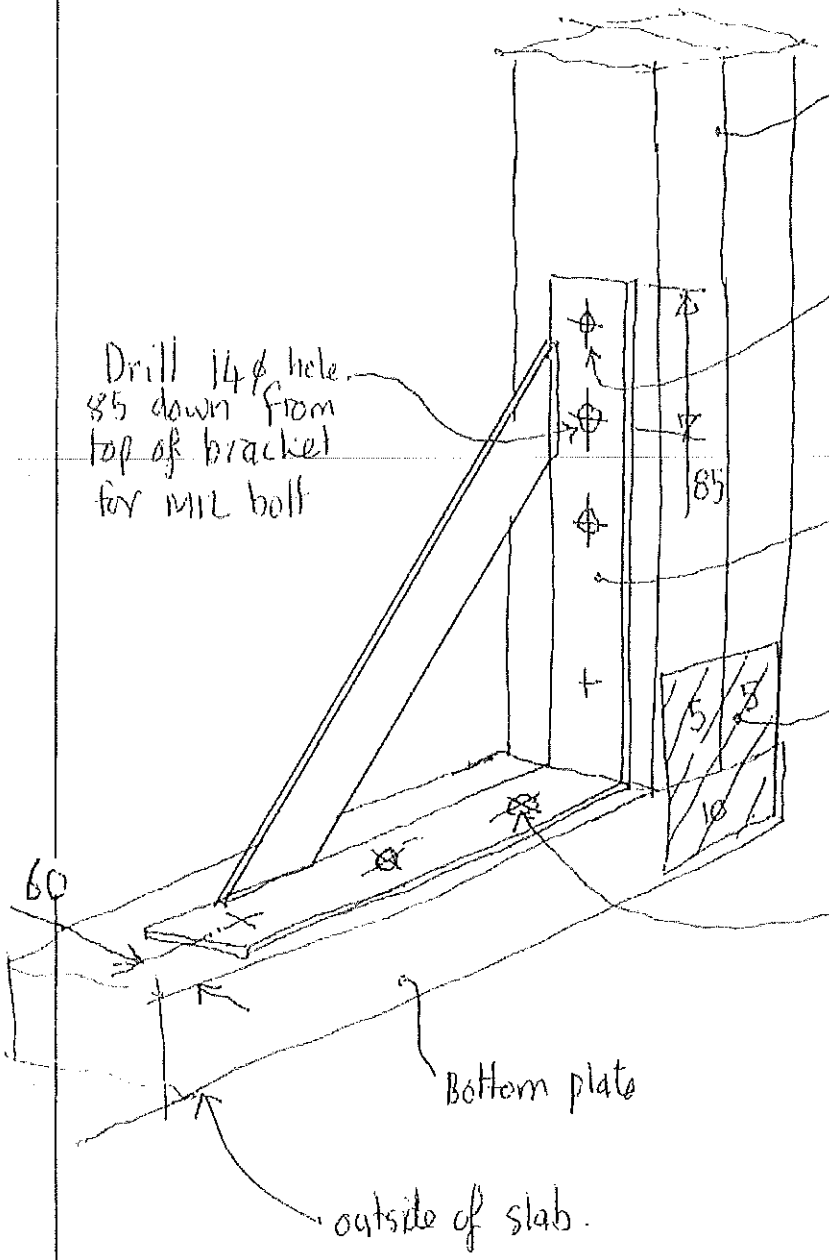
Project: Dick

File Ref: 5165

Page No:

Date: 3

By: K



POST BASE FIXING

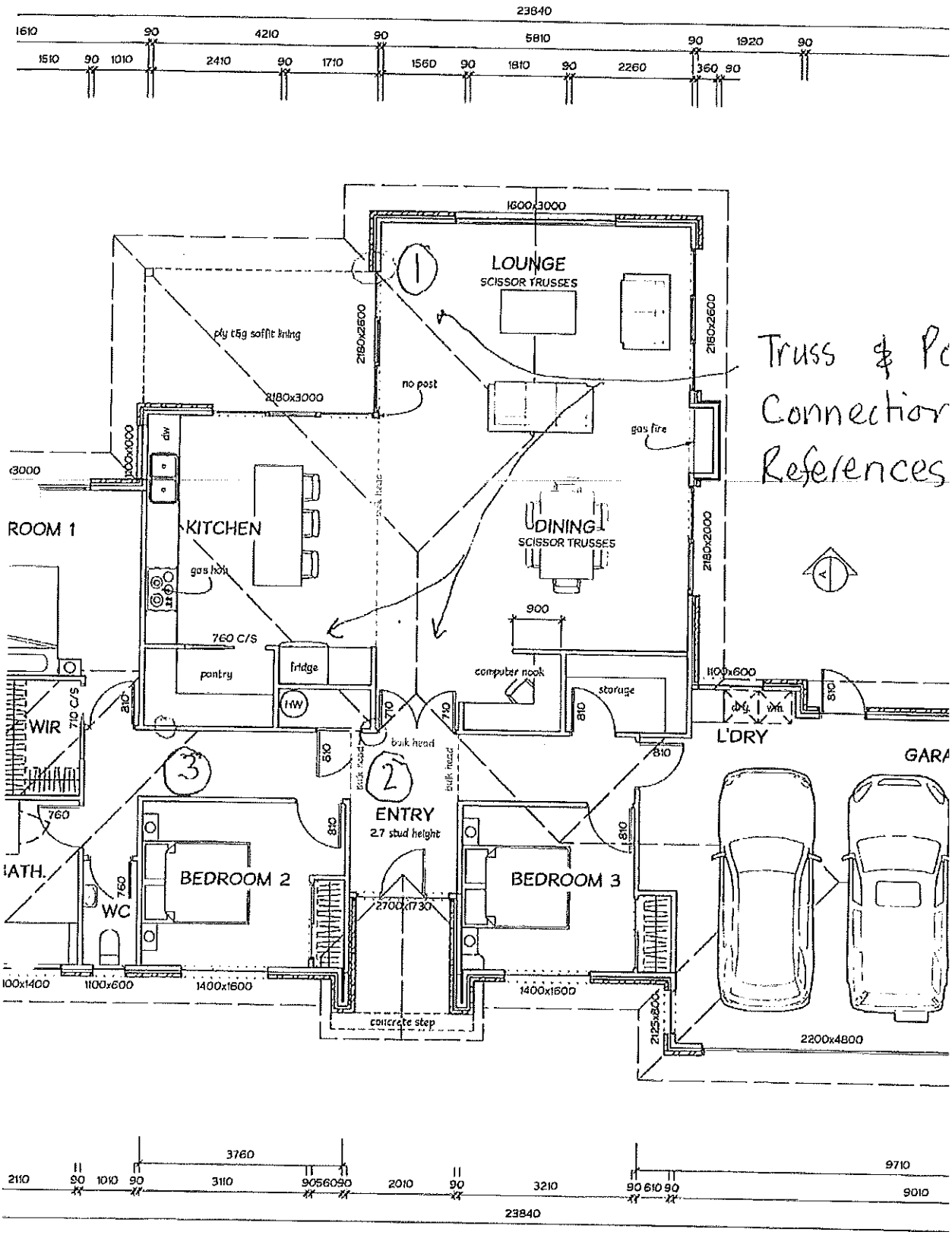
nts

for (1) & (2) & (3)

150582

Tasman District C
APPROVED 09/07

Dick 15165.



GROUND FLOOR PLAN 1:100

AREA OVER FRAMING 220m²

AREA OVER 70 SERIES BRICK 229.44m²

Dick Jason

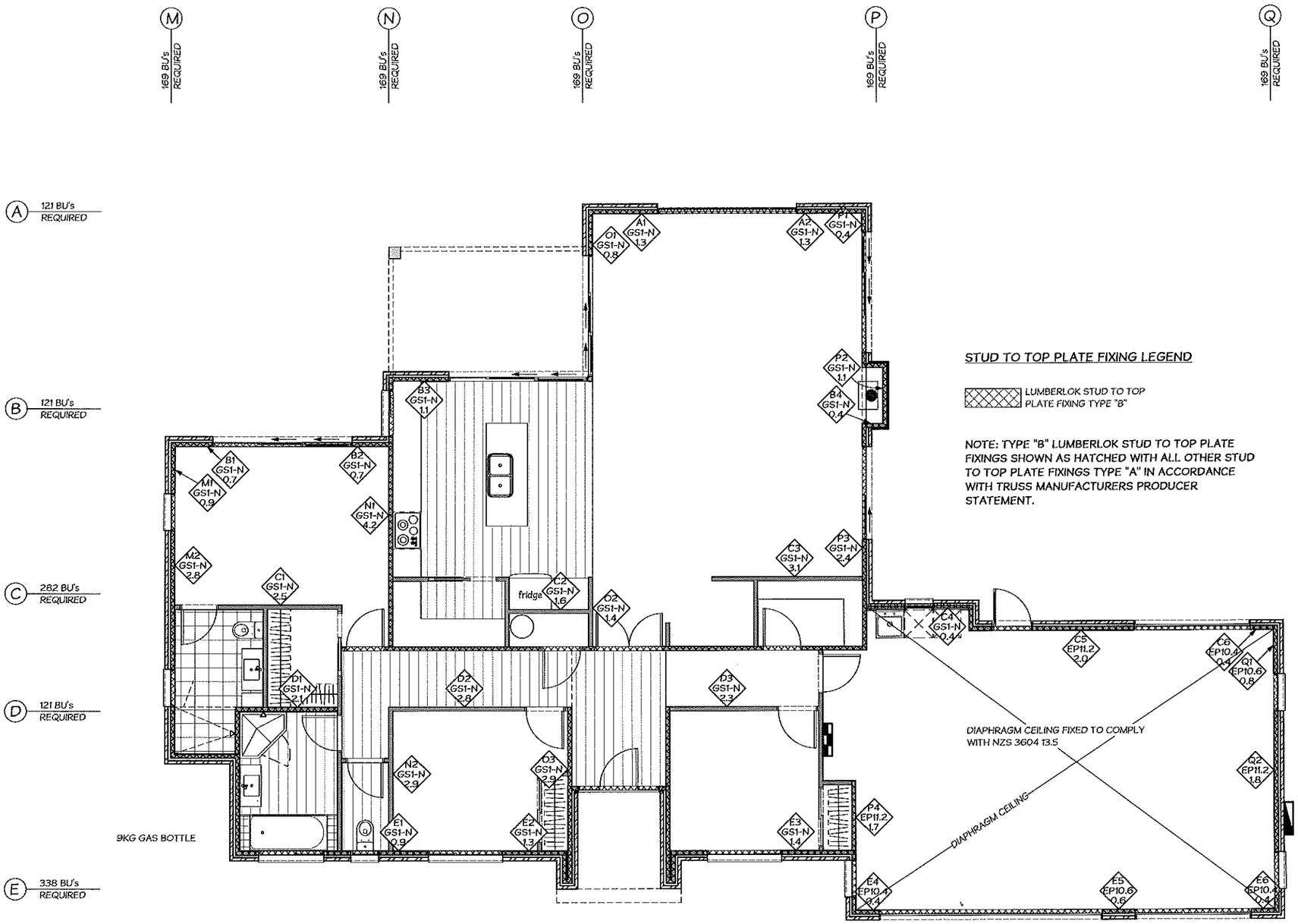
GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ALONG

V06/11

Lines		*Bracing Elements*							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
156	**A**	1	1.3		2.4	GS1-N	GIB®	90	78
		2	1.3		2.4	GS1-N	GIB®	90	78
171	**B**	1	0.7		2.4	GS1-N	GIB®	41	41
		2	0.7		2.4	GS1-N	GIB®	41	41
		3	1.1		2.4	GS1-N	GIB®	74	66
		4	0.4		2.4	GS1-N	GIB®	21	23
763	**C**	1	2.5		2.4	GS1-N	GIB®	173	150
		2	1.6		2.4	GS1-N	GIB®	110	96
		3	3.1		2.4	GS1-N	GIB®	214	186
		4	0.4		2.4	GS1-N	GIB®	21	23
		5	2		2.4	EP1 1.2	Ecoply®	240	270
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38
432	**D**	1	2.1		2.4	GS1-N	GIB®	145	126
		2	2.8		2.4	GS1-N	GIB®	193	168
		3	2.3		2.4	GS1-N	GIB®	159	138
354	**E**	1	0.9		2.4	GS1-N	GIB®	57	53
		2	1.3		2.4	GS1-N	GIB®	90	78
		3	1.4		2.4	GS1-N	GIB®	97	84
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	0.6		2.4	EP1 0.6	Ecoply®	57	63
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38

					Wind	Earthq.
Totals Achieved	W	207%	EQ	155%	2008	1877
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)					972	1208



STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS SHOWN AS HATCHED WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

NOTES

BRACING NOTES

A1 GS1A 2.4 — BRACING No. / BRACE TYPE / BRACE LENGTH (m)

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES.

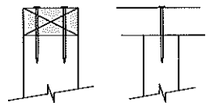
REFER TO THE BRACING CALCULATIONS AND DETAILS FOR FURTHER BRACING INFORMATION.

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TYPE A 0.7kN

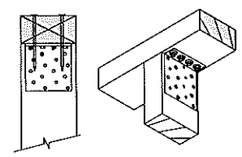
2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD.



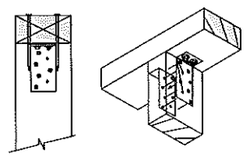
TYPE B 4.7kN

CHOOSE ANY OF THE 3 OPTIONS BELOW

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS ONE LUMBERLOK 6kN STUD ANCHOR (CPC80).

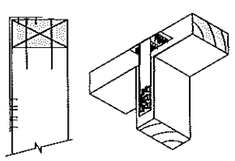


2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS TWO LUMBERLOK CPC40.



RECOMMENDED FOR INTERNAL WALL OPTIONS TO AVOID LINING ISSUES

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS LUMBERLOK STUD STRAP (ONE FACE ONLY).



LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B" - 1.7kN

2 LUMBERLOK STUD TO TOP PLATE FIXINGS
1:10

SJB Construction Limited T/A Signature Homes Nelson. 308 Queen Street, Richmond, P.O. Box 3549, Richmond Ph (03)541 0317 Fax (09) 415 2467 www.signaturehomes.co.nz	These drawings are limited to and by the extent of the detail covered in the drawings to meet the current New Zealand Building Code (NZBC). Where detail is required for construction and to demonstrate compliance with the current NZBC, a specific request should be made for the required detail to be supplied. No liability will be accepted for any detail or construction not covered in these drawings and/or carried out by persons other than the designer producing these documents.	3 BEDROOM RESIDENCE JACKIE & JEFF DICK 130 RIDGEVIEW ROAD, APPLEBY	BRACING PLAN Scale: 1:100 Drawn: JA Date: 5-06-2015

REV	DATE	AMENDMENT
B	22/7/15	BRACE CHK
A	18/6/15	BRACING

TSW NO: 15155

DWG NO. 06 B REV B

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Application for Code Compliance Certificate

Form 6: Section 92, Building Act 2004

The building consent

Building consent number: 150582

Issued by: Tasman District Council

The owner

Name of owner: J & J Dick

Contact person: Jack & Jeff Dick

Mailing address: 18 Harcourt Place, Wakefield 7025

Street address/registered office:

Phone number: Landline: Mobile: 021344099

Daytime: After hours:

Facsimile number:

Email address: jackie.jeff@xtra.co.nz Website:

The following evidence of ownership is attached to this application:

☐ Copy of certificate of title

☐ Lease, agreement for sale and purchase

☐ Or other document showing full name of legal owner(s) of the building

First point of contact for communications with the council/building consent authority:
Full Name: Gowans Walters & Associates Limited

Mailing Address: PO Box 3608, Richmond

Phones:: 035449499

Email: allan@gowanswalters.co.nz

Application

All building work to be carried out under the above building consent was completed on 5-2-16

The personnel who carried out the building work are as follows:

Contractors:

Drainage & Construction, Nick Steggs,

Contour Roofing, Matt Davies drain layer

TMBay Plumbing, Active Electrical

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.

The code compliance certificate should be sent to:

Email: Joreillye@Snature.co.NZ

or Postal Address

Signature of

Simon Kneebone
Contact Person for final inspection

Simon Kneebone
Name of person signing

0275 340 488
Contact Phone Number

Date: 5-2-16

Attachments

The following documents are attached to this application:

- ☐ Certificates from the personnel who carried out the work
- ☐ Certificates that relate to the energy work
- ☐ Evidence that specified systems are capable of performing to the performance standards set out in the building consent

Tasman District Council
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

Richmond
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

Murchison
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

Motueka
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

Takaka
14 Junction Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

NZ BRICK & BLOCKLAYERS ASSOCIATION

Memorandum from licensed building practitioner:
Record of building work
Section 88, Building Act 2004 Form 6A

BBFNZ

THINK BRICK NEWZEALAND

JOB No. INVOICE No. 077(

The Building

Street address of building: 130 Ridgeview Road Appleby

The project

Building consent number: 150582

The owner

Name: Dick, Jeff & Jackie

Address: Signature Homes

Telephone:

En :

Record of work that is restricted building work

Work that is restricted building work		Description	Carried out/ supervised
Primary structure		10inch concrete Blocks	
Foundations and subfloor framing	( )	4x1 Brand - (SLF)	(✓) Carried out ( ) Superv
Walls	( )		( ) Carried out ( ) Supervi
Columns and beams	( )	To by 70 Series	( ) Carried out ( ) Supervi
Other	( )	290 x 145 x 70 sarpshoe	( ) Carried out ( ) Supervi
External moisture management systems			
Damp proofing & Penetrations	( )	4x1 Brand with Slice	( ) Carried out ( ) Supervi
Wall cladding or wall system	(✓)	Sand/white cement + Acrylic	( ) Carried out ( ) Supervi
Oth	( )	& White oxide per Brand	( ) Carried out ( ) Supervi

Issued by

Name: Steelhead Has. with Flush Joi

LBP number: Class(es) licensed in

Mailing address:

Street address or registered office:

Telephone: Landline: Mobile:

Daytime: After hours:

Facsimile: Email:

Precision Bricklaying LTD
Glen Ewing
LBP 119627 B1 + B2
PO Box 9023 Annesbrook
pb@Hotmail.co.nz
027 212 8981

Declaration

Glen Ewing (name of practitioner)

carried out or supervised the restricted building work recorded on this form.

Signature: Date: 20/10/15

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TASMAN DISTRICT COUNCIL
Signed

WHITE COPY - TA BLUE COPY - HOMEOWNER GREEN COPY - TRADESMAN

Memorandum from Licensed Building Practitioner:
Record of building work
Section 88, Building Act 2004

THE BUILDING

Street address: 130 RIDGEVIEW ROAD
Suburb: APPLEBY
Town/City: NELSON | Postcode:

THE PROJECT

Building consent number: BC 150582

THE OWNER(S)

Name(s): JEFF AND JACKIE DICK
Mailing address: 130 RIDGEVIEW ROAD
Suburb: APPLEBY | PO Box/Private Bag:
Town/City: NELSON | Postcode:
Phone number: 021 344 099 | Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work Tick	✓	Description of restricted building work If necessary, describe the restricted building work	Carried out (Tick ✓ whether out the RBW or someone else.)
Foundations and subfloor framing	✓	- FLOOR ENGINEERED - STEEL IN PILES AND FOOTINGS - DPM, MESH AND STEEL IN SLAB (HARDFILL AND BLOCK WORK BY OTHER CONTRACTORS)	○ (✓ S
Walls	✓	- FRAMING - STRUCTURAL FIXINGS - BUILDING WRAP	○ (✓ S
Roof	✓	- ROOF TRUSSES AND FRAMING - STRUCTURAL FIXINGS - BRACING	○ (✓ S
Columns and beams	✓	- POST ON NORTH END OF HOUSE CONCRETED IN AND ATTACHED TO BEAMS AS PER PLAN	○ (✓ S
Bracing	✓	- GIB BRACING TO HOUSE - PLY BRACING IN GARAGE AREA	○ (✓ S

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Damp proofing	- FLOOR DPM	✓
Roof cladding or roof cladding system	ROOF CLADDING BY OTHER CONTRACTOR (CONTOUR ROOFING)	
Ventilation system (for example, subfloor or cavity)	- LINEA ON 20mm CAVITY	✓
Wall cladding or wall cladding system	- small sections of linea on entrance and north side gable and chimney	✓
Waterproofing		
Other		

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ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted build

Name: NICHOLAS BRYAN SKEGGS	LBP number: BP121643
Class(es) licensed in: CARPENTRY	
Plumbers, Gasfitters and Drainlayers registration number (if applicable): —	
Mailing address (if different from below): PO Box 551, NELSON, 7011	
~~Street address~~/Registered office: 8 TOKOMARU PLACE	
Suburb: STOKE	Town/City: NELSON
PO Box/Private Bag:	Postcode: 7011
Phone number: 03 5464682	Mobile: 027 337 4201
After hours: —	Fax: —

RN 50775 - Dick

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

The Building

Street address of building: '130 Ridgeview Road

Appleby

Tasman

The Project

Building consent number:

The Owner

Name: JEFF & JACKIE DICK

Address: Lot 42, 130 Ridgeview Rd, Appleby

Telephone number: 021 344 099

Email address:

Record of work that is restricted building work

Work that is restricted building work	Description	Carried out/ supervised
[Tick]	[If necessary, describe the restricted building work]	[Specify whether you carried out the restricted building work or supervised someone else carrying out the restricted building work]
Primary structure		
Foundations and subfloor framing		( ) Carried out ( ) Supervised
Walls		( ) Carried out ( ) Supervised

Roof		(r) Carried out (bfSupervised
Columns and beams		Carried out Supervised
Bracing		Carried out Supervised
Other		Carried out Supervised

External moisture management systems

Damp proofing		( ) Carried out ( ) Supervised
Roof cladding or roof cladding system (X)	Installed profiled metal tiles and associated flashings to make weather tight	(x Carried out Supervised
Ventilation system (for example, subfloor or cavity)		Carried out Supervised
Wall cladding or wall cladding system		Carried out Supervised
Waterproofing		Carried out Supervised
Other		Carried out Supervised

Signature:

Date: 4-2-16

Note: continue on another page if necessary.

Issued by

Name: Lee Rutherford

I-BP number: BPI 07677

Class(es) licensed in: R2, R3 Mailing address: 9 Giblin Street, Richmond Street address or registered office: 41 Venice Place, Stoke, Nelson (Contour Roofing Ltd)

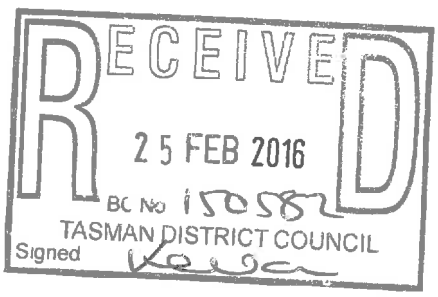
Phone number: Landline: 03 538 0824 Mobile: 021 171 7118

Email address: sales@contourroofing.co.nz

Declaration

I Lee Rutherford [name of practitioner]

Carried out or supervised the restricted building work recorded on this form.



J W Tiling

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25 FEB 2016
Scanned
TASMAN DISTRICT COUNCIL

12 Wilkinson Place
Richmond

Mobile: 022 699 0983
Email.: johnwilkie66@gmail.com

Applicator's Producer Statement

I

n Wilkie

W Tiling, 12 Wilkinson Place, Richmond

eing an applicator for..... Applicators No

onfirm that I have applied.....

At.....

On.....

For.....

In accordance with the manufacturer's written application instructions, and clause B2 of the NZ Building Code.

I am satisfied that the substrated over which the system has been applied has been prepared and that the materials have been properly installed.

This work has been certified

by.....

Tasman District Council

DRAINLAYING FIRM Matt Davis Drainlaying

BUILDING CONSENT No. 150501

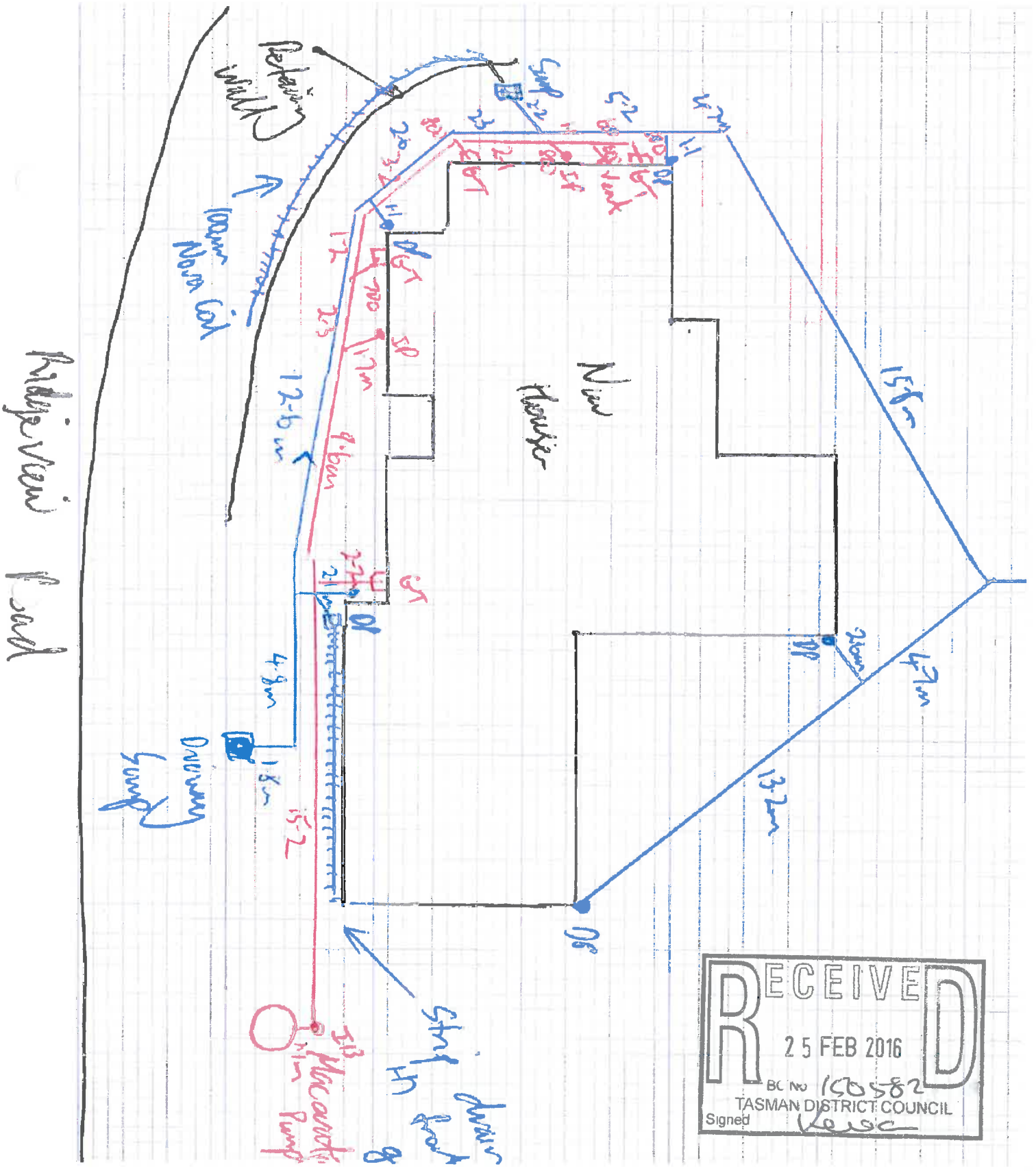
PROPERTY OWNER J & J Pirie

LOCATION/STREET Applet

DATE 14/1/16

TOWNSHIP 130 Ridgeview

DRAINAGE PLAN



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Pressure Test Certificate
Piped Services at Pre-line

FORM NUMBER: BC44 **DATE REVISED: 19 Ju**

Issued by: *(print name)* Dean Lusty Registration Number: 035

To: Tasman District Council

In respect to the following:

Piped services installed in accordance with G12/AS1 or NZS/AUS3500.1 and 3 *(dele one)* as shown on the approved plans or as per the attached amendment plan.

Installed at: *(property address)* 130 Ridgeview Rd Appleby

Building consent number: BC 150582.

Pipe brand used: Bette

Type of test: as Per Bette

Duration: 30Min + 12 hour

As a craftsman plumber, currently holding an annual practising licence, I certify that I, personnel under my control, have carried out the installation of the above system and believe on reasonable grounds that the installation complies with the New Zealand Building Code.

Signature of Client/Builder **Signature of Plumber**

For Council Use Only

Register checked: ☐ Date:

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Combined Certificate of Compliance & Electrical Safety Certificate

MAS ELECT Electrical Contractors A

Customer Name: Jeff & Jackie Dick

Location of Installation: 130 Ridgeview Heights Rd

Richwood Valley Tasman CE 76086

Description of work (or see attached): New Home.

38 Power Points, 47 light Fittings, Electric HWC Electric Oven & Hob, Septic system, Water Pu

Re

This work has been carried out in accordance with a Certified Design ☑ Certified Design Attached ☐

Name of Issuer of Certified Design: IC 53

Supplier Declaration of Conformity Attached: ☐ (please attach or list Certificate serial numbers or web address belov

Manufacturers Instructions used or relied on in this work: ☑ (please attach or list web address below)

All parts of this electrical installation are to be supplied from (please detail which part are not to be connected):

☑

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Signed

This work is:
- Low Risk (Certificate of Compliance not required) ☐
- General ☐
- High Risk (Record of Inspection required) ☑

This work has been undertaken in accordance with:
- Part 2 of AS/NZS 3000 ☑
- Part 1 of AS/NZS 3000 ☐

Supply system this work is suitable for:
- 230/400V MEN system ☑
- Other (Please specify) ☐

Other Standards this work complies with:

Record of Inspection (if Required):

The aspects of the work which make it high risk are:

Name of Inspector: John Shalders

JRShalders 28.1.20

- ☑ Work on Mains
- ☑ Work on Main Earthing System
- ☐ Electromedical
- ☐ Hazardous Area
- ☐ Mains Parallel Generation
- ☐ Mines
- ☐ Photovoltaic
- ☐ Animal Stunning
- ☐ Work to Part 1 of AS/
- ☐ High Voltage *

* Certified Design Required

Dates on which building work was undertaken: Oct 15 - Feb 16

I confirm that I am satisfied that the work detailed in this Certificate of Compliance has been done lawfully and safely, and that the information contained in this certificate is correct and accurate.

This certificate is issued by: TYRONE CALLAGHAN Registration No: E 10486

Signature: Callaghan Date: 28.01.16

Name and Registration Numbers of Workers Under Supervision Attached ☑ Andrew Watson ETC 10

Electrical Safety Certificate: To be completed once all work on the CoC above is completed.

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Referenc
(Construction Review Firm)

TO: ..... J & J Dick - Signature Homes .....
(Owner/Developer)

TO BE SUPPLIED TO: ..... Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....
(Description of Building Work)

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....
(Address)

LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** .....

Tasman Consulting Engineers Limited .....has been engaged by..... J & J Dick - Signature Homes ....
(Construction Review Firm)

To provide☐CM1☐CM2☐CM3☐CM4☐CM5*(Engineering Categories)* or ☐ observation as per agreement with owner/devel

or ☒other ..... observation of the items listed in the attached schedule .....
(Extent of Engagement)

in respect of clause(s) .....B1.....of the Building Code for the building work described ir

documents relating to Building Consent No ..... 150582 ..... and those

Building Consent Amendment(s) Nos. .... issued

course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No .... (copies

or by the attached Schedule ☒ have been issued during the course of the works.

On by the basis of ☐this ☒these review(s) and information supplied by the contractor during the course of and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐ only of the building works have been completed in accordance with the relevant requirements of the Buildin and Building Consent Amendments identified above, with respect to Clause(s) .....B1..... of the Build

I also believe on reasonable grounds that the persons who have undertaken this construction review have the n competency to do so.

I, ...David King..... am: ☒CPEng No. .....145511 .
(Name of Construction Review Professional)

Reg/Arch No .....

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications: ..... ME(Civil) .....

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity insurance than $200,000*.

The Construction Review Firm is a member of ACENZ : ☐

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BC No 150582
TASMAN DISTRICT COUNCIL
Signed

SIGNED BY .....David King..... **ON BEHALF OF** .....Tasman Consulting Engineers Limit

Date:..... 7 December 2015 ..... Signature: ..... David King .....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrue: Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to t Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum c $200,000.*

PO Box 3631
Richmond 7050
NELSON
t: +64 3 544 6404
w: www.tcel.co.nz

TAS CONS ENGI CIVIL & S

PRODUCER STATEMENT – PS4 – ATTACHMENTS

(To be read in conjunction with Page 1)

ISSUED BY: .....Tasman Consulting Engineers Limited .....[File Referenc

TO: .....J & J Dick - Signature Homes .....[Issue Date: 7/

TO BE SUPPLIED TO: .....Tasman District Council.....

IN RESPECT OF: .....Proposed new house foundations and retaining wall .....

AT: .....130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

Items covered by this Producer Statement:

1	Foundations including piled foundations outside the approved 3604 area. NOTE: over-height found wall not required or built
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

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TASMAN DISTRICT COUNCIL
Signed

The following significant changes were authorised to the design during the course of works:

None ☒ or as shown on the attached sheets numbered..... .....

INSPECTION RECORDS

The following is a record of inspections and observations carried out during construction.

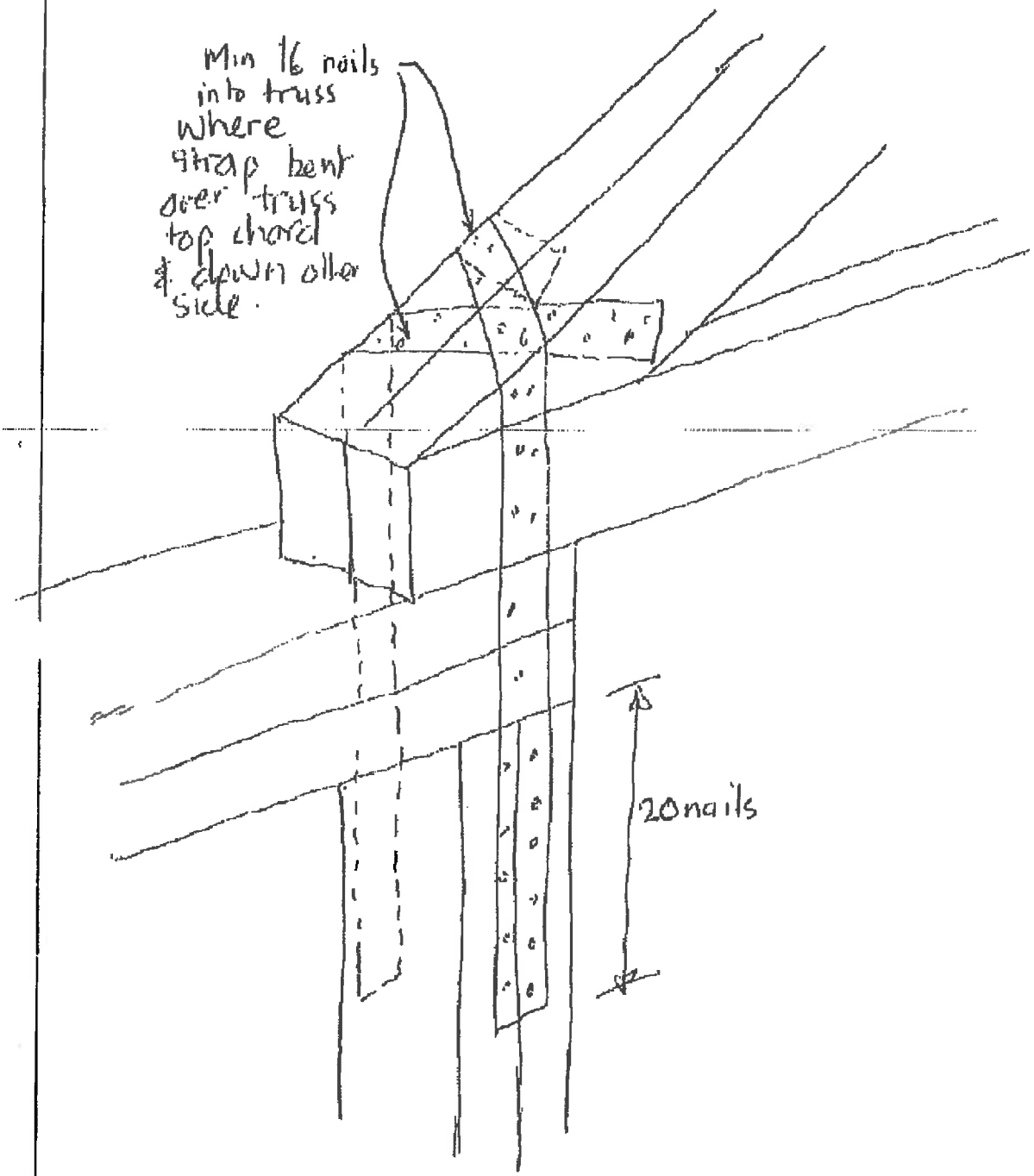
Item	Comments
1	Inspect site excavations and old sub-soil removal and approve. (22-07-15 and 27-07-15)
2	Inspect foundation excavations, pile holes and soil strength and approve. (05-08-15, 07-08-15, and 11-08-15)
3	Inspect foundation reinforcing and approve. (17-08-15 and 18-08-15)
4	Inspect foundation upper reinforcing and approve. (20-08-15)
5	Inspect stripping to floor slab area and approve. (24-08-15)
6	Inspect hardfill compaction and floor slab reinforcing and approve. (28-08-15 and 01-09-15)
7	Inspect retaining wall pole holes and approve. (07-09-15)
8	Inspect retaining wall drainage and cloth and approve. (09-09-15)
9	Inspect structural fixings, advise on remedial work, review photos showing repairs and approve. 15 & 26-11-15)
10	

150582

Tasman District Co
APPROVED 09/07/

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

Project: Dick	Page No: 1
	Date: 30-
File Ref: 15165	By: R



POST to TRUSS CONNECTION

mtrs.

For (1) & (2)

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TASMAN CONSULTING ENGINEERS
195a Queen St
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Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

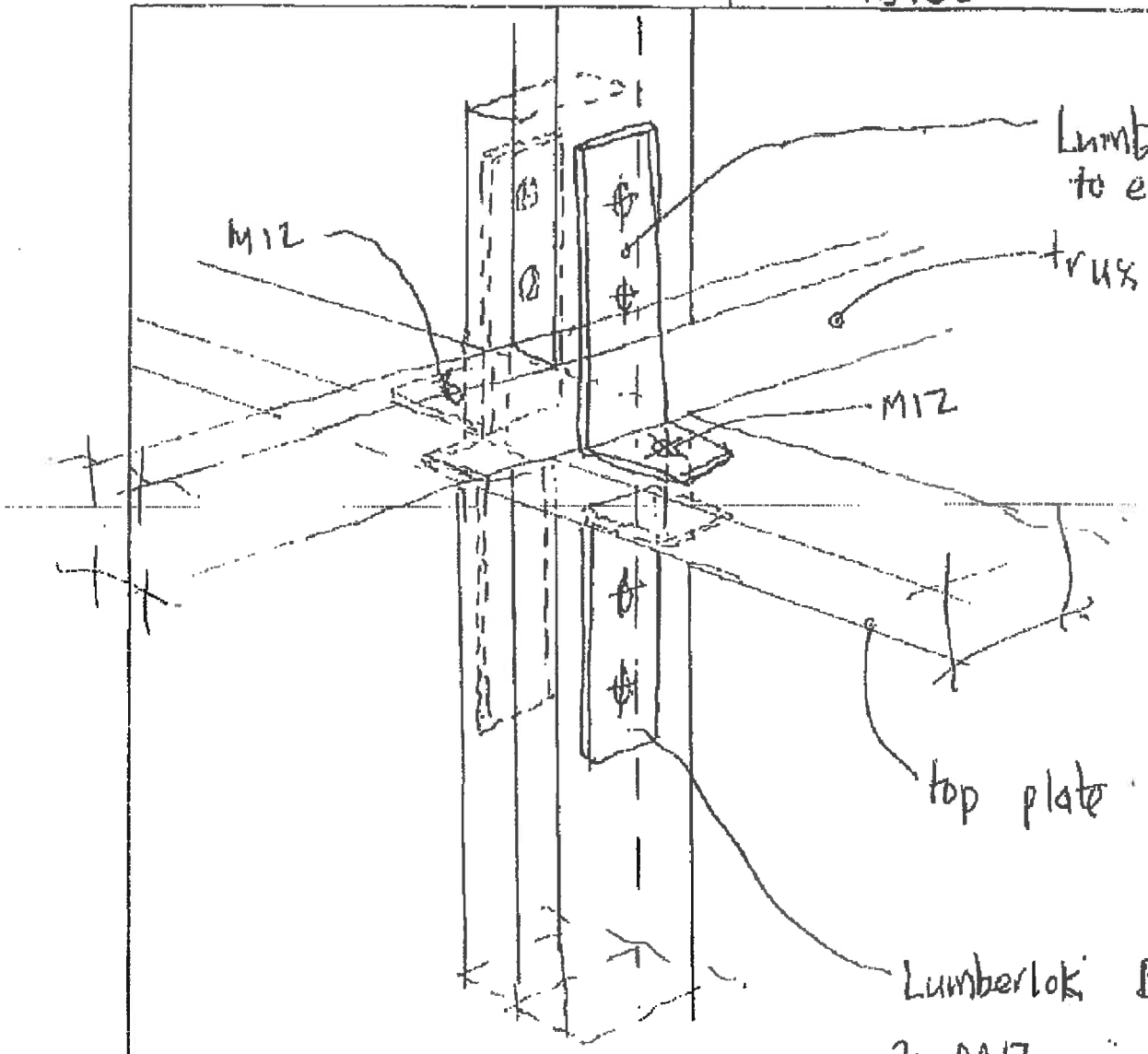
Project: Dick

File Ref: 15165

Page No:

Date: 30

By: R



TRUSS TO POST CONNECTION

FOR (3)

Tasman District Co
APPROVED 09/07.

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

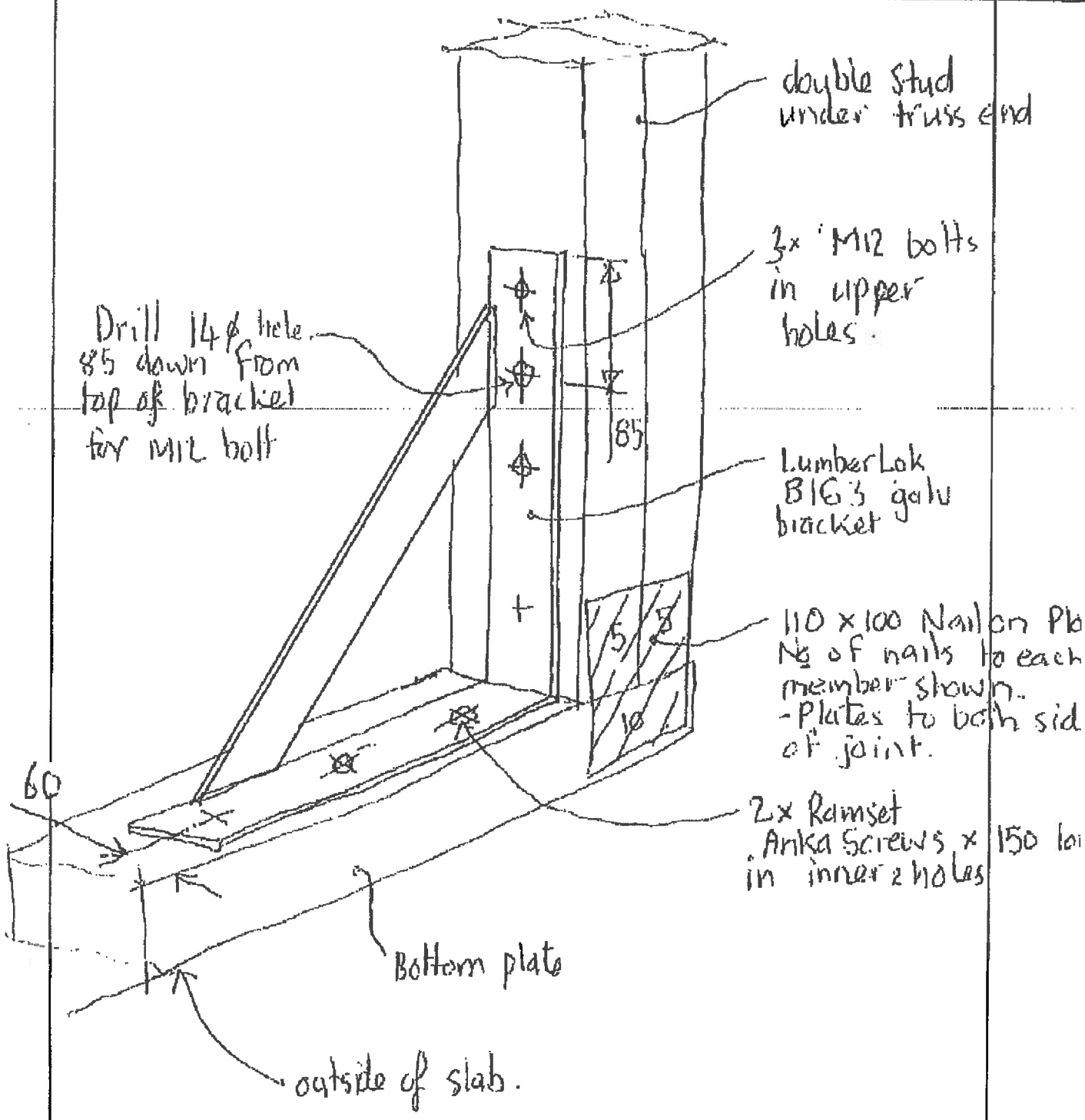
Project: Dick

File Ref: 5165

Page No:

Date: 3

By: K



POST BASE FIXING

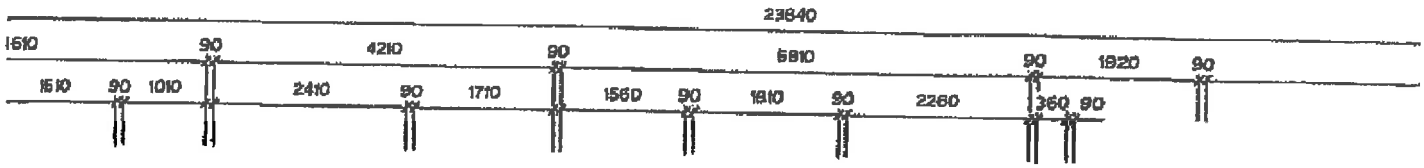
nts

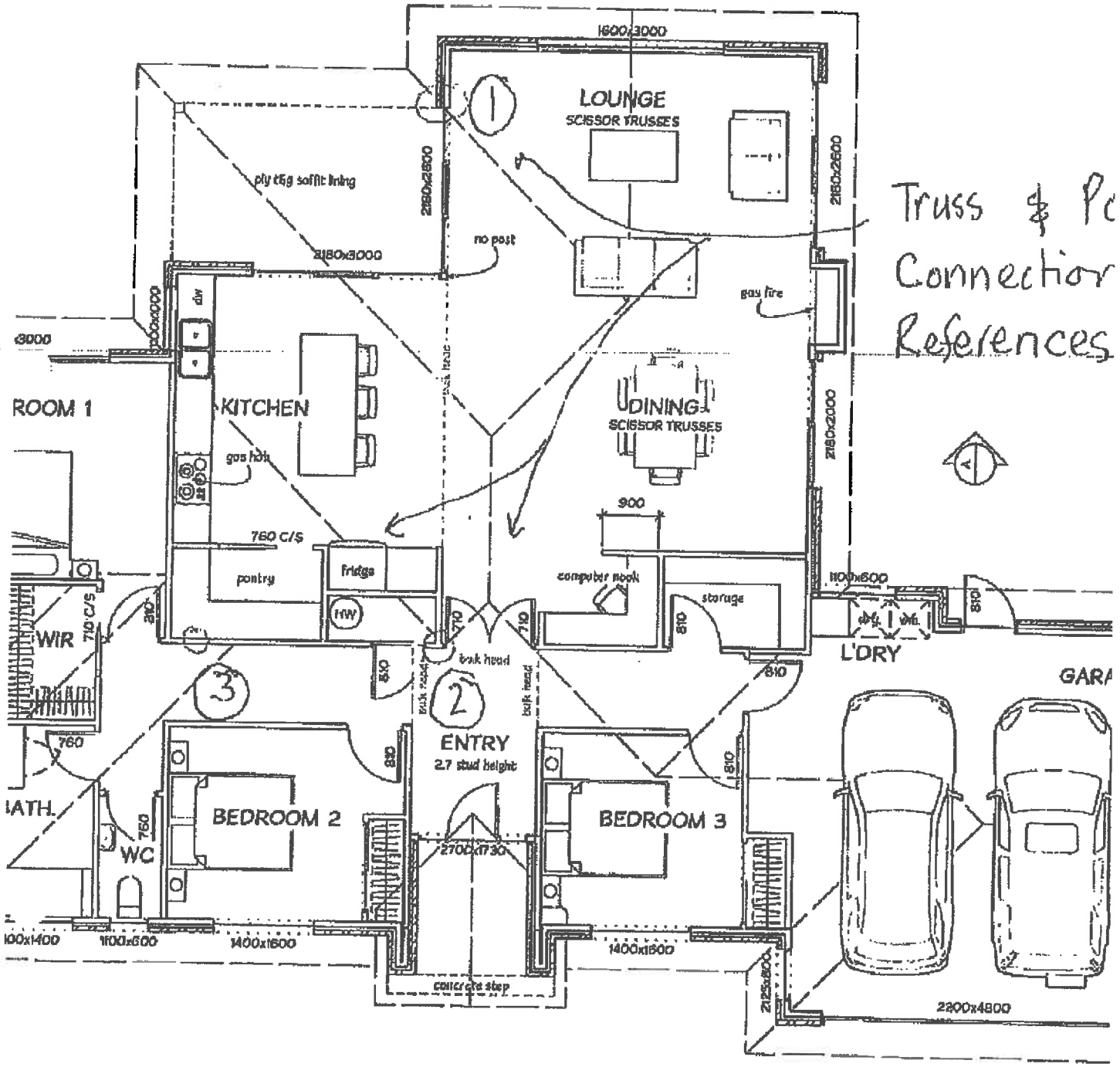
for ① & ② & ③

150582

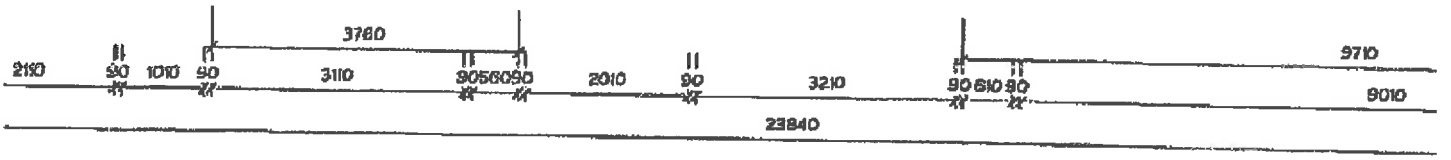
Tasman District C
APPROVED 09/07

Dick 15'65.





Truss & Pc
Connection
References



UND FLOOR PLAN 1:100

REA OVER FRAMING 220m²

REA OVER 70 SERIES BRICK 229.44m²

Dick Jason

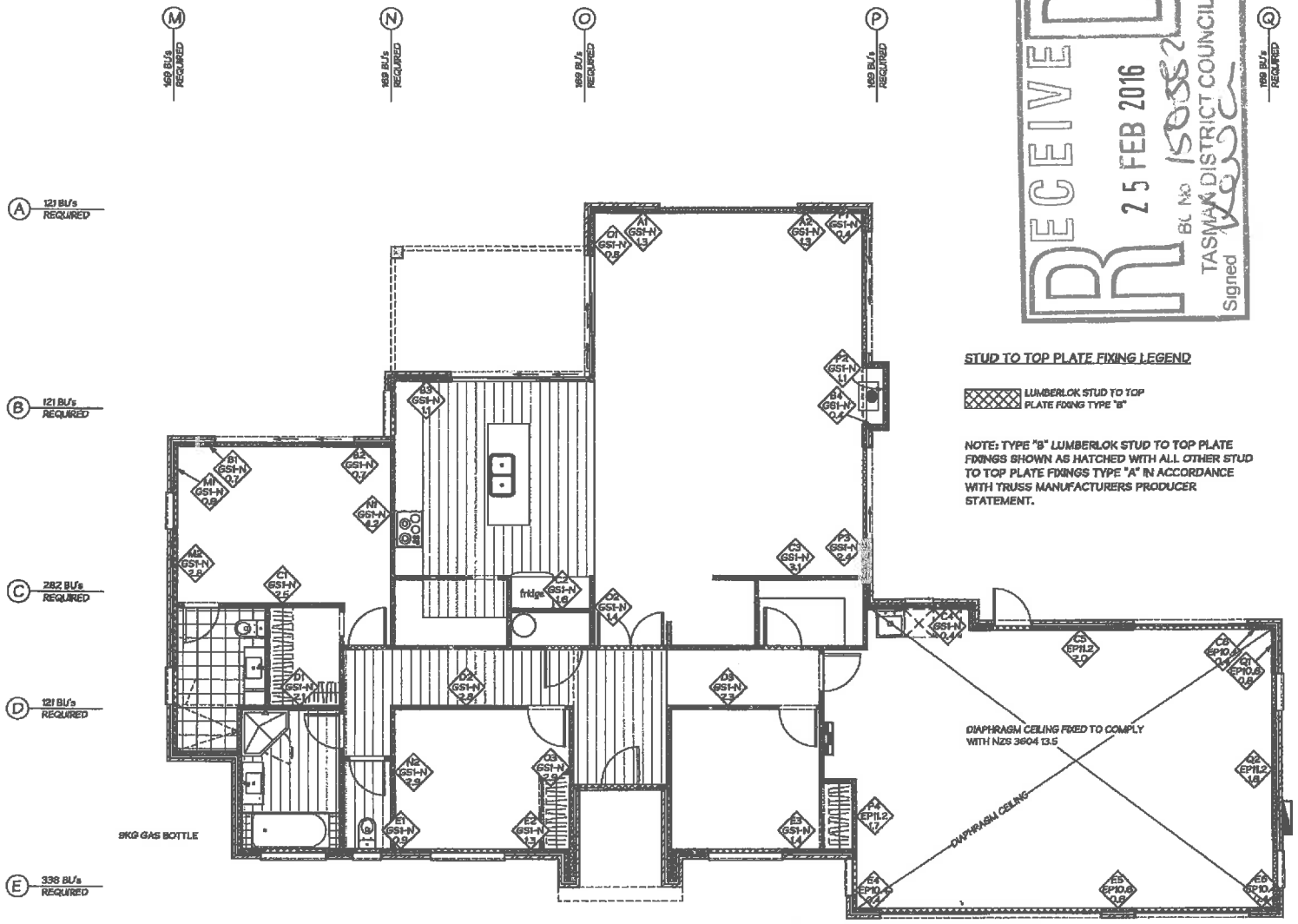
GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ALONG

V08/11

Lines		Bracing Elements							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
156	A	1	1.3		2.4	GS1-N	GIB®	90	78
		2	1.3		2.4	GS1-N	GIB®	90	78
171	B	1	0.7		2.4	GS1-N	GIB®	41	41
		2	0.7		2.4	GS1-N	GIB®	41	41
		3	1.1		2.4	GS1-N	GIB®	74	66
		4	0.4		2.4	GS1-N	GIB®	21	23
763	C	1	2.5		2.4	GS1-N	GIB®	173	150
		2	1.6		2.4	GS1-N	GIB®	110	96
		3	3.1		2.4	GS1-N	GIB®	214	186
		4	0.4		2.4	GS1-N	GIB®	21	23
		5	2		2.4	EP1 1.2	Ecoply®	240	270
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38
432	D	1	2.1		2.4	GS1-N	GIB®	145	126
		2	2.8		2.4	GS1-N	GIB®	193	168
		3	2.3		2.4	GS1-N	GIB®	159	138
354	E	1	0.9		2.4	GS1-N	GIB®	57	53
		2	1.3		2.4	GS1-N	GIB®	90	78
		3	1.4		2.4	GS1-N	GIB®	97	84
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	0.6		2.4	EP1 0.6	Ecoply®	57	63
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38

					Wind	Earthq.
Totals Achieved	W	207%	EQ	155%	2008	1877
Concrete Slab					OK	OK
Totals Required (from Demand)					972	1208



STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS SHOWN AS HATCHED WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

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TASMAN DISTRICT COUNCIL
Signed

NOTES

BRACING NOTES

A1 GS1A 2.4 — BRACING No. / BRACE TYPE / BRACE LENGTH (m)

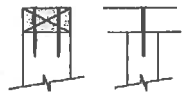
BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES.

REFER TO THE BRACING CALCULATIONS AND DETAILS FOR FURTHER BRACING INFORMATION.

DIMENSIONS

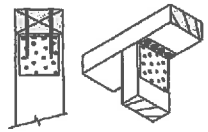
ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TYPE A 0.7kN — 2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD.

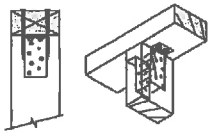


TYPE B 4.7kN — CHOOSE ANY OF THE 3 OPTIONS BELOW

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS ONE LUMBERLOK 6NN STUD ANCHOR (CPC80).

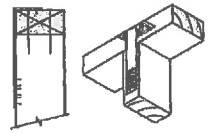


2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS TWO LUMBERLOK CPC40.



RECOMMENDED FOR INTERNAL WALL OPTIONS TO AVOID LINING ISSUES

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS LUMBERLOK STUD STRAP (ONE FACE ONLY).



LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B" - 1.7kN

2 LUMBERLOK STUD TO TOP PLATE FIXINGS
1:10

Signature HOMES — YOUR HOME. YOUR WAY.	SJB Construction Limited T/A Signature Homes Nelson. 308 Queen Street, Richmond, P.O. Box 3549, Richmond Ph (03)541 0317 Fax (09) 415 2467 www.signaturehomes.co.nz	These drawings are limited to and by the extent of the detail covered in the drawings to meet the current New Zealand Building Code (NZBC). Where detail is required for construction and to demonstrate compliance with the current NZBC, a specific request should be made for the required detail to be supplied. No liability will be accepted for any detail or construction not covered in these drawings and/or carried out by persons other than the designer producing these documents.	3 BEDROOM RESIDENCE JACKIE & JEFF DICK 130 RIDGEVIEW ROAD, APPLEBY

BRACING PLAN

Scale: 1:100 | Drawn: JA | Date: 5-08-2015

REV	DATE	AMENDMENT
A	16/6/15	BRACING

TSW NO: 15155

DWG NO. 06 B — REV B

CERTIFICATION
THAT NEW BUILDING WORK HAS BEEN SET-OUT PRIOR TO CONSTRUCTION IN THE POSITION SHOWN IN THE APPROVED BUILDING PLANS

ISSUED BY: **Simon Evans Jones** .....
(Suitably qualified professional)

TO: **Signature Homes , owner** .....
(Building Owner)

TO BE SUPPLIED TO: **Tasman District Council**.....
(Territorial Authority)

IN RESPECT OF: **New dwelling (Lot 42 DP 480593)**
(Description of building work)

AT: **130 Ridgeview Road, Appleby (Lot 42 DP 480593)**.....

.....
(Address)

Jones & Stanger Ltd..... has been engaged by Signature Homes Ltd .....
(Survey Firm) *(Building Owner)*

to provide survey, calculation and certification that new building has been set-out the position shown in the approved building plans.

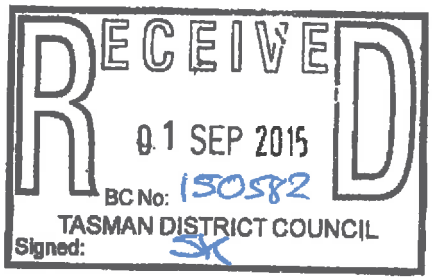
As an independent professional, I or personnel under my control have carried out survey work appropriate to the engagement and based on the information supplied to me , **I BELIEVE ON REASONABLE GROUNDS** that the building set-out positions given were correct within reasonable tolerances.



..... Date 29th July 2015
(Signature suitably qualified Professional)

Bachelor of Surveying (Otago)..... Member;CSNZ- **No** NZIS- **yes**
(Professional Qualifications)

104 Collingwood Street, Nelson..... Registered Professional Surveyor -**yes**
(Address)



INSPECTION REPORT

Name:	**Signature Homes Limited**	Consent No: **BC150582**
Address:	**130 Ridgeview Road, Appleby**	Inspected by: Kevan Vickers

On **25/02/2016** at **1:04 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

26 FINAL INSPECTION: FIRE FREE-STANDING WHEN FREE-STANDING FIRE HAS BEEN COMPLETELY INSTALLED & SMOKE ALARMS FITTED

Notes Summary: Final inspection.

Next Inspection:

☒ **Failed Inspection Points**

INSPECTION REPORT

Name:	**Signature Homes Limited**	Consent No: **BC150582**
Address:	**130 Ridgeview Road, Appleby**	Inspected by: Kevan Vickers

On **25/02/2016** at **12:39 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

29 FINAL INSPECTION: INTERIOR/EXTERIOR/CERTS CCC NEW RESIDENTIAL DWELLING WHEN CONSTRUCTION HAS BEEN COMPLETED & CCC APPLICATION RECEIVED WITH REQUIRED FINAL DOCUMENTATION

Notes Summary: Final inspection. Please issue CCC.

Next Inspection:

☒ **Failed Inspection Points**









BC«ConsentNo»
«INSPECTIONTYPE»



BC«ConsentNo»
«INSPECTIONTYPE»



INSPECTION REPORT

Name:	**Signature Homes Limited**	Consent No: **BC150582**
Address:	**130 Ridgeview Road, Appleby**	Inspected by: Kevan Vickers

On **15/01/2016** at **10:29 a.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

17 DRAINAGE/SEWER/STORMWATER: ALL IN-ROUND SEWER & STORM-WATER PIPES, CONNECTIONS ETC BEFORE COVERING UP.

Notes Summary: Foul and surface water drainage. Matt. Foul water drainage macerator and 32mm pump pipe to reticulated system, yet to install. As-built plan to come. Stone slow-down bedding yet to install.

Next Inspection:

☒ **Failed Inspection Points**

As-built received
To be provided.

As-built received
To be provided.





BC«ConsentNo»
«INSPECTIONTYPE»



BC«ConsentNo»
«INSPECTIONTYPE»





BC«ConsentNo»
«INSPECTIONTYPE»



INSPECTION REPORT

Name:	**Signature Homes Limited**	Consent No: **BC150582**
Address:	**130 Ridgeview Road, Appleby**	Inspected by: Kevan Vickers

On **30/09/2015** at **1:51 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

05 FRAMING & STRUCTURE/WALLS/ROOF AND ASSOCIATED WIDE LINTEL AND BOTTOM PLATE FIXING BEFORE COVERING IN.

Notes Summary: Framing inspection. BP121643. Items requiring attention: 1.Internal joist hangers, multi-grips yet to complete. 2. Engineers roof fixings yet to install. 3. a. Garage flitch beam opening requires stud to bottom plate fixings as per approved details. b. Garage area - Type H fixings required to 2N0. openings to internal face. c.. 2 No. Type H openings elsewhere require triple studs and internal fixings. 4.Timber beam to post bolts yet to install.

Next Inspection:

☒ **Failed Inspection Points**

Truss layout and trusses fixed correctly as per design
Internal joist hangers, multi-grips yet to complete.

Girder truss supports and fixings as per design
Engineers roof fixings yet to install.

Lintel sizes and strapping as per plan
1. Garage flitch beam opening requires stud to bottom plate fixings as per approved details. 2. Garage area - Type H fixings required to 2N0. openings to internal face. 3. 2 No. Type H openings elsewhere require triple studs and internal fixings.

Lintels and cantilevered beams tied down as per plan
Timber beam to post bolts yet to install.

CERTIFICATION
THAT NEW BUILDING WORK HAS BEEN SET-OUT PRIOR TO CONSTRUCTION IN THE POSITION SHOWN IN THE APPROVED BUILDING PLANS

ISSUED BY: **Simon Evans Jones** .....
(Suitably qualified professional)

TO: **Signature Homes , owner** .....
(Building Owner)

TO BE SUPPLIED TO: **Tasman District Council**.....
(Territorial Authority)

IN RESPECT OF: **New dwelling (Lot 42 DP 480593)**
(Description of building work)

AT: **130 Ridgeview Road, Appleby (Lot 42 DP 480593)**.....

.....
(Address)

Jones & Stanger Ltd..... has been engaged by Signature Homes Ltd .....
(Survey Firm) *(Building Owner)*

to provide survey, calculation and certification that new building has been set-out the position shown in the approved building plans.

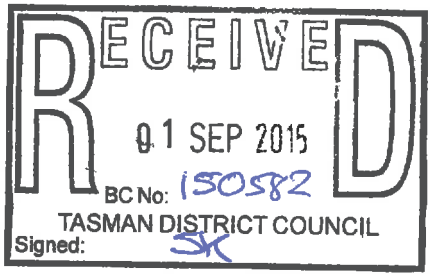
As an independent professional, I or personnel under my control have carried out survey work appropriate to the engagement and based on the information supplied to me , **I BELIEVE ON REASONABLE GROUNDS** that the building set-out positions given were correct within reasonable tolerances.



..... Date 29th **July** 2015
(Signature suitably qualified Professional)

Bachelor of Surveying (Otago)..... Member;CSNZ- **No** NZIS- **yes**
(Professional Qualifications)

104 Collingwood Street, Nelson..... Registered Professional Surveyor -**yes**
(Address)



Application for Building Consent and/or Project Information Memorandum (PIM)

Section 33 or Section 45, Building Act 2004

Instructions

OFFICE USE
Date received:

- Use this form if you are applying for a Building Consent only; OR a PIM only; OR both.
  - **Building Consent only:** complete Parts A, C, D, E, F, and G*.
  - **PIM only**: complete Parts A, B, C, E, F.
  - **Building Consent and a PIM:** complete parts A, B, C, D, E, F, and G*.
- For assistance with this application form, please refer to the notes on the last page. For additional assistance, please refer to *BC1A: User Guide: New Dwellings and Alterations to Dwellings* and *BC1C: Guidance Notes and Building Consent Procedures.*

*G applies only to commercial applications or properties which include specified systems.

Part A

The Building	
Street address of building *Note: for structures that do not have a street address, state the nearest street intersection and the distance and direction from that intersection.*	130 Ridgeview Road Appleby
Legal description of land where building is located *Note: state legal description as at the date of application and, if the land is proposed to be subdivided, include details of relevant lot numbers and subdivision consent.*	Lot 42 DP480593
Building name *Note: only where applicable*	
Location of building within site/block number *Note: include nearest street access or valuation number*	
Number of levels *Note: include ground level and any levels below ground*	1
Level/unit number *Note: only where applicable*	
Area *Note: this is the total floor area; indicate area affected by the building work if less than the total area*	229m²
Number of WC pans *Note: only count new toilets, not existing ones*	2
Current, lawfully established use: *Note: include number of occupants per level and per use if more than one*	
Year first constructed *Note: approximate date is acceptable, e.g. 1920s or 1960-1970*	new

The Agent *(only required if the application is being made by another party on behalf of the owner)*

Name of Agent	Signature Homes Ltd	**Contact Person**	Jo Reilly
Mailing address	PO Box 3549 Richmond	**Street address/ registered office**	308 Queen St Richmond
Daytime phone	5410317	**Mobile**	
Email	joreilly@signature.co.nz	**Website**	
Relationship to owner *Note: state details of the authorisation from the owner to make the application on the owner's behalf*	builder		

The Owner

Name of Owner	J & J Dick	**Contact Person**	J Dick
Mailing address	18 Harcourt Place Wakefield	**Street address/ registered office**	
Daytime phone		**Mobile**	021 344 099
Email	jackie.jeff@xtra.co.nz	**Website**	
Evidence of ownership provided *Note: i.e., copy of certificate of title, lease, agreement for sale and purchase, or other document showing full name of legal owner(s) of the building*		☑ Copy of Certificate of Title (less than 3 months old) ☑ Agreement for sale and purchase ☐ Lease ☐ Other	

First Point of Contact for communications with Council *(only required if not the owner or the agent)*

First point of contact	Gowans Walters & Assoc Ltd	**Contact Person**	Allan Walters
Mailing address	PO Box 3608 Richmond	**Street address/ registered office**	
Daytime phone	544 9499	**Mobile**	
Email	allan@gowanswalters.co.nz	**Website**	
Relationship to owner *Note: state details of the authorisation from the owner to make the application on the owner's behalf*	designer		

Application

I request that you issue a *(tick one box)*

- ☐ Project Information Memorandum only
- ☐ Project Information Memorandum & Building Consent
- ☐ Building Consent for PIM number: for the building work described in this application
- ☑ Building Consent only

Requested by The Agent

on 05/06/15

Part B

Project Information Memorandum Supporting Information

To be completed unless a PIM Has already been provided

- ☐ Subdivision Application Number
- ☐ Resource Consent Application Number
- ☐ Alterations to land contours
- ☐ New or altered connections to public utilities
- ☑ New or altered locations and/or external dimensions of buildings
- ☐ New or altered access for vehicles
- ☐ Building work over or adjacent to any road of public place
- ☑ Disposal of stormwater and wastewater
- ☐ Building work over any existing drains or sewers, or in close proximity to wells or water mains
- ☐ Other matters known to the applicant that may require authorisation from the territorial authority:

Part C

The Project

Describe the building work. Provide sufficient description of the building work to enable scope of work to be fully understood. If necessary, refer to an attached document setting out the description.

3 bedroom dwelling with attached IA Garage and solid fuel burner

- ☑ New
- ☐ Alteration
- ☐ Relocation

Will the building work result in a change of use of the building? Please select

If yes, provide details of new use:

Intended life of the building if less than 50 years years

Estimated value of the building work on which the building levy will be calculated $ 417,800.00

Note: include GST; state estimated value as defined in Section 7 of the Building Act 2004

List building consents previously issued for this project, if any:

Issued by	Date Issued	Consent Number

Part D

Building Consent

☑ **Plans and specifications are attached to this application.**

NOTE: all plans and specifications must meet the minimum requirements set out in the Regulations or required by the Building Consent Authority.

The building work will comply with the Building Code as follows:

For each applicable clause, please select the means of compliance - refer to the relevant compliance document(s), or detail of alternative solution in the plans and specifications.

If not applicable, choose N/A.

If you are unsure which clauses are applicable, talk to the BCA or your architect.

B1 Structure B1/AS1	**B2 Durability** B2/AS1
C Protection from Fire C/AS1	**D1 Access Routes** D1/AS1
D2 Mechanical Installations for Access Not applicable	**E1 Surface Water** E1/AS1
E2 External Moisture E2/AS1	**E3 Internal Moisture** E3/AS1
F1 Hazardous Agents on Site Not applicable	**F2 Hazardous Building Materials** F2/AS1
F3 Hazardous Substances and Processes Not applicable	**F4 Safety from Falling** Not applicable
F5 Construction and Demolition Hazards Not applicable	**F6 Lighting for Emergency** Not applicable
F7 Warning Systems F7/AS1	**F8 Signs** Not applicable
G1 Personal Hygiene G1/AS1	**G2 Laundering** G2/AS1
G3 Food Preparation and Prevention of Contamination G3/AS1	**G4 Ventilation** G4/AS1
G5 Interior Environment Not applicable	**G6 Airborne and Impact Sound** Not applicable
G7 Natural Light G7/AS1	**G8 Artificial Light** Not applicable
G9 Electricity Not applicable	**G10 Piped Services** Not applicable
G11 Gas as an Energy Source G11/AS1	**G12 Water Supplies** G12/AS1
G13 Foul Water G13/AS1	**G14 Industrial Liquid Waste** Not applicable
G15 Solid Waste Not applicable	**H1 Energy Efficiency** H1/AS1

Waiver/modification to New Zealand Building Code required for the following parts of the Code:

Part E

Attachments

Indicate which documents are attached to this application

- ☐ Project Information Memorandum
- ☐ Development Contribution Notice
- ☐ Certificate attached to Project Information Memorandum
- ☑ Plans and Specifications (please list):
- ☑ Evidence of Ownership
- ☑ Application Fee
- ☐ None

Plans 14 sheets, specification, heat loss calcs, bracing calcs, details. roof truss design &PS, engineers plans 4 sheets, engineers calcs, PS1 & IS

Part F

Key Personnel

Builder		**Registered Drainlayer**	
Name	tba	**Name**	tba
Daytime Phone		**Daytime Phone**	
Mobile		**Mobile**	
After hours Phone		**After hours Phone**	
Email		**Email**	
Registration/LBP No		**Registration No**	
Designer		**Registered Plumber**	
Name	Allan Walters GWA Ltd	**Name**	tba
Daytime Phone	544 9499	**Daytime Phone**	
Mobile		**Mobile**	
After hours Phone		**After hours Phone**	
Email	allan@gowanswalters.co.nz	**Email**	
Registration No	BP 109465	**Registration No**	

Part G

Compliance Schedule

Do not fill in this section if this is an application for a Project Information Memorandum only.

- ☑ There are no specified systems* in the building OR
- ☐ There are new specified systems* in this building
  - If so, complete form BC41 Application for Compliance Schedule, and attach OR
- ☐ There is an existing Compliance Schedule for this building
  - If so, complete form BC11 Application for Amendment to Compliance Schedule, and attach.

*Specified systems are defined in Regulations. If you are not sure whether your building has specified systems, talk to the BCA or to your architect.

Building Consent Pre-Lodgement Checklist: RESIDENTIAL

About this checklist

- This checklist is required for all BC applications. The applicant should identify if, and where, information is shown on the plan drawings.
- This is to help the Building Consent Authority (BCA) check the completeness of the application before it can be accepted for processing.
- This is not a check of correctness or compliance; compliance checks are done later, and the process may be suspended if any non-compliant items are identified.
- If required information is missing, the application cannot be lodged and we will advise you of the identified deficiencies. The application can be resubmitted once all the required information is present.
- The first 30 minutes of our check are free. A checking fee will be charged after that.

Instructions and Example

- ***Applicants must fill in all shaded areas***
- ***Note the location/page number of the drawings in shaded columns below, as shown:***

EXAMPLE	***Sheet***	***N/A***	***Office use*** *This section ok*	
Shows legal boundaries, easements, access	*3*			
Datum, spot levels or contours and North point		✔		

Checklist

Project Description	3 Bedroom dwelling with attached IA garage and solid fuel burner
Address	130 Ridgeview Road Appleby
Owner	Jackie & Jeff Dick
Project includes Restricted Building Work?	Yes

If this project includes Restricted Building Work:	**Sheet**	**N/A**	**Office use** This section ok ✔	
Names and registration numbers of Licensed Building Practitioner (LBP) designers (***compulsory***)	yes	☐	☐	
Names and registration numbers of LBP site workers If N/A, please indicate when and how these will be provided? prior to first inspection		☐	☐	
Certificate of work provided by the designer	yes	☐	☐	

Application Form	Yes/No	Office use This section ok ☐	
Plans and specifications provided	Yes	☑	legal description incorrect
Legal description completed	Yes	☒	
Description of work accurate	Yes	☑	
Specified life applied	Yes	☑	
Value of work provided and accurate	Yes	☑	
Application form completed and correct, including compliance list	Yes	☑	
Certificate of Title provided with any consent notices	Yes	☑	

Design Basis	Sheet	N/A	Office use This section ok ☑
Wind zone	01	☐	☐
Earthquake zone	01	☐	☐
Snow zone	01	☐	☐
Corrosion zone	01	☐	☐
E2 Risk Matrix	07,08	☐	☐

Drawings	Yes/No	Office use This section ok ☑
Plans to acceptable standard, ie: to scale, no graph paper, no pencil drawings, no single line drawings (refer to DBH "Guide to applying for a building consent")	Yes	☐
Contents page provided and drawing sheets cross-referenced	Yes	☐

Specifications	Yes/No	Office use This section ok ☑
The specifications are job-specific and meaningful, with a Contents page	Yes	☐
Includes all supporting information, including product manufacturers' specifications	Yes	☐
Specification notes also shown on drawings	Yes	☐

Demolition Work	Sheet	N/A	Office use This section ok ☐
Shows if building is to be removed or demolished		☑	☐
If demolished, shows a full site plan showing all safety protection measures to be taken, services capped off		☑	☐
Shows how any hazardous materials are to be safely disposed of (landfill site, etc)		☑	☐

Site Plan	Sheet	N/A	Office use This section ok ☑
Shows legal boundaries, easements, access	01	☐	☐
Datum, spot levels or contours and North point	01	☐	☐
Any excavation works, fill, retaining walls and surface water control measures	01	☐	☐
All existing buildings		☑	☐

Site Plan, continued	Sheet	N/A	Office use	This section ok ☑
Location of new buildings and distance to boundaries	02	☐	☐	
Infrastructure locations (sewer, water and stormwater laterals) or effluent field locations	03	☐	☐	

Floor Plan	Sheet	N/A	Office use	This section ok ☑
If alteration work, shows separate plans for existing and for new		☑	☐	
Layout fully dimensioned	05	☐	☐	
Rooms identified	05	☐	☐	
Windows, doors and lintel sizes shown	05	☐	☐	
Mechanical ventilation details where no opening windows		☑	☐	
Smoke detectors or fire alarm locations	05	☐	☐	
Heating unit appliance	05	☐	☐	
Type of shower	05	☐	☐	

Foundation Plan	Sheet	N/A	Office use	This section ok ☑
Full foundation layout plan provided	04	☐	☐	
Concrete slab – details including reinforcing (500E reference shown), hardfill, DPC, control joints, slab thickenings	04	☐	☐	
Timber floors – pile layout, location and bracing, subfloor framing, sizes, timber treatments and connectors		☑	☐	
Any special stainless steel where needed		☑	☐	
Ventilation and protection of underfloor insulation		☑	☐	

Cross Section and Details	Sheet	N/A	Office use	This section ok ☑
At least two full cross sections provided	09	☐	☐	
All complex areas detailed	12	☐	☐	
All timber framing sizes and spacings shown with timber species, and treatments	09	☐	☐	
All uplift connectors specified	09	☐	☐	
Insulation materials	09	☐	☐	
Details of all wall and roof areas	12	☐	☐	
Details of all foundations	09	☐	☐	
Details of any upper floors and balconies, decks and barriers		☑	☐	
All window and door flashings details	10,11	☐	☐	
All roof penetrations details	14	☐	☐	
Any flashings between different claddings, and new/existing if an addition	10	☐	☐	
For any stairs, full stair and barrier details		☑	☐	
Claddings and any drainage cavities detailed	10,11	☐	☐	
Flashing of windows, doors, junction, balcony, parapet, interior / exterior corner penetrations detailed	10,11	☐	☐	

Elevations	Sheet	N/A	Office use	This section ok ☑
Shows all claddings and any control joints		☑	☐	
Doors and windows (window opening direction and any safety or special glass)	07,08	☐	☐	
Accurate ground lines and floor levels (consistent with that on site plan)	07,08	☐	☐	
Any ventilators for subfloor spaces		☑	☐	
References to any cross section details on other pages		☑	☐	

Roof Framing	Sheet	N/A	Office use	This section ok ☑
Roof framing and bracing layouts		☑	☐	
For trusses, full truss design, PS1 and plan provided	yes	☐	☐	
For flat roofs, full substrate and membrane details and surface water control details		☑	☐	

Interior Works	Sheet	N/A	Office use	This section ok ☑
Bracing design and bracing plan	yes	☐	☐	
Thermal insulation details provided (scheduled method or calculation)	yes	☐	☐	
Details for any wet area membranes (showers and tiled areas)	10	☐	☐	
Any gas appliances – clearances and ventilation, bottle locations and restraints	03,04,13	☐	☐	

Specific Design	Sheet	N/A	Office use	This section ok ☑
Completed and legible Producer Statement covering all SED works	yes	☐	☐	
Engineer appropriately qualified (CPEng)	yes	☐	☐	
Inspection schedule for site monitoring	yes	☐	☐	
Engineer's calculations provided	yes	☐	☐	

Plumbing and Drainage	Sheet	N/A	Office use	This section ok ☑
Shows which plumbing and drainage rules apply	03	☐	☐	
Waste pipe sizes, gradients, and venting	03	☐	☐	
Hot water cylinder details and valving, restraints/support	03	☐	☐	
Sewer and stormwater drains, gradients, invert levels, traps and venting	03	☐	☐	
Full design report and details for any on-site-wastewater system		☑	☐	
Details of any solar heating system or wetback system, location identified and manufacturer's specification included		☑	☐	
Full stack system details for multi-storey buildings (including an isometric diagram)		☑	☐	
Stormwater discharge method and surface water control	03	☐	☐	
Shows how potable water is protected against contamination (backflow)		☑	☐	

Additional Information	Sheet	N/A	Office use	This section ok ☑
Alternative solutions are clearly identified and of sufficient detail to assess compliance		☑	☐	
Swimming pool fencing, drainage, etc shown		☑	☐	
Solid fuel heater location identified and manufacturer's specification included	yes	☐	☐	

Hazardous Substances Stored on Site	Sheet	N/A	Office use	This section ok ☐
Verifies that a test certifier location certificate / preliminary test certifier letter provided		☑	☐	

Office Use Only – Building Consent Officer Signoff			
Name	Roy Liddelow	Outcome	Application Rejected
Date (1)	08/06/15	Process Duration (1)	15mins
Date (2)		Process Duration (2)	
Date (3)		Process Duration (3)	

Rejected
DP on CT is 480593 and DP on application form is 474760
please clarify and re submit.

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**671937**
Land Registration District	**Nelson**
Date Issued	22 September 2014

Prior References
544040

Estate	Fee Simple
Area	2194 square metres more or less
Legal Description	Lot 42 Deposited Plan 480593

Proprietors
Jeffrey Ronald Dick and Jacqueline Marie Dick

Interests

Subject to the Coal Mines Amendment Act 1950

Subject to Section 59 Land Act 1948

Appurtenant hereto is a right of way specified in Easement Certificate 148321 - 16.4.1973 at 11:41 am

Land Covenant in Transfer 157416 - 13.5.1974 at 9:46 am (Affects part formerly Lot 1 DP 15473)

Land Covenant in Transfer 157418 - 13.5.1974 at 9:48 am (Affects part formerly Lot 1 DP 15473)

Appurtenant hereto is a right of way created by Transfer 326326.2 - 15.4.1993 at 10:40 am

Land Covenant in Easement Instrument 8674468.14 - 21.3.2011 at 2:22 pm

Land Covenant in Easement Instrument 9842070.8 - 22.9.2014 at 4:06 pm

Subject to a rural emanation easement over the within land created by Easement Instrument 9842070.10 - 22.9.2014 at 4:06 pm

Appurtenant hereto is a right of way created by Easement Instrument 9842070.11 - 22.9.2014 at 4:06 pm

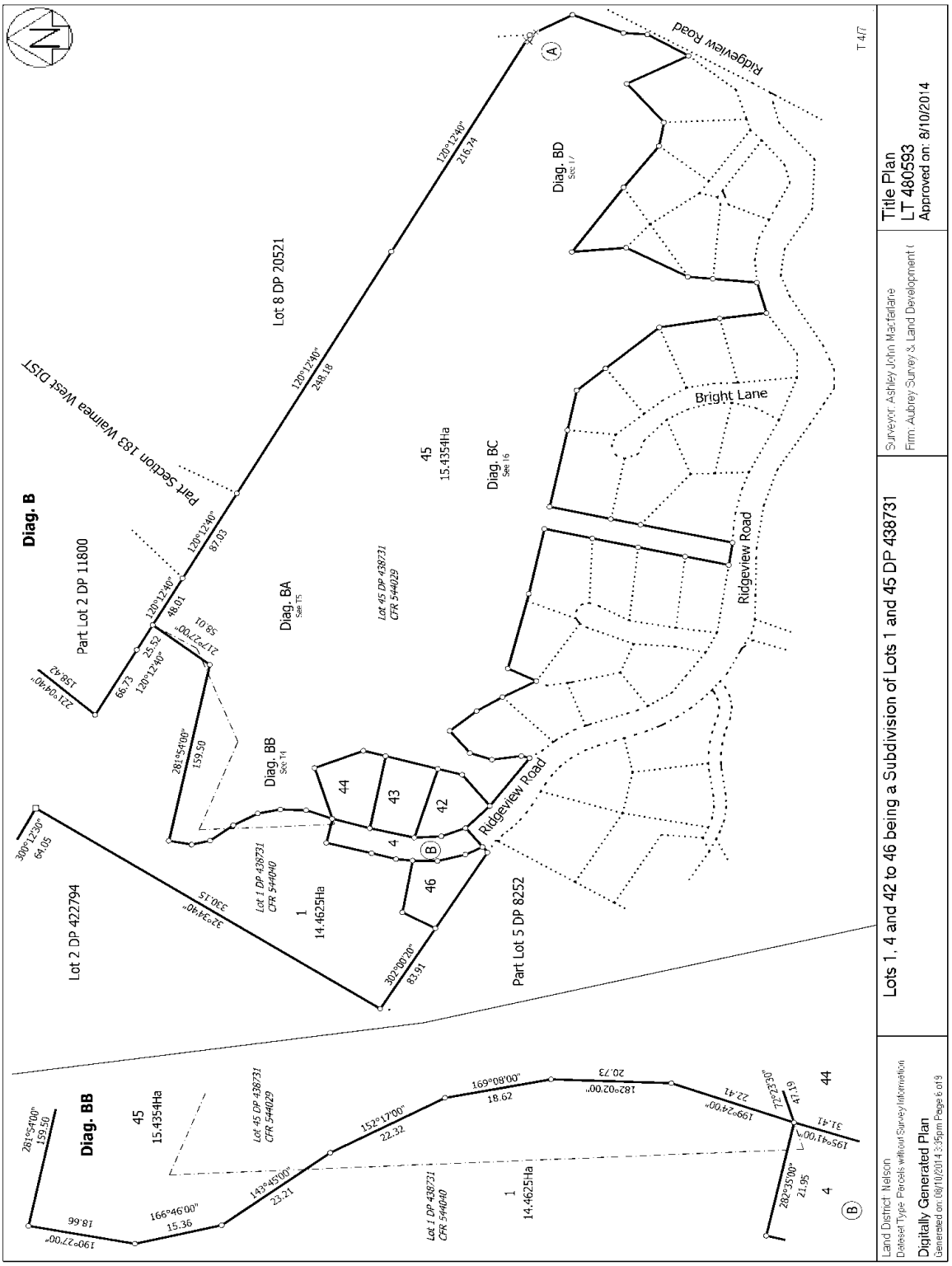
The easements created by Easement Instrument 9842070.11 are subject to Section 243 (a) Resource Management Act 1991

9842070.13 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 22.9.2014 at 4:06 pm

Fencing Covenant in Transfer 10062983.2 - 29.5.2015 at 3:09 pm

10062983.3 Mortgage to ANZ Bank New Zealand Limited - 29.5.2015 at 3:09 pm

Identifier **671937**



View Instrument Details

Instrument No.	9842070.13
Status	Registered
Date & Time Lodged	22 Sep 2014 16:06
Lodged By	Clarke, Jessie Michelle
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Computer Registers	Land District
671937	Nelson
671938	Nelson
671939	Nelson
671941	Nelson

Annexure Schedule: Contains 4 Pages.

Signature

Signed by Jeremy Charles Barton as Territorial Authority Representative on 22/09/2014 03:29 PM

***** End of Report *****

© Copyright: Land Information New Zealand

Duncan Cotterill

TASMAN DISTRICT COUNCIL

CONSENT NOTICE

PURSUANT TO SECTION 221

RESOURCE MANAGEMENT ACT 1991

TASMAN DISTRICT COUNCIL NUMBER RM100632

LT PLAN 480593

The Tasman District Council (**Council**) hereby gives notice pursuant to Section 221 of the Resource Management Act 1991 that the subdivision consent in respect of LT Plan 480593 being a subdivision of the land in Certificates of Title 544040 and 544029 was granted subject to the following conditions to be complied with on a continuing basis pursuant to Section 108(1) of the Resource Management Act 1991:

The following conditions shall apply to all Lots 42 to 44 inclusive and 46:

1. All buildings on the Lot shall be erected within the Building Location Areas as identified on the Aubrey Survey and Land Development Consultancy plan dated 22 July 2014 and attached hereto.

2. No building on the Lot shall be higher than 6.0 metres above natural ground level.

3. No further subdivision of any of the Lots will be permitted, unless such subdivision constitutes a boundary adjustment where it does not result in the creation of additional lots for a dwelling or is for the provision of a utility site.

4. Each Lot owner shall comply with the rules of Appleby Hills Residents' Association Incorporated Management Plan and Landscape Plan on a continuing basis. Should the Lot Owner fail to meet their obligations to the standards identified as appropriate for such purposes the Council has the power to undertake the work and to recover the full cost of the work from the Lot Owner.

5. Any dwelling constructed on the Lot shall be constructed in accordance with the terms of Land Use Consent RM030632.

6. Swanney Geotechnical and Civil Engineering has prepared a Building Site Engineering Report dated 9 May 2014 in respect of the Building Location Areas identified for each of the Lots and the building platforms constructed within each Building Location Area.

   Each Building Location Area has been zoned as either *NZ3604 building zone* or *Specific Investigation and Design (SID) zone* as identified on the Swanney Geotechnical Certification Plan attached hereto.

   For those areas defined as *NZ3604 zone*, foundation conditions are generally suitable for development in accordance with NZS3604:2011 Timber Framed Buildings. As required by the Standard, prior to the issue of a building consent, ground conditions are to be confirmed via Scala Penetrometer testing and/or other suitable soil testing methods for the specific development proposed.

For those areas defined as *Specific Investigation and Design zone*, prior to the issue of a building consent, development works within these areas are to be investigated and designed by a chartered professional engineer experienced in foundation design and stability assessment.

The following condition shall only apply to Lot 44:

7. The owner of the Lot must not plant or allow to be planted any trees or vegetation able to exceed a height of two metres where the tree or vegetation is able to fall within 5 metres of any part of a transmission line.

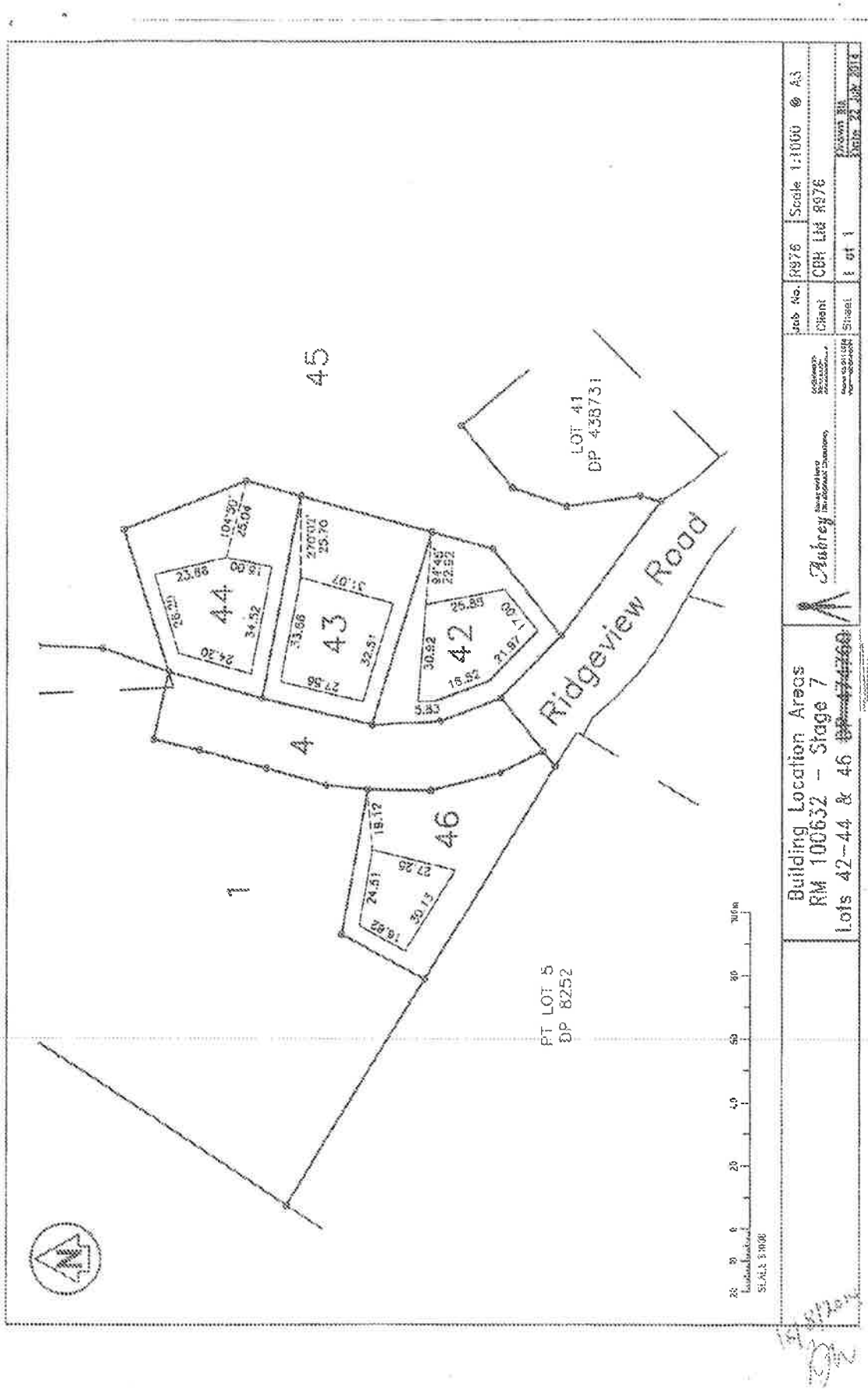
The following condition shall only apply to Lot 46:

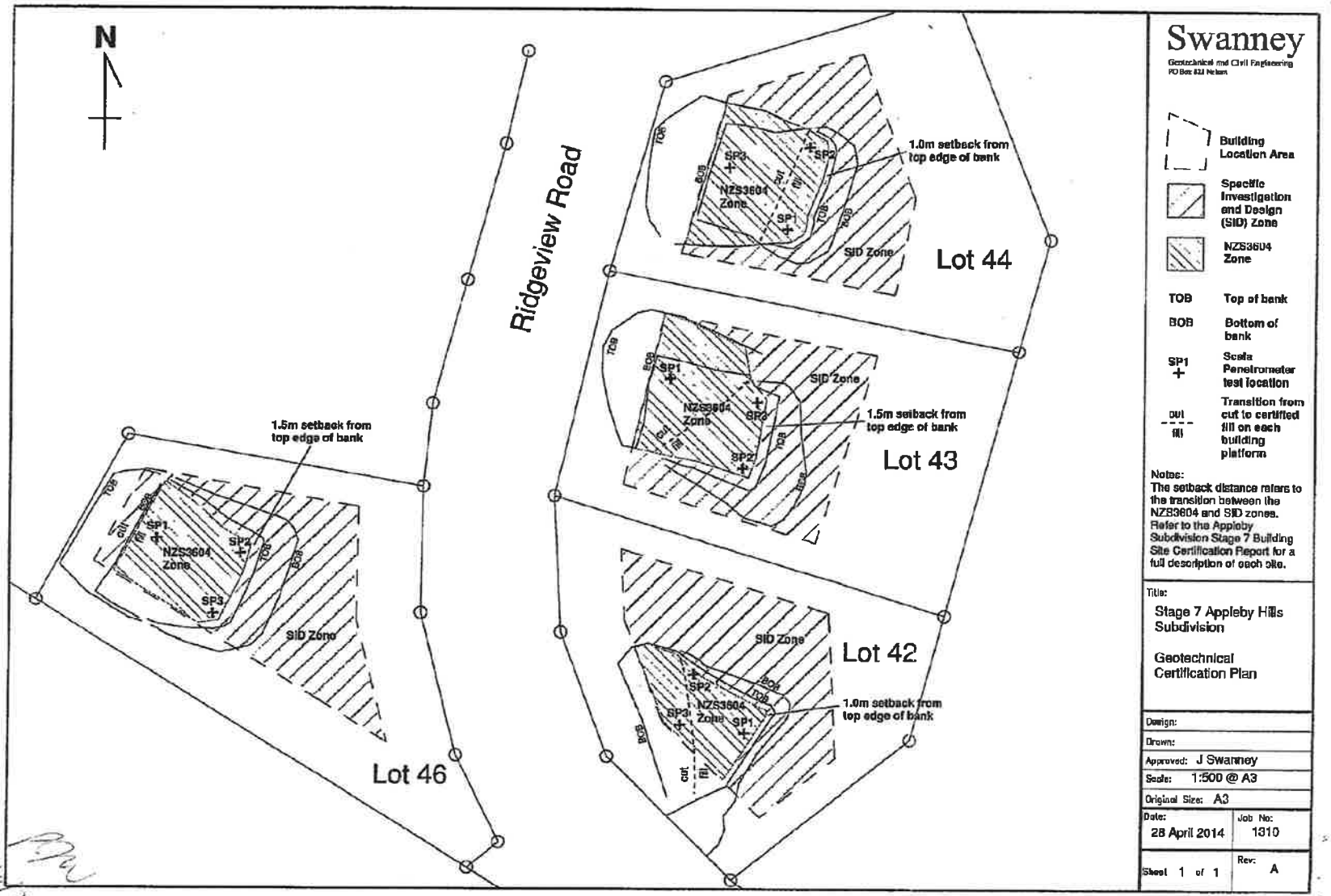
8. A resource consent is not required to locate any buildings within 30m of the horticultural crop on Part Lot 5 DP 8252.

Dated at Richmond this 18th day of August 2014

[redacted] Officer/Authorised Officer)

TASMAN DISTRICT COUNCIL PURSUANT TO DELEGATED AUTHORITY ON BEHALF OF COUNCIL


Building Location Areas
RM 100632 - Stage 7
Lots 42-44 & 46
Aubrey
Scale 1:1000 @ A3
Job No. 8976
Client CBH Ltd 8976
Sheet 1 of 1
Ridgeview Road
LOT 41
DP 438731
PT LOT 5
DP 8252
45
44
43
42
46
4
1


N
Ridgeview Road
Lot 44
Lot 43
Lot 42
Lot 46
1.0m setback from top edge of bank
1.5m setback from top edge of bank
1.5m setback from top edge of bank
1.0m setback from top edge of bank
SID Zone
NZS3604 Zone
SP1
SP2
SP3
TOB
BOB
cut
fill
Swanney
Geotechnical and Civil Engineering
PO Box 828 Nelson
Building Location Area
Specific Investigation and Design (SID) Zone
NZS3604 Zone
TOB Top of bank
BOB Bottom of bank
SP1 Scala Penetrometer test location
cut / fill Transition from cut to certified fill on each building platform
Notes:
The setback distance refers to the transition between the NZS3604 and SID zones.
Refer to the Appleby Subdivision Stage 7 Building Site Certification Report for a full description of each site.
Title:
Stage 7 Appleby Hills Subdivision
Geotechnical Certification Plan
Design:
Drawn:
Approved: J Swanney
Scale: 1:500 @ A3
Original Size: A3
Date: 28 April 2014
Job No: 1310
Sheet 1 of 1
Rev: A

10 December 2009

RM030632V4
Writer's Direct Dial No. (03) 543 8420
Writer's E-mail: mark.morris@tdc.govt.nz

CBH Ltd
C/- Landmark Lile
PO Box 343
Nelson 7040

Dear Sir/Madam

DECISION ON APPLICATION TO CHANGE CONDITIONS FOR RESOURCE CONSENT NO. RM030632V4 – CBH LTD

Pursuant to Section 114 of the Resource Management Act 1991 ("the Act"), please find enclosed a copy of the Council's decision on your application to change consent conditions of the resource consent referred to above.

Section 357A of the Act provides you with the right to lodge an objection with the Council in respect of this decision and/or any associated conditions. Any such objection must be made in writing setting out the reasons for the objection and must be lodged with the Council, together with a fixed fee of $175.00 (GST inclusive), within 15 working days of receiving this letter.

At this stage the Council has not calculated the final costs of processing your application. Should the final costs exceed the deposit already paid, then as previously advised, you will be invoiced separately for these costs. Should the final costs be less than the deposit already paid, then you will receive a refund. Where the costs are equal to the deposit already paid, no further action is required. You will receive a letter shortly regarding the final costs of processing your application.

The changes to your consent take effect immediately unless you lodge an objection to this decision.

Please feel free to contact me if you have any questions regarding any aspect of your consent or its conditions. My contact details are listed at the top of this letter.

Yours faithfully

Mark Morris
Co-ordinator Subdivision Consents

DECISION ON APPLICATION TO CHANGE CONSENT CONDITIONS

Resource Consent Being Changed: RM030632V3 (Land use)
New Resource Consent Number: RM030632V4
Consent Holder: CBH Limited

Pursuant to Section 104B of the Resource Management Act 1991 ("the Act"), the Tasman District Council ("the Council") hereby authorises changes to Resource Consent RM030632V3. The changes authorised are as follows:

Advice Note: Only those consent conditions which are changed are presented below and the changes are shown either as underlined for additions or ~~strikethrough~~ for deletions. For the purposes of clarity, a complete amended set of conditions for the consent is attached at the end of this decision. The revised set of conditions is hereinafter referred to as Resource Consent RM030632V4.

REASONS FOR THE DECISION

Background to the Application and Conditions Requested to be Changed and Reasons

This is an application made pursuant to Section 127 of the Resource Management Act ("the Act") to cancel Condition 7 of Resource Consent RM030632 (land use), which authorises the erection of dwellings on each of the residential allotments. The changes relate to the removal of the requirement for 23 000 litres of water storage for residential allotment. These are discussed in more detail below.

~~**Water Storage**~~

~~7. A minimum of 23,000 litres of rain water storage shall be provided with each dwelling. The water storage tanks shall be either incorporated into the structure of each dwelling building or partially buried and screened within the site so as to be not visible from any other lot or road outside of the said allotment.~~

Principal Issues (Actual and Potential Effects on the Environment)

The principal issue(s) associated with the application to change the conditions of consent involve the actual and potential effects on the environment associated with the change. The Council considers that the adverse effects on the environment as a result of the changes will be no more than minor for the following reasons:

(a) the subdivision already provides its own water supply to each allotment from a bore that is both reliable and potable. The additional 23 000 litres of water storage is not required;

(b) the subdivision consent conditions (Condition 16) require that each residential cluster be provided with firefighting storage to comply with NZS PAS 4509:2003, which in this case is 45 000 litres of storage within 90 metres of any dwelling. The additional 23 000 litres of storage per dwelling is therefore not required for firefighting purposes;

(c) the initial application had the 23 000 storage tank as part of the stormwater mitigation measures. The applicant's stormwater engineer has confirmed in writing, that the removal of the tank requirement will have very little impact on the stormwater run-off from the residential lots;

(d) the removal of the requirement to provide water tanks for each residential lot will lessen the visual effects of the development.

Relevant Statutory Provisions

Section 127(3)(a) of the Act states that any application to change consent conditions is deemed to be a discretionary activity.

In considering this application, the Council has had regard to the matters outlined in Section 104 of the Act. In particular, the Council has had regard to the relevant provisions of the following planning documents:

(a) the Tasman Regional Policy Statement (TRPS);
(b) the Tasman Resource Management Plan (TRMP).

How the activity relates to the objectives and policies contained within the TRPS and TRMP were covered in the original decision. It is considered that the changes being sought by the Consent Holder do not change these considerations.

Part II Matters

The Council has taken into account the relevant principles outlined in Sections 6, 7 and 8 of the Act and it is considered that granting these changes to the conditions achieves the purpose of the Act as presented in Section 5.

Notification and Affected Parties

The adverse environmental effects of the changes being sought are considered to be no more than minor. The Council's Resource Consents Manager has, under the authority delegated to him, decided that the provisions of Section 94(2) of the Act have been met and therefore the application has been processed without notification. In making this determination the Resource Consents Manager has considered the matters outlined in Section 127(4) of the Act.

Duration of the Consent

No change to the duration of consent is being sought and in any case cannot be changed under Section 127 of the Act.

This consent is granted on **10 December 2009** under delegated authority from the Tasman District Council by:

Mark Morris
Co-ordinator Subdivision Consents

FULL SET OF AMENDED CONSENT CONDITIONS FOR RM030632V4

General

1. All proposed new buildings shall be within the building site area set down in condition 28 of the subdivision consent.

Landscaping Plan

2. Prior to the issue of a building consent for any dwelling on each lot, the owner of that lot shall submit to and have approved by the Council's Environment and Planning Manager, a landscape plan for that particular lot and building curtilage area. The landscape plan shall be prepared by a qualified Landscape Architect and shall include:

    i) How the proposed building will integrate with the site, natural landforms and riparian and landscape plantings on the site.

    ii) Proposed planting to build on the planting established as part of the development and the management regime for it.

    iii) The identification of views from adjacent properties and the features designed to preserve those views as part of the site development.

    iv) The identification of the proposed building in relation to the centre and extent of the building curtilage area.

    v) An earthworks plan showing the extent of earthworks required to implement the building on site, and mitigation measures proposed to avoid any adverse visual impacts.

    vi) A planting implementation plan, including establishment, maintenance and management proposal for the first 5 years following the construction of the dwelling. The plan shall specify regular monitoring and reporting responsibilities of the owner to Council's Environment and Planning Manager to ensure compliance.

3. The landscape plan required under condition 2 shall be fully implemented within two years of the building consent for the dwelling being issued. The completion of the work shall be confirmed in writing by a suitably qualified landscape architect.

4. The building consent for the dwelling shall be accompanied with a statement from a suitably qualified design professional showing compliance of the building design with the Building Design guidelines in Section 11 of the Design Guide for Subdivision and Development in the Coastal Tasman Area, Tasman District (December 2003)

Commencement of Consent

5. The commencement date for this consent is the issue of certificate of title for the respective allotment.

Height of Dwellings

6. The maximum height of the dwelling shall be 6 metres above original ground level.

7. *Deleted.*

Colours

8. The exterior of all buildings shall be finished in colours that are recessive and which blend in with the immediate environment. The Consent Holder shall submit to the Council for approval the following details of the colours proposed to be used on the walls and roof of the building:

   (i) The material to be used (e.g. paint, colour steel);

   (ii) The name and manufacturer of the product or paint;

   (iii) The reflectance value of the colour;

   (iv) The proposed finish (e.g. matt, low-gloss, gloss); and

   (v) Either the BS5252:1976 (British Standard Framework for Colour Coordination for Building Purposes) descriptor code, or if this is not available, a sample colour chip.

   The building shall be finished in colours that have been approved by the Council.

   Advice Note:
   As a guide, the Council will generally approve colours that meet the following criteria:

Colour Group*	Walls	Roofs
Group A	A05 to A14 and reflectance value ≤50%	A09 to A14 and reflectance value ≤25%
Group B	B19 to B29 and reflectance value ≤50%	B23 to B29 and reflectance value ≤25%
Group C	C35 to C40, reflectance value ≤50%, and hue range 06-16	C39 to C40, reflectance value ≤25%, and hue range 06-16
Group D	D43 to D45, reflectance value ≤50%, and hue range 06-12.	Excluded
Group E	Excluded	Excluded
Finish	Matt or Low-gloss	Matt or Low-gloss

   * Based on BS5252:1976 (British Standard Framework for Colour Coordination for Building Purposes). Where a BS5252 descriptor code is not available, the Council will compare the sample colour chip provided with known BS5252 colours to assess appropriateness.

Setbacks

9. The dwelling shall be setback at least 6.5 metres from any road reserve boundary.

Overhead Lines (Transpower Conditions Relating to Lots 7,15,26,45,69,51, 71 and 72)

10. All land use activities including earthworks on Lots 7,15,26,45,69,51, 71 and 72 must comply with the current New Zealand Code of Practice for Electrical Safety Distances (NZECP 34:2001). All trees planted on those lots shall be located to ensure that no part of any tree will be within or grow into the required 4 metre clearance from Transpower transmission line conductors.

11. No building or other structure shall be erected on lots 7,15,26,45,69,51, 71 and 72 within 6 metres of any support structure (pole) of the Stoke-Upper Takaka A and B transmission lines.

12. All machinery and mobile plant operated on lots 7,15,26,45,69,51, 71 and 72 must maintain a minimum clearance distance of 4 metres from the transmission line conductors at all times.

13. No person shall, in the case of any pole supporting any conductor, excavate or otherwise interfere with any land on Lots 7,15,26,45,69,51, 71 and 72:

    a) At a depth greater than 300 mm within 2.2 metres of the pole; or

    b) At a depth greater than 750 mm between 2.2 metres and 5 metres of the pole; or

    c) In such a way as to create an unstable batter.

14. Excavated or other material shall not be deposited under or near the Stoke-Upper Takaka A and B transmission lines so as to reduce the vertical distance from the ground to the conductors to a distance less than:

    a) 6.5 metres vertically, across or along roads or driveways;
    b) 6.5 metres vertically, on any other land traversable by vehicles, but excluding across roads or driveways;
    c) 5.5 metres vertically, on any land not traversable by vehicles due to inaccessibility;

    and

    d) 3 metres in any distance other than vertical on all land.

15. No buildings or other structures shall be constructed on lots 7,15,26,45,69,51, 71 and 72 within an area of 10 metres vertically and 21 metres horizontally of any transmission line conductor. Where these lines are not complied with, compliance will instead be required with Table 3 of the NZECP 34:2001. This will necessitate specific investigations to be carried out by a competent engineer. A list of suitable persons to undertake such investigations can be obtained from Transpower New Zealand Limited (PO Box 21154, Edgeware, Attn: Wayne Youngman, Telephone (03) 365-6948).

16. All land use activities including earthworks on lots 7,15,26,45,69,51, 71 and 72 must comply with the current New Zealand Code of practice for Electrical Safety Distances (NZECP 34:2001). All trees planted on the specified lots shall be located to ensure that no part of any tree will be within or grow into the required 4 metre clearance from Transpower's transmission line conductors.

TASMAN DISTRICT COUNCIL

CONSENT NOTICE

PURSUANT TO SECTION 221

RESOURCE MANAGEMENT ACT 1991

TASMAN DISTRICT COUNCIL NUMBER RM100632

LT PLAN 474760

The Tasman District Council (Council) hereby gives notice pursuant to Section 221 of the Resource Management Act 1991 that the subdivision consent in respect of LT Plan 474760 being a subdivision of the land in Certificates of Title 544040 and 544029 was granted subject to the following conditions to be complied with on a continuing basis pursuant to Section 108(1) of the Resource Management Act 1991:

The following conditions shall apply to all Lots 42 to 44 inclusive and 46:

1. All buildings on the Lot shall be erected within the Building Location Areas as identified on the Aubrey Survey and Land Development Consultancy plan dated 28 June 2014 and attached hereto.

2. No building on the Lot shall be higher than 6.0 metres above natural ground level.

3. No further subdivision of any of the Lots will be permitted, unless such subdivision constitutes a boundary adjustment where it does not result in the creation of additional lots for a dwelling or is for the provision of a utility site.

4. Each Lot owner shall comply with the rules of Appleby Hills Residents' Association Incorporated Management Plan and Landscape Plan on a continuing basis. Should the Lot Owner fail to meet their obligations to the standards identified as appropriate for such purposes the Council has the power to undertake the work and to recover the full cost of the work from the Lot Owner.

5. Swanney Geotechnical and Civil Engineering has prepared a Building Site Engineering Report dated 9 May 2014 in respect of the Building Location Areas identified for each of the Lots and the building platforms constructed within each Building Location Area.

   Each Building Location Area has been zoned as either *NZ3604 building zone* or *Specific Investigation and Design (SID) zone* as identified on the Swanney Geotechnical Certification Plan attached hereto.

   For those areas defined as *NZ3604 zone*, foundation conditions are generally suitable for development in accordance with NZS3604:2011 Timber Framed Buildings. As required by the Standard, prior to the issue of a building consent, ground conditions are to be confirmed via Scala Penetrometer testing and/or other suitable soil testing methods for the specific development proposed.

   For those areas defined as *Specific Investigation and Design zone*, prior to the issue of a building consent, development works within these areas are to be investigated and designed by a chartered professional engineer experienced in foundation design and stability assessment.

The following condition shall only apply to Lot 44:

6. The owner of the Lot must not plant or allow to be planted any trees or vegetation able to exceed a height of two metres where the tree or vegetation is able to fall within 5 metres of any part of a transmission line.

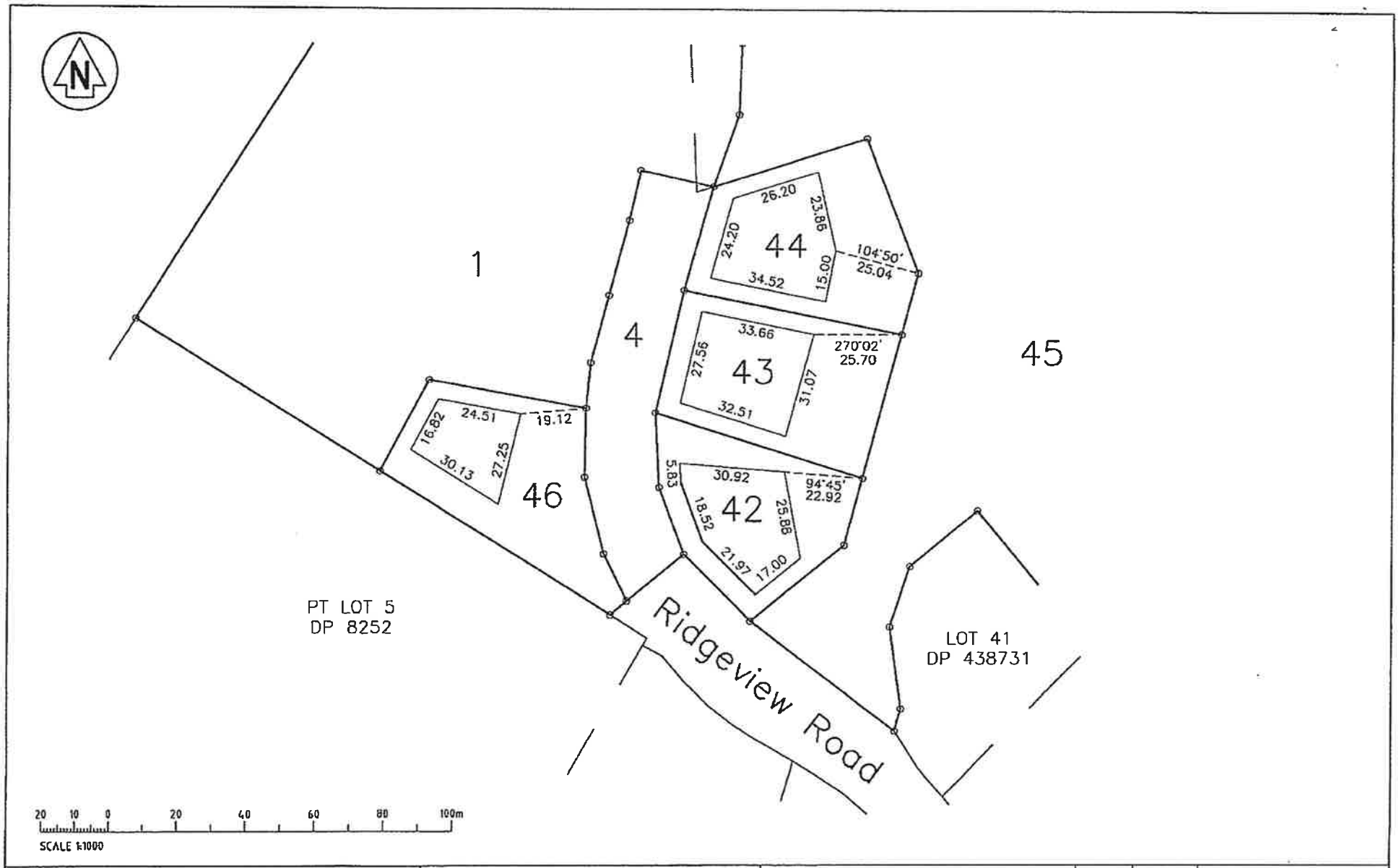
The following condition shall only apply to Lot 46:

7. A resource consent is not required to locate any buildings within 30m of the horticultural crop on Part Lot 5 DP 8252.

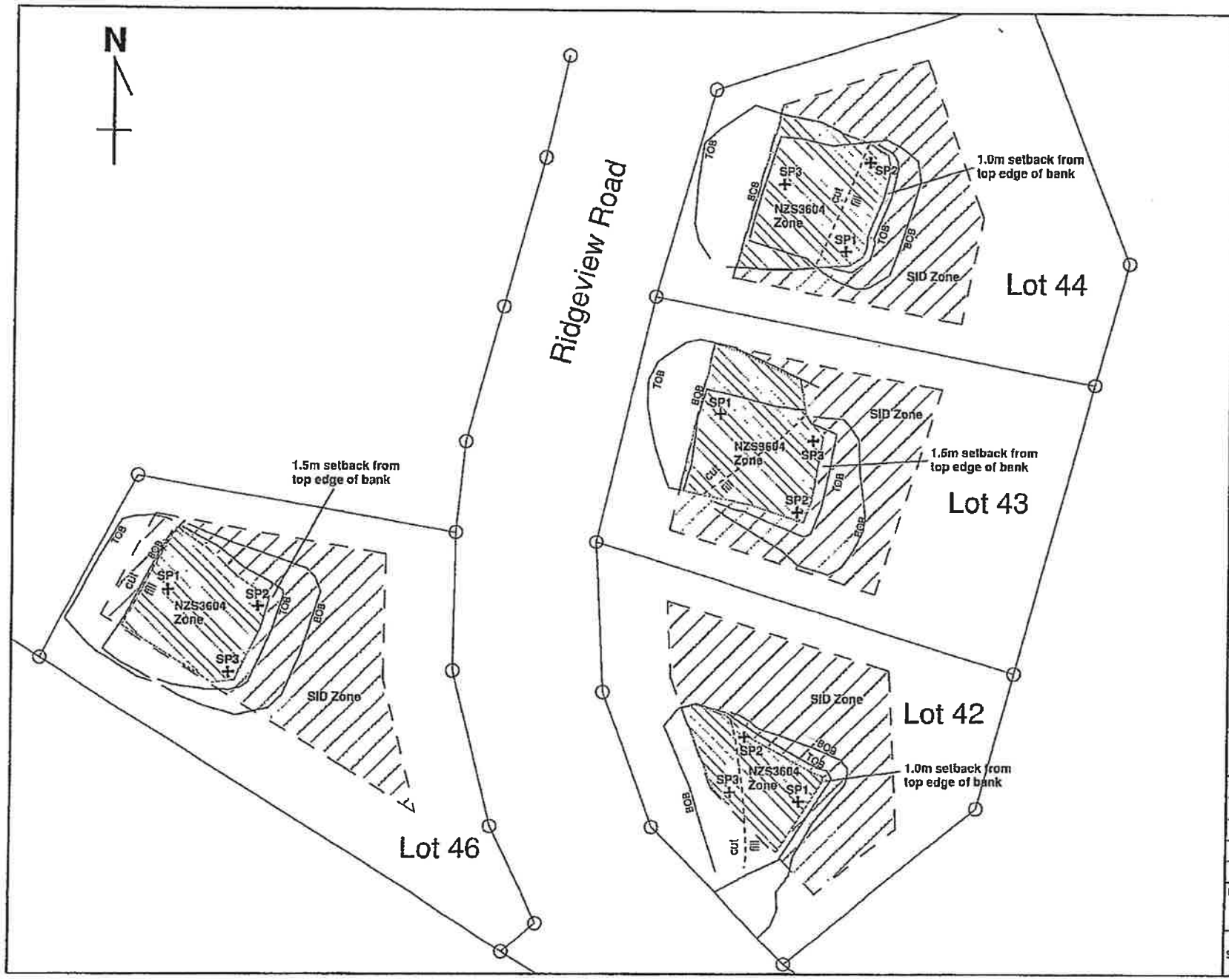
Dated at Richmond this day of 2014

_____

(Principal Administrative Officer/Authorised Officer)



	Building Location Areas RM 100632 – Stage 7 Lots 42–44 & 46 DP 474760	Aubrey Survey and land Development Consultancy	Job No. R976	Scale 1:1000 @ A3
			Client CBH Ltd R976	
			Sheet 1 of 1	Drawn RIA Date 22 July 2014



Swanney

Geotechnical and Civil Engineering
PO Box 828 Nelson

	Building Location Area
	Specific Investigation and Design (SID) Zone
	NZS3604 Zone
TOB	Top of bank
BOB	Bottom of bank
SP1 +	Scala Penetrometer test location
cut / fill	Transition from cut to certified fill on each building platform

Notes:
The setback distance refers to the transition between the NZS3604 and SID zones. Refer to the Appleby Subdivision Stage 7 Building Site Certification Report for a full description of each site.

Title:
Stage 7 Appleby Hills Subdivision

Geotechnical Certification Plan

Design:	
Drawn:	
Approved:	J Swanney
Scale:	1:500 @ A3
Original Size:	A3
Date:	28 April 2014
Job No:	1310
Sheet	1 of 1
Rev:	A

Council letter of engagement.

Client: Jeffrey Ronald Dick & Jacqueline Marie Dick

Site Address: Lot 42 Ridgeview Road, Redwood Valley, Tasman

Builder: SJB Construction T/A **Signature Homes**

SJB Construction T/A Signature Homes Nelson Bays are the appointed agent to manage the building consent process through to the issuing of the building consent.

Please refer to your contract for the PC sum (Provisional cost) in relation to building consent and development Levy's.

Where Resource consents are required Signature Homes Nelson Bays are appointed the agent to deal with this process and pass on costs associated with the resource consent including the processing of the resource consent.

Please confirm that you understand this letter and that you are happy for SJB construction T/A Signature Homes to be the appointed agent in dealing with all consent processes.

Signed by the client: _____

Date: 26-5-15

xForm 2A

Memorandum from licensed building practitioner: Certificate of design work

Section 30C or section 45, Building Act 2004

The building **JOB No 15155**

Street address of building: 130 Ridgeview Road

Appleby

The owner

Name: Jackie & Jeff Dick

Address 18 Harcourt Place Wakefield

Telephone number 021 344 099

Email address: jackie&jeff@xtra.co.nz

Identification of design work that is restricted building work

I carried out or supervised the following design work that is restricted building work:

Design work that is restricted building work		**Description**	**Carried out/ supervised**	**Reference to plans and specifications**
[Tick]		*[If appropriate, provide details of the restricted building work]*	*[Specify whether you carried out this design work or supervised someone else carrying out this design work]*	*[If appropriate, specify references]*
Primary structure				
Foundations and subfloor framing	(✓)	*Conc slab*	( ) Carried out (✓) Supervised	
Walls	(✓)	*Timber framed*	( ) Carried out (✓) Supervised	
Roof	(✓)	*trusses*	( ) Carried out (✓) Supervised	
Columns and beams	(✓)	*Vehandah column & beams*	( ) Carried out (✓) Supervised	
Bracing	(✓)	*Sheet bracing*	( ) Carried out (✓) Supervised	
Other	( )		( ) Carried out ( ) Supervised	
External moisture management systems				

Damp proofing	(✓)	*Under slab*	( ) Carried out (✓) Supervised	
Roof cladding or roof cladding system	(✓)	*Metal tiles*	( ) Carried out (✓) Supervised	
Ventilation system (for example, subfloor or cavity)	(✓)	*cavity*	( ) Carried out (✓) Supervised	
Wall cladding or wall cladding system	(✓)	*Brick veneer & linea*	( ) Carried out (✓) Supervised	
Waterproofing	(✓)	*Formed floor shower*	( ) Carried out (✓) Supervised	
Other	( )		( ) Carried out ( ) Supervised	
Fire safety systems				
Emergency warning systems, evacuation and fire service operation systems, suppression or control systems, or other	( )		( ) Carried out ( ) Supervised	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011.

Note: continue on another page if necessary.

Are waivers or modifications of the building code required? ( ) Yes (✓) No

If Yes, provide details of the waivers or modifications below:

Clause	**Waiver/modification required**
[List relevant clause numbers of building code]	*[Specify nature of waiver or modification of building code]*

Note: continue on another page if necessary.

Issued by

Name: Allan Walters

LBP or registration number: BP 109465

The practitioner is a:	(✓)	Design LBP	( )	Registered architect	( ) Chartered professional engineer

Mailing address: PO Box 3608 Richmond Nelson 7050				
Street address or registered office:				
Phone number:	Landline:	03 5449499	Mobile:	
	Daytime:		After hours:	03 5418156
Fax number: 03 5449488				
Email : allan@gowanswalters.co.nz				
Website:				

Declaration

I Allan Walters [*name of practitioner*]

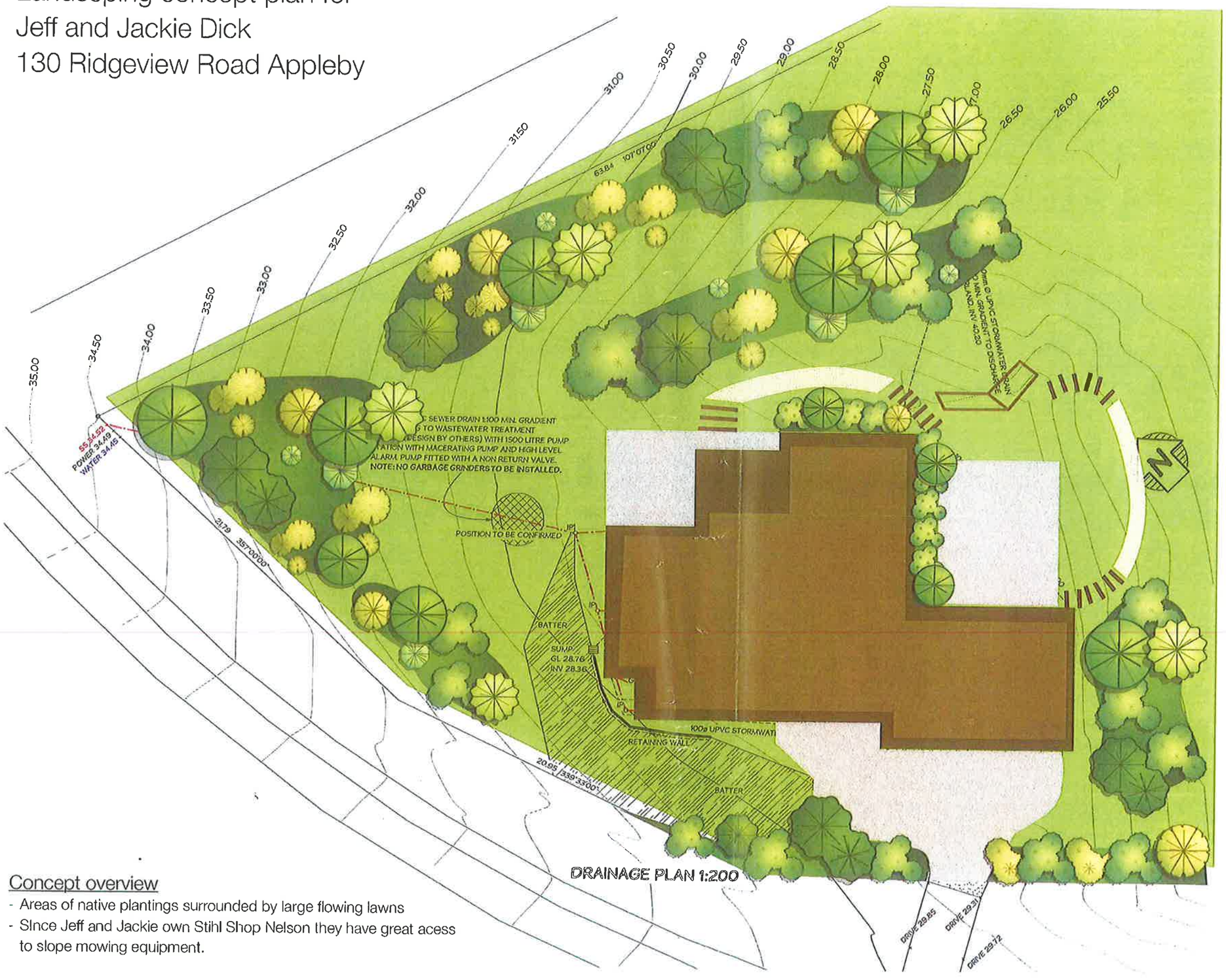
state that the design work that is restricted building work recorded on this form:

(a) complies with the building code; or

Signature: 

Date 4 June 15

Landscping concept plan for
Jeff and Jackie Dick
130 Ridgeview Road Appleby



DRAINAGE PLAN 1:200

Concept overview

- Areas of native plantings surrounded by large flowing lawns
- SInce Jeff and Jackie own Stihl Shop Nelson they have great acess to slope mowing equipment.

DESIGN • BUILD • MAINTAIN
SHERLOCK LANDSCAPING

Planting Specifications

Species used are in keeping with plantings in adjacent and comon areas:

- Phormium Tenax
- Cordalyne Australis
- Hebes
- Pseudopanax Varieties
- Low growng ground covers such as Coprosma Taiko, Coprosma Hawera etc.
- All plantings are set below ridgelines and are not over 2m in height.

Rear Utility Area

- Behind the garage is situated another surface for locating trailer.
- Raised vege planters are shown.

Driveways and Patios

- Exposed agregate concrete

Paths

- Decorative gravel and timber edge

Steps

- Simple sleeper steps to enable ease of walking.

3 BEDROOM RESIDENCE

Tasman District Council
APPROVED 09/07/2015

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
1/07/2015

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED DRAWINGS
Consent Number BC 150582
Signed .....
Date 9/07/2015
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

JACKIE & JEFF DICK

130 RIDGEVIEW ROAD,
APPLEBY

Signature Homes

SJB Construction Limited
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308 Queen Street, Richmond,
P.O. Box 3549, Richmond
Ph (03)541 0317 Fax (09) 415 2467
www.signaturehomes.co.nz

SCHEDULE OF DRAWINGS

Sheet No.	Sheet Name	Rev. No.	Rev. Date
00	COVER SHEET		No Revision
01	SITE PLAN		No Revision
02	BUILDING SITE PLAN		No Revision
03	DRAINAGE PLAN	C	18/6/15
04	FOUNDATION PLAN		No Revision
05	FLOOR PLAN	B	18/6/15
06	BRACING PLAN	A	18/6/15
07	ELEVATIONS 1	A	15/6/15
08	ELEVATIONS 2	A	15/6/15
09	CROSS SECTION	A	18/6/15
10	DETAILS	A	18/6/15
11	DETAILS		No Revision
12	DETAILS	A	18/6/15
13	DETAILS		No Revision
14	DETAILS		No Revision
15	DETAILS	A	



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Ref 15155

150582

Tasman District Council
APPROVED 09/07/2015

Legal Description:

Lot 42 DP 480593
Site Area: 2201.52m²

Planning

Zone: Rural 2

Area for Coverage: 229.72m²
Coverage: 10.01%
Consent Notice: 9842070.13

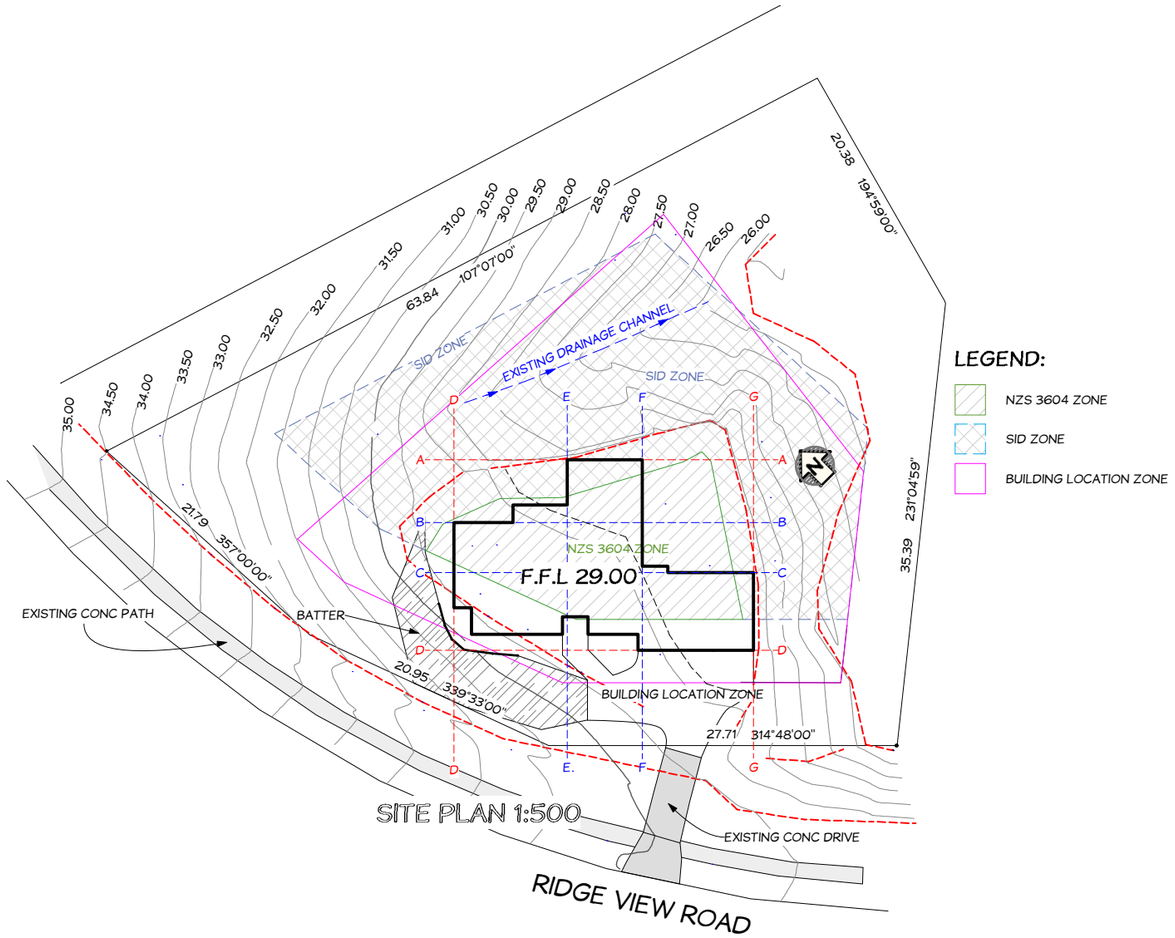
Notes:

Wind Zone: Very High
Earthquake Zone: 2
Snow Zone: N3 <400m
Corrosion Zone: C

WIND ZONE CALC	
Wind Region	A
Lee Zone	No
Ground Roughness	Open
Site Exposure	Exposed
Topographic Class	T2
WIND ZONE	V H

COLOURS:

ROOF - IRON SAND 12.18% LRV
BRICK - COUNTRY BRICK SOAPSTONE <50%
LINEA - IRON SAND 9% LRV



SITE PLAN 1:500

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

SITE PLAN

Scale: 1:500 | Drawn: JA | Date: 5-06-2015

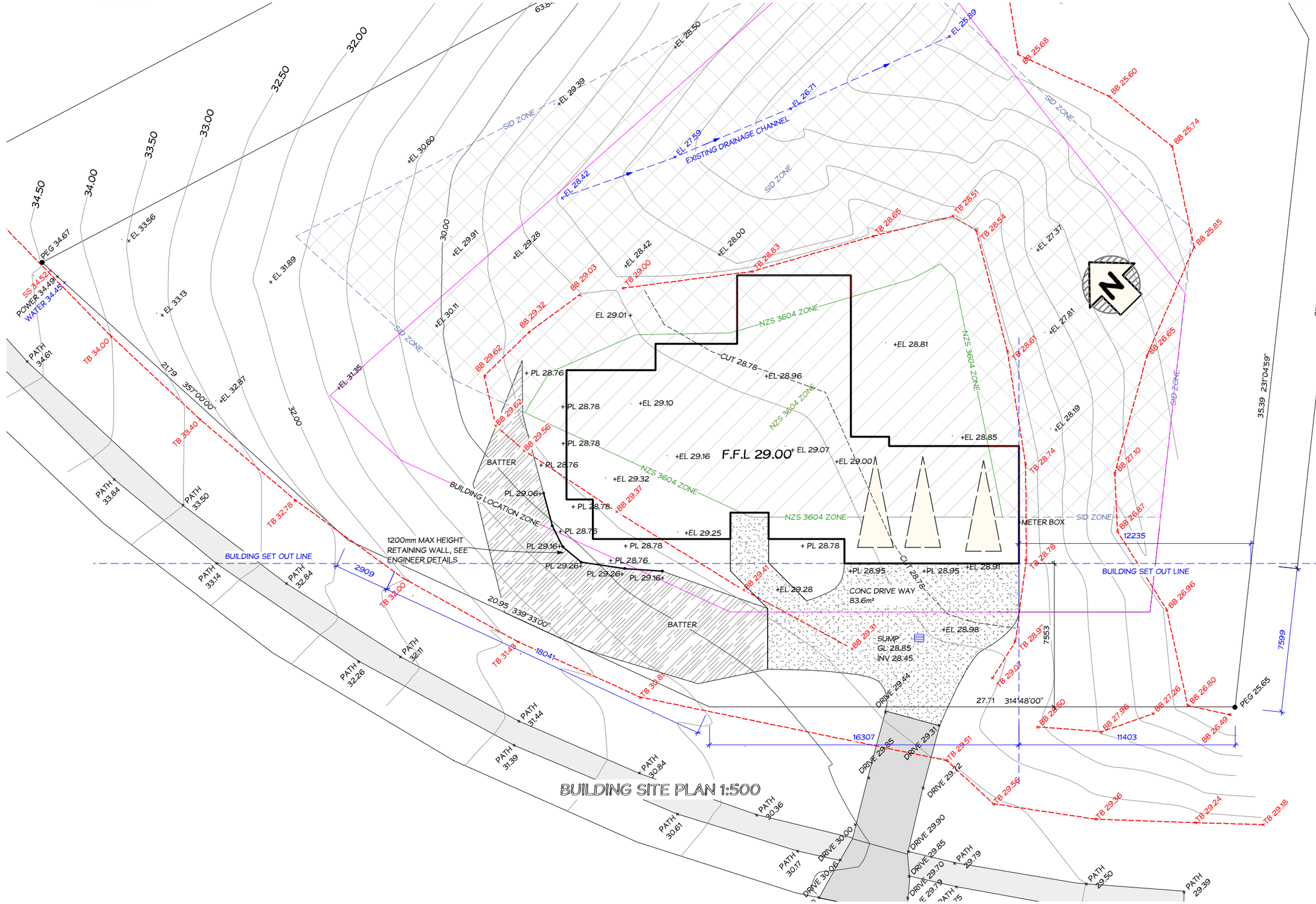
REV	DATE	AMENDMENT

TSW NO: 15155
DWG NO. 01
REV

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APPROVED 09/07/2015



Legal Description

Lot 42 DP 480593
Site Area: 2201.52m²

Planning

Zone: Rural 2

Area for Coverage: 229.72m²
Coverage: 10.01%
Consent Notice: 9842070.13

Notes:

Wind Zone: Very High
Earthquake Zone: 2
Snow Zone: N3 <400m
Corrosion Zone: C

WIND ZONE CALC	
Wind Region	A
Lee Zone	No
Ground Roughness	Open
Site Exposure	Exposed
Topographic Class	T2
WIND ZONE	V H

SITE LEGEND

F.F.L. FINISHED FLOOR LEVEL
GL GROUND LEVEL
EL EXISTING LEVEL
PL PROPOSED LEVEL
INV INVERT LEVEL
DP DOWNPIPE

COLOURS:

ROOF - IRON SAND 12.18% LRV
BRICK - COUNTRY BRICK SOAPSTONE <50%
LINEA - IRON SAND 9% LRV

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

BUILDING SITE PLAN

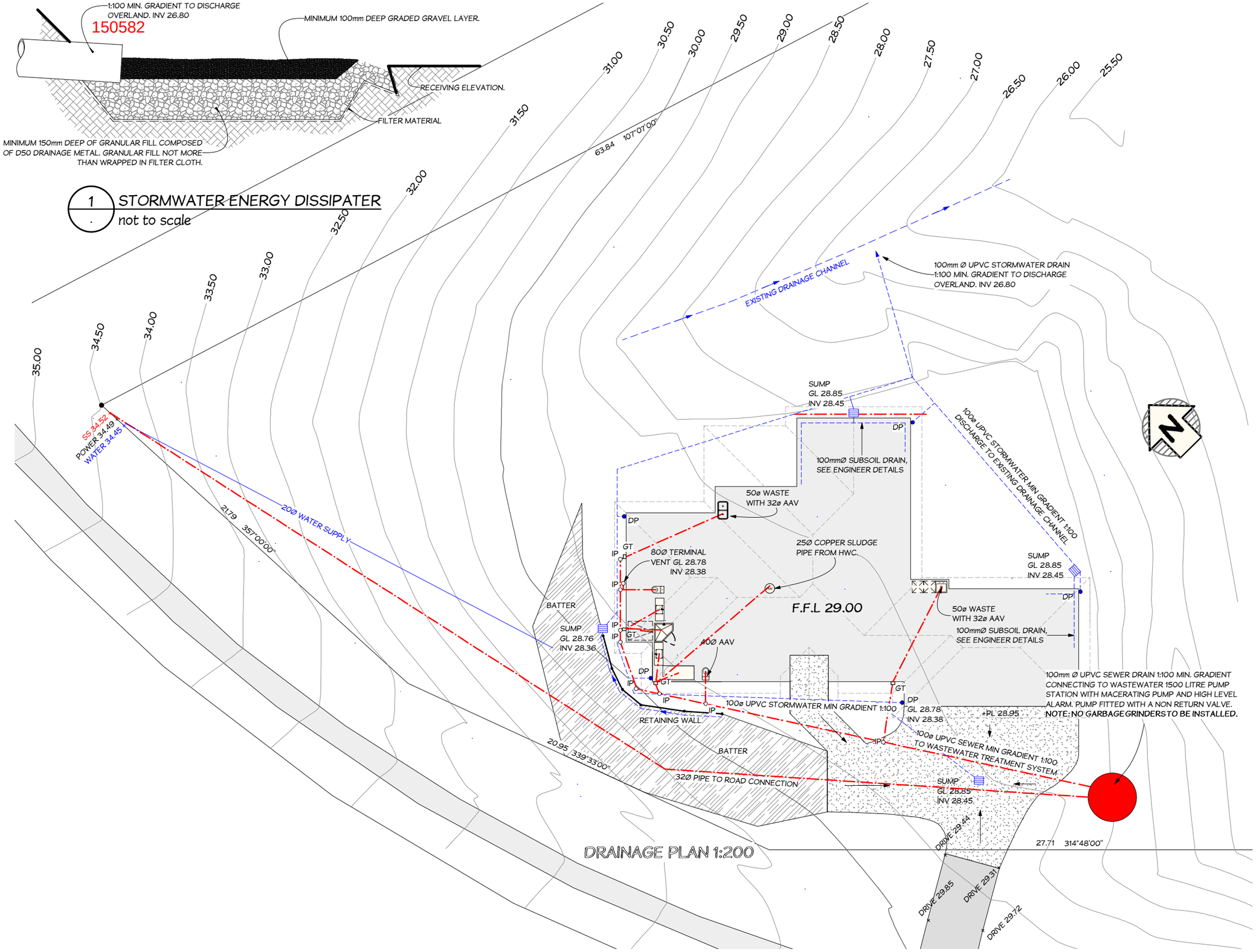
Scale: 1:200 Drawn: JA Date: 5-06-2015

REV	DATE	AMENDMENT

TSW NO: 15155
DWG NO. 02 REV

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1 STORMWATER ENERGY DISSIPATER
not to scale



DRAINAGE PLAN 1:200

Legal Description

Tasman District Council
APPROVED 09/07/2015

Lot 43 DP 480593
Site Area: 2201.52m²

Planning

Zone: Rural 2

Area for Coverage: 229.72m²
Coverage: 10.01%
Consent Notice: 9842070.13

Notes:

Wind Zone: Very High
Earthquake Zone: 2
Snow Zone: N3 <400m
Corrosion Zone: C

WIND ZONE CALC	
Wind Region	A
Lee Zone	No
Ground Roughness	Open
Site Exposure	Exposed
Topographic Class	T2
WIND ZONE	V H

DOWNPIPE CALCULATIONS

ROOF PLAN AREA: 282.82m²
ROOF PITCH: 25°

MAXIMUM ROOF PLAN AREA PER 80Ø DOWNPIPE TO COMPLY WITH THE NEW ZEALAND BUILDING CODE - E1/AS1 = 85m²

$\frac{282.82m^2}{85m^2}$ = 4 - 80Ø DOWNPIPES (MIN)

HOT WATER CYLINDER

250L PETER COX SOLAR READY ELECTRIC HOT WATER CYLINDER COMPLETE WITH PRESSURE REDUCING & RELIEF VALVES & TEMPERING VALVE 25Ø COPPER SLUDGE PIPE TO DISCHARGE OVER THE NEAREST GULLY TRAP. SECURE WITH SEISMIC RESTRAINTS AS PER ACCEPTABLE SOLUTION G12/AS1 (WATER SUPPLIES) FIGURE 14.

FOUL WATER/SANITARYPLUMBING

SANITARY DRAINAGE SYSTEM TO NEW ZEALAND BUILDING CODE CLAUSE G13/AS1 (FOUL WATER)

FIXTURE DISCHARGE PIPE SIZES AND GRADIENT		
SANITARY FIXTURE OR APPLIANCE	DISCHARGE PIPE (mm)	MINIMUM GRADIENT
Basin/Vanity	40ø	1:40
Bathtub	40ø	1:40
Shower	40ø	1:40
Water Closet Pan	100ø	1:40
Kitchen Sink	50ø	1:40
Laundry Tub	50ø	1:40

SERVICES LEGEND

—·—S—·— SEWER LINE
– – –SW– – – STORMWATER LINE

DP DOWNPIPE
GL GROUND LEVEL
GT GULLEY TRAP
INV INVERT LEVEL
IP INSPECTION POINT

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

DRAINAGE PLAN

Scale: 1:200 Drawn: JA Date: 5-06-2015

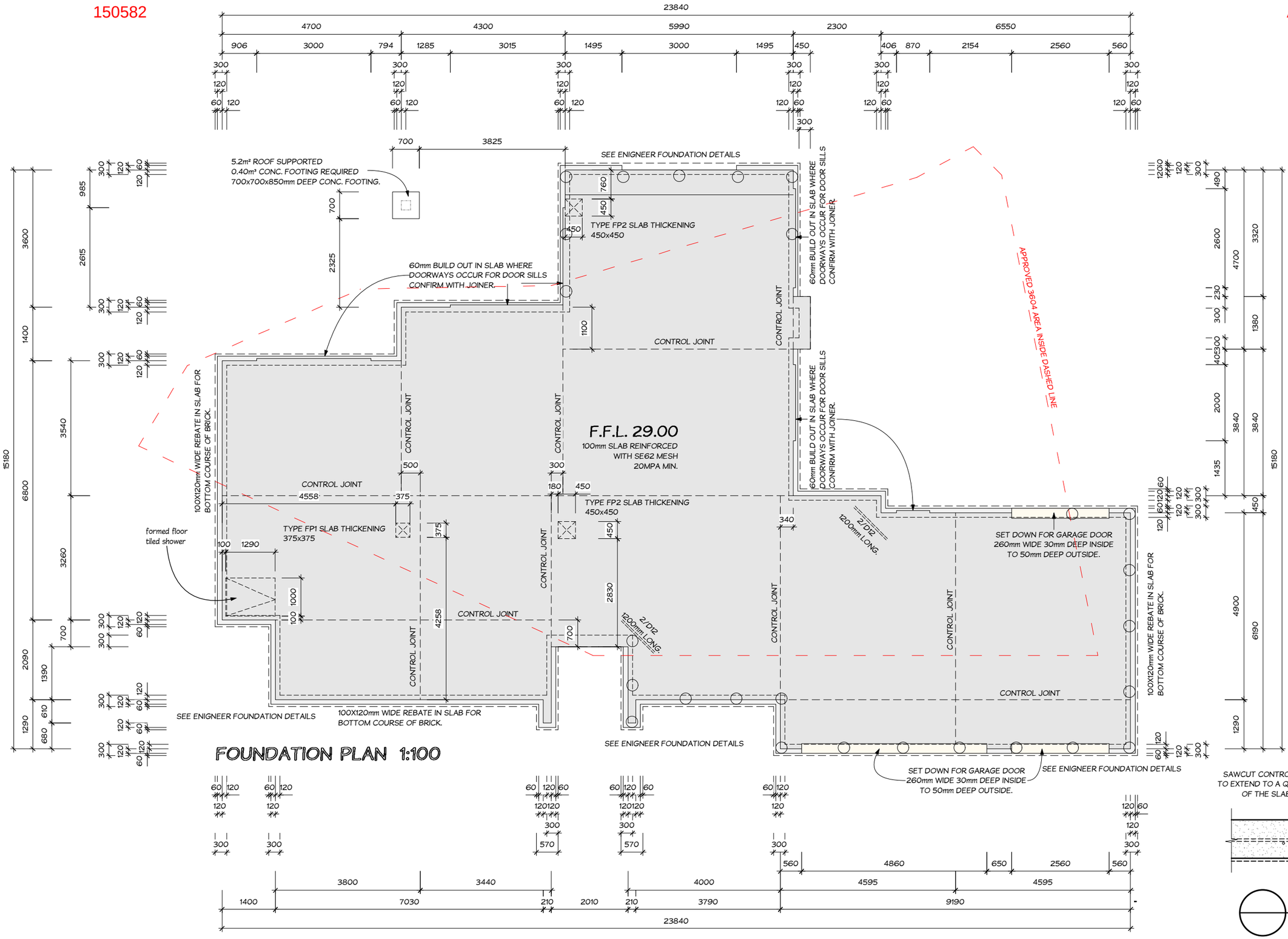
REV	DATE	AMENDMENT
A	18/6/15	SUBSOIL DRAIN
B	18/6/15	DISCHARGE DETAIL
C	18/6/15	HWC

TSW NO: 15155
DWG NO. 03 C
REV C

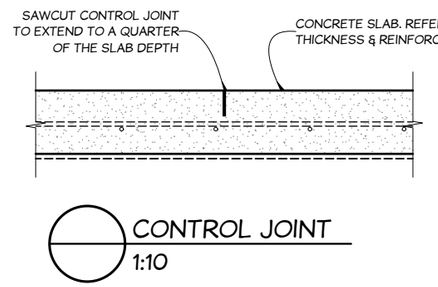
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APPROVED 09/07/2015



FOUNDATION PLAN 1:100



CONTROL JOINT
1:10

NOTES

DIMENSIONS

ALL DIMENSIONS ARE SHOWN TO FRAMING UNLESS OTHERWISE STATED. ALLOW FOR 6mm FRAMING OVERHANG WHEN SETTING OUT FLOOR SLAB.

CONCRETE FLOOR SLAB

ALL CONCRETE TO BE MIN 20MPA
100 CONC. SLAB REINFORCED WITH SE62 MESH - 40 TOP COVER OVER 250 MICRON POLYTHENE DAMP PROOF MEMBRANE ON COMPACTED AND SAND BLINDED BASECOURSE LAID IN 150 MAX LAYERS. PROVIDE SHRINKAGE CONTROL JOINTS IN ACCORDANCE WITH NZS 3604:2011, SECTION 7.5.8.6

STEEL REINFORCING COVER

FLOOR SLAB REINFORCING SHALL EXTEND TO A MINIMUM EXTERNAL COVER OF:

(A) AGAINST GROUND 75mm
(B) AGAINST FORMWORK 50mm
(C) TOP COVER TO MESH 40mm

STEEL REINFORCING MESH SHALL HAVE A COVER OF 40mm MINIMUM FROM THE TOP SURFACE OF THE GROUND SLAB AND SHALL BE PLACED IN SUCH A MANNER AS TO AVOID DAMAGE TO THE DPM ON PROPRIETARY CHAIRS. REINFORCING MESH SHALL COMPLY WITH AS/NZS 4671

STRUCTURAL ENGINEER

RON O'HARA
TASMAN CONSULTING ENGINEERS
PH: 03-544-6404 MOBILE: 027-444-6404
PROVIDE 24 HOURS NOTICE BEFORE ANY REQUIRED INSPECTION

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

FOUNDATION PLAN

Scale: 1:100 | Drawn: JA | Date: 5-06-2015

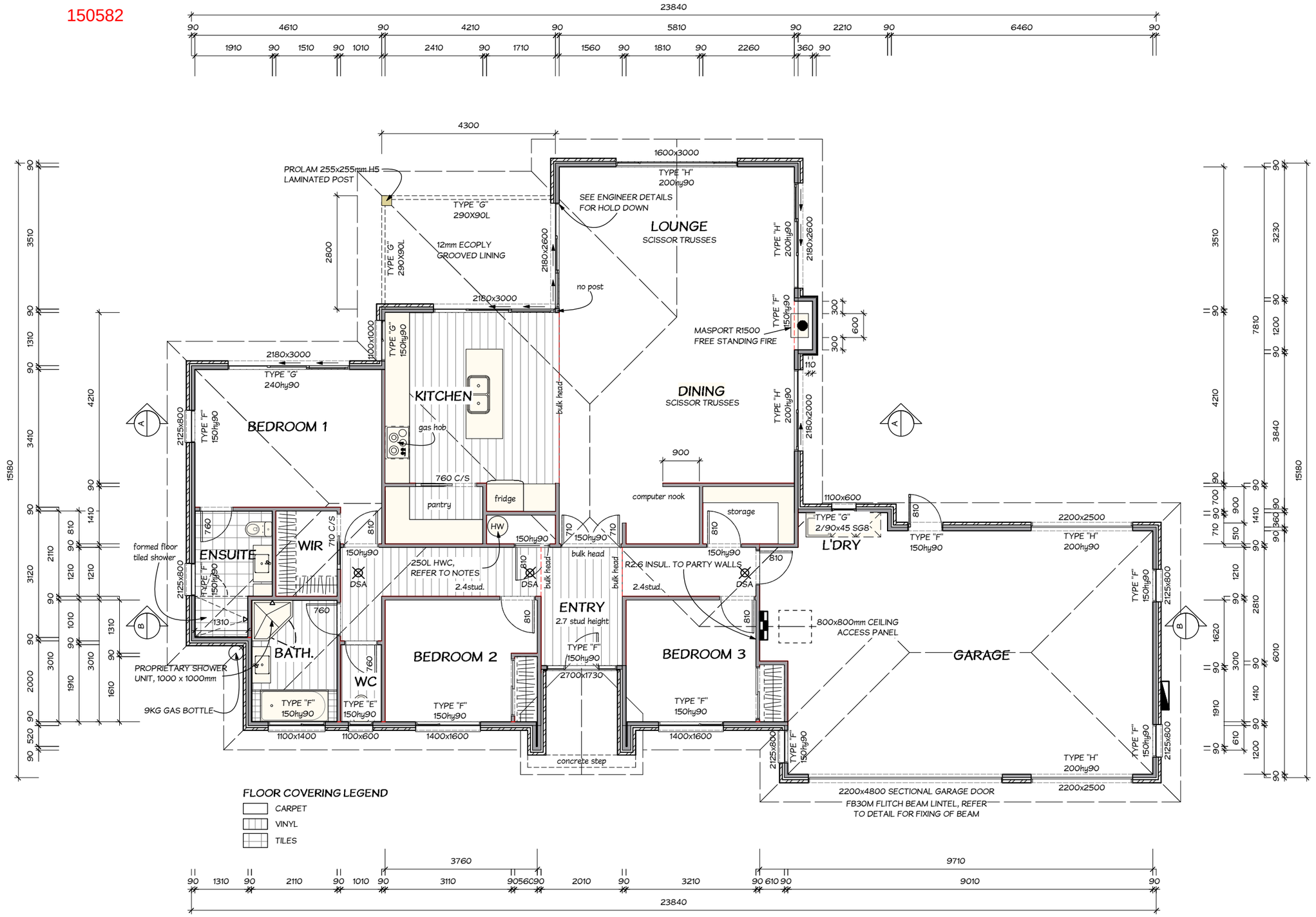
REV	DATE	AMENDMENT

TSW NO: 15155
DWG NO. 04
REV

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GROUND FLOOR PLAN 1:100

FLOOR AREA OVER FRAMING 220m²
FLOOR AREA OVER 70 SERIES BRICK 229.44m²

NOTES

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

LINTELS

ALL LINTELS AND BEAMS TO BE SG8 AND SHALL BE PRESERVATIVE TREATED "H1.2" UNLESS OTHERWISE SHOWN

FOR PREVENTION OF UPLIFT REFER TO "MITEK LUMBERLOK" LINTEL FIXING SCHEDULE FOR LINTEL FIXING "TYPE" DEFINITIONS

ALL LINTELS AND BEAMS TO BE DESIGNED IN ACCORDANCE WITH ROOF TRUSS DESIGN MANUFACTURER

LINTEL DESIGN CERTIFICATE AND TRUSS DESIGN CERTIFICATED TO BE PROVIDED PRIOR TO MANUFACTURE

TIMBER FRAMING

UNLESS OTHERWISE STATED ALL WALLS TO BE FRAMED WITH 90 x 45 SG8 STUDS. ALL WALL FRAMING SHALL BE PRESERVATIVE TREATED H1.2

SIMILARLY, UNLESS OTHERWISE STATED ALL OTHER FRAMING TIMBER (INCLUDING FLOOR, ROOF, DECK, ETC.) SHALL HAVE A MINIMUM GRADE OF SG8

NAILPLATE TRUSSES

TRUSS MANUFACTURER SHALL PROVIDE A PRODUCER STATEMENT PRIOR TO FABRICATION

HOT WATER CYLINDER

250L PETER COX SOLAR READY ELECTRIC HOT WATER CYLINDER COMPLETE WITH PRESSURE REDUCING & RELIEF VALVES & TEMPERING VALVE 25Ø COPPER SLUDGE PIPE TO DISCHARGE OVER THE NEAREST GULLY TRAP. SECURE WITH SEISMIC RESTRAINTS AS PER ACCEPTABLE SOLUTION G12/AS1 (WATER SUPPLIES) FIGURE 14.

RECESSED DOWNLIGHTS

ALL RECESSED LUMINAIRES TO BE C.A. RATED

WET AREAS WALL LININGS

WET AREAS WALL LININGS FINISHED WITH SEMI-GLOSS, OR GLOSS PAINT. AS PER ACCEPTABLE SOLUTION E3/AS1 3.1.2 WALLS (f).

BATH TO HAVE 150mm HIGH CERAMIC OR STONE TILE SURROUND HAVING 6% MAXIMUM WATER ABSORPTION, WATERPROOF GROUTED JOINTS, AND BEDDED WITH AN ADHESIVE SPECIFIED BY THE TILE MANUFACTURER AS BEING SUITABLE FOR THE TILES, SUBSTRATE MATERIAL AND THE ENVIRONMENT OF USE.

LEGEND

DSA ⊠ DOMESTIC SMOKE ALARM COMPLYING WITH ANY OF THE FOLLOWING STANDARDS, UL217, ULC-S531, AS3786 OR BS5446 - PART 1

TYPE C = LINTEL FIXING TYPE
190x90L = LINTEL SIZE
2125x1800 = OPENING SIZE (H x W)

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

FLOOR PLAN

Scale: 1:100 | Drawn: JA | Date: 5-06-2015

REV	DATE	AMENDMENT
A	15/6/15	GAS BOTTLE
B	18/6/15	BATHROOM LINTEL

TSW NO: 15155
DWG NO. 05 B
REV B

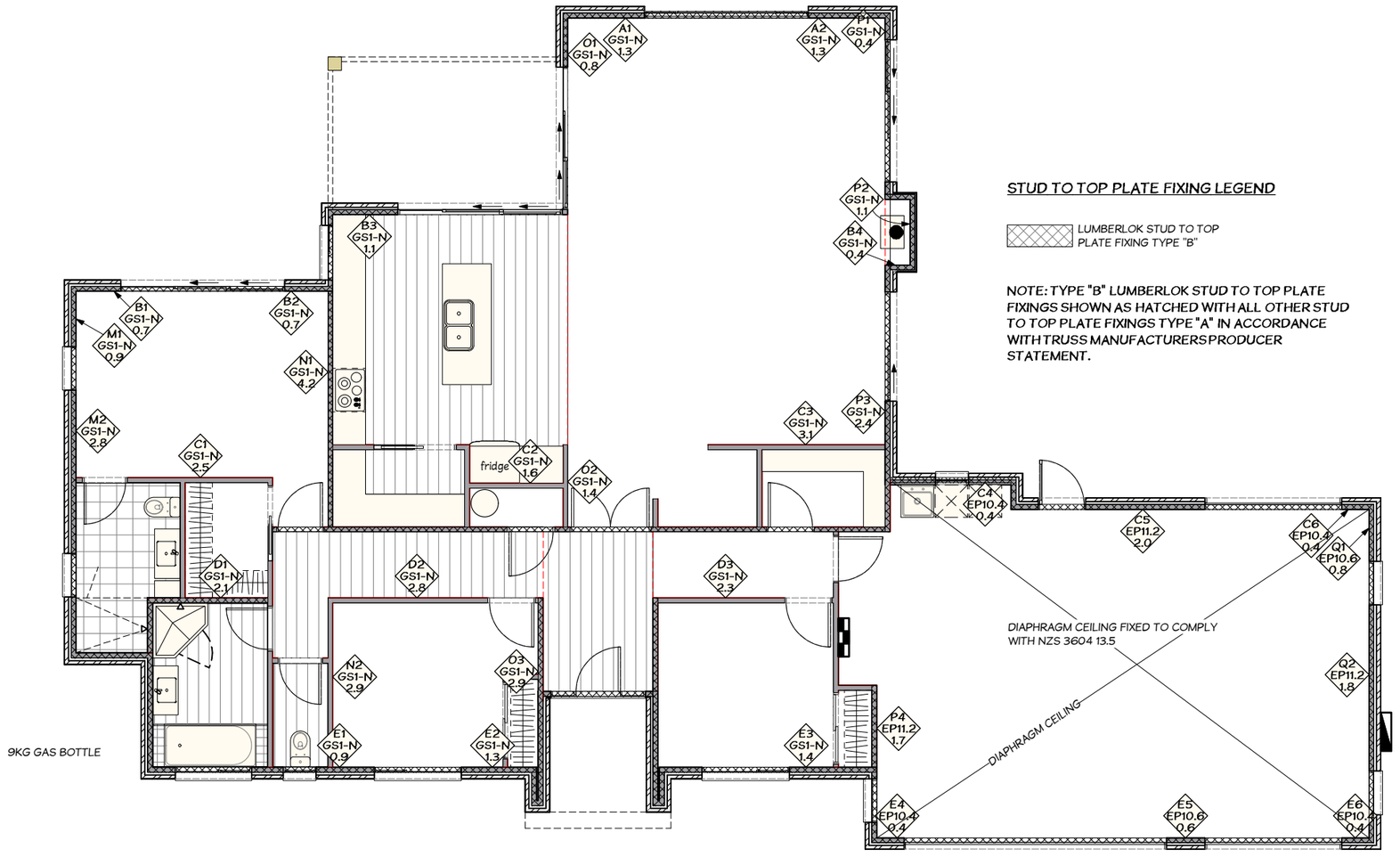
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M 169 BU's REQUIRED
N 169 BU's REQUIRED
O 169 BU's REQUIRED
P 169 BU's REQUIRED
Q 169 BU's REQUIRED

A 121 BU's REQUIRED
B 121 BU's REQUIRED
C 282 BU's REQUIRED
D 121 BU's REQUIRED
E 338 BU's REQUIRED



STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS SHOWN AS HATCHED WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

NOTES

BRACING NOTES

A1 GS1A 2.4
BRACING No.
BRACE TYPE
BRACE LENGTH (m)

BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES.

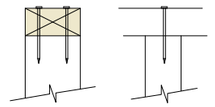
REFER TO THE BRACING CALCULATIONS AND DETAILS FOR FURTHER BRACING INFORMATION.

DIMENSIONS

ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TYPE A
0.7kN

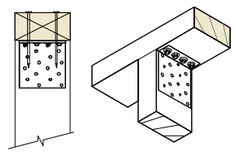
2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD.



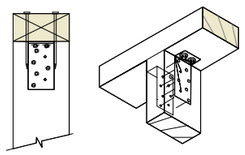
TYPE B
4.7kN

CHOOSE ANY OF THE 3 OPTIONS BELOW

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS ONE LUMBERLOK 6kN STUD ANCHOR (CPC80).

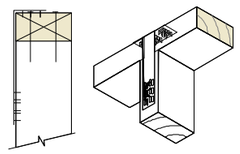


2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS TWO LUMBERLOK CPC40.



RECOMMENDED FOR INTERNAL WALL OPTIONS TO AVOID LINING ISSUES

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS LUMBERLOK STUD STRAP (ONE FACE ONLY).



LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B" - 1.7kN

2 . LUMBERLOK STUD TO TOP PLATE FIXINGS
1:10

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

BRACING PLAN

Scale: 1:100 Drawn: JA Date: 5-06-2015

REV	DATE	AMENDMENT
A	18/6/15	BRACING

TSW NO: 15155
DWG NO. 06 A
REV A

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APPROVED 09/07/2015

NOTES

POWDER COATED ALUMINIUM JOINERY

ALL GLAZING SHALL COMPLY WITH NZS4223

ALL WINDOWS TO INSULATED ENVELOPE TO BE DOUBLE GLAZED

O - DENOTES OBSCURE GLAZED JOINERY

SG - DENOTES GRADE "A" SAFETY GLAZING (ALL HINGED DOOR PANELS > 0.5m² SHALL BE SAFETY GLAZED)

T - DENOTES INDIVIDUAL TINT GLAZED JOINERY UNITS

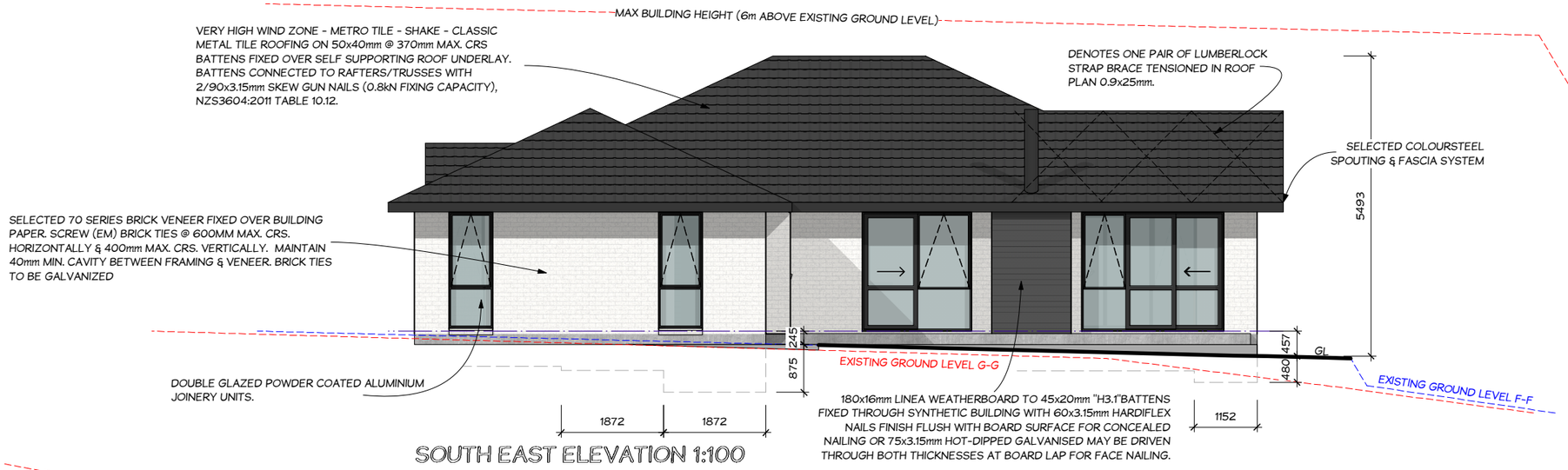
RS - DENOTES INDIVIDUAL JOINERY UNITS WITH SASHES FITTED WITH RESTRICTOR STAYS

ROOF BRACING

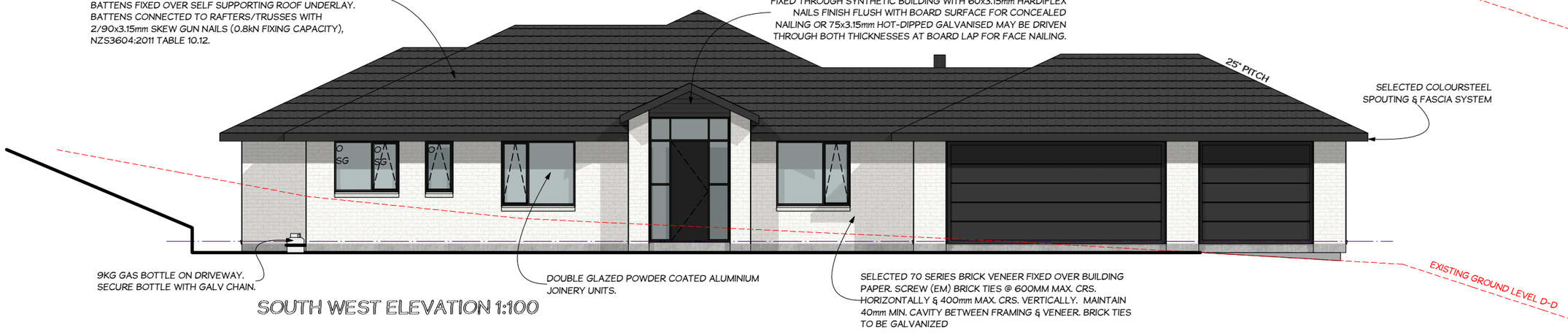
ALL GABLE ROOFS SHALL HAVE 1 PAIR OF DIAGONALLY OPPOSED 25 x 0.6mm GALVANISED MILD STEEL STRAPS WITH 8kN TENSIONER FOR EVERY 50m² - REFER TO SPECS FOR DETAILS

COLOURS:

ROOF - IRON SAND 12.18% LRV
BRICK - COUNTRY BRICK SOAPSTONE <50%
LINEA - IRON SAND 9% LRV



SOUTH EAST ELEVATION 1:100



SOUTH WEST ELEVATION 1:100

RISK MATRIX - ALL FACES					
RISK FACTOR	LOW	MED	HIGH	V H	S T
Wind (NZS 3604)	0	0	1	2	2
Storeys	0	1	2	4	0
R/W Intersection	0	1	3	5	0
Eaves Width	0	1	2	5	5
Complexity	0	1	3	6	1
Deck Design	0	2	4	6	0
TOTAL RISK SCORE					8

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JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

ELEVATIONS 1

Scale: 1:100 | Drawn: JA | Date: 5-06-2015

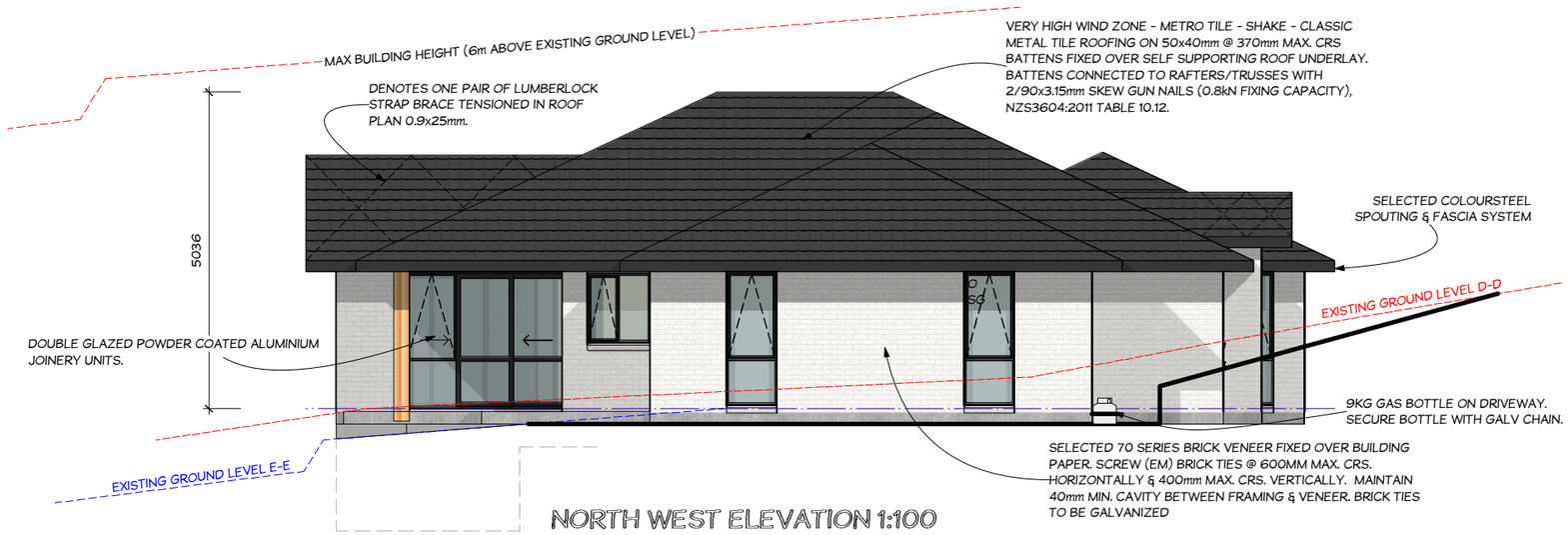
REV	DATE	AMENDMENT
A	15/6/15	GAS BOTTLE

TSW NO: 15155
DWG NO. 07 A
REV A

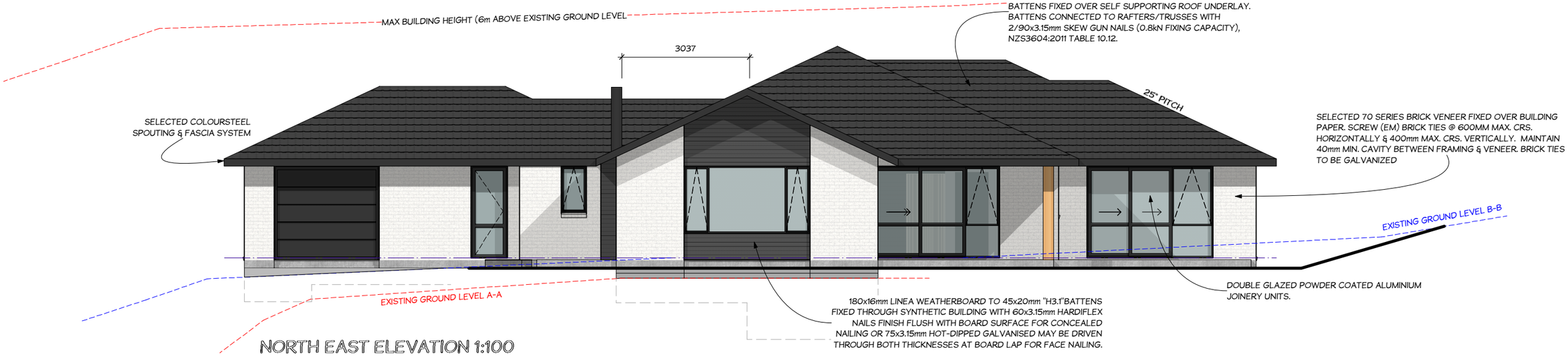
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NORTH WEST ELEVATION 1:100



NORTH EAST ELEVATION 1:100

NOTES

POWDER COATED ALUMINIUM JOINERY

ALL GLAZING SHALL COMPLY WITH NZS4223

ALL WINDOWS TO INSULATED ENVELOPE TO BE DOUBLE GLAZED

O - DENOTES OBSCURE GLAZED JOINERY

SG - DENOTES GRADE "A" SAFETY GLAZING (ALL HINGED DOOR PANELS > 0.5m² SHALL BE SAFETY GLAZED)

T - DENOTES INDIVIDUAL TINT GLAZED JOINERY UNITS

RS - DENOTES INDIVIDUAL JOINERY UNITS WITH SASHES FITTED WITH RESTRICTOR STAYS

ROOF BRACING

ALL GABLE ROOFS SHALL HAVE 1 PAIR OF DIAGONALLY OPPOSED 25 x 0.6mm GALVANISED MILD STEEL STRAPS WITH 8kN TENSIONER FOR EVERY 50m² - REFER TO SPECS FOR DETAILS

COLOURS:

ROOF - IRON SAND 12.18% LRV
BRICK - COUNTRY BRICK SOAPSTONE <50%
LINEA - IRON SAND 9% LRV

RISK MATRIX - ALL FACES					
RISK FACTOR	LOW	MED	HIGH	V H	S T
Wind (NZS 3604)	0	0	1	2	2
Storeys	0	1	2	4	0
R/W Intersection	0	1	3	5	0
Eaves Width	0	1	2	5	5
Complexity	0	1	3	6	1
Deck Design	0	2	4	6	0
				TOTAL RISK SCORE	8

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

ELEVATIONS 2

Scale: 1:100 Drawn: JA Date: 5-06-2015

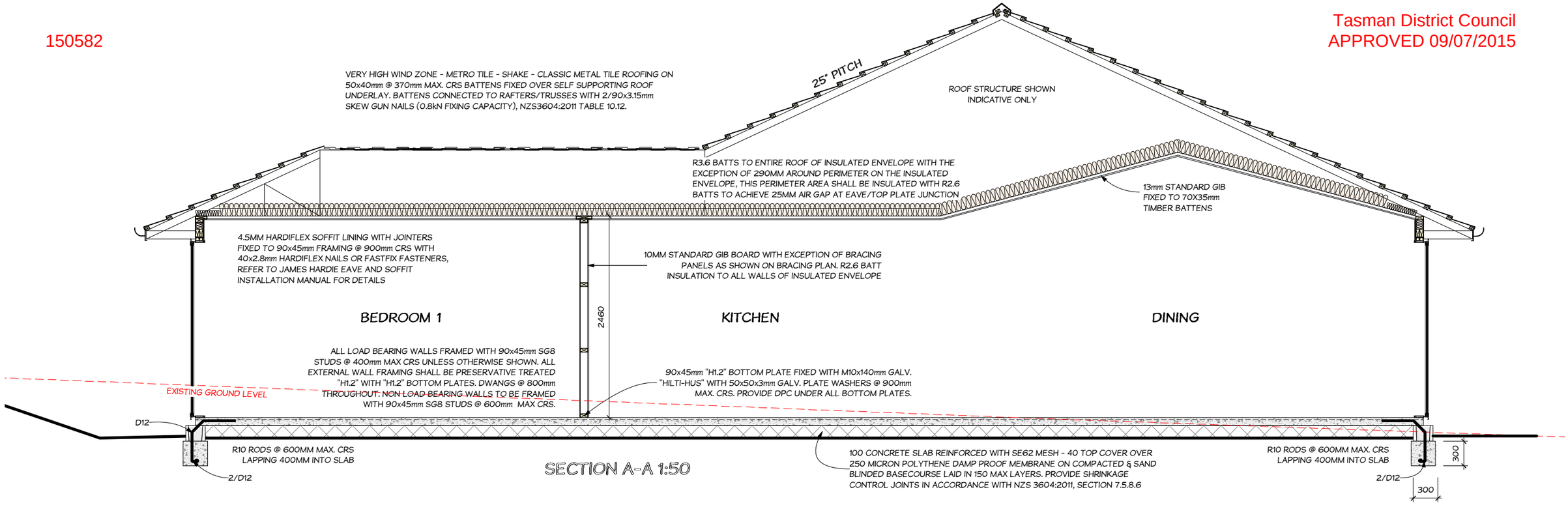
REV	DATE	AMENDMENT
A	15/6/15	GAS BOTTLE

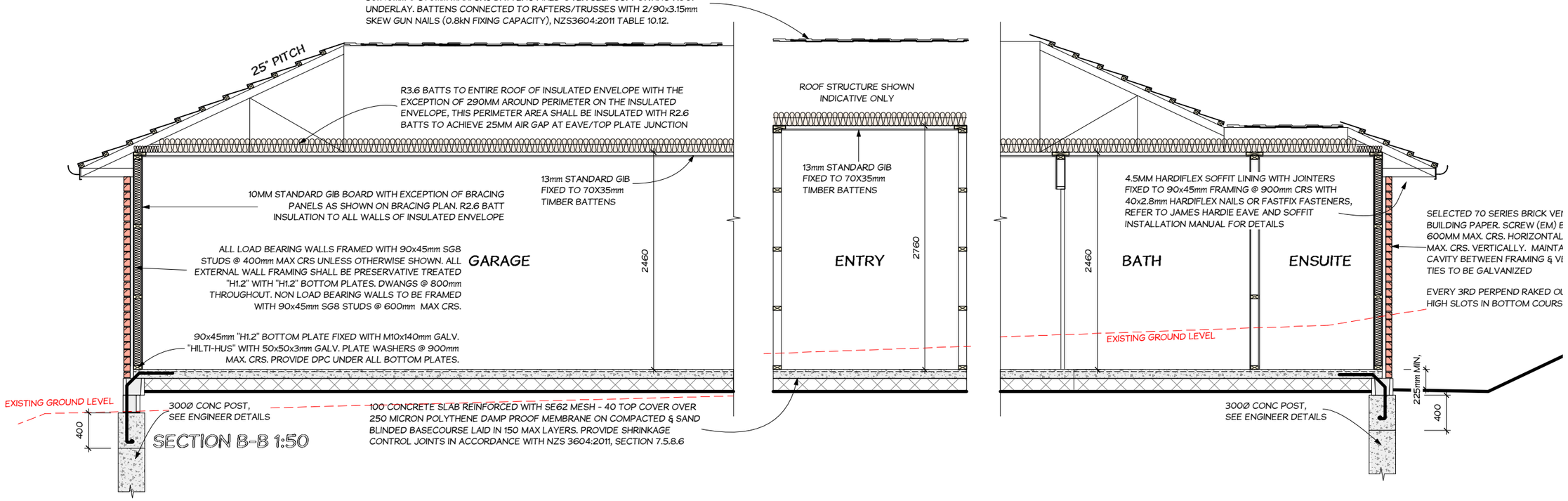
TSW NO: 15155
DWG NO. 08 A
REV A

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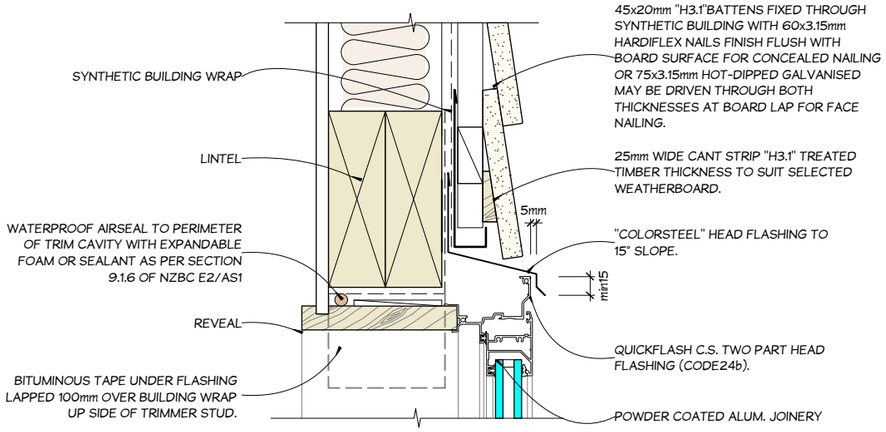


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				Scale: 1:50 Drawn: JA Date: 5-06-2015				DWG NO. 09 A / REV A

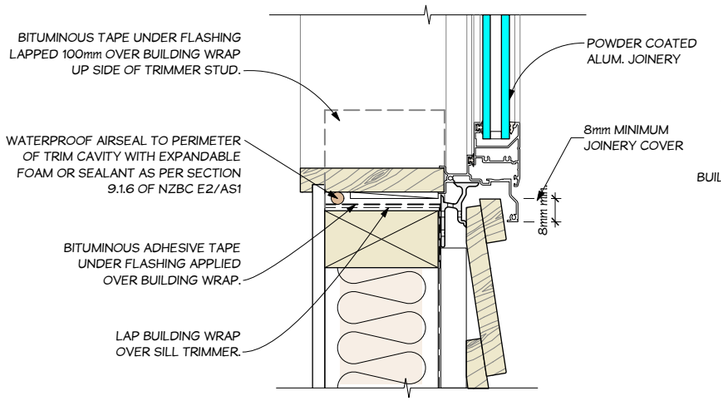
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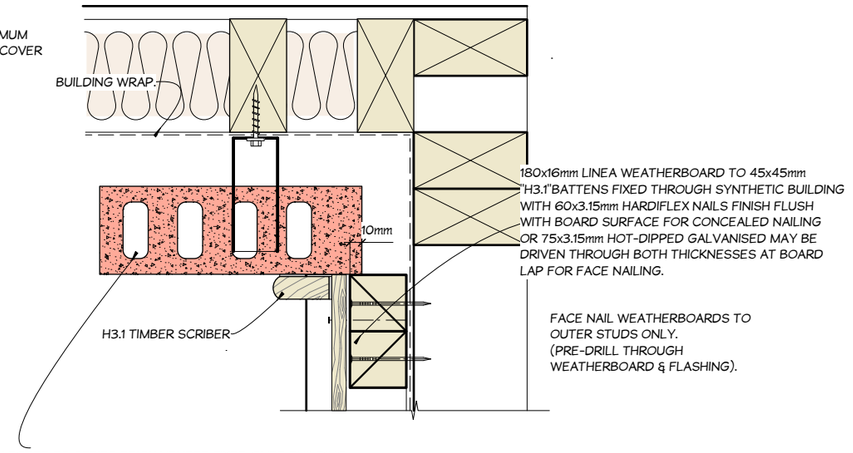
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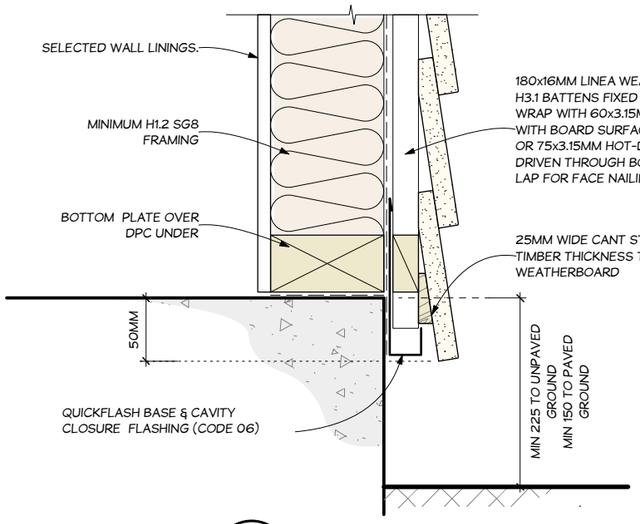
A HEAD DETAIL
1:5



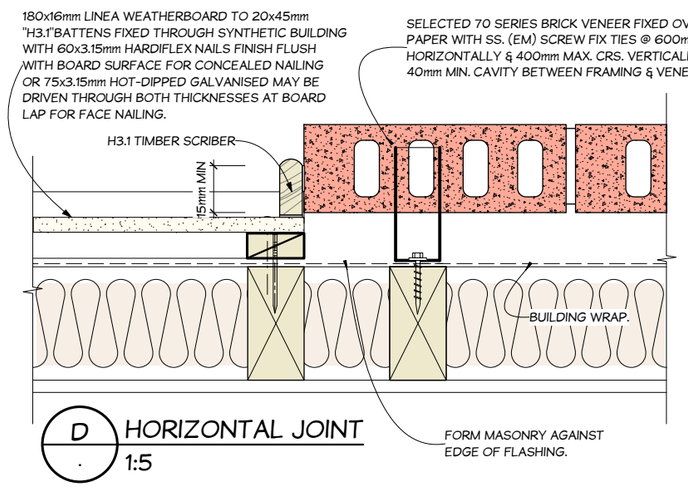
C LINEA SILL DETAIL
1:5



E INTERNAL CORNER DETAIL
1:5



B LINEA BASE DETAIL
1:5

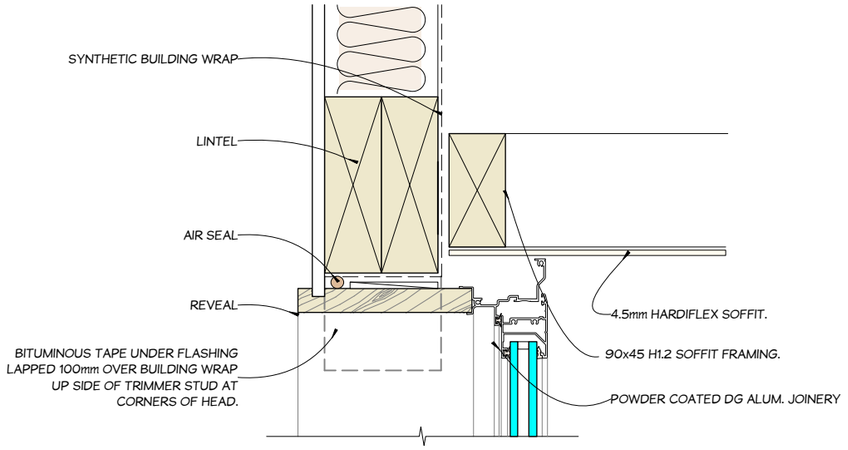


D HORIZONTAL JOINT
1:5

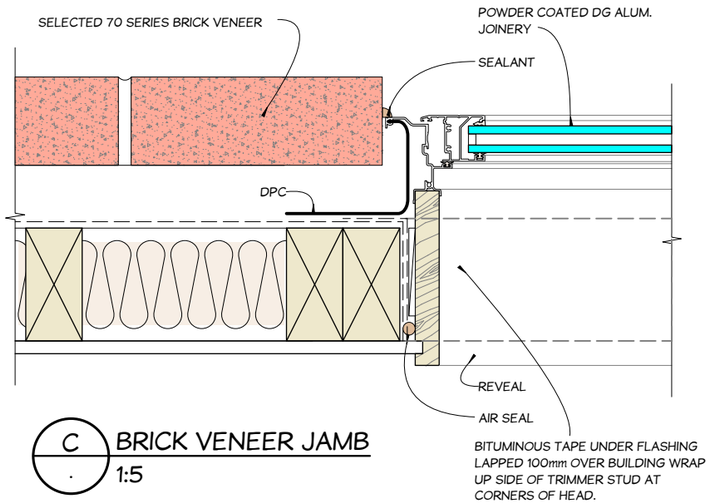
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				A	18/6/15	INTERNAL JUNCTION		
							DWG NO. 10 A	REV A
			Scale: Scale	Drawn: JA	Date: 5-06-2015			

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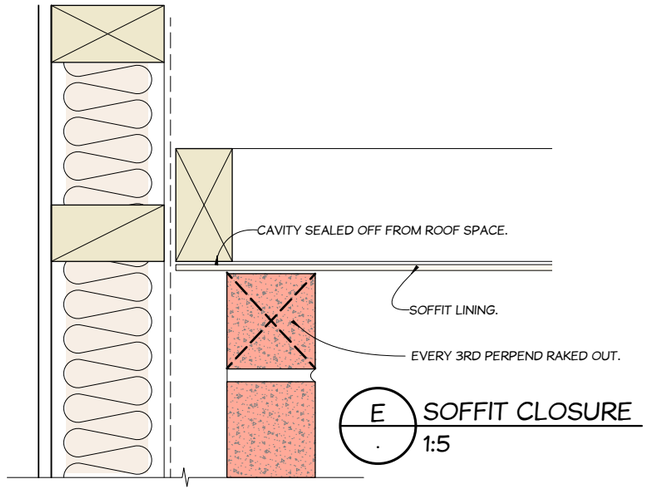
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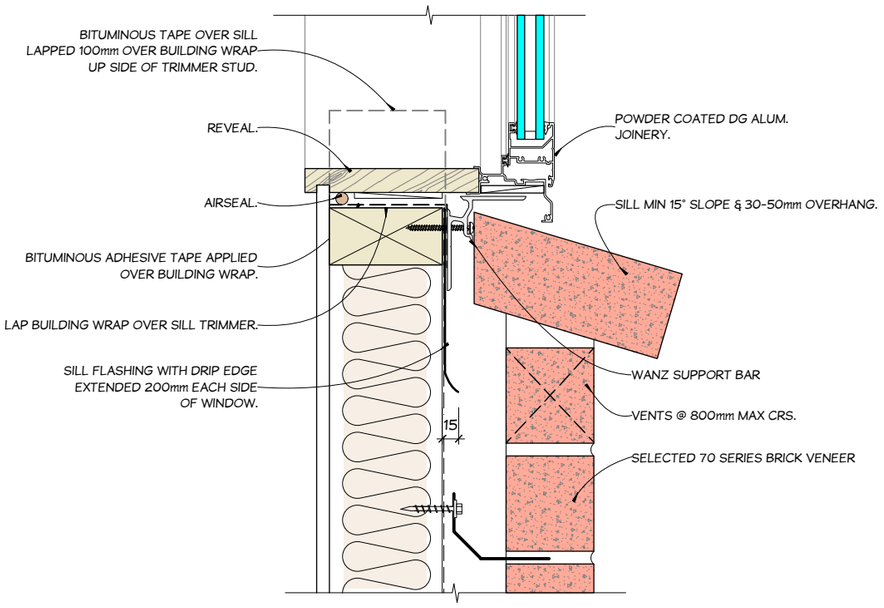
A HEAD DETAIL
1:5



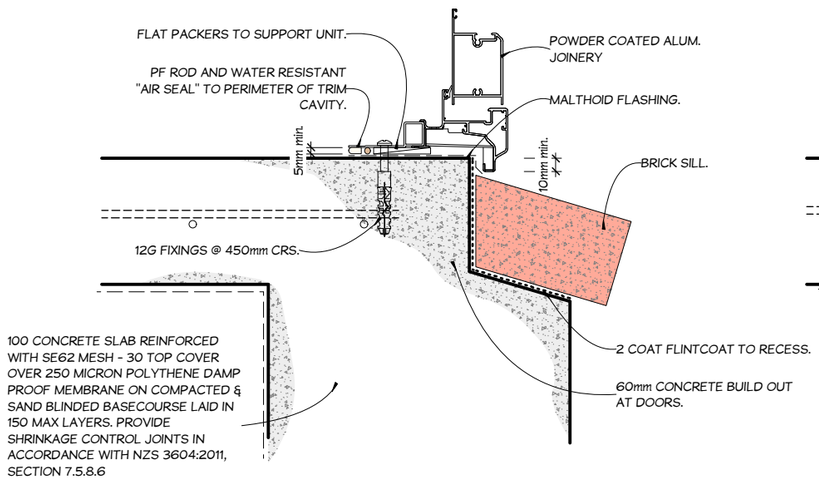
C BRICK VENEER JAMB
1:5



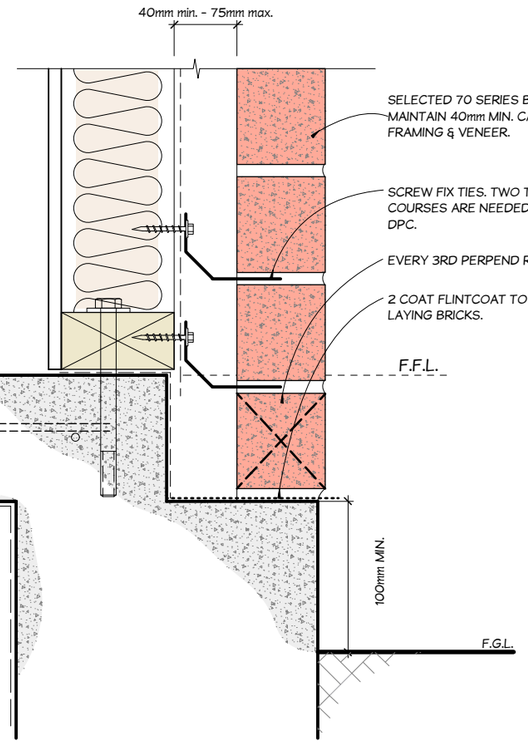
E SOFFIT CLOSURE
1:5



B BRICK VENEER SILL
1:5



D BRICK VENEER DOOR SILL
1:5



F BRICK VENEER BASE
1:5

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

DETAILS

Scale: Scale | Drawn: JA | Date: 5-06-2015

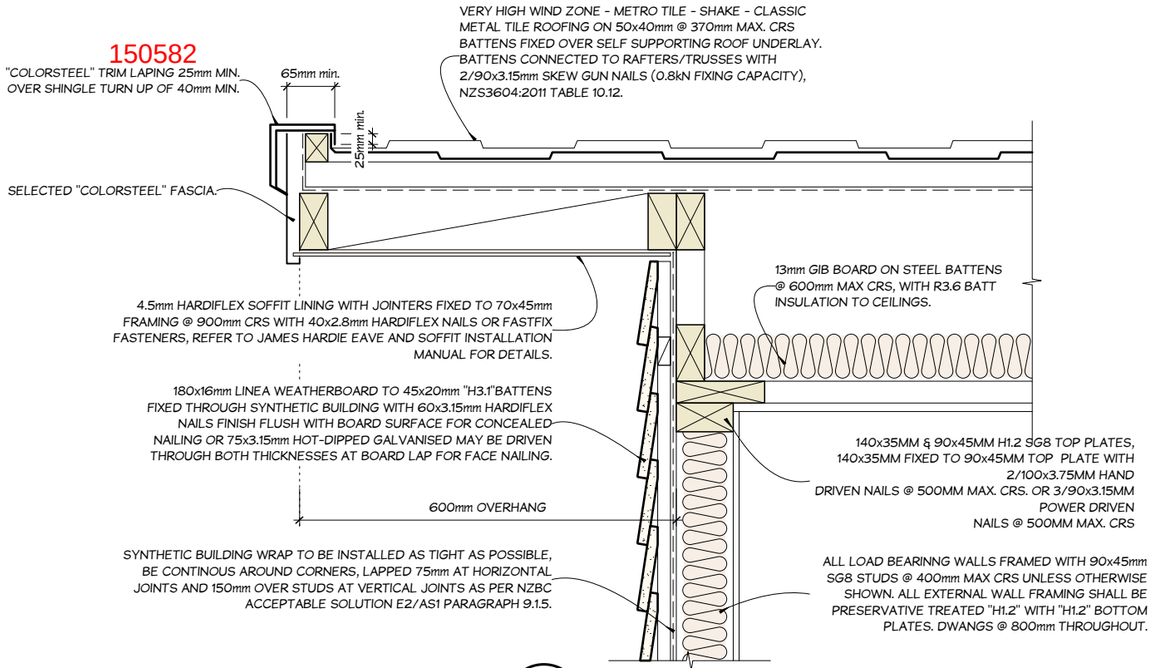
REV	DATE	AMENDMENT

TSW NO: 15155
DWG NO. 11
REV

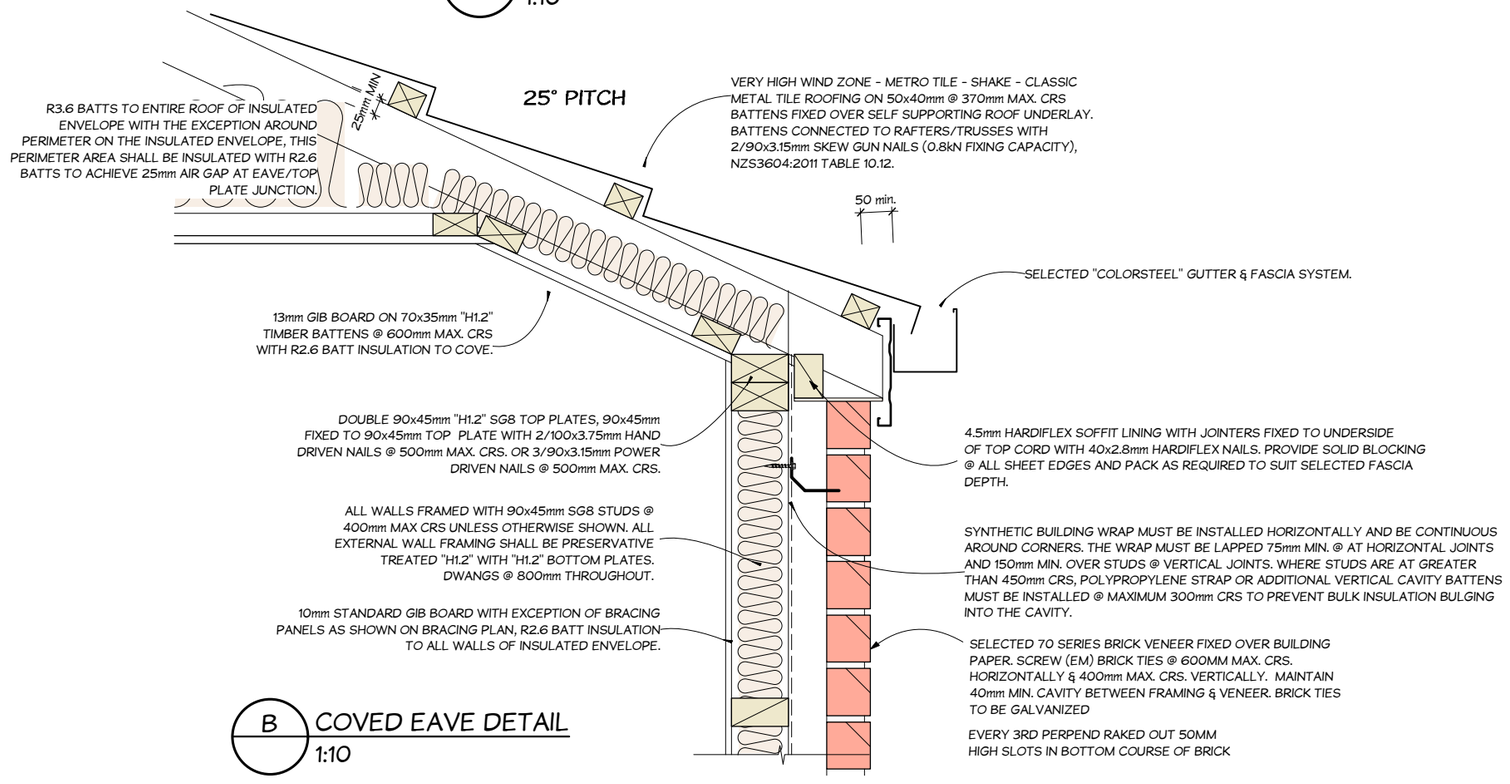
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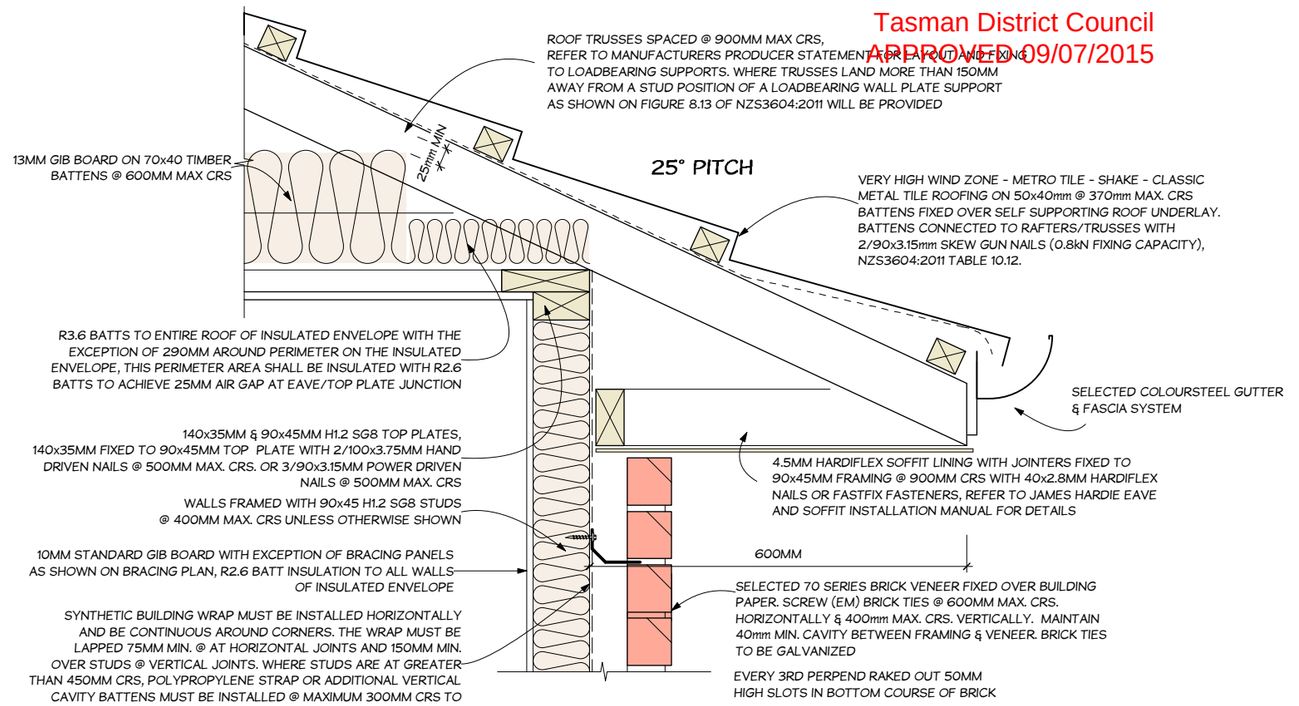
Tasman District Council
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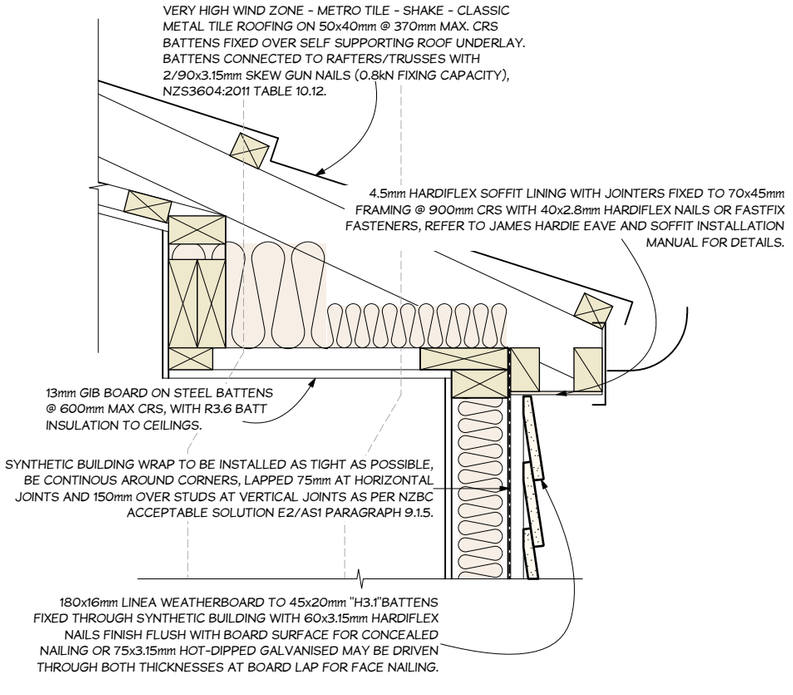
A METAL TILE BARGE DETAIL
1:10



B COVED EAVE DETAIL
1:10



C EAVE DETAIL
1:10



D CHIMNEY COVED EAVE DETAIL
1:10

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

DETAILS

Scale: Scale | Drawn: JA | Date: 5-06-2015

REV	DATE	AMENDMENT
A	18/6/15	DETAIL A

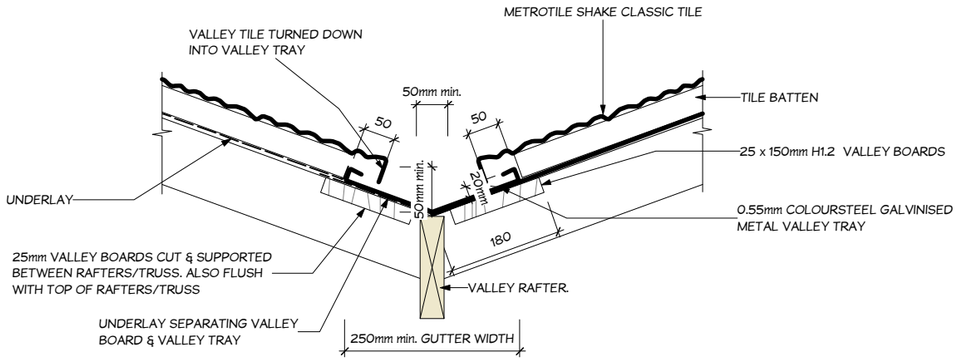
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DWG NO. 12 A
REV A

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NOTES

1. REFER TO TABLE 8 FOR MAXIMUM ROOF CATCHMENT AREAS FOR VALLEY GUTTERS.
2. MINIMUM WIDTH OF VALLEY GUTTER MAY REDUCE TO 160mm, PROVIDING ROOF CATCHMENT AREA IS IN ACCORDANCE WITH TABLE 8. IN THIS CASE, COVER OF ROOF CLADDING OVER GUTTER SHALL BE REDUCED TO 60mm TO PROVIDE A CLEARANCE GAP OF 40mm.

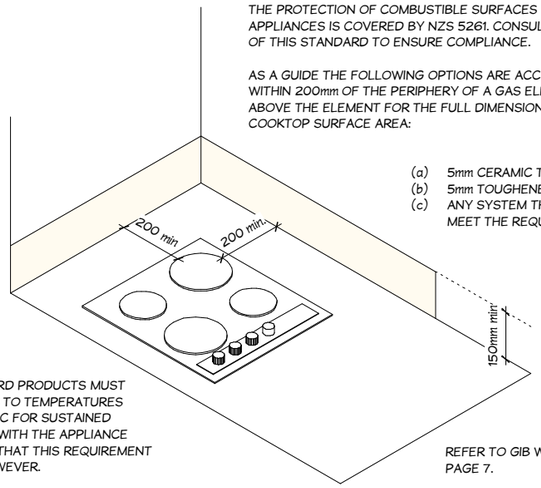


D VALLEY GUTTERS FOR PROFILED METAL TILES
n.t.s.

THE PROTECTION OF COMBUSTIBLE SURFACES SURROUNDING COOKING APPLIANCES IS COVERED BY NZS 5261. CONSULT THE CURRENT VERSION OF THIS STANDARD TO ENSURE COMPLIANCE.

AS A GUIDE THE FOLLOWING OPTIONS ARE ACCEPTABLE FOR WALL SURFACES WITHIN 200mm OF THE PERIPHERY OF A GAS ELEMENT TO A HEIGHT OF 150mm ABOVE THE ELEMENT FOR THE FULL DIMENSION (WIDTH AND DEPTH) OF THE COOKTOP SURFACE AREA:

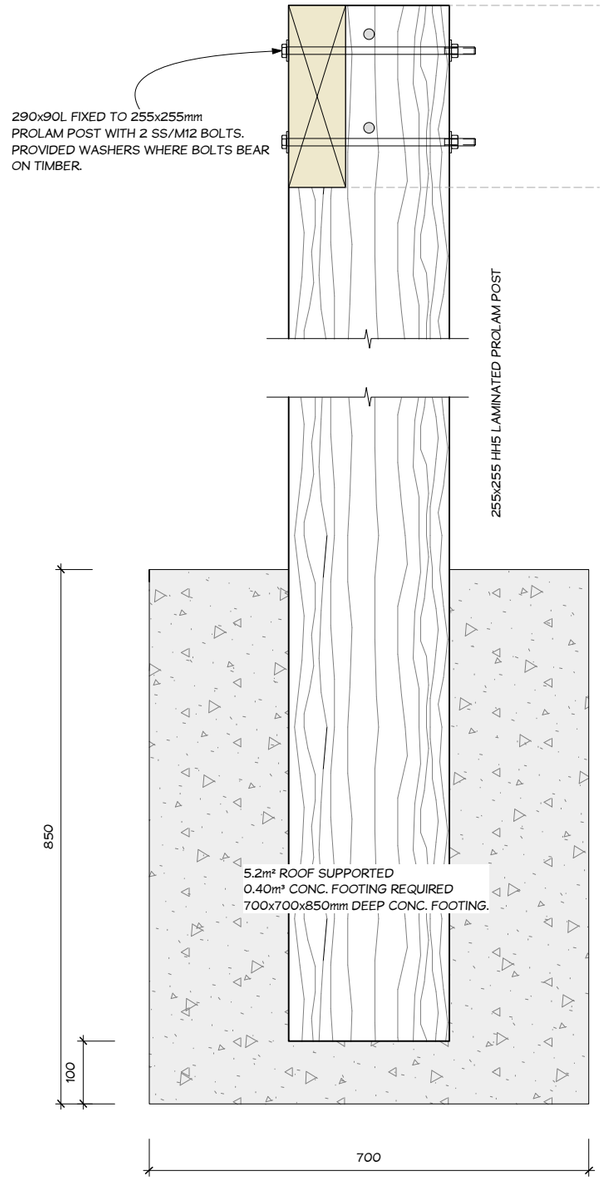
(a) 5mm CERAMIC TILES ON GIB PLASTERBOARD
(b) 5mm TOUGHENED GLASS ON GIB PLASTERBOARD
(c) ANY SYSTEM THAT CAN BE DEMONSTRATED TO MEET THE REQUIREMENTS OF CLAUSE 2.6.2.6 OF NZS5261.



GIB PLASTERBOARD PRODUCTS MUST NOT BE EXPOSED TO TEMPERATURES IN EXCESS OF 52°C FOR SUSTAINED PERIODS. CHECK WITH THE APPLIANCE MANUFACTURER THAT THIS REQUIREMENT WILL BE MET. HOWEVER.

REFER TO GIB WET AREA SYSTEMS DESIGN PAGE 7.

10 WALL SURFACES SURROUNDING COOKTOPS
not to scale



POST DETAIL
1:10

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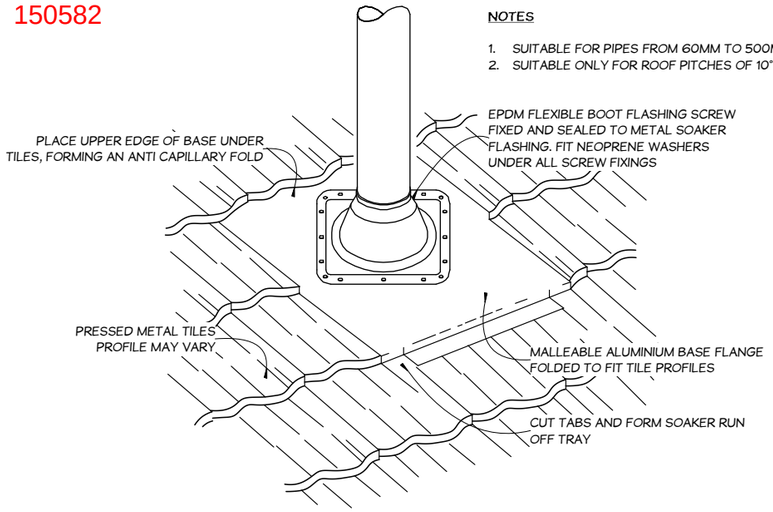
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NOTES

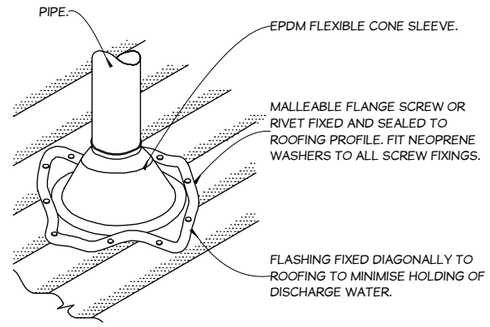
1. SUITABLE FOR PIPES FROM 60MM TO 500MM DIAMETER
2. SUITABLE ONLY FOR ROOF PITCHES OF 10° OR HIGHER



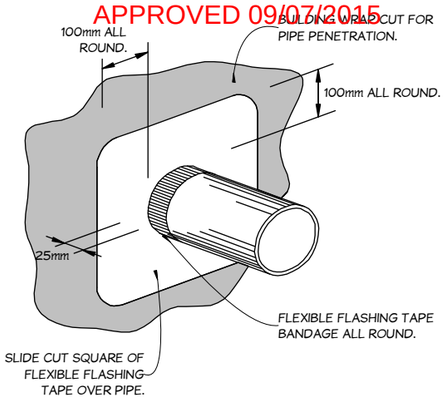
C SOAKER FLASHING FOR PIPE PENETRATIONS
NTS

NOTE

1. MAX. ROOF PITCH FOR THIS FLASHING 45°, MINIMUM PITCH 10°.
2. FOR PIPES UPTO 60mm DIAMETER.



FLASHING FOR SMALL PIPES
n.t.s.

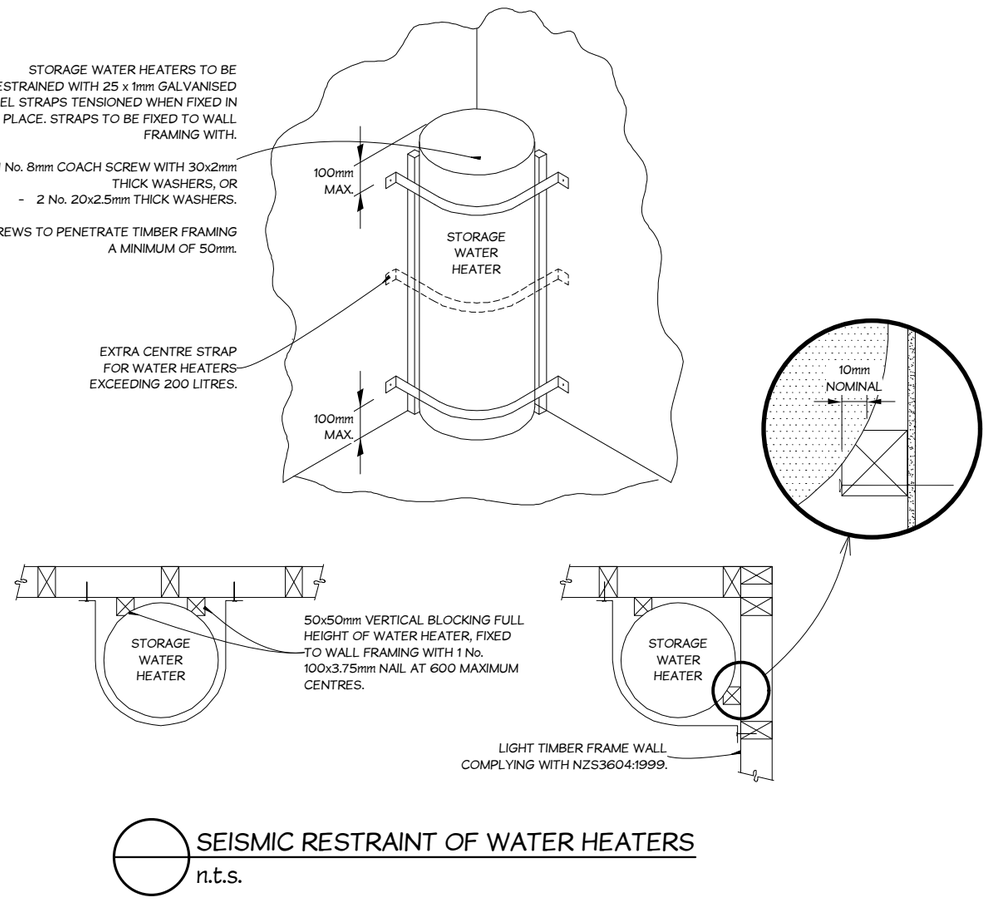


GENERAL WALL PENETRATION
n.t.s.

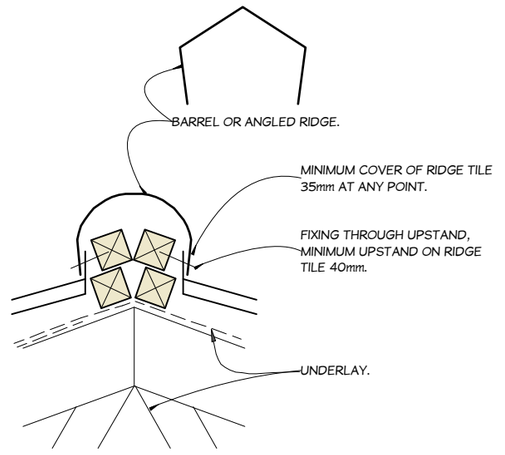
STORAGE WATER HEATERS TO BE RESTRAINED WITH 25 x 1mm GALVANISED STEEL STRAPS TENSIONED WHEN FIXED IN PLACE. STRAPS TO BE FIXED TO WALL FRAMING WITH.

- 1 No. 8mm COACH SCREW WITH 30x2mm THICK WASHERS, OR
- 2 No. 20x2.5mm THICK WASHERS.

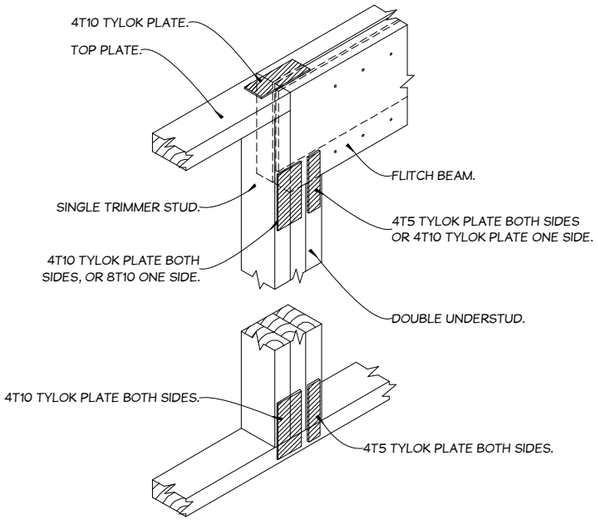
SCREWS TO PENETRATE TIMBER FRAMING A MINIMUM OF 50mm.



SEISMIC RESTRAINT OF WATER HEATERS
n.t.s.



RIDGE OR HIP FLASHINGS FOR METAL TILE
1:10



10 FLITCH BEAM FIXING DETAIL
n.t.s.

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3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

DETAILS

Scale: Scale | Drawn: JA | Date: 5-06-2015

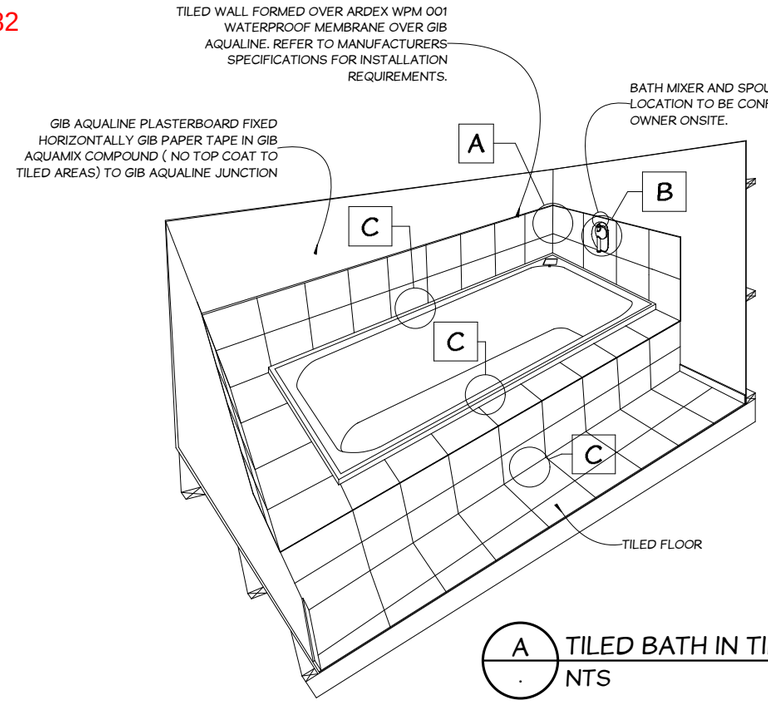
REV	DATE	AMENDMENT

TSW NO: 15155
DWG NO. 14 REV

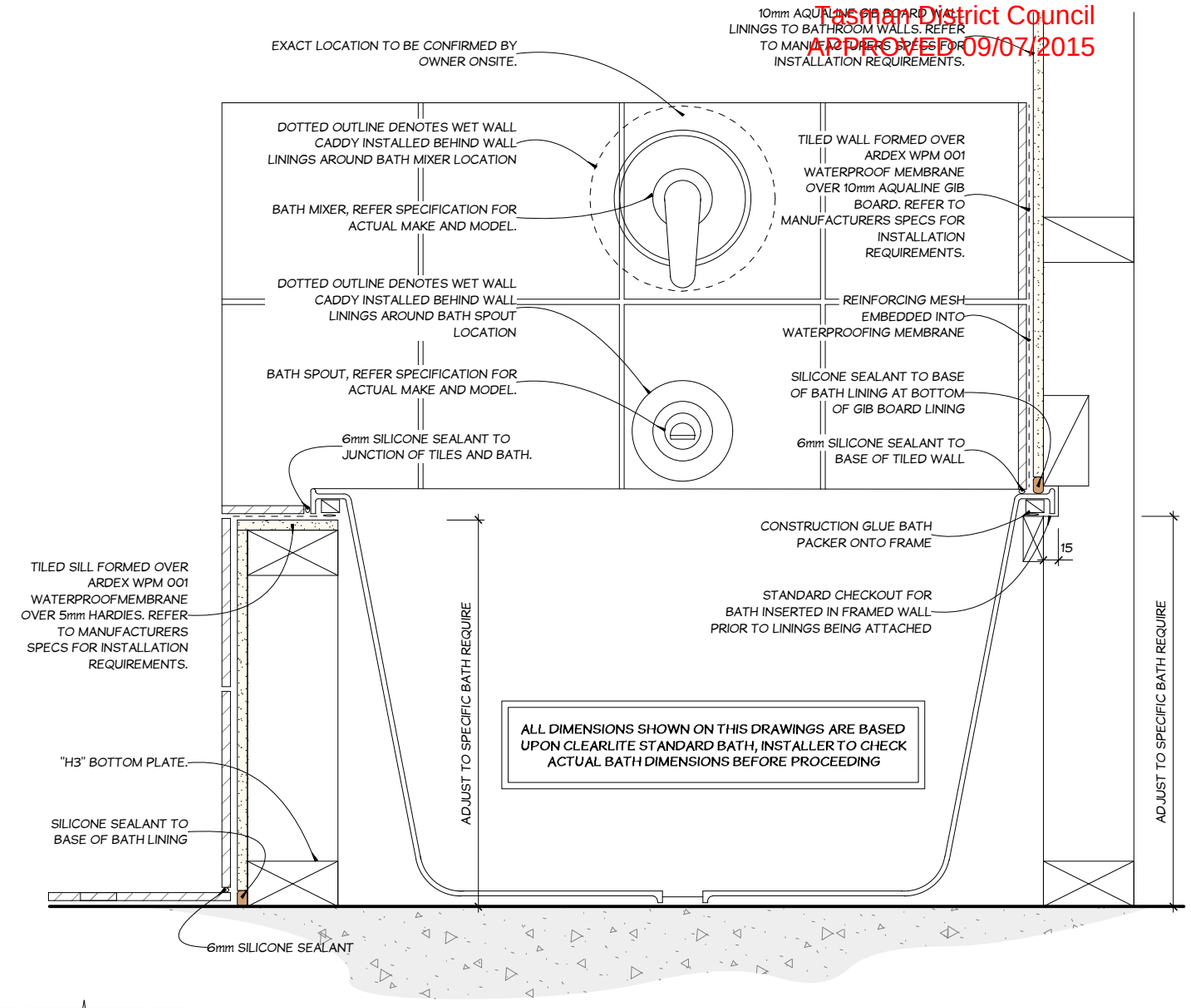
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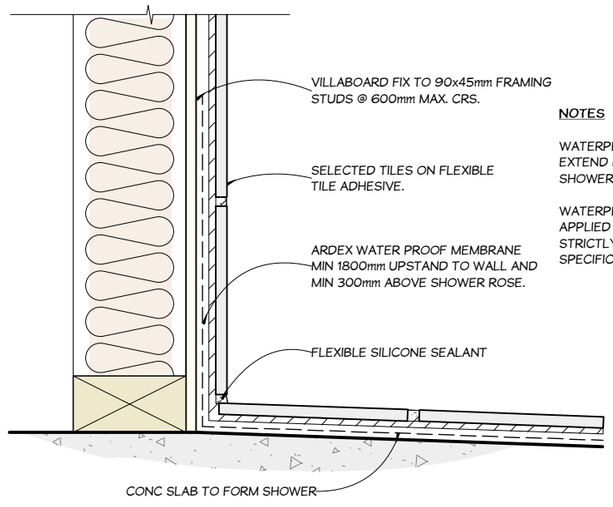
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A TILED BATH IN TILED SURROUND
NTS



B BATH WALL BASE
NTS

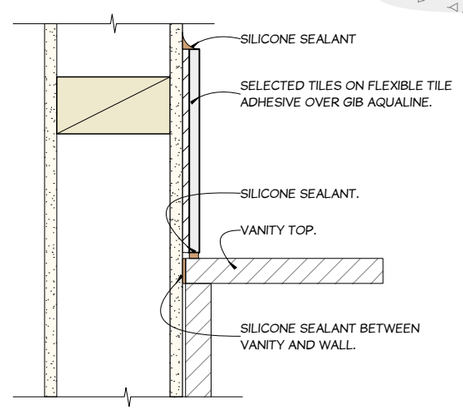


NOTES

WATERPROOF FLOOR MEMBRANE TO EXTEND MIN 500mm OUTSIDE OF SHOWER AREA.

WATERPROOF MEMBRANE SHALL BE APPLIED BY AN APPROVED APPLICATOR STRICTLY TO THE MANUFACTURERS SPECIFICATION.

C FORMED FLOOR SHOWER - CONCRETE FLOOR
1:5



D VANITY TOP DETAIL
SCALE 1:5

Signature HOMES Est. 1983 YOUR HOME. YOUR WAY.	**SJB Construction Limited** T/A Signature Homes Nelson. 308 Queen Street, Richmond, P.O. Box 3549, Richmond Ph (03)541 0317 Fax (09) 415 2467 www.signaturehomes.co.nz	These drawings are limited to and by the extent of the detail covered in the drawings to meet the current New Zealand Building Code (NZBC). Where detail is required for construction and to demonstrate compliance with the current NZBC, a specific request should be made for the required detail to be supplied. No liability will be accepted for any detail or construction not covered in these drawings and/or carried out by persons other than the designer producing these documents.	3 BEDROOM RESIDENCE JACKIE & JEFF DICK 130 RIDGEVIEW ROAD, APPLEBY	DETAILS	REV / DATE / AMENDMENT A / 18/6/15 / BATHROOM DETAILS	TSW NO: 15155	
				Scale: Scale Drawn: JA Date: 5-06-2015		DWG NO. 15 A	REV A

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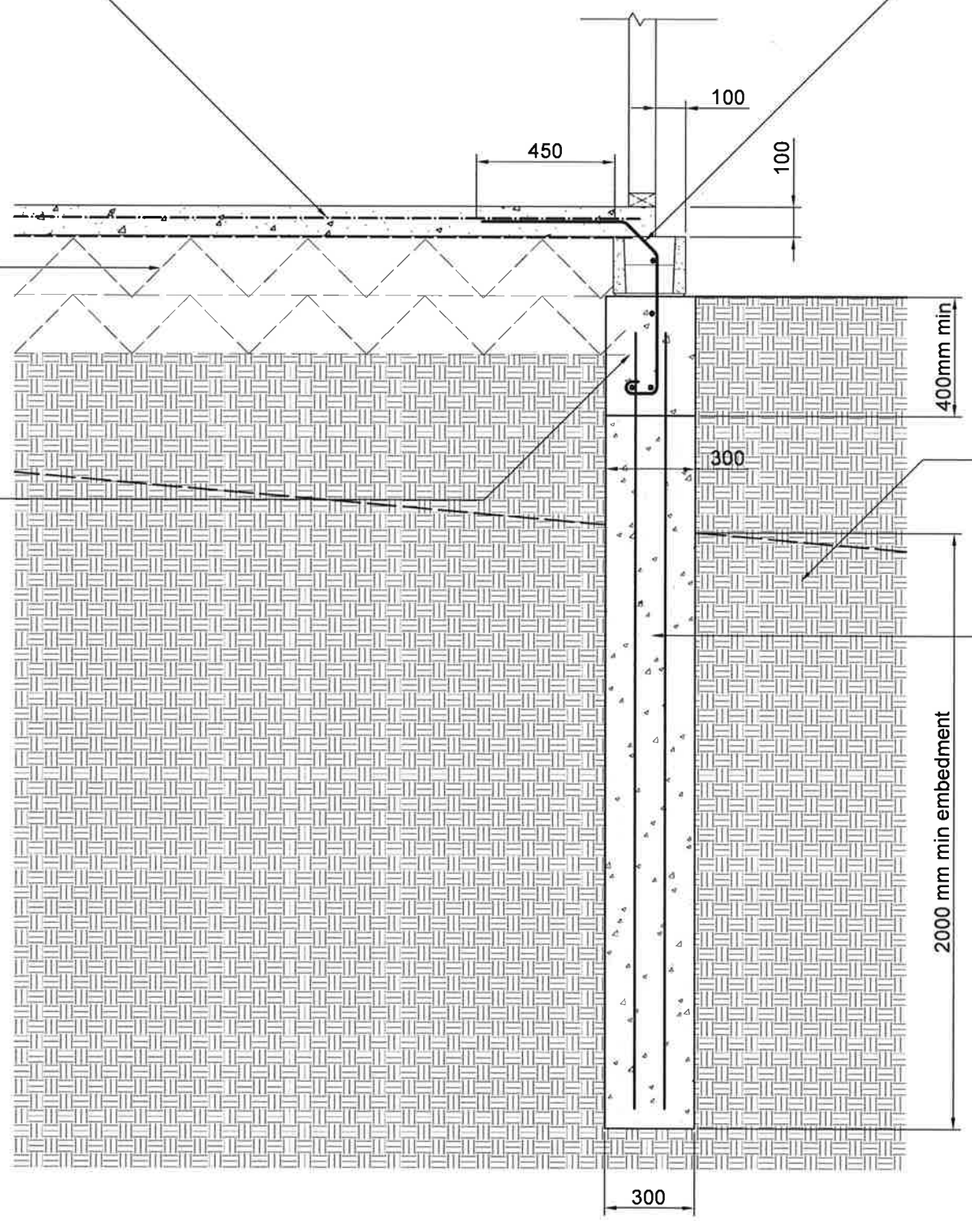
150582

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100mm thick reinforced concrete floor slab. SE62 500E mesh 40 cover to slab surface. On 250 micron polythene DPC on 15mm to 25mm blinding layer (pea-metal or sand).

Strip all topsoil and uncertified filling from the slab area. Where the ground slope exceeds 10 degrees, level bench prior to filling. Place and compact granular hardfill free from clay (max 100mm particle size) in layers not exceeding 200mm loose depth. Compact with a plate compactor of not less than 300kg weight.

Min 300mm wide foundation x min 400mm into natural ground or certified filling - Reinforce with 3 - HD12 bars along & D10 floor starters at 600mm centres. Min cover to HD12 bars to be 75mm to bottom & sides of foundation. Concrete strength 20 MPa at 28 Days. Lap HD12 bars at least 500mm in concrete and 700mm in masonry.



Floor Starters - D10 - 600 centres - on centreline of block wall - turn into floor slab to lap at least 450mm with floor mesh

25 Series concrete block at top (25.16 or 25.14) - all cells filled with min 17.5 MPa concrete (28 day strength)

Approx line of good ground (no topsoil and soil strength is at least 300 kPa (ultimate)

Piled foundations - (where directed by the engineer) - 300mm reinforced concrete piles at 1.5m maximum centres along the wall foundation (and at all corners) - Piles to be drilled at least 2000 mm into firm natural soil below any uncertified fill and topsoil - Soil to have an ultimate bearing strength of at least 300 kPa. Reinforce piles with 2x HD12 bars 100mm apart - extend bars to top of foundation.

NOTE: - Masonry construction to comply with NZS4210

PILED FOUNDATION DETAIL OUTSIDE 3604 AREA

Scale 1 : 20

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Richmond NELSON
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Fax: (03) 544-6694

ENGINEERING DETAILS - PILED FOUNDATIONS
DICK - SIGNATURE HOMES
130 RIDGEVIEW ROAD, APPLEBY HILLS, NELSON

Scale 1:20 Original size A3	Sheet S1 of 4
Date 27-05-15	
Drawn RJO	File 15165

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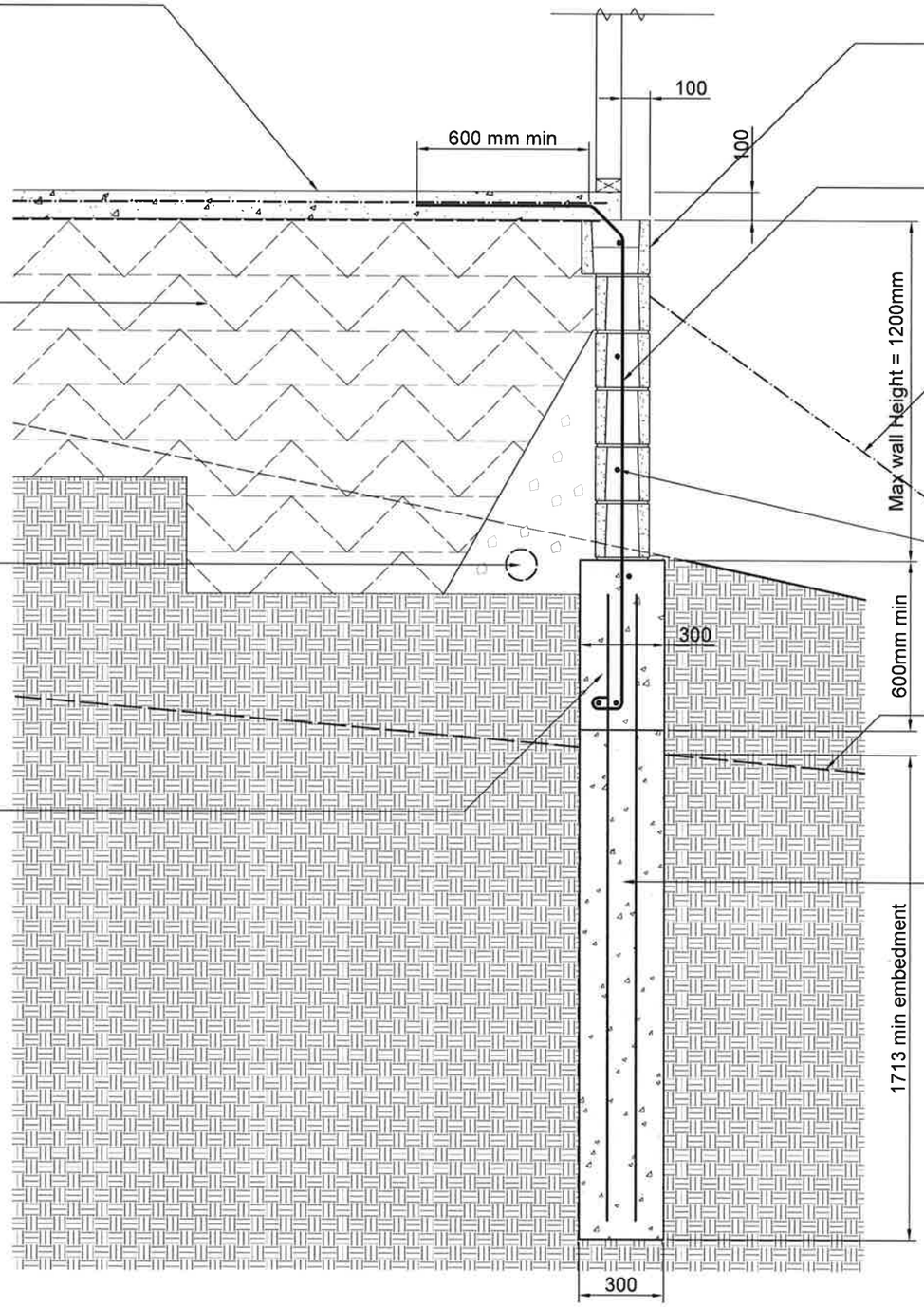
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100mm thick reinforced concrete floor slab. SE62 500E mesh 40 cover to slab surface. On 250 micron polythene DPC on 15mm to 25mm blinding layer (pea-metal or sand).

Strip all topsoil and uncertified filling from the slab area. Where the ground slope exceeds 10 degrees, level bench prior to filling. Place and compact granular hardfill free from clay (max 100mm particle size) in layers not exceeding 200mm loose depth. Compact with a plate compactor of not less than 300kg weight.

100mm Perforated drain. Discharge via a sump into an approved stormwater system. Surround drain with 20mm - 38mm drainage metal. Drainage metal to extend to approx half wall height.

Min 300mm wide foundation x min 600mm into natural ground or certified filling - Reinforce with 3 - HD12 bars along & HD12 wall starters at 400mm centres. Min cover to HD12 bars to be 75mm to bottom & sides of foundation. Concrete strength 20 MPa at 28 Days. Lap HD12 bars at least 500mm in concrete and 700mm in masonry.



20 Series concrete blocksTop block to be 25 series (25.16 or 25.14) - all cells filled with min 17.5 MPa concrete (28 day strength)

Main vertical reinforcing in wall - D12 - 400 centres - on centreline of block wall turn min 600mm along floor slab to lap with floor mesh

The foundation wall is to be adequately propped (Acrowprops recommended) at not more than 1.8m centres before placing and compacting hardfill, and the props shall remain in place until at least one week after the concrete floor slab is poured

Horizontal reinforcing - D12 at 400mm centres

Approx line of good ground (no topsoil and soil strength is at least 300 kPa (ultimate)

Piled foundations - (where directed by the engineer) - 300mm reinforced concrete piles at 1.5m maximum centres along the wall foundation (and at all corners) - Piles to be drilled at least 1800mm deep and at least 1300mm into firm natural soil below any uncertified fill and topsoil - Soil to have an ultimate bearing strength of at least 300 kPa. Reinforce piles with 2x HD12 bars 100mm apart - extend bars to top of foundation.

NOTE: - Masonry construction to comply with NZS4210

PILED OVERHEIGHT FOUNDATION DETAIL - WALLS UP TO 1.2m HIGH

Scale 1 : 20

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ENGINEERING DETAILS - PILED FOUNDATIONS
DICK - SIGNATURE HOMES
130 RIDGEVIEW ROAD, APPLEBY HILLS, NELSON

Scale 1:20 Original size A3	Sheet S2 of 4
Date 27-05-15	
Drawn RJO	File 15165

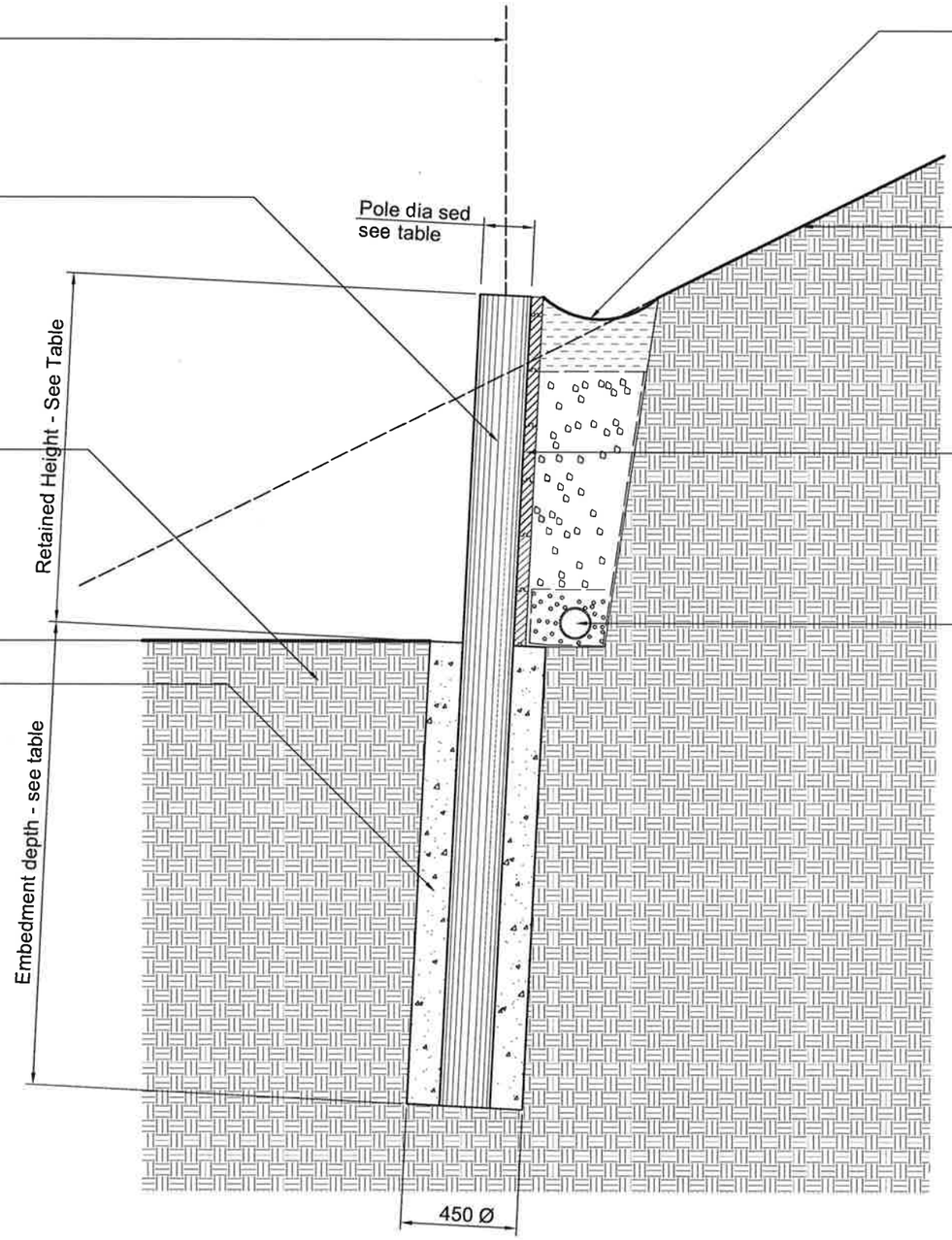
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Provide fence or balustrade complying with the Building Act where wall height exceeds 1.0m.

H5 Treated Timber Poles at max 1.0m centres - see table below for pole diameter and embedment

450mm diameter pole foundation holes - Fill pole holes to ground level with 17.5 MPa concrete



Min 400mm wide x 75mm deep dished drain - form in clay/topsoil capping to wall - provide drain with min 1 in 100 fall along top of wall.

May trim soil behind wall - Max ground slope supported by wall to be 26.5° (1v in 2h)

170 x 43 T&G - Nail with 100mm galv FH nails to poles. Butt join only at poles, stagger joints where possible

100mm dia perforated drain with invert as low as practical - drain to have min 1 in 100 fall to discharge via a sump into an approved stormwater discharge system. Cover pipe with at least 100mm of 10mm peametal. Enclose peametal and drainage metal in approved filter cloth.
Place 40mm to 60mm angular drainage metal to approx 200mm below the top of the wall. Cover drainage metal with filter fabric to separate from clay capping.

Maximum Retained Height (RH)	Pole Dia (sed) (PD)	Embedment Depth (ED)
1200mm	175mm	1600mm (RH + 400)
1000mm	150mm	1500mm (RH + 500)
800mm or less	150mm	1300mm (RH + 500)

POLE RETAINING WALL DETAILS - WALLS UP TO 1.2m HIGH

Scale 1 : 20

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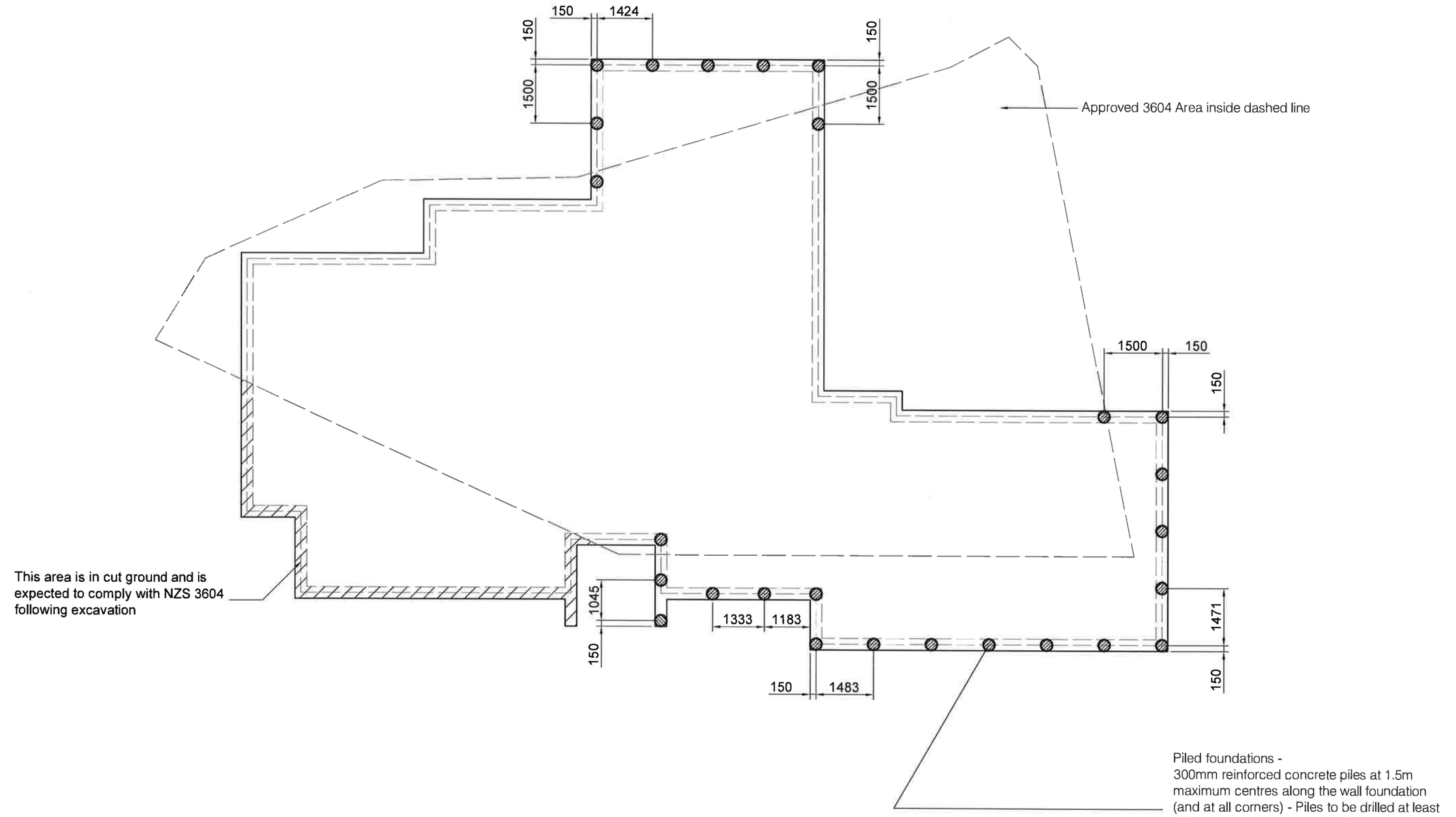
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ENGINEERING DETAILS - POLE RETAINING WALL
DICK - SIGNATURE HOMES
130 RIDGEVIEW ROAD, APPLEBY HILLS, NELSON

Scale 1:20 Original size A3	Sheet S3 of 4
Date 27-05-15	
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PILE SETOUT PLAN
Scale 1 : 20

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ENGINEERING DETAILS - PILE SETOUT PLAN
DICK - SIGNATURE HOMES
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Scale 1:20 Original size A3	Sheet S4 of 4
Date 27-05-15	
Drawn RJO	File 15165

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9 May 2014

Mr Chris Edmonds

CBH Ltd
PO Box 2054
Stoke
Nelson

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
9/07/2015
BC 150582
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

Building Site Certification Report

Appleby Hills Subdivision Stage 7
Lots 42, 43, 44 & 46

Introduction
Swanney Geotechnical and Civil Engineering have been engaged by CBH Ltd to provide the building site certification for the four new lots in Stage 7 of the Appleby Hills Subdivision. The works in this stage comprise an extension to Ridgeview Road and the formation of four new lots – one above Ridgeview Road and three below.

The following report and attached certification addresses the requirements of Condition 13 (Building Site Stability) of the Subdivision Consent RM 100632.

Site Description
The site is located within the Appleby Hills Subdivision, Appleby, and is accessed via Ridgeview Road. The land within Stage 7 rises from the base of the wide gully onto the southwest to westerly flanks of the wider shallow valley feature. The slopes across the area are easy to moderate.

The site is underlain by the Moutere Gravel Formation; typically clay bound gravels with the upper layers weathered to a silty clay. This material is generally inherently stable, although can be prone to shallow instability in wetter/steeper areas.

There have been some historic earthworks carried out across this area. This has been identified as predominantly infilling of some of the low-lying areas and old tracks traversing the slope. Within the lots, historic fill was encountered across Lot 43, within the low-lying area in Lot 42 and along the lower area on Lot 46. There is likely some minor fill across the lower slopes of Lot 44. The historic fills are typically weak and are not engineered.

There are no formed watercourses crossing the area. Stormwater drainage of the area is via surface flows draining to the north-trending watercourse in the base of the main gully.

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Building Site Earthworks

The earthworks for Stage 7 comprised formation of the extension to Ridgeview Road and building platforms on each of the four lots. The works were carried out over the summer of 2013/2014 to the approved plans prepared by Land Dimensions Ltd. All fill was sourced from on-site. Excavated material which was unsuitable for use within the certified fills was placed in a gully area to the north of Stage 7. Testing of the bulk fills was carried out with a nuclear densometer (by an independent laboratory) and Scala Penetrometer during construction to ensure the level of compaction was appropriate and consistent.

For the building platforms, each site was inspected after the initial strip-out and at regular intervals to test the fill. The control testing during construction was via Scala Penetrometer. Following construction of the platforms topsoil was re-spread over the batters.

Building Site Descriptions

A Building Location Area (BLA) has been designated on each of the new lots. New building development on each lot is required to be within the BLA. Within each BLA an engineered building platform has been constructed. The appended Geotechnical Certification Plan identifies the BLA on each lot, the location of the platform on the lot, the approximate location of the cut/fill transition across the platform and the top and bottom of the cut/fill batters.

Below is a short description of the pre-development ground conditions and the earthworks carried out on each lot.

Lot 42

Lot 42 is located below Ridgeview Road and adjacent to the north trending watercourse in the base of the wide gully. A low-lying area crosses east-west through the lot which drained the slope to west prior to the subdivision being constructed. Weaker natural ground and historic fill is present within this area. A subsoil drainage line has been installed under Ridgeview Road, which runs in the invert of the low area and daylights approximately halfway across the lot.

The building platform has been constructed on the south side of the lot, located on the back of a small west-trending spur feature which is now incorporated into the platform. The stripping out below the fill area exposed predominantly natural ground, with a minor amount of old fill removed from the northern margin of this area. The land within the SID area to the north of the formed platform has a depth of old fill and weak natural ground and this should be taken into account in any future investigations/development extending onto this area.

Lot 43

Lot 43 is located below Ridgeview Road with a southwest aspect. The cut/fill building platform is located on the east side of the lot. The strip-out for the fill encountered a depth of historic fill under the downslope (east) side of the platform area. This fill was stripped

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out prior to filling. Below the building platform area on the east side of the BLA there remains a depth of historic fill. This will need to be taken into account in any future investigations/development extending onto this area. Competent Moutere Gravel Formation is present beneath the fill.

Lot 44

Lot 44 is located below Ridgeview Road on the back of a strong wide spur with competent ground at shallow depth across the natural ground. The building platform on the west side of the lot is predominantly on cut with approximately the east 1/3 on certified fill. Outside of the building platform the remainder of the BLA area is likely to be natural ground with the possibility of a shallow depth of old fill along the east side.

Lot 46

This lot is located above Ridgeview Road adjacent to the southeast boundary of the subdivision. The wide, concave nature of the land profile has resulted in an increased depth of weaker natural ground. Excavation of test pits across the area encountered weak weathered clay soils with intermittent fine layers of plastic clay down to approximately 1200mm depth.

The earthworks to form the platform comprised the excavation of the weaker ground, excavation of a 4m wide by shear key along the lower margin of the platform and installation of four 5m long x 0.3m wide gravel-filled shear trenches in the natural ground above the building platform. These additional earthworks have been incorporated to improve the stability of the building platform.

Works off the prepared building platform will require specific investigation and design, which needs to take into account the possibility of plastic clay lenses within the weaker near-surface materials. A sketch of the platform works is appended.

Building Site Certification

The building sites (BLA areas) on each lot have been zoned as either *NZS3604* building zone or *Specific investigation and Design (SID)* zone. The *NZS3604* zone is suitable for foundations designed in accordance with NZS3604:2011 Timber Framed Buildings or NZS4229: 1999 Concrete Masonry Buildings Not Requiring Specific Engineering Design. This comprises the area on the engineered building platform and the associated cut batters, with a stipulated set-back from the front edge of the fill batter. The remainder of the BLA has been zoned as *Specific investigation and Design (SID.)* This area requires specific investigation and design by a chartered professional engineer. The appended Geotechnical Certification Plan appended shows the zoning on the four lots within Stage 7.

Within the *NZS3604* zone the certification testing indicated the allowable bearing capacity of the near-surface ground foundation of 100kPa or better (based predominantly on the shear vane results). Certification testing on the platforms comprised three Scala Penetrometer tests and three field shear vane tests on each building platform.

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The *Specific Investigation and Design* zoned areas comprise the fill batters and the remainder of the BLA which have not been earthworked as part of the subdivision development. While the general overall stability of the ground area within the *SID* zone is considered appropriate for development, specific investigation and design is required to ensure any works are appropriate for the ground conditions present.. Development within the *SID* area requires specific investigation and design by a chartered engineer experienced in foundation design and slope stability assessment.

The fills forming the building platforms has been placed in accordance with NZS 4431:1989 Code of Practise for Earthfill for Residential Development.

Stormwater

Stormwater flows from each building site are to be discharged in a manner so as not to adversely affect stability or cause adverse effects off site.

With Lots 42, 43 and 44, the main local watercourse passes adjacent to the lower boundary on each lot. Stormwater on these lots should be discharged clear of the building platform and into existing shallow drainage pathways to drain to the main watercourse. On Lot 46 stormwater can be discharged into the existing open cut-off drain crossing the site, or otherwise near the lower boundary clear of the building platform into a natural drainage pathway.

Erosion control at the discharge point such as heavy vegetation cover, rip-rap or a flow dispersal approach may be required.

Conclusions and Recommendations

The recommendations and conclusions contained within this report are based on our observations and site testing during construction of the bulk earthworks and building platforms in Stage 7 of the development. The nature and continuity of the ground conditions away from the test locations have been inferred and may vary.

It is our opinion that each of the BLA areas identified within Stage 7 of the development are suitable for residential development, subject to the recommendations below.

The BLA's have been divided into development areas, with the flat building platform areas generally zoned as 'NZS3604' and the outside margins of the platform and sloping ground as 'Specific Investigation and Design' areas. The set-back distance from the outside edge of the building platform has been set based on an assessment of the depth of fill, the depth of topsoil and the batter slope.

NZS3604 zone

Foundation conditions are generally suitable for development in accordance with NZS3604:2011 Timber Framed Buildings. As required by the standard, ground conditions are to be confirmed via Scala Penetrometer testing and/or other suitable soil testing methods for the specific building development proposed.

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Specific Investigation and Design zone

The areas include the outside margin of the building platforms, and cut and fill batter slopes. These areas either do not satisfy the requirements of NZS3604 or there may be a risk of slope instability if any development is not properly planned and designed. Development works within these areas should be investigated and designed by a chartered professional engineer experienced in foundations design and slope stability assessment.

Based on our testing and monitoring of the works as described above, it is our opinion that all works within Stage 7 have been carried out in accordance with the consented plans and council approved amendments. All fill has been placed in accordance with NZS 4431:1989 Code of Practise for Earthfill for Residential Development.

Applicability

This report has been prepared for CBH Ltd for submission to Tasman District Council as required by condition 13 of resource consent RM100632. The report has been prepared in accordance with the brief provided, and data or opinions contained within may not be used in other contexts of for any other purpose without our prior review and agreement.

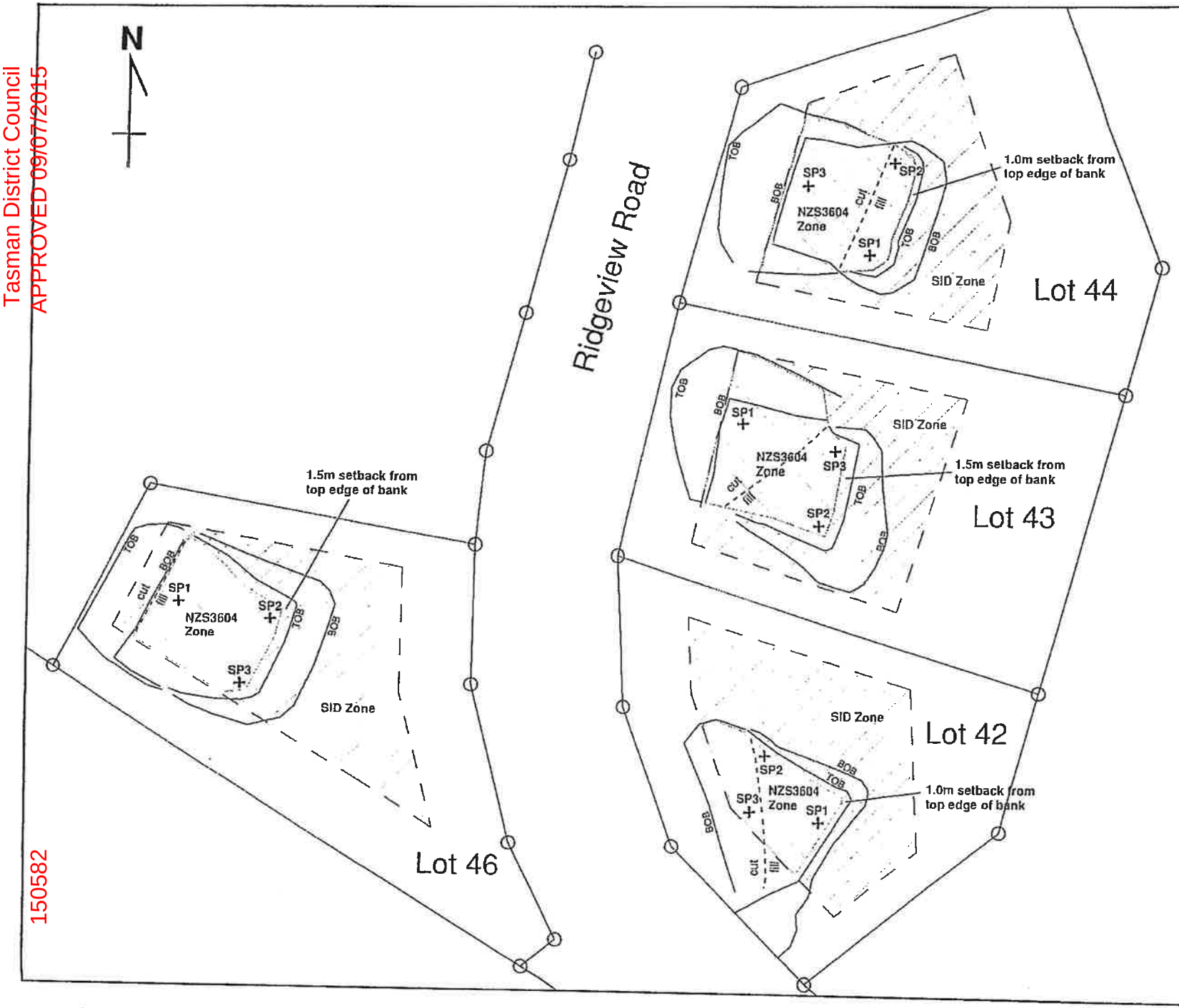
Test results indicate the ground conditions at the location and time the tests were conducted. Conditions elsewhere on the site may vary from this. The opinions within this report are based on the landform at the time of issue of title for the lots.

Prepared by:
Jeff Swanney

Swanney Geotechnical and Civil Engineering
PO Box 828
Nelson

Appended: Geotechnical Certification Plan
Certification Test results (4 sheets)
Lot 46 platform section sketch

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Swanney

Geotechnical and Civil Engineering
PO Box 828 Nelson

- Building Location Area
- Specific Investigation and Design (SID) Zone
- NZS3604 Zone
- TOB — Top of bank
- BOB — Bottom of bank
- SP1 + — Scala Penetrometer test location
- cut / fill — Transition from cut to certified fill on each building platform

Notes:
The setback distance refers to the transition between the NZS3604 and SID zones. Refer to the Appleby Subdivision Stage 7 Building Site Certification Report for a full description of each site.

Title:
Stage 7 Appleby Hills Subdivision

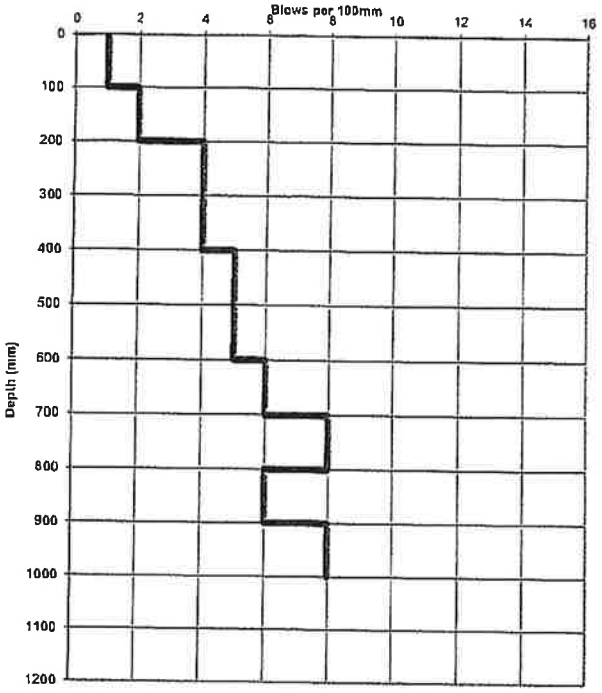
Geotechnical Certification Plan

Design:	
Drawn:	
Approved:	J Swanney
Scale:	1:500 @ A3
Original Size:	A3
Date: 28 April 2014	Job No: 1310
Sheet 1 of 1	Rev: A

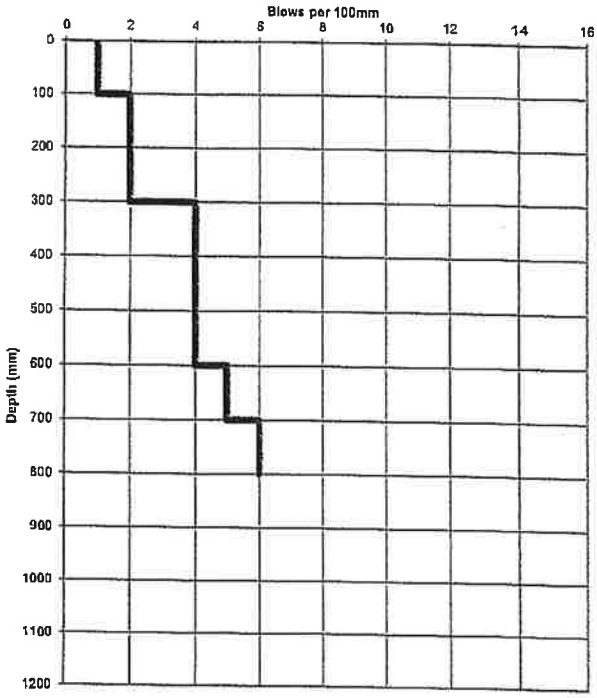
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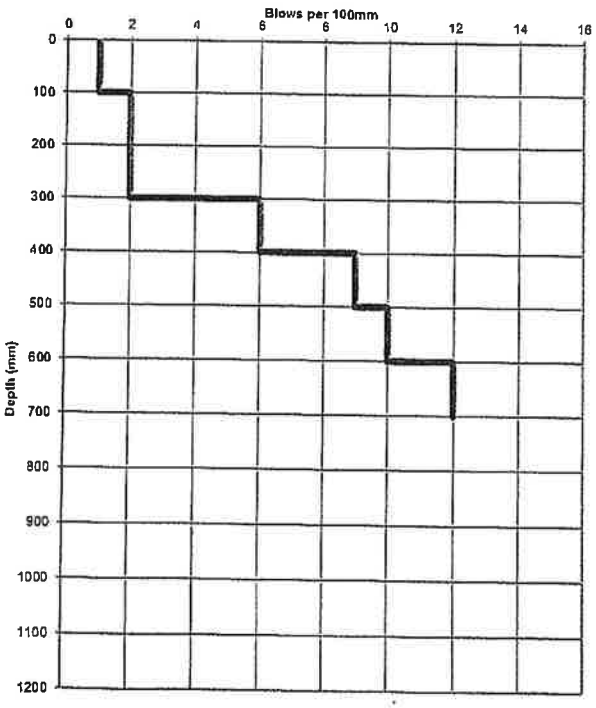
SP42/1



SP42/2



SP42/3



Field Shear Vane test results (s_u)

Depth ~150mm

Tests adjacent to Scala test sites

SP42/1	138 kPa
SP42/2	169 kPa
SP42/3	144 kPa

Test 6.5.2 NZS4402 Determination of the penetration resistance of a soil

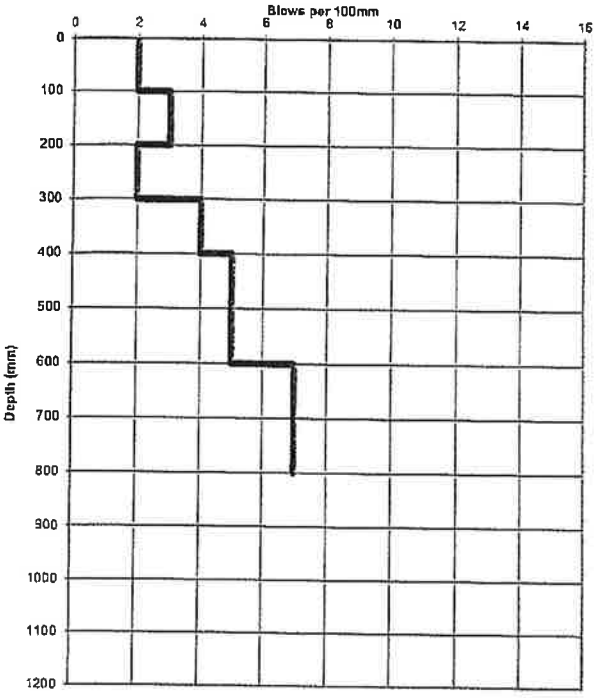
Swanney
Geotechnical and Civil Engineering
PO Box 828, Nelson
Phone: 03 548 9870
Mobile: 021 882011

Client:	CBH Ltd	SCALA PENETROMETER AND FIELD SHEAR VANE RESULTS Lot 42	
Location:	Appleby Hills Subdivision	**Date:**	16/04/14
Tester:	J Swanney	**Job No.**	1310

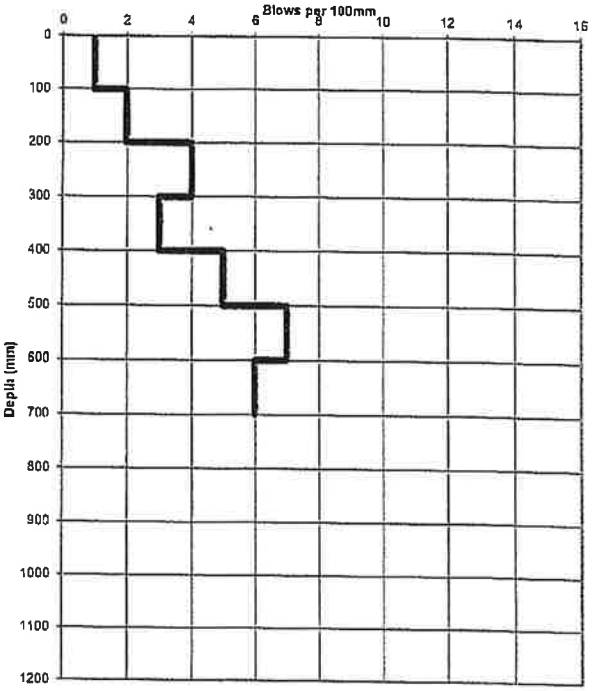
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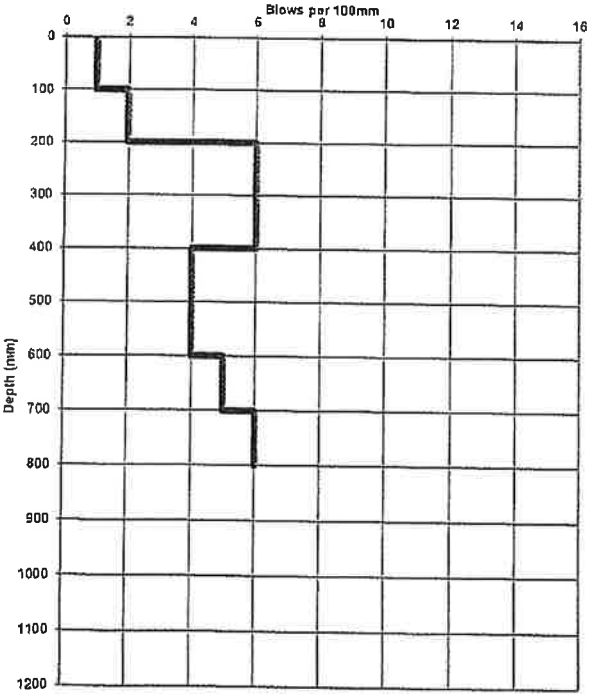
SP43/1



SP43/2



SP43/3



Field Shear Vane test results (s_u)

Depth ~150mm

Tests adjacent to Scala test sites

SP43/1	223 kPa
SP43/2	148 kPa
SP43/3	116 kPa

Test 6.5.2 NZS4402 Determination of the penetration resistance of a soil

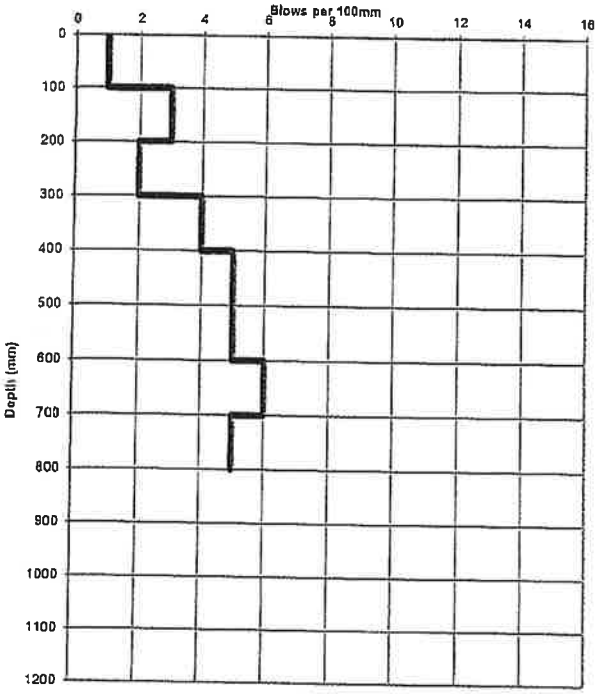
Swanney
Geotechnical and Civil Engineering
PO Box 828, Nelson
Phone: 03 548 9870
Mobile: 021 882011

Client:	CBH Ltd	SCALA PENETROMETER AND FIELD SHEAR VANE RESULTS Lot 43	
Location:	Appleby Hills Subdivision	**Date:**	16/04/14
Tester:	J Swanney	**Job No.**	1310

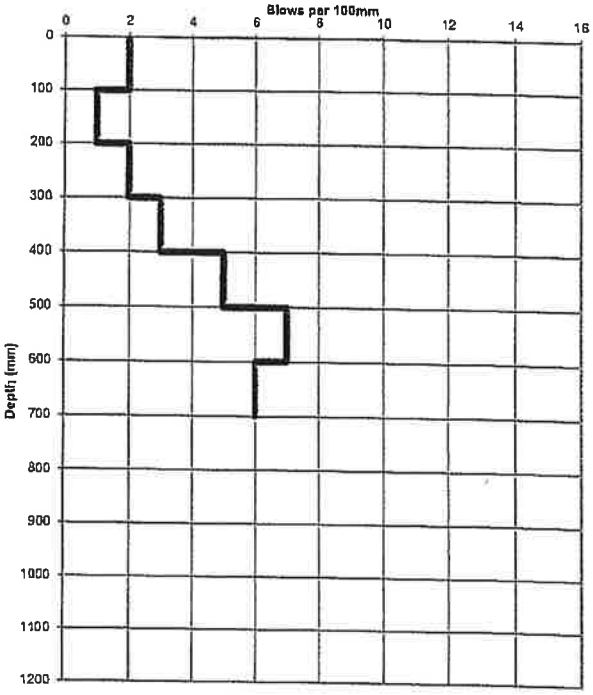
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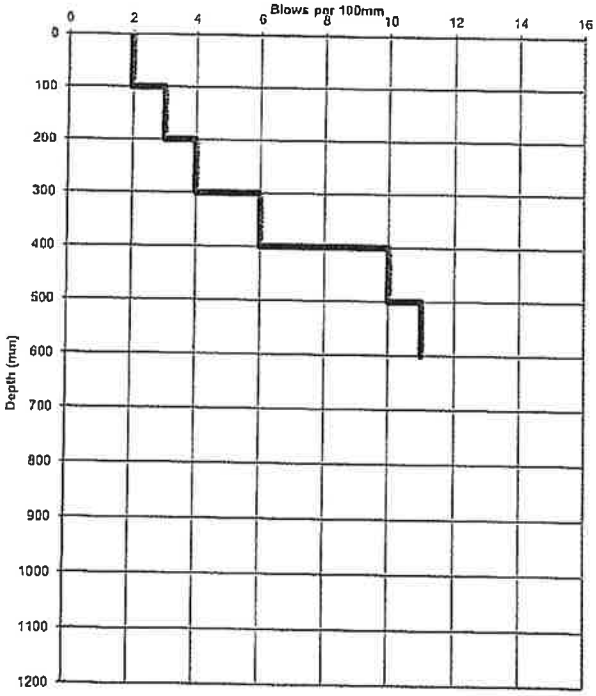
SP44/1



SP44/2



SP44/3



Field Shear Vane test results (s_u)

Depth ~150mm

Tests adjacent to Scala test sites

SP44/1	127 kPa
SP44/2	193 kPa
SP44/3	126 kPa

Test 6.5.2 NZS4402 Determination of the penetration resistance of a soil

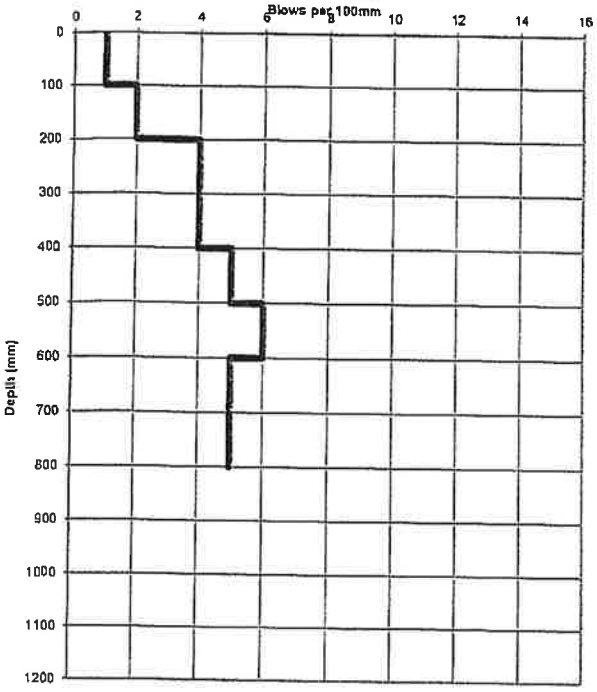
Swanney
Geotechnical and Civil Engineering
PO Box 828, Nelson
Phone: 03 548 9870
Mobile: 021 882011

Client:	CBH Ltd	SCALA PENETROMETER AND FIELD SHEAR VANE RESULTS Lot 44	
Location:	Appleby Hills Subdivision	**Date:**	16/04/14
Tester:	J Swanney	**Job No.**	1310

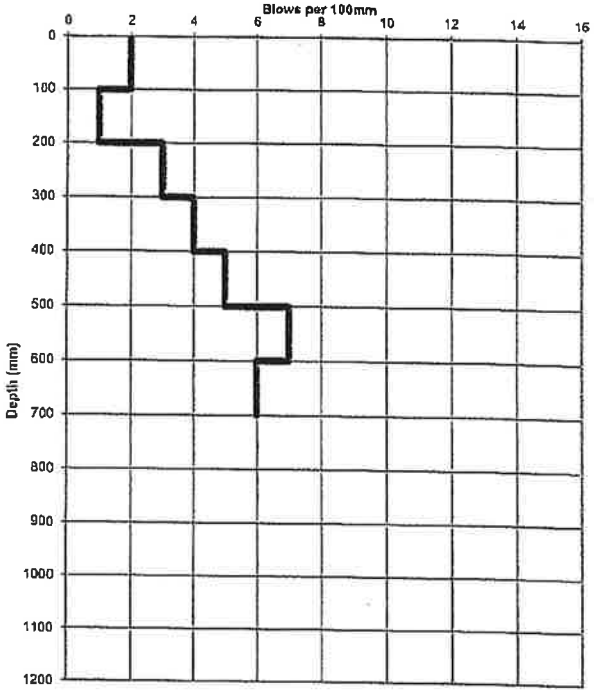
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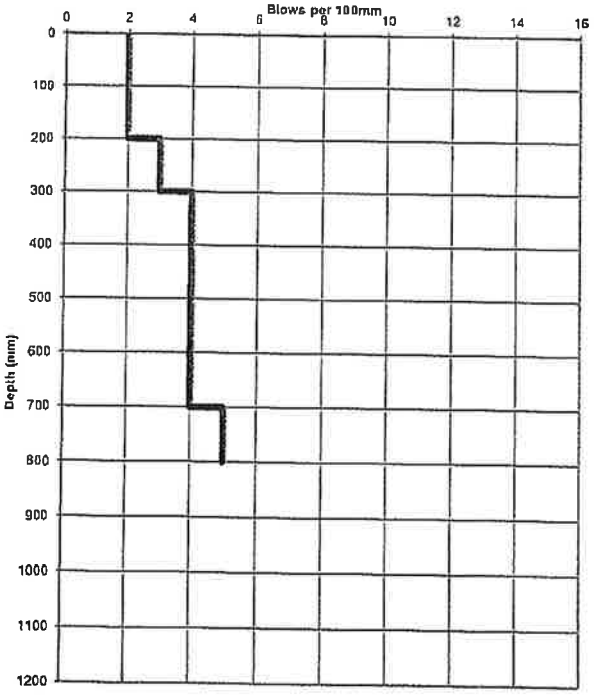
SP46/1



SP46/2



SP46/3



Field Shear Vane test results (s_u)

Depth ~150mm

Tests adjacent to Scala test sites

SP46/1	179 kPa
SP46/2	134 kPa
SP46/3	141 kPa

Test 6.5.2 NZS4402 Determination of the penetration resistance of a soil

Swanney
Geotechnical and Civil Engineering
PO Box 828, Nelson
Phone: 03 548 9870
Mobile: 021 882011

Client:	CBH Ltd	SCALA PENETROMETER AND FIELD SHEAR VANE RESULTS Lot 46	
Location:	Appleby Hills Subdivision	Date:	16/04/14
Tester:	J Swanney	Job No.	1310

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Swanney

Geotechnical and Civil Engineering

Client: CBH LTD.

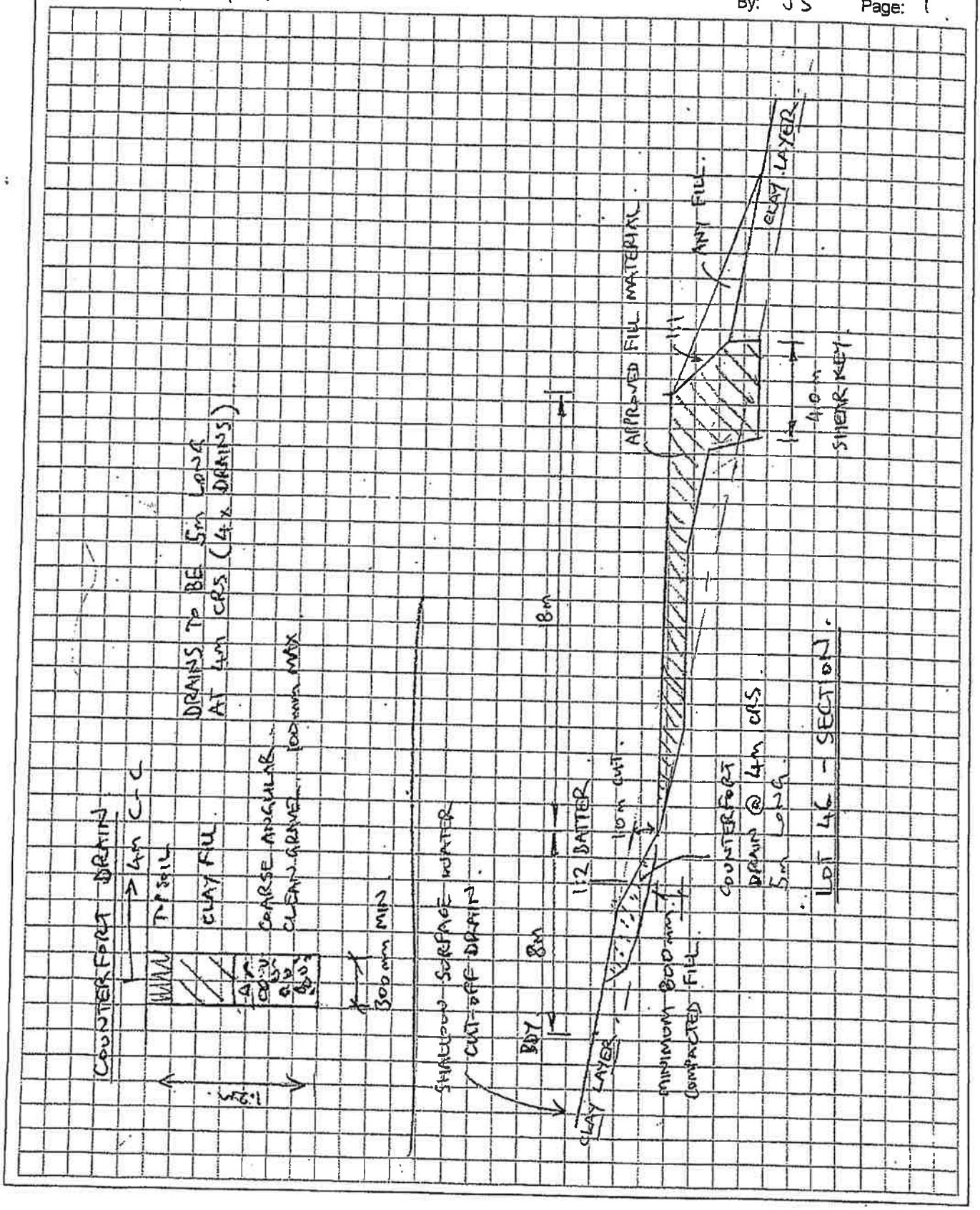
Project: APPLEBY HILLS ST. 7.

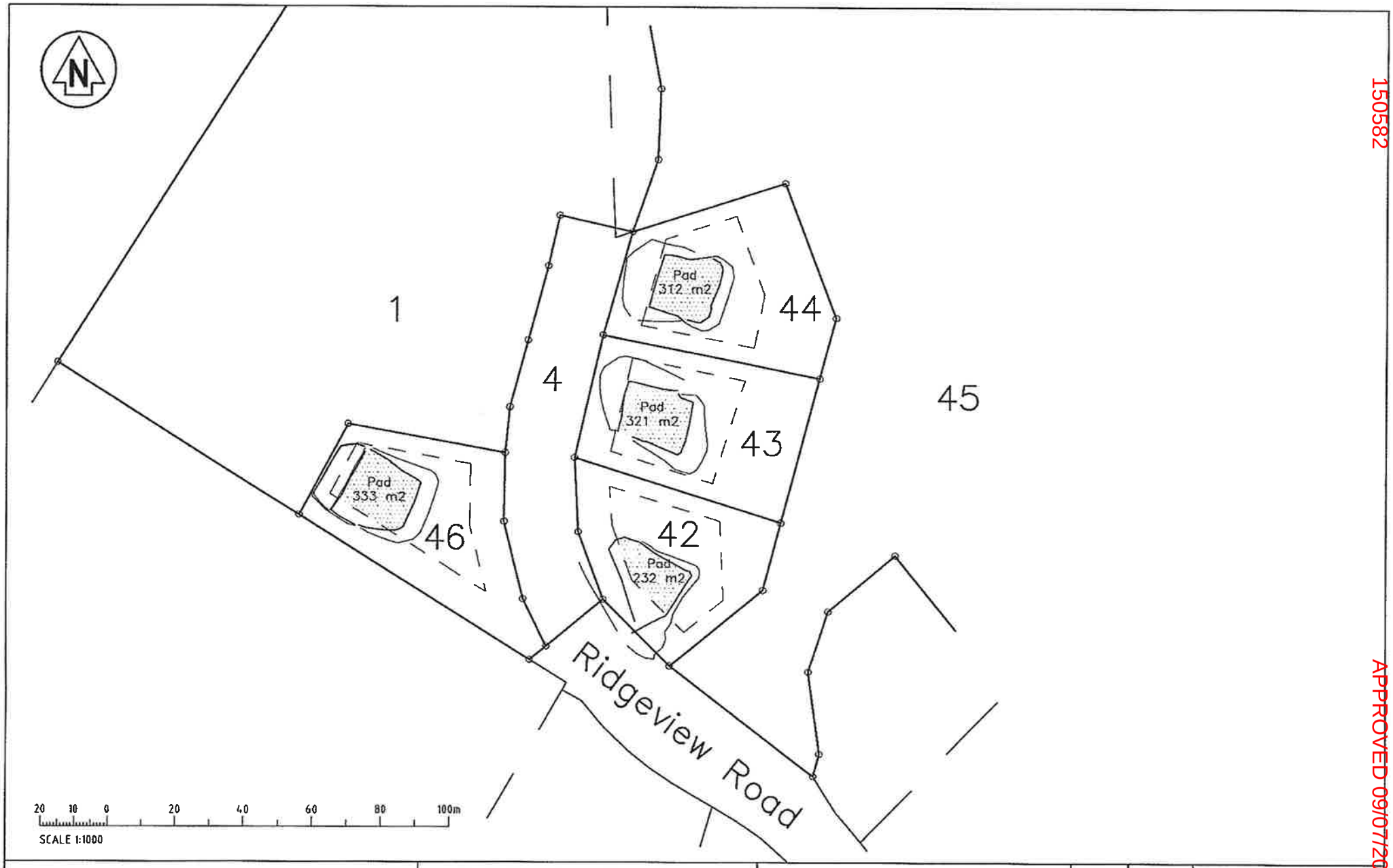
Subject: LOT 46.

Date: 10 MARCH 2014

Job No. 1310

By: JS Page: 1





	Building Location Areas Appleby Hills – Stage 7 DP 438731	Aubrey survey and land development consultants	Job No. R976	Scale 1:1000 @ A3
			Client CBH Ltd R976	
			Sheet 1 of 1	Drawn RIA Date April 2014

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TASMAN CONSULTING ENGINEERS

PROPOSED NEW HOUSE

for

J & J DICK – SIGNATURE HOMES

130 RIDGEVIEW RD

SITE INVESTIGATION & STRUCTURAL CALCULATIONS

Job ref: 15165
May 2015

PO Box 3631, Richmond
Nelson 7050, New Zealand

Phone +64 3 544 6404
Fax +64 3 544 6694
Email admin@tcel.co.nz

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TASMAN CONSULTING ENGINEERS
s3 / 237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544 6404
www.tcel.co.nz

Project: Dick	Page No: 1
	Date: 27-05-15
File Ref: 15165	By: RJC

(1) Site Investigation.

Carried out 4x scala tests in area outside of NZS3604 approved area.

SP1 - 184 kPa ult bearing - worst case at 900 - 1100 deep.

SP2 - 169 kPa ult bearing - " " " 0 - 400 deep.

SP3 - 84 kPa ult bearing - " " " 250 - 700 deep.

SP4 - 120 kPa ult bearing - " " " 200 - 800 deep

Summary

As the soil is very soft and outside approved area the house foundations are to be supported by drilled piles.

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(2)

Ron O'Hara BE (Civil) MIPENZ
David King ME (Civil) MIPENZ CPEng IntPE (NZ)

TASMAN CONSULTING ENGINEERS
53 / 237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544 6404
Fax: (03) 544 6694

INSPECTION REPORT

No:

CLIENT NAME: Dick. File Num: 15165

Inspection Date: 27-05-15 Time: 10.15

Consent Ref:

Location of work: 130 Ridgeview Rd.

Description of works: New house.

Weather at time of inspection: fine.

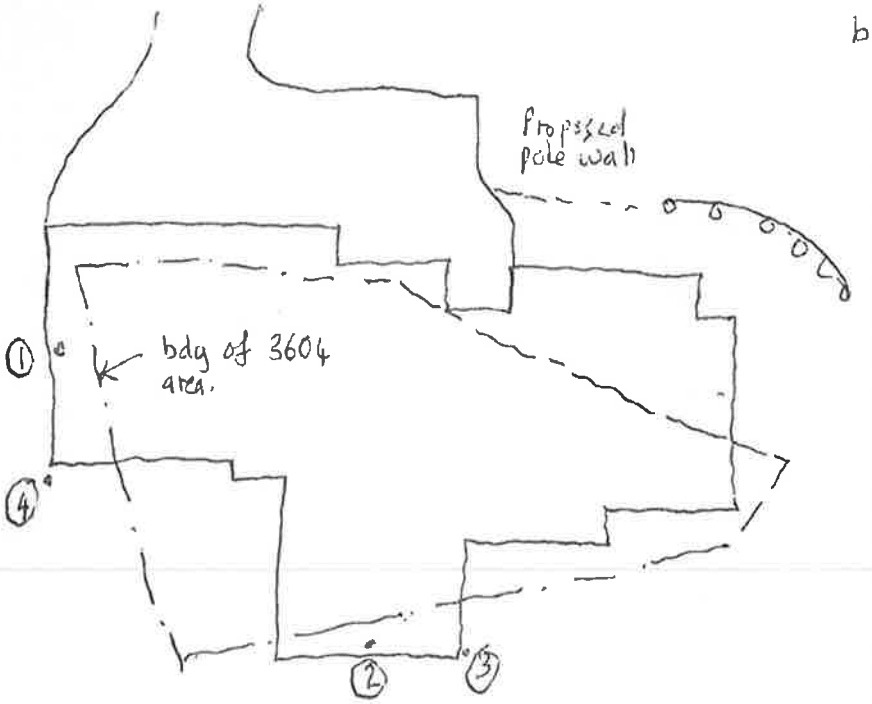
BUILDER NAME:

Contact Details:

INSPECTION DESCRIPTION:

Site Investigation.

INSPECTION NOTES:



blows	(1)	(2)	(3)	(4)
0	0	0	0	0
5	180	200	250	200
10	290	400	760	500
15	380	570	930	780
20	440	680	1090	850
25	530	750	1200	950
30	620	830		1050
35	740	840		1150
40	900	950		
45	1080	1030		
50	1150	1190		
55	1200			
60				
65				
70				
75				
80				
85				
90				
95				
100				

INSTRUCTIONS ISSUED:

- Area outside approved 3604 area is very soft.
- Drilled piles supporting foundations is required outside 3604 area.

Inspecting Engineer: (Ron O'Hara) R.J. O'Hara. | Builder: | Scanned:

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(3)

SCALAR PENETROMETER TEST

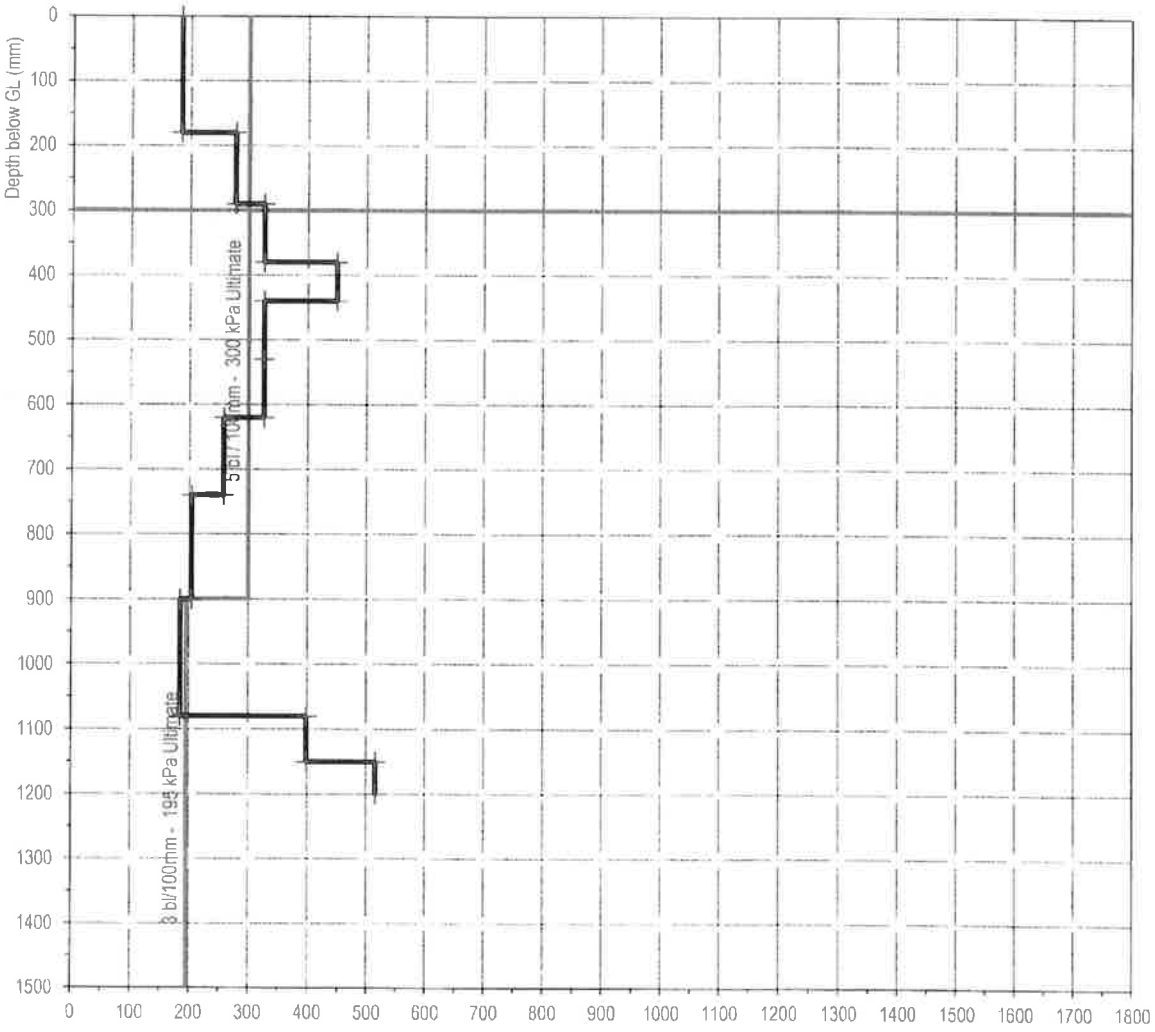
Depth	Blows	mm/Blow	Ultimate kPa
0	0		184
180	5	36	184
290	10	22	278
380	15	18	327
440	20	12	449
530	25	18	327
620	30	18	327
740	35	24	258
900	40	32	204
1080	45	36	184
1150	50	14	399
1200	55	10	515

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP1**



C:\Data\ENG\Ron\Foundations\15165_Dick_Scala_Tests_3604-2011_27-05-15

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(4)

SCALAR PENETROMETER TEST

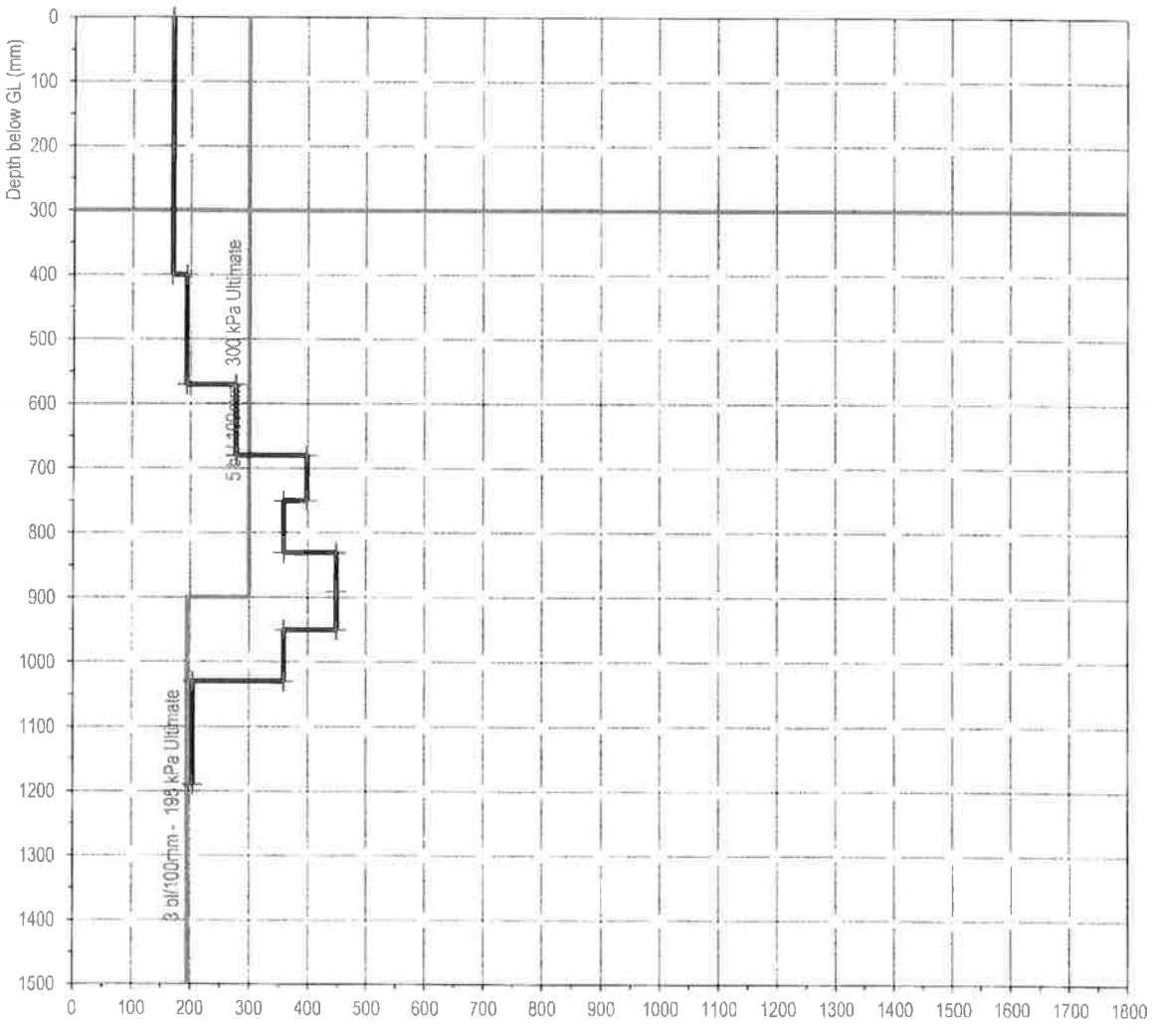
Depth	Blows	mm/Blow	Ultimate kPa
0	0		169
200	5	40	169
400	10	40	169
570	15	34	194
680	20	22	278
750	25	14	399
830	30	16	359
890	35	12	449
950	40	12	449
1030	45	16	359
1190	50	32	204

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP2**



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SCALAR PENETROMETER TEST

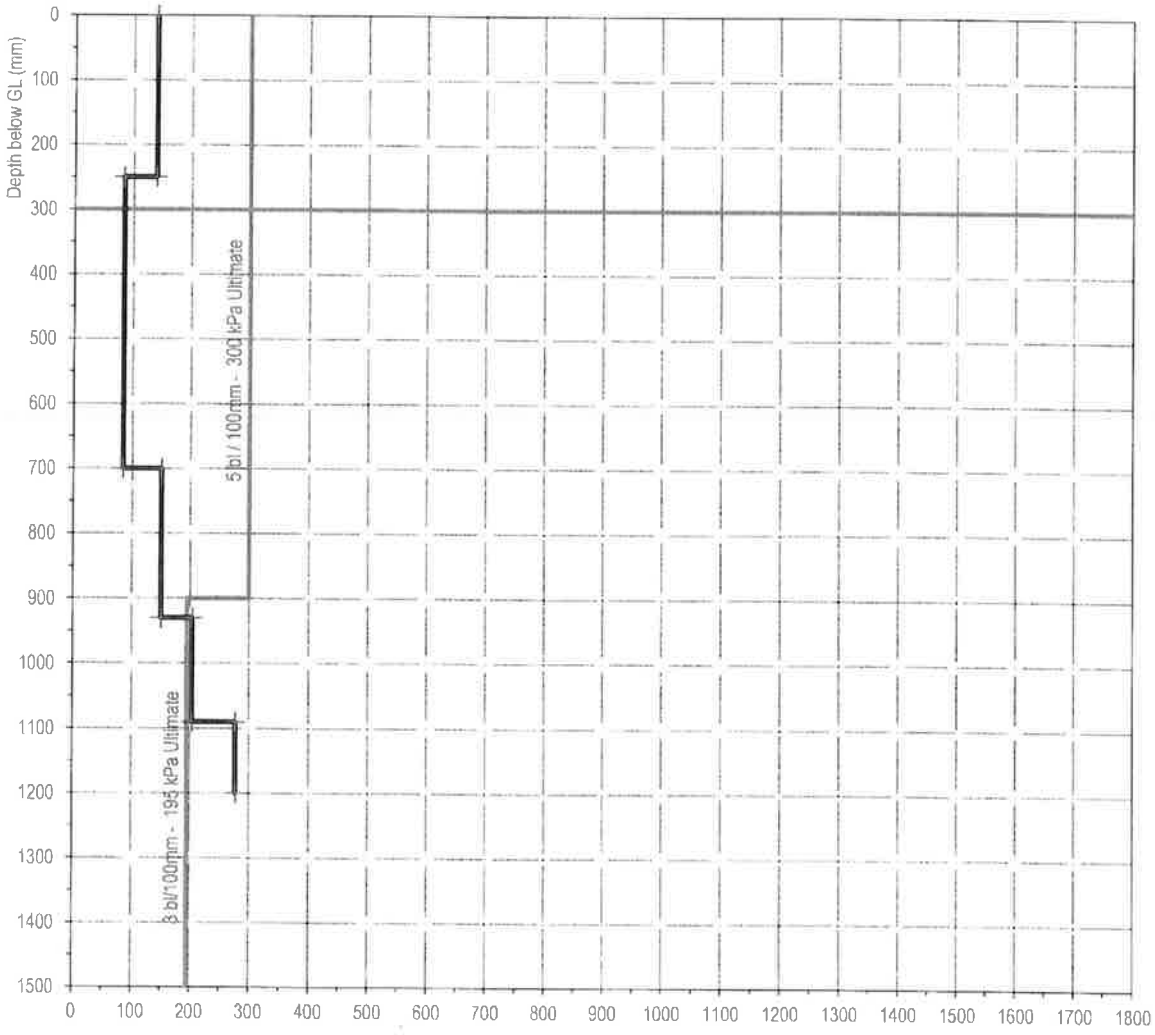
Depth	Blows	mm/Blow	Ultimate kPa
0	0		140
250	5	50	140
700	10	90	84
930	15	46	150
1090	20	32	204
1200	25	22	278

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP3**



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SCALAR PENETROMETER TEST

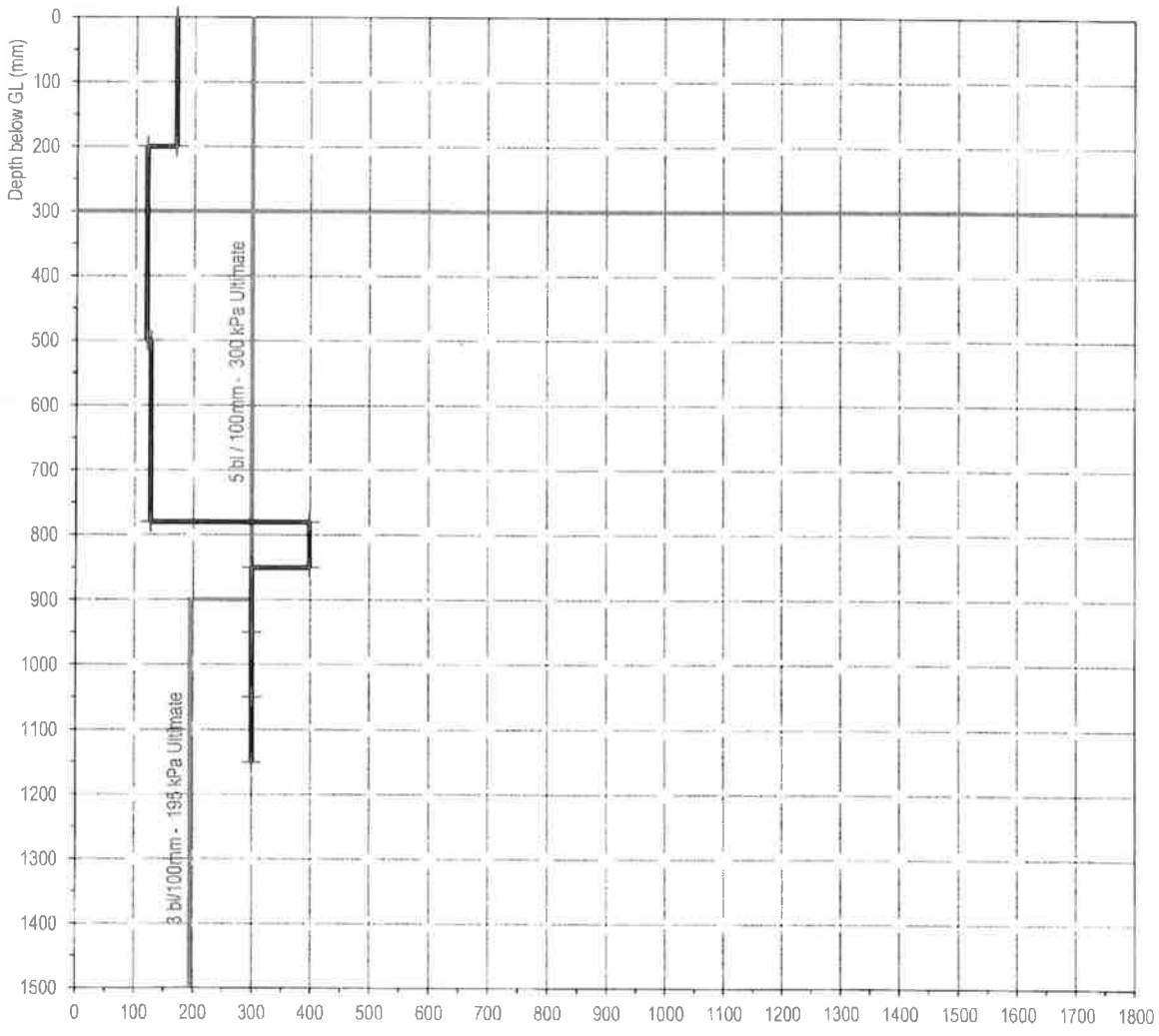
Depth	Blows	mm/Blow	Ultimate kPa
0	0		169
200	5	40	169
500	10	60	120
780	15	56	127
850	20	14	399
950	25	20	300
1050	30	20	300
1150	35	20	300

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP4**



C:\Data\ENG\Ron\Foundations\15165_Dick_Scala_Tests_3604-2011_27-05-15

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tasman consulting engineers

S3 / 237 Queen St
RICHMOND

Work: (03) 544-6404
Fax: (03) 544-6694

Project: Dick
Overheight Foundation Walls

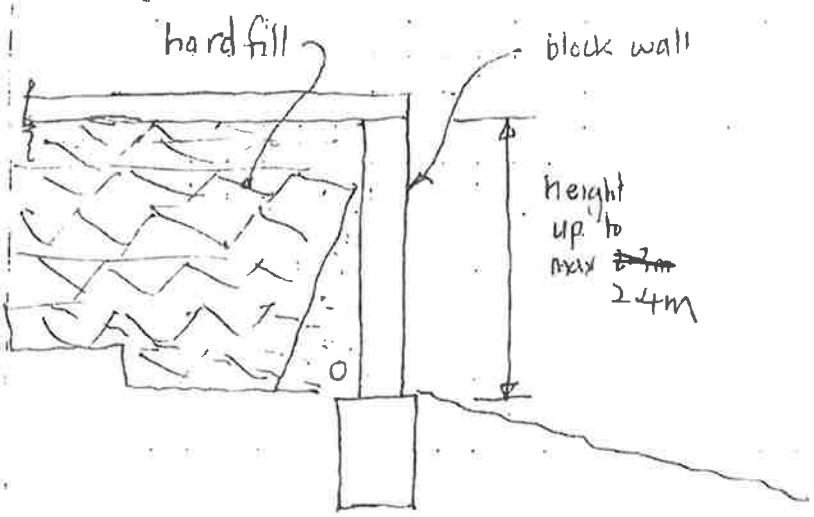
File Ref: 15165

Page Num: 7

Date: 27-05-15

By: RO

- Design of overheight Foundation Walls



Soil parameters - $\phi = 32°$ for compacted granular hardfill

$\gamma = 19$

Surcharge = 5.0 kPa (garage + slab)

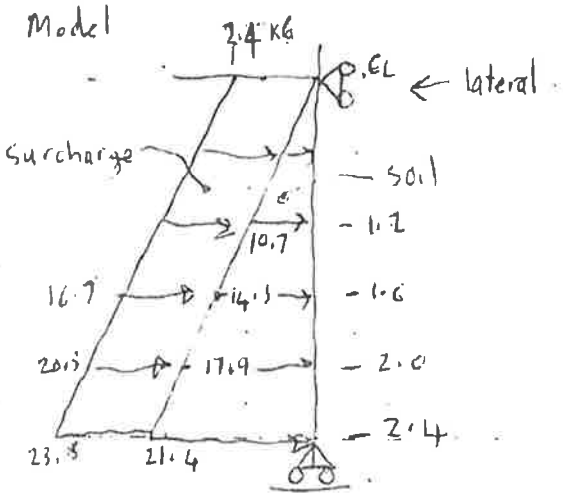
Design for earth pressure 'at rest' Ko

$Ko = 1 - \sin\phi$

$= 1 - \sin 32$

$= 0.47$

Structure Model



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S3 / 237 Queen St
RICHMOND

Work: (03) 544-6404
Fax: (03) 544-6694

Project: Dick Overheight Foundation Walls

File Ref: 15165

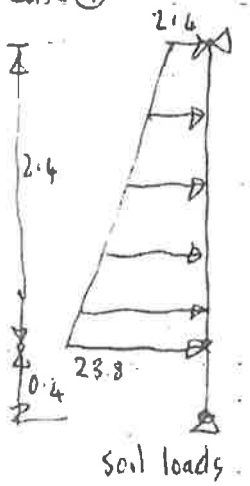
Page Num: 8

Date: 27-05-15

By: RO

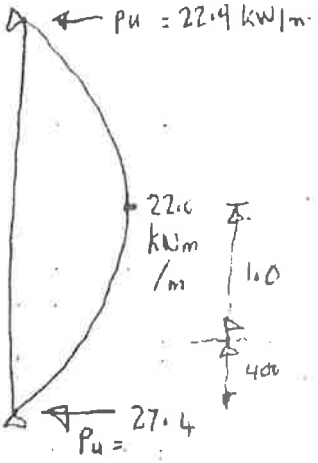
- Assume actual ground fixity is 400 below gl

Case ①

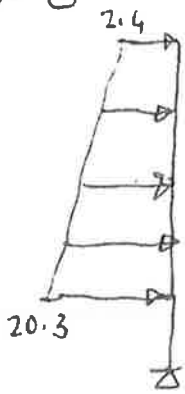


Soil loads

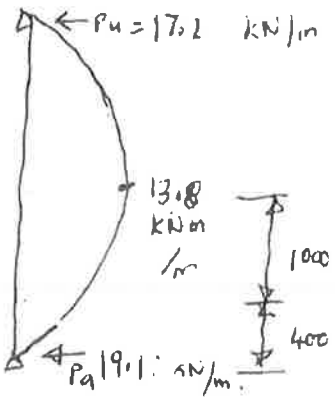
M_u (1.6 x Soil)



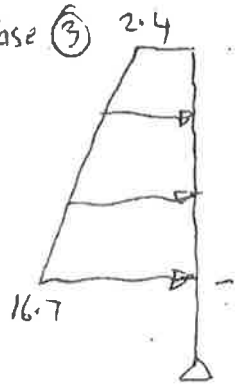
Case ②



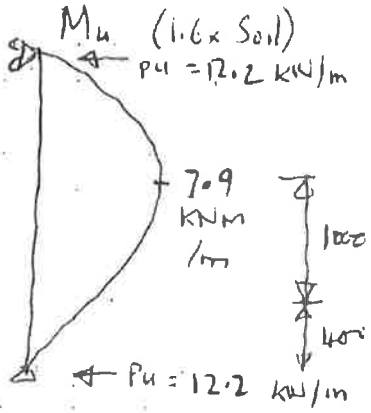
Mu (1.6 x Soil)



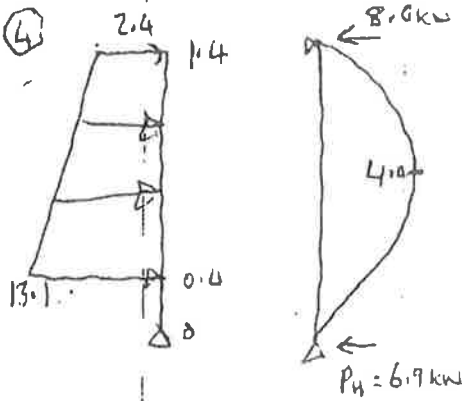
Case ③



M_u (1.6 x Soil)



Case ④



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S3 / 237 Queen St
RICHMOND

Work: (03) 544-6404
Fax: (03) 544-6694

Project: Dick Overheight Foundation Wall
File Ref: 15165
Page Num: 9
Date: 27-05-15
By: RC

1. Capacity of masonry wall

assume $\phi = 0.8$

$f'_c = 12$ supervised masonry

$f'_y = 500$ Seismic 500 reinforcing

- 20 series block

D12 - 400	on ℄ of wall	ϕM_i =	6.5
HD 12 - 400 crs	on ℄ of wall	ϕM_i =	10.6
HD 16 - 400 crs	on ℄ of wall	ϕM_i =	17.7
HD16 - 400 crs	60 cover to ℄	ϕM_i =	23.4

(See printouts for specific calcs

- All are ok except highest wall

D12 - 400 on ℄ - ok to 1.2m of wall

HD12 - 400 on ℄ - ok to 1.6m of wall

HD16 - 400 on ℄ ok to 2.0m of wall

HD 16 - 400 60 cover = OK to 2.4m of wall

~~(Reduce height above GL to 2.3m max)~~

Summary

1200 above GL — 20 series block D12-400 on ℄

1600 above GL — 20 series block HD12-400 on ℄

2000 " " " " " HD16-400 on ℄

~~2300~~ 2400 " " " " " HD16-400 - 60 front cover

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Wall Capacities for 1m unit widths
with no compression steel.

Mi	7.7	kNm
ϕMi	6.5	kNm

INPUTS

ϕ	0.85		strength reduction factor
f'm or f'c	12	MPa	compression strength
fy	300	MPa	steel yield
Es	200	GPa	steel modulus
db	12	mm	bar diameter
s	400	mm	bar spacing
width	190	mm	width of wall
cover	89	mm	cover reo to back face
rakeout	0	mm	(if blockwork)
d	95	mm	effective depth section

VARIABLES

C	9.8	mm	neutal axis depth (must be +ve)
a	8.3		
Cc	84.8	kN	compression force
Ts	84.8	kN	tension force
	0.0		net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025		max compression strain
β_1	0.85		
α_1	0.85		
Ab	113.1	mm2	area one reinforing bar
As	282.74	mm^2	total area steel
ε_y	0.0015		
ε_s	0.0218		strain in reinforcing
fs	300	MPa	stress in steel

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Wall Capacities for 1m unit widths
with no compression steel.

Mi	12.5	kNm
ϕMi	10.6	kNm

INPUTS

ϕ	0.85		strength reduction factor
f'm or f'c	12	MPa	compression strength
fy	500	MPa	steel yield
Es	200	GPa	steel modulus
db	12	mm	bar diameter
s	400	mm	bar spacing
width	190	mm	width of wall
cover	89	mm	cover reo to back face
rakeout	0	mm	(if blockwork)
d	95	mm	effective depth section

VARIABLES

C	16.3	mm	neutal axis depth (must be +ve)
a	13.9		
Cc	141.4	kN	compression force
Ts	141.4	kN	tension force
	0.0		net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025		max compression strain
β_1	0.85		
α_1	0.85		
Ab	113.1	mm2	area one reinforing bar
As	282.74	mm^2	total area steel
ε_y	0.0025		
ε_s	0.0121		strain in reinforcing
fs	500	MPa	stress in steel

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Wall Capacities for 1m unit widths
with no compression steel.

Mi	20.8	kNm
ϕMi	17.7	kNm

INPUTS

ϕ	0.85		strength reduction factor
f'm or f'c	12	MPa	compression strength
fy	500	MPa	steel yield
Es	200	GPa	steel modulus
db	16	mm	bar diameter
s	400	mm	bar spacing
width	190	mm	width of wall
cover	87	mm	cover reo to back face
rakeout	0	mm	(if blockwork)
d	95	mm	effective depth section

VARIABLES

C	29.0	mm	neutal axis depth (must be +ve)
a	24.6		
Cc	251.3	kN	compression force
Ts	251.3	kN	tension force
	0.0		net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025		max compression strain
β_1	0.85		
α_1	0.85		
Ab	201.06	mm2	area one reinforing bar
As	502.65	mm^2	total area steel
ε_y	0.0025		
ε_s	0.0057		strain in reinforcing
fs	500	MPa	stress in steel

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13

Wall Capacities for 1m unit widths
with no compression steel.

Mi	27.6 kNm	
ϕMi	23.4 kNm	

INPUTS

ϕ	0.85	strength reduction factor
f'm or f'c	12 MPa	compression strength
fy	500 MPa	steel yield
Es	200 GPa	steel modulus
db	16 mm	bar diameter
s	400 mm	bar spacing
width	190 mm	width of wall
cover	60 mm	cover reo to back face
rakeout	0 mm	(if blockwork)
d	122 mm	effective depth section

VARIABLES

C	29.0 mm	neutal axis depth (must be +ve)
a	24.6	
Cc	251.3 kN	compression force
Ts	251.3 kN	tension force
	0.0	net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025	max compression strain
β_1	0.85	
α_1	0.85	
Ab	201.06 mm2	area one reinforing bar
As	502.65 mm^2	total area steel
ε_y	0.0025	
ε_s	0.008	strain in reinforcing
fs	500 MPa	stress in steel

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TASMAN CONSULTING ENGINEERS
53/237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544 6404
www.tcel.co.nz

Project: Dick	Page No: 14
File Ref: 15165	Date: 27-05-15
	By: RJO

Pile loads from foundations.

Brick Veneer cladding.

		G	Q
Roof - light - span = 7.4/2	G = 3.7 x .5	1.85	
	Q = 3.7 x .25		0.93
Wall - veneer	G = 2.5 x 1.8	4.5	
floor - span = 1m	G = 1.0 x 1 x 25	2.5	
	Q = 2.5 x 1		2.5
O/ht wall	G = 1.0 x .9 x .19 x 23	4.79	
found	G = .6 x .3 x 25	4.50	
		18.10	3.43

Piles at 45cr's G = 1.5 x 18.1 = 27.2 kN

Q = 1.5 x 3.43 = 5.15 kN

File Design - see attached spreadsheet.

300ϕ piles x 2.0 into firm original soil.

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CONCRETE PILE DESIGN

INPUT DATA

Dead Load (Vu)	27.2	kN
Live Load (Vq)	5.2	kN

Load Combination	1	2
DL Factor	1.40	1.20
LL Factor	0.00	1.50

Pile Dia [B]	0.300	m
Concrete Density [CDen]	23.0	kN/m3
Ultimate Undrained Shear Strength (User Input) [Cu]	60.0	kPa
Ultimate Bearing Capacity (User Input) [Qu]	300.0	kPa
Phi for Soil Ultimate Loads [Phi] =	0.45	
Minimum Embedment depth [ED]	2.0	m
Neglect Skin Friction for first ...m [Dnsf]	0.5	m
Soil Density [SDen] =	19.0	kN/m3

CALCULATED DATA

Concr Pile Dead Weight [Wp] = ED * B^2 * Pi * Sden
= **3.252** KN

Load Combination	1	2
Vertical Load [V]	**42.6**	**44.3** kN

Design Load Case [V] = **44.3** KN

COHESION

Depth for skin friction (ED - Dnsf) =	1.500	
Cohesion (c) =	60.000	kN/m2
Reduction Factor (Phi) =	0.45	

Skin Friction Force [Rs] = c * (ED - Dnsf)* Phi * B
= **38.2** kN

END BEARING

Ult End Bearing Pressure [Qa] = 300.000 KPa

Reduction Factor (Phi) = 0.45

End Bearing Load Cap [Re] = B^2 * Pi / 4 * Qm * Phi
= **9.5** KN

Load Capacity of Foundation = Cohesion + End Bearing
= **47.7** KN

SUMMARY --> **-- OK --**

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FOUNDATION PRESSURE CALCULATOR

				Rate	Load
Roof	Type	Load Width	DL	0.50 kN/m2	1.85 kN/m
	LIGHT	3.70	LL	0.25 kN/m2	0.93 kN/m
Walls - Upper / Single	Type	Height			
	HEAVY	2.50	DL	1.80 kN/m2	4.50 kN/m
Walls - Lower / Basement	Type	Height	DL	4.75 kN/m2	4.75 kN/m
	190BLOCK	1.00			
Floor - Upper	Type	Load Width	DL	0.00 kN/m2	0.00 kN/m
			LL	1.50 kN/m2	0.00 kN/m
Floor - Lower	Type	Load Width	DL	2.50 kN/m2	2.50 kN/m
	RC100	1.00	LL	2.50 kN/m2	2.50 kN/m
Foundation Wall	Height	Width			
	0.60	0.30	DL	25.00 kN/m3	4.50 kN/m
Other (eg Deck)				DL ------->	kN/m
				LL ------->	kN/m
				Total Dead	18.10
				Total Live	3.43
				Total	21.53 kN/m
				Footing Width	0.300 m

WORKING or SERVICE LOADS	Reqd Working or Safe Bearing Pressure	71.75 kPa
	Ultimate or Capacity UDL (1.4D)	25.34 KN/m
	Ultimate or Capacity UDL (1.2D + 1.5L)	26.86 KN/m
	Ultimate or Capacity Bearing Pressure (1.4D)	84.47 kPa
	Ultimate or Capacity Bearing Pressure (1.2D + 1.5L)	89.53 kPa
	Strength reduction Factor (phi) [range is 0.45 to 0.60]	0.45
ULTIMATE LOADS	Reqd Unfactored Rupture Soil Strength (Ultimate)	199 kPa
SAFE WORKING LOADS	Reqd Safe Soil Strength (Working)	72 kPa

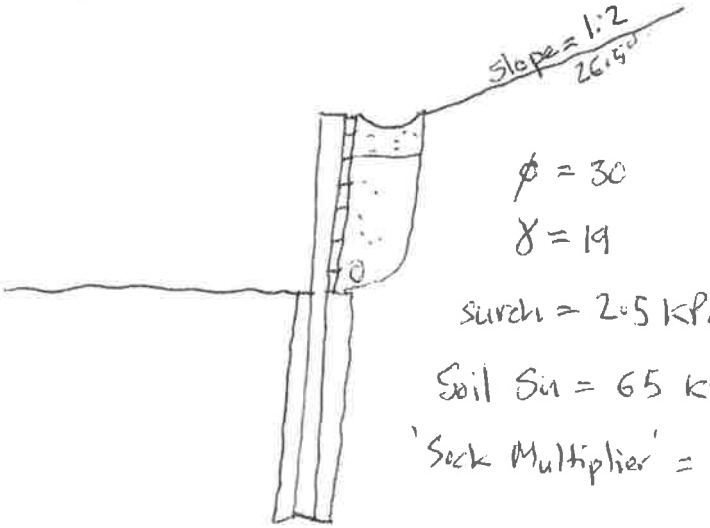
150582

Tasman District Council
APPROVED 09/07/2015

TASMAN CONSULTING ENGINEERS
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Project:	Page No: 17
Dick	Date: 27-05-15
File Ref: 15165.	By: RJC

Pole Retaining wall. – Max height = 800.



Height Retained	Poles	Holes
1200	175ϕ – 1000 crs	450ϕ x 1600 deep.
1000	150ϕ – 1000 crs	450ϕ x 1500 deep
800	150 ϕ – 1000 crs.	450ϕ x. 1300 deep

150582

Tasman District Council
APPROVED 09/07/2015

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on
NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	INPUT DATA				
Hr	*Height Retained*		800	*(mm)*	
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
AIF	*Angle of Int Friction(retained Soil) (AIF)*		30	*(degr)*	
W	*Weight of Soil Retained*		19	*kN/m 3*	
SS	*Slope of Soil retained by wall (Omega)*		27	*(degr)*	
K1a	*Soil Loading - Duration of Load Factor (K1)*		0.6		
Ep	*Earth Pressure Type (Active = Ko, AtRest = K)*		Ka	*(Ka or Ko)*	
SC	*Surcharge*		2.5	*(kPa)*	2.5
K1b	*SurchargeType and Duration of Load Factor (K1)*		0.6		Soil
DP	*Pole Diameter*		150	*(mm)*	150 mm sed — OK
Dpdes	*Pole Diameter at Groundline*		150	*(mm)*	No Taper
K20	*K20 Factor (Poles Peeled or Shaved?)*		0.9		Machine Peeled
K21	*K21 Factor (Poles Steamed during treatment?)*		0.85		Steamed
Fb	*Characteristic Bending Strength of Poles*		52	*MPa*	High Density
SP	*Pole Spacing(Use continuous for Pallisade type wall)*		1000	*(mm)*	1000mm
LSP	*Soil Type & Calculated Lateral Loading (kPa)*		60	*(kPa)*	Medium Clay
Df	*Footing Diameter*		450	*(mm)*	450mm dia
Smf	*Sock Multiplier Factor (1.0x to 1.5x hole diameter)*		1.50		
		(ignore first	*675.00*	*mm of embedment)*	
De	*Embedment Depth*		1300	*(mm)*	OK
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
Dt	*Total Embedded Depth*		1300	*(mm)*	
Ww	*Wall lining timber width*		40	*(mm)*	
Wd	*Wall lining depth*		190	*(mm)*	
Nwl	*Number of boards at base of wall*		2		OK
Fwb	*Characteristic Bending Strength - Wall lining timber*		10.00	*MPa*	
Dmlp	*Calculate Max Lateral Pressure at xxxx*		0.34	*x Embedment depth*	
LFa	*Load Factor for Soil Loading*		1.6		
LFb	*Load Factor for Surcharge Loading*		1.6		
SRF	*Strength Reduction Factor for Pile*		0.65		
	CALCULATED DATA				
AIF	*Angle of Int Friction(retained Soil) (AIF)*		**0.524**	*(Rad*	
SS	*Slope of Soil retained by wall (Omega)*		**0.471**	*(Rad)*	
	Earth Pressure Coefficient (calculated)				
Ka	*cos(omega)*(cos(omega) - sqrt((cos^2(omega) - cos^2(AIF))) / (cos(omega) + sqrt((cos^2(omega) - cos^2(AIF)))*		**0.552**		
Ko	*(1.0 - sin (AIF)) * (1 + sin (omega))*		**0.727**		

150582

Tasman District Council
APPROVED 09/07/2015

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on
NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	Earth Pressure Coefficient used in calculations	**0.552**		
Hc	*Total Height from Top of Footing to Top of Wall*	**800**	*(mm)*	
Fs	*Soil Loading on retaining wall Pole*	**5.368**	*kN*	
Hs	*Height above Footing to Point of Load Application (Soil Loads)*	**0.267**	*(m)*	
Fsc	*Surcharge Loading on Retaining Wall Pole*	**1.766**	*kN*	
Hsc	*Height above Footing to Point of Load Application Surcharge Loads)*	**0.400**	*(m)*	
Ft	*Combined Loading on Retaining Wall Pole*	**7.133**	*kN*	
Ht	*Height above Footing to Point of Combined Load Application*	**0.300**	*(m)*	
df	*Diameter of concrete sock*	0.45	m	
e0	*Zone of ineffective soil resistance= Msf*df*	0.675	m	
e	*Height of horizontal load*	0.300	m	
e'	*e+e0*	0.975	m	
D	*embedment depth*	1.300	m	
D'	*D-e0*	0.625	m	
Hu	*Ultimate horizontal load(after x SRF)for single pile*	11.785	kN	
Huc	*Ultimate horizontal load(after x SRF)for continous piles*	5.820	kN	
s_f	*spacing factor for pile groups*	0.407		
Hu,sp	*Ultimate horizontal load(after x SRF)for the spaced pile*	**8.250**	kN	
Z	*Section Modulus of Pole*	**3.313E-04**	m^3	
Posts				
Mus	*Ultimate Bending Moment at Base of Pole- Soil Only*	**1.431**	*(kNm)*	
	Ultimate Bending Stress	**4.320**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Muss	*Ultimate Bending Moment at Base of Pole- Soil & Surcharge*	**2.138**	*(kNm)*	
	Ultimate Bending Stress	**6.451**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Wall Lining				
	Factored Soil Pressure at lowest board	**14.032**	*kPa*	
Mwl	*Max Bending Moment in lowest board*	**0.333**	*kNm*	
Zwl	*Section Modulus for lowest board(s)*	**1.0133E-04**	m^3	
Fwl	*Bending Stress*	**3.29**	*Mpa*	
	Allowable Bending Stress	**4.80**	*Mpa*	*OK*

150582

Tasman District Council
APPROVED 09/07/2015

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on
NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	INPUT DATA				
Hr	*Height Retained*		1000	*(mm)*	
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
AIF	*Angle of Int Friction(retained Soil) (AIF)*		30	*(degr)*	
W	*Weight of Soil Retained*		19	*kN/m^3*	
SS	*Slope of Soil retained by wall (Omega)*		27	*(degr)*	
K1a	*Soil Loading - Duration of Load Factor (K1)*		0.6		
Ep	*Earth Pressure Type (Active = Ko, AtRest = K)*		Ka	*(Ka or Ko)*	
SC	*Surcharge*		2.5	*(kPa)*	2.5
K1b	*SurchargeType and Duration of Load Factor (K1)*		0.6		Soil
DP	*Pole Diameter*		150	*(mm)*	150 mm sed — OK
Dpdes	*Pole Diameter at Groundline*		150	*(mm)*	No Taper
K20	*K20 Factor (Poles Peeled or Shaved?)*		0.9		Machine Peeled
K21	*K21 Factor (Poles Steamed during treatment?)*		0.85		Steamed
Fb	*Characteristic Bending Strength of Poles*		52	*MPa*	High Density
SP	*Pole Spacing(Use continuous for Pallisade type wall)*		1000	*(mm)*	1000mm
LSP	*Soil Type & Calculated Lateral Loading (kPa)*		60	*(kPa)*	Medium Clay
Df	*Footing Diameter*		450	*(mm)*	450mm dia
Smf	*Sock Multiplier Factor (1.0x to 1.5x hole diameter)*		1.50		
		(ignore first	*675.00*	*mm of embedment)*	
De	*Embedment Depth*		1450	*(mm)*	OK
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
Dt	*Total Embedded Depth*		**1450**	*(mm)*	
Ww	*Wall lining timber width*		40	*(mm)*	
Wd	*Wall lining depth*		190	*(mm)*	
Nwl	*Number of boards at base of wall*		2		OK
Fwb	*Characteristic Bending Strength - Wall lining timber*		10.00	*MPa*	
Dmlp	*Calculate Max Lateral Pressure at xxxx*		0.34	*x Embedment depth*	
LFa	*Load Factor for Soil Loading*		1.6		
LFb	*Load Factor for Surcharge Loading*		1.6		
SRF	*Strength Reduction Factor for Pile*		0.65		
	CALCULATED DATA				
AIF	*Angle of Int Friction(retained Soil) (AIF)*		**0.524**	*(Rad*	
SS	*Slope of Soil retained by wall (Omega)*		**0.471**	*(Rad)*	
	Earth Pressure Coefficient (calculated)				
Ka	*cos(omega)*(cos(omega) - sqrt((cos^2(omega) - cos^2(AIF))) / (cos(omega) + sqrt((cos^2(omega) - cos^2(AIF)))*		**0.552**		
Ko	*(1.0 - sin (AIF)) * (1 + sin (omega))*		**0.727**		

150582

Tasman District Council
APPROVED 09/07/2015

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	Earth Pressure Coefficient used in calculations	**0.552**		
Hc	*Total Height from Top of Footing to Top of Wall*	**1000**	*(mm)*	
Fs	*Soil Loading on retaining wall Pole*	**8.387**	*kN*	
Hs	*Height above Footing to Point of Load Application (Soil Loads)*	**0.333**	*(m)*	
Fsc	*Surcharge Loading on Retaining Wall Pole*	**2.207**	*kN*	
Hsc	*Height above Footing to Point of Load Application Surcharge Loads)*	**0.500**	*(m)*	
Ft	*Combined Loading on Retaining Wall Pole*	**10.594**	*kN*	
Ht	*Height above Footing to Point of Combined Load Application*	**0.368**	*(m)*	
df	*Diameter of concrete sock*	0.45	m	
e0	*Zone of ineffective soil resistance= Msf*df*	0.675	m	
e	*Height of horizontal load*	0.368	m	
e'	*e+e0*	1.043	m	
D	*embedment depth*	1.450	m	
D'	*D-e0*	0.775	m	
Hu	*Ultimate horizontal load(after x SRF)for single pile*	16.400	kN	
Huc	*Ultimate horizontal load(after x SRF)for continous piles*	8.099	kN	
s_f	*spacing factor for pile groups*	0.407		
Hu,sp	*Ultimate horizontal load(after x SRF)for the spaced pile*	**11.481**	kN	
Z	*Section Modulus of Pole*	**3.313E-04**	m^3	
Posts				
Mus	*Ultimate Bending Moment at Base of Pole- Soil Only*	**2.796**	*(kNm)*	
	Ultimate Bending Stress	**8.437**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Muss	*Ultimate Bending Moment at Base of Pole- Soil & Surcharge*	**3.899**	*(kNm)*	
	Ultimate Bending Stress	**11.768**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Wall Lining				
	Factored Soil Pressure at lowest board	**17.387**	*kPa*	
Mwl	*Max Bending Moment in lowest board*	**0.413**	*kNm*	
Zwl	*Section Modulus for lowest board(s)*	**1.0133E-04**	m^3	
Fwl	*Bending Stress*	**4.08**	*Mpa*	
	Allowable Bending Stress	**4.80**	*Mpa*	*OK*

150582

Tasman District Council
APPROVED 09/07/2015

22

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	INPUT DATA				
Hr	*Height Retained*		1200	*(mm)*	
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
AIF	*Angle of Int Friction(retained Soil) (AIF)*		30	*(degr)*	
W	*Weight of Soil Retained*		19	*kN/m^3*	
SS	*Slope of Soil retained by wall (Omega)*		27	*(degr)*	
K1a	*Soil Loading - Duration of Load Factor (K1)*		0.6		
Ep	*Earth Pressure Type (Active = Ko, AtRest = K)*		Ka	*(Ka or Ko)*	
SC	*Surcharge*		2.5	*(kPa)*	2.5
K1b	*SurchargeType and Duration of Load Factor (K1)*		0.6		Soil
DP	*Pole Diameter*		175	*(mm)*	175 mm sed — OK
Dpdes	*Pole Diameter at Groundline*		175	*(mm)*	No Taper
K20	*K20 Factor (Poles Peeled or Shaved?)*		0.9		Machine Peeled
K21	*K21 Factor (Poles Steamed during treatment?)*		0.85		Steamed
Fb	*Characteristic Bending Strength of Poles*		52	*MPa*	High Density
SP	*Pole Spacing(Use continuous for Pallisade type wall)*		1000	*(mm)*	1000mm
LSP	*Soil Type & Calculated Lateral Loading (kPa)*		61	*(kPa)*	Medium Clay
Df	*Footing Diameter*		450	*(mm)*	450mm dia
Smf	*Sock Multiplier Factor (1.0x to 1.5x hole diameter)*		1.50		
		(ignore first	*675.00*	*mm of embedment)*	
De	*Embedment Depth*		1600	*(mm)*	OK
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
Dt	*Total Embedded Depth*		1600	*(mm)*	
Ww	*Wall lining timber width*		40	*(mm)*	
Wd	*Wall lining depth*		190	*(mm)*	
Nwl	*Number of boards at base of wall*		2		*Fails!!!*
Fwb	*Characteristic Bending Strength - Wall lining timber*		10.00	*MPa*	
Dmlp	*Calculate Max Lateral Pressure at xxxx*		0.34	*x Embedment depth*	
LFa	*Load Factor for Soil Loading*		1.6		
LFb	*Load Factor for Surcharge Loading*		1.6		
SRF	*Strength Reduction Factor for Pile*		0.65		
	CALCULATED DATA				
AIF	*Angle of Int Friction(retained Soil) (AIF)*		**0.524**	*(Rad*	
SS	*Slope of Soil retained by wall (Omega)*		**0.471**	*(Rad)*	
	Earth Pressure Coefficient (calculated)				
Ka	*cos(omega)*(cos(omega) - sqrt((cos^2(omega) - cos^2(AIF))) / (cos(omega) + sqrt((cos^2(omega) - cos^2(AIF)))*		**0.552**		
Ko	*(1.0 - sin (AIF)) * (1 + sin (omega))*		**0.727**		

150582

Tasman District Council
APPROVED 09/07/2015

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For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on NZ Building Code B1 Clause 4.3
Only works for cohesive soil

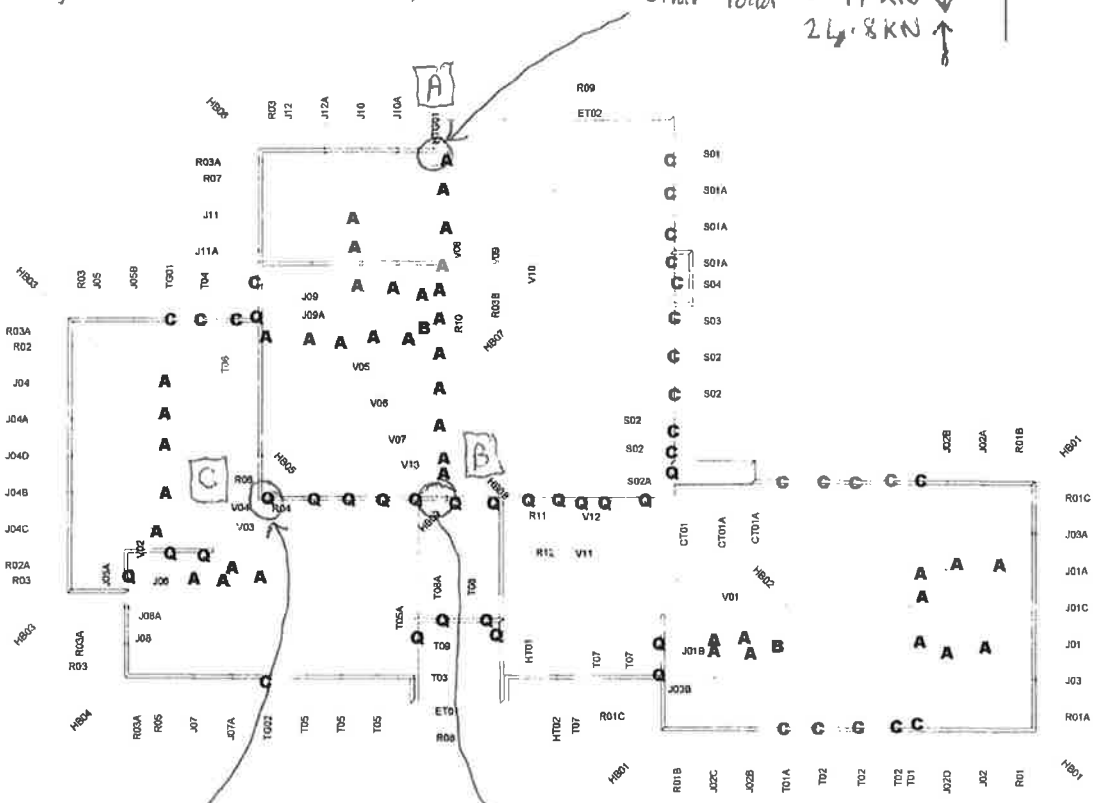
	Earth Pressure Coefficient used in calculations	**0.552**		
Hc	*Total Height from Top of Footing to Top of Wall*	**1200**	*(mm)*	
Fs	*Soil Loading on retaining wall Pole*	**12.077**	*kN*	
Hs	*Height above Footing to Point of Load Application (Soil Loads)*	**0.400**	*(m)*	
Fsc	*Surcharge Loading on Retaining Wall Pole*	**2.648**	*kN*	
Hsc	*Height above Footing to Point of Load Application Surcharge Loads)*	**0.600**	*(m)*	
Ft	*Combined Loading on Retaining Wall Pole*	**14.725**	*kN*	
Ht	*Height above Footing to Point of Combined Load Application*	**0.436**	*(m)*	
df	*Diameter of concrete sock*	0.45	m	
e0	*Zone of ineffective soil resistance= Msf*df*	0.675	m	
e	*Height of horizontal load*	0.436	m	
e'	*e+e0*	1.111	m	
D	*embedment depth*	1.600	m	
D'	*D-e0*	0.925	m	
Hu	*Ultimate horizontal load(after x SRF)for single pile*	21.373	kN	
Huc	*Ultimate horizontal load(after x SRF)for continous piles*	10.554	kN	
s_f	*spacing factor for pile groups*	0.407		
Hu,sp	*Ultimate horizontal load(after x SRF)for the spaced pile*	**14.962**	kN	
Z	*Section Modulus of Pole*	**5.262E-04**	m^3	
Posts				
Mus	*Ultimate Bending Moment at Base of Pole- Soil Only*	**4.831**	*(kNm)*	
	Ultimate Bending Stress	**9.181**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Muss	*Ultimate Bending Moment at Base of Pole- Soil & Surcharge*	**6.420**	*(kNm)*	
	Ultimate Bending Stress	**12.201**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Wall Lining				
	Factored Soil Pressure at lowest board	**20.742**	*kPa*	
Mwl	*Max Bending Moment in lowest board*	**0.493**	*kNm*	
Zwl	*Section Modulus for lowest board(s)*	**1.0133E-04**	m^3	
Fwl	*Bending Stress*	**4.86**	*Mpa*	
	Allowable Bending Stress	**4.80**	*Mpa*	*Error*

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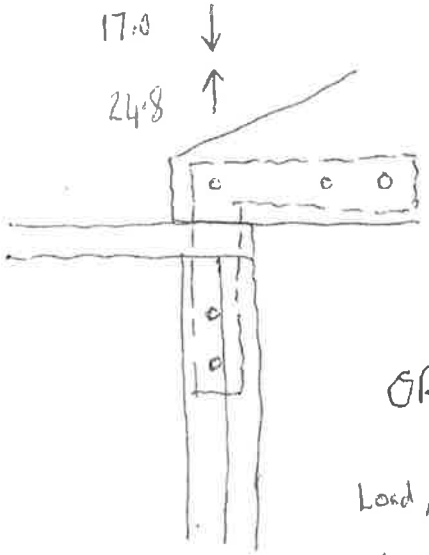
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Project:	Page No: 24
Dick	Date: 30-06-15
File Ref: 15165	By: RJO

e Truss Hold Down Details.



A



- Top Fixing.

Try Lumberlok B 45 or B 48 to each side.

2x M12 in double shear.

See attached spreadsheet.

OR use 2x Multibrace with.

Load/nail = 0.63 (basic) × 0.8 (ϕ) × 1.25 (steel plate) = 0.63

12.4 kN each plate = No. Nails = 12.4 / 0.63

= 20 nails.

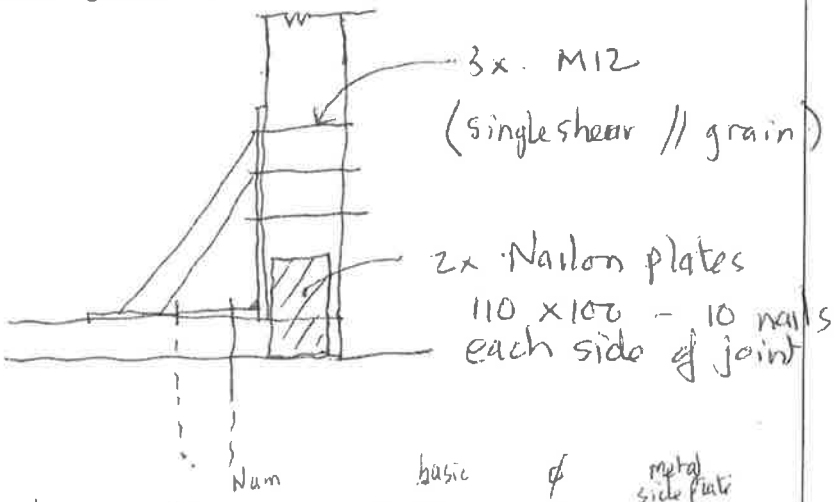
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Project: Dick	Page No: 25
File Ref: 15165	Date: 30-06-15
	By: RJO

Alternate hold down



a) Nail load = N_{um} × basic × ϕ × metal side plate
= 10 × 2 × 0.63 × .8 × 1.25 = 12.6

b) 3x Bolts = 27.8 kN.

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26

BOLTED JOINT DESIGN - TO NZS 3603:1993

Client / Job Name: DICK - SIGNATURE - 130 RIDGEVIEW RD
File Number: 15165
Comment: UPLIFT AT OUTER END OF MAIN TRUSS

INPUT DATA	D	L	W/EQ	
Joint Load	0.00	0.00	24.80 kN	
Load Combinations (Load Factors)	D	L	W/EQ	*Check*
Load Combination 1	1.35	0.00	0.00	OK
Load Combination 2	1.20	1.50	0.00	OK
Load Combination 3	0.90	0.00	1.00	OK

Load type: Tens= 1, Compr= 0 (LT) **0** (for loads along member)
Load Angle to Grain: (ATG) **0** Deg
(0 = Parallel, 90 = Perpendicular)

Bolt diameter (Da) **12** mm (8, 10, 12, 16, 20, 24, 30)
Number of Rows of Bolts (R) **2**
Number of Bolts per row (C) **1**
NB: CALCS VALID FOR 4 OR LESS BOLTS ONLY

Timber Moisture State **DRY** (DRY or GREEN)
Single or Double Shear (ST) **DOUBLE** (SINGLE OR DOUBLE)
Metal Side Plate Factor **1.25** (1.0 no side plates OR 1.25 for metal sideplates)

Timber Thickness - Callup (W) **90** mm (15,19,35,45,65,90,130)
Effective Thickness is --> (EWF) **0.98** x Callup thickness

	DL	LL	WL
K1 Factor	0.60	0.80	1.00
Phi Factor	0.70	0.70	0.70

CALCULATED DATA

Effective Timber Thickness (EW)
(EW = W * EWF) = **88.2** mm

Angle of load to grain (ATGR)
(ATGR = ATG * PI / 180) = **0.00** Radians

Basic Load Parallel to Grain (PB) **10.4** kN (Taken from 3603
Basic Load Perpend to Grain (QB) **6.97** kN tables)
Load used (Single Shear) (NB) **10.40** kN
(NB = PB * QB / (PB * (Sin ATG)^2 + QB * (Cos ATG)^2))

Factor for Single/Double Shear (ST) **2** (1 for SINGLE or 2 for DOUBLE as per Table 4.9)
Timber Moisture State Factor **1.0** (1.0 for DRY or 0.7 for GREEN)
Total Number of Bolts in Joint (N)
(N = R * C) = **2** Bolts

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(27)

BOLTED JOINT DESIGN - TO NZS 3603:1993

Ideal Load per Bolt (NW)
(NW = NB * ST * MSPF) = **26.00** kN

Total Load in Bolted Joint (LD)
(LD = NW * N) = **52.00** kN

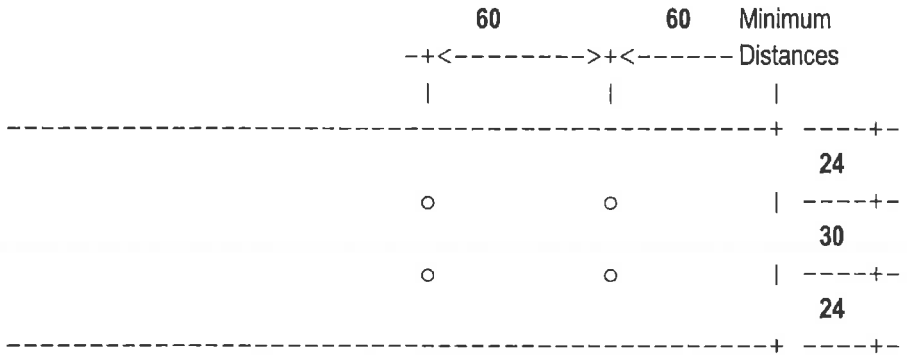
Factored Load Combinations	Factored Load	K1 * Phi	Allow Ld	
Load Combination 1	**0.00** kN	**0.42**	**21.84** kN	- OK
Load Combination 2	**0.00** kN	**0.56**	**29.12** kN	- OK
Load Combination 3	**24.80** kN	**0.70**	**36.40** kN	- OK

BOLT SPACINGS

	Tension Along	Compr Along	Load Across	Actual Used	
End Distance	96	60	60	60	mm
Edge Distance - Loaded edge	24	24	48	24	mm
Edge Distance - Unloaded edge	24	24	24	24	mm
Bolt Spacing - Between Bolts on Row	60	60	60	60	mm
Bolt Separation - between rows	30	30	60	30	mm

NB: For loads applied at more than 22.5 Degrees to Grain
the distances for perpendicular loading are used.

GRAPHIC SUMMARY



2 Row x 1 M12 Bolts/Row (Total=2)

Assumed direction of load = -------> (COMPRESSION)

150582

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BOLTED JOINT DESIGN - TO NZS 3603:1993

Client / Job Name: DICK - SIGNATURE - 130 RIDGEVIEW RD
File Number: 15165
Comment: UPLIFT AT OUTER END OF MAIN TRUSS

INPUT DATA	D	L	W/EQ	
Joint Load	0.00	0.00	24.80 kN	
Load Combinations (Load Factors)	D	L	W/EQ	Check
Load Combination 1	1.35	0.00	0.00	OK
Load Combination 2	1.20	1.50	0.00	OK
Load Combination 3	0.90	0.00	1.00	OK

Load type: Tens= 1, Compr= 0 (LT) **0** (for loads along member)
Load Angle to Grain: (ATG) **0** Deg
(0 = Parallel, 90 = Perpendicular)

Bolt diameter (Da) **12** mm (8, 10, 12, 16, 20, 24, 30)
Number of Rows of Bolts (R) **1**
Number of Bolts per row (C) **3**
NB: CALCS VALID FOR 4 OR LESS BOLTS ONLY

Timber Moisture State **DRY** (DRY or GREEN)
Single or Double Shear (ST) **SINGLE** (SINGLE OR DOUBLE)
Metal Side Plate Factor **1.25** (1.0 no side plates OR 1.25 for metal sideplates)

Timber Thickness - Callup (W) **90** mm (15,19,35,45,65,90,130)
Effective Thickness is --> (EWF) **0.98** x Callup thickness

	DL	LL	WL
K1 Factor	0.60	0.80	1.00
Phi Factor	0.70	0.70	0.70

CALCULATED DATA

Effective Timber Thickness (EW)
(EW = W * EWF) = **88.2** mm

Angle of load to grain (ATGR)
(ATGR = ATG * PI / 180) = **0.00** Radians

Basic Load Parallel to Grain (PB) **10.4** kN (Taken from 3603
Basic Load Perpend to Grain (QB) **6.97** kN tables)
Load used (Single Shear) (NB) **10.40** kN
(NB = PB * QB / (PB * (Sin ATG)^2 + QB * (Cos ATG)^2))

Factor for Single/Double Shear (ST) **1** (1 for SINGLE or 2 for DOUBLE as per Table 4.9)
Timber Moisture State Factor **1.0** (1.0 for DRY or 0.7 for GREEN)
Total Number of Bolts in Joint (N)
(N = R * C) = **3** Bolts

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(24)

BOLTED JOINT DESIGN - TO NZS 3603:1993

Ideal Load per Bolt (NW)
(NW = NB * ST * MSPF) = **13.00** kN

Total Load in Bolted Joint (LD)
(LD = NW * N) = **39.00** kN

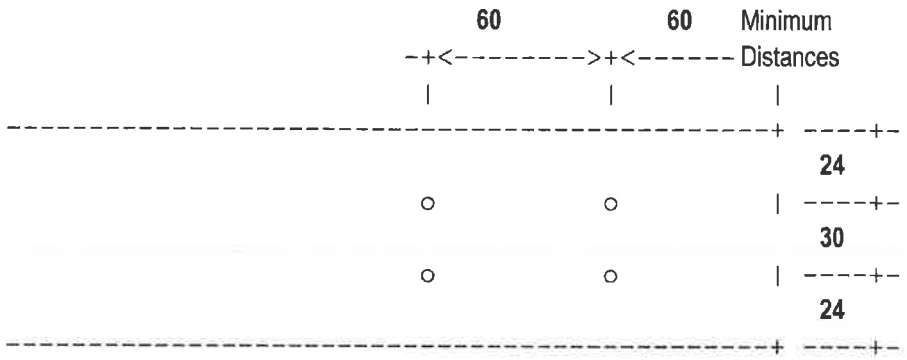
Factored Load Combinations	Factored Load	K1 * Phi	Allow Ld
Load Combination 1	**0.00** kN	**0.42**	**16.38** kN - OK
Load Combination 2	**0.00** kN	**0.56**	**21.84** kN - OK
Load Combination 3	**24.80** kN	**0.70**	**27.30** kN - OK

BOLT SPACINGS

	Tension Along	Compr Along	Load Across	Actual Used	
End Distance	96	60	60	60	mm
Edge Distance - Loaded edge	24	24	48	24	mm
Edge Distance - Unloaded edge	24	24	24	24	mm
Bolt Spacing - Between Bolts on Row	60	60	60	60	mm
Bolt Separation - between rows	30	30	60	30	mm

NB: For loads applied at more than 22.5 Degrees to Grain
the distances for perpendicular loading are used.

GRAPHIC SUMMARY



1 Row x 3 M12 Bolts/Row (Total=3)

Assumed direction of load = -------> (COMPRESSION)

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Memorandum from licensed building practitioner (certificate of design work)

Section 30C or 45, Building Act 2004

THE BUILDING

Street address: **130 Ridgeview Road**

Suburb: **Redwood Valley**

Town / City: **NELSON** Post code: **7081**

THE OWNER

Name: **J & J Dick - Signature Homes**

Mailing address: **308 Queen St**

Suburb: **Richmond**

Town / City: **NELSON**

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as:

Specialist designer who carried out specific elements of RBW work as outlined in this memorandum - other designers will be providing a memorandum covering the remaining RBW design work.

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK

I carried out/supervised the following design work that is restricted building work:

PRIMARY STRUCTURE

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
[Tick]	*[If appropriate, provide details of the restricted building work]*	*[Specify whether you carried out theis design work or supervised someone else carrying out this design work]*	*[If appropriate, specify references]*
Foundations and subfloor framing ✓	House foundations including piles	Carried Out	Engineering Details - Dick sheets 1 & 2
Walls ✗		N/A	
Roof ✓	Truss fixings - SED connections (3)	Carried Out	TCEL Sketch Details D1 to D4
Columns and beams ✓	Support Posts to SED truss connections	Carried Out	TCEL Sketch Details D1 to D4
Bracing ✗		N/A	

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Other ✕		N/A	

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Damp proofing ✕		N/A	
Roof cladding or roof cladding system ✕		N/A	
Ventilation system (for example, subfloor or cavity) ✕		N/A	
Wall cladding or wall cladding system ✕		N/A	
Waterproofing ✕		N/A	
Other ✕		N/A	

FIRE SAFETY SYSTEMS

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
Emergency warning systems ✕		N/A	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011

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WAIVERS AND MODIFICATIONS

Waivers or modifications to the Building Code are required: ☒ No

[List relevant clause numbers of building code]	*[Specify nature of waiver or modification of building code required]*

ISSUED BY

Name:	David King	Chartered Professional Engineer number: 145511
Company:	Tasman Consulting Engineers Limited	TCEL Reference: 15165
Mailing address:	P.O. Box 3631, Richmond 7050	
Telephone number:	03 544 6404	
Fax number:	03 544 6694	
Email address:	admin@tcel.co.nz	

DECLARATION

I David King, LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work described on this form and that based on this I also state that the RBW

a) complies with Building Code Clauses indentified on this form
b) complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature: David King

Date: 30 June 2015

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Building Code Clause(s)..... B1 .....

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited..... [File Reference: 15165]
(Design Firm)

TO:.....J & J Dick - Signature Homes .....
(Owner/Developer)

TO BE SUPPLIED TO:.....Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: .....Proposed new house foundations and retaining wall.....
(Description of Building Work)

AT:..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON.....
(Address)
LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** ....

We have been engaged by the owner/developer referred to above to provide.....
..... design and detailing..... services in respect of the requirements of
(Extent of Engagement)
Clause(s) .....B1 .....of the Building Code for

All ☐ or Part only ☒ (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment..... B1/VM1 ..... or
(verification method / acceptable solution)

☐ Alternative solution as per the attached schedule..... N/A.....

The proposed building work covered by this producer statement is described on the drawings titled ...*as referenced in the attachment to this statement*... and numbered...*as referenced in the attachment to this statement*... together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

(i) Site verification of the following design assumptions as specified in the attachment to this statement
(ii) All proprietary products meeting their performance specification requirements;

I **believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation: [*as described in the attached inspection schedule*]

☐CM1 ☒CM2 ☐CM3 ☐CM4 ☐CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, ...David King..... am:
(Name of Design Professional)

☒CPEng .....145511..... #

☐Reg Arch ..... #

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications:.....ME(Civil).....
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

SIGNED BY .....David King..... ON BEHALF OF ..Tasman Consulting Engineers Limited.....
(Design Firm)

Date ..... 30 June 2015 ..... (signature).....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

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APPROVED 09/07/2015

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TASMAN CONSULTING ENGINEERS

PRODUCER STATEMENT – PS1 – ATTACHMENTS

(To be read in conjunction with Pages 1 and 3)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]

TO: ..... J & J Dick - Signature Homes ..... [Issue Date: 30/06/2015]

TO BE SUPPLIED TO: ..... Tasman District Council .....

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

Items covered by this Producer Statement:

1	Foundations including overheight foundations wall & piled foundations outside the approve 3604 area
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

Drawings describing the work covered by this Producer Statement:

Drawing/Sketch Title	Reference	No of Sheets	Date
Tasman Consulting Engineers – Dick – Engineering Details	15165	4	27-05-15
Tasman Consulting Engineers – Dick – Truss Hold Down Sketch Details (D1 to D4)	15165	4	30-06-15

Design assumptions to be verified during construction:

1	Piles and other foundations bear on ground complying with the requirements of NZS 3604:2011
2	
3	

Limitations:

- *This Producer Statement remains current for 12 months from the date of issue*
- *This Producer Statement does not cover stability of the site*
- *This Producer Statement does not cover waterproofing of retaining walls or slabs*

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TASMAN CONSULTING ENGINEERS

PRODUCER STATEMENT – PS1 – INSPECTION SCHEDULE

(To be read in conjunction with Pages 1 and 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]

TO:..... J & J Dick - Signature Homes ..... [Issue Date: 30/06/2015]

TO BE SUPPLIED TO:..... Tasman District Council.....

IN RESPECT OF:..... Proposed new house foundations and retaining wall .....

AT:..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

The following structural elements of this project require inspection by a representative of Tasman Consulting Engineers during construction in order to ensure compliance with the New Zealand Standard Code of Practice under which they were designed. Such inspection is considered an integral part of the structural design process, and is carried out to ensure that the structure will perform adequately.

Failure to carry out the required inspections listed below will restrict Tasman Consulting Engineers ability to issue a Producer Statement – Construction Review (PS4) for use in attaining a code compliance certificate for the completed work. It may also in some circumstances limit the designer's liability for subsequent problems. This applies particularly to foundation inspection / soil tests, and to inspection of steel placement in reinforced concrete/masonry components where verification of compliance with the structural design may not be possible after construction is complete.

Please book at least 24 hours before inspections are required. Ph (03) 544 6404

Element	Item(s) requiring inspection	Time of inspection
Pole retaining walls	Pole foundation holes	After drilling
	Poles and wall lining	After construction
	Drainage and backfilling	During backfilling
Foundations outside 3604 area	Foundation excvations	After excavation
	Pile foundation holes	After drilling
	Soil strength testing	After piles drilled & foundations excavated
	Foundation reinforcing	After placing reinf
	Wall reinforcing	After placing reinf
	Stripping to slab area	After stripping
	Drainage to O/H walls	After placing drain
	Placement & compaction of hardfill	After placing hardfilling
	Floor slab reinforcing	After placing reinf
SED truss hold down connections	Truss hold down connectors	After fixing / before interior lining

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PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]
(Construction Review Firm)

TO: .....J & J Dick - Signature Homes.....
(Owner/Developer)

TO BE SUPPLIED TO: ..... Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: .....Proposed new house foundations and retaining wall.....
(Description of Building Work)

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON.....
(Address)
LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** ....

Tasman Consulting Engineers Limited .... has been engaged by .....J & J Dick - Signature Homes.....
(Construction Review Firm)

To provide☐CM1☐CM2☐CM3☐CM4☐CM5*(Engineering Categories)* or ☐ observation as per agreement with owner/developer

or ☒other ..... observation of the items listed in the attached schedule ..... services
(Extent of Engagement)

in respect of clause(s) .....B1 .....of the Building Code for the building work described in documents relating to Building Consent No..... Click here to enter text. ..... and those relating to Building Consent Amendment(s) Nos. ..... Click here to enter text. ..... issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No .... (copies attached) or by the attached Schedule ☒ have been issued during the course of the works.

On by the basis of ☐this ☒these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐All ☒Part only of the building works have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, with respect to Clause(s)..... B1 ..... of the Building Code.

I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I,.....David King .....am:
(Name of Construction Review Professional)

☒CPEng No. ..... 145511.....

☐Reg Arch No. .....

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications: ..... ME(Civil) .....

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.

The Construction Review Firm is a member of ACENZ : ☐

SIGNED BY .....David King ..... **ON BEHALF OF**..... Tasman Consulting Engineers Limited .....

Date: ..... Click here to enter a date. .....Signature:..... .....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

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TASMAN CONSULTING ENGINEERS

PRODUCER STATEMENT – PS4 – ATTACHMENTS

(To be read in conjunction with Page 1)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]

TO: ..... J & J Dick - Signature Homes .....[Issue Date: Click here to enter a date.]

TO BE SUPPLIED TO: ..... Tasman District Council.....

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

Items covered by this Producer Statement:

1	Foundations including overheight foundations wall & piled foundations outside the approve 3604 area
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

The following significant changes were authorised to the design during the course of works:

None ☒ or as shown on the attached sheets numbered .....Click here to enter text. .....

INSPECTION RECORDS

The following is a record of inspections and observations carried out during construction.

Item	Comments
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

150582

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TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
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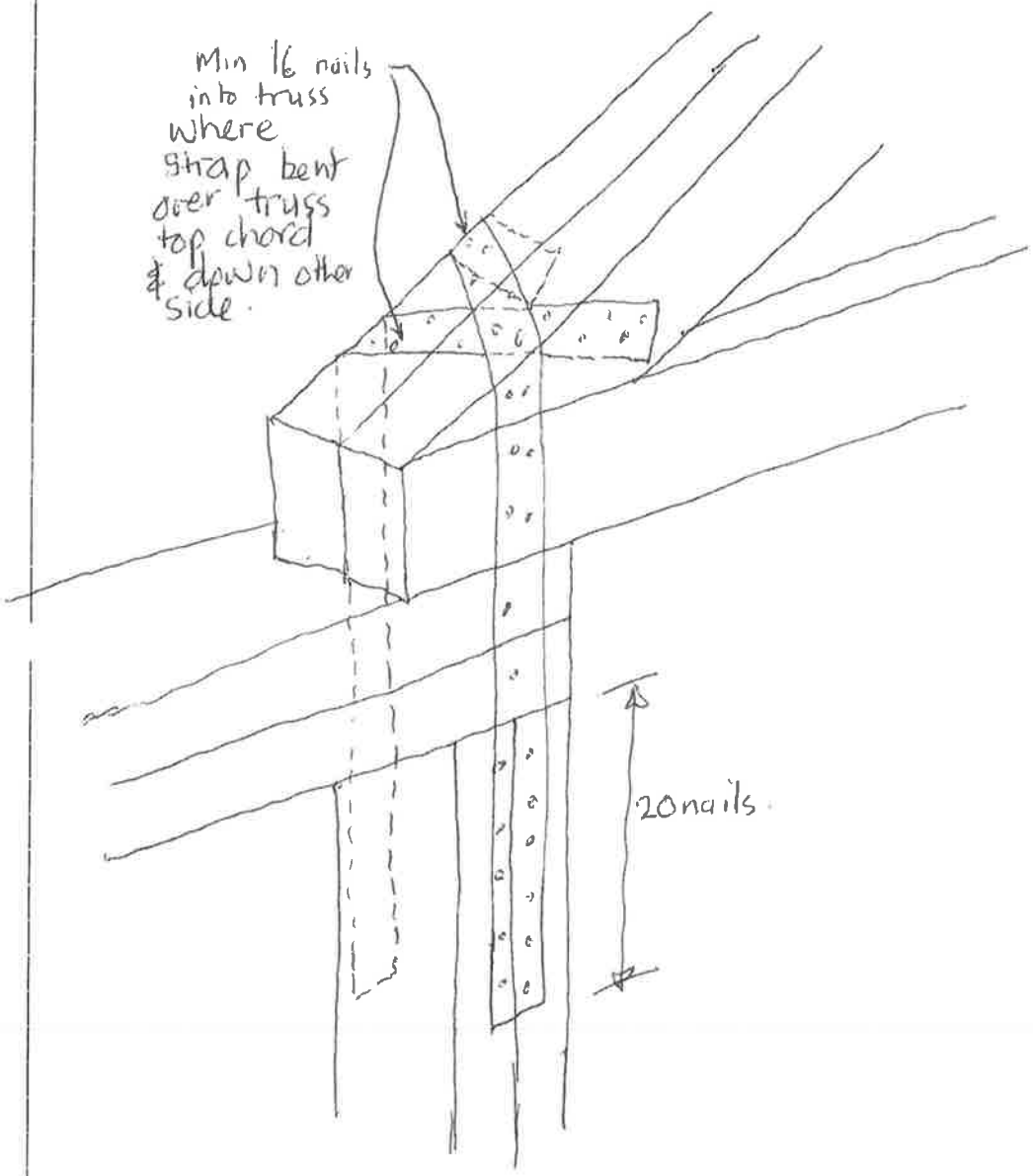
Project: Dick

File Ref: 15165

Page No: D1

Date: 30-06-15

By: RJO



POST to TRUSS CONNECTION

nts.

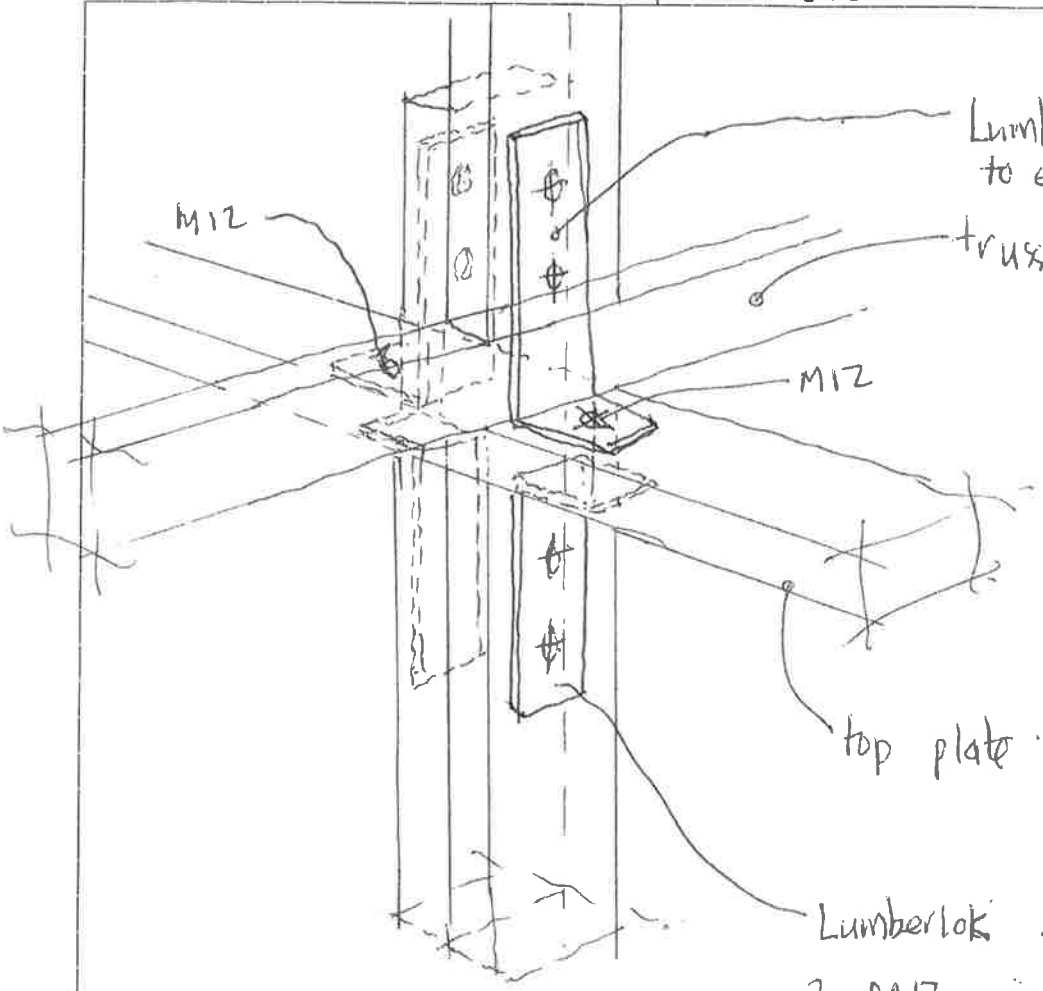
For (1) & (2)

150582

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Project: Dick	Page No: D2
	Date: 30-06-15
File Ref: 15165	By: RJD



TRUSS TO POST CONNECTION

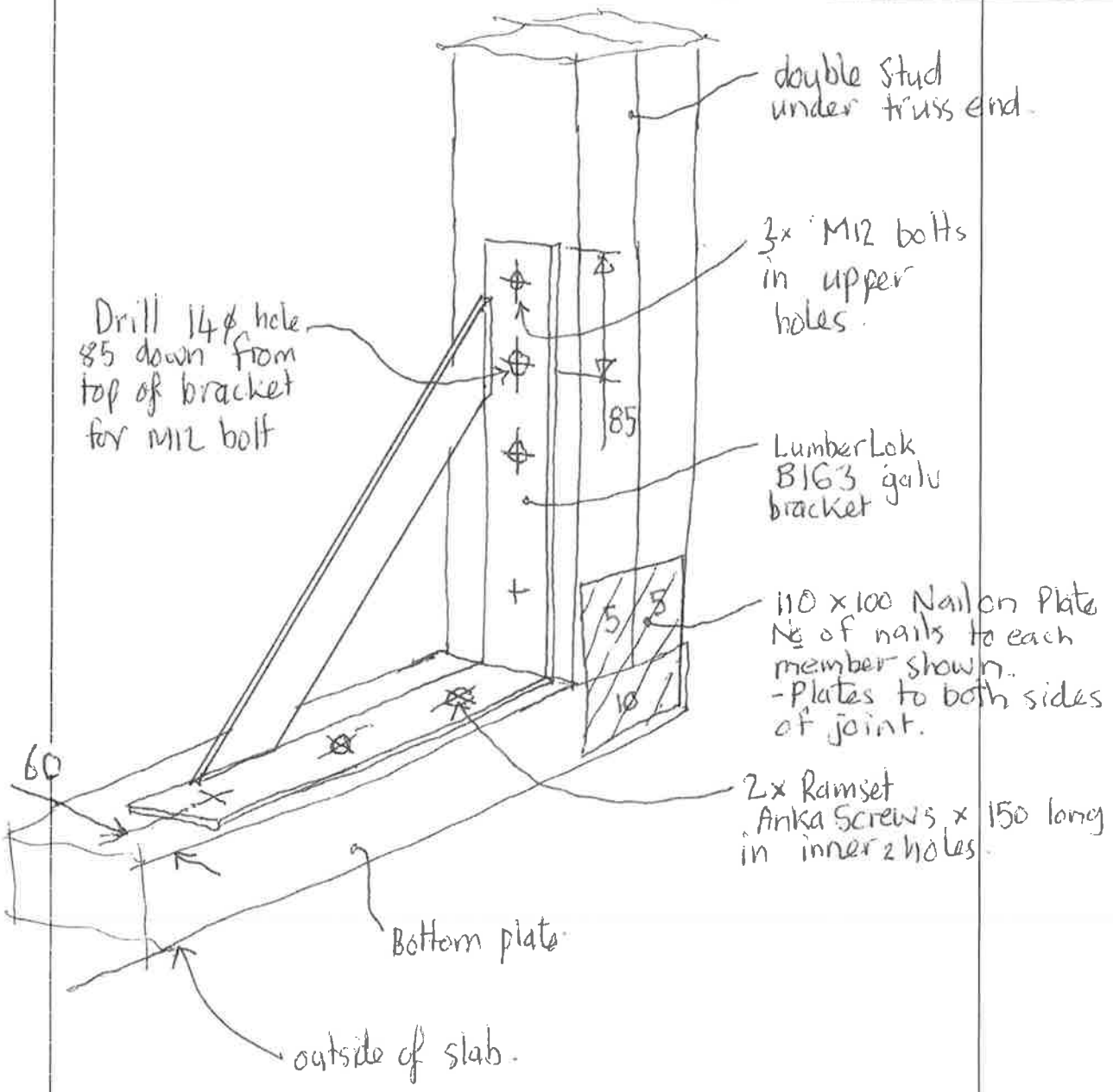
FOR (3)

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PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

Project: Dick	Page No: 03
File Ref: 15165	Date: 30-06-15
	By: RJD



POST BASE FIXING

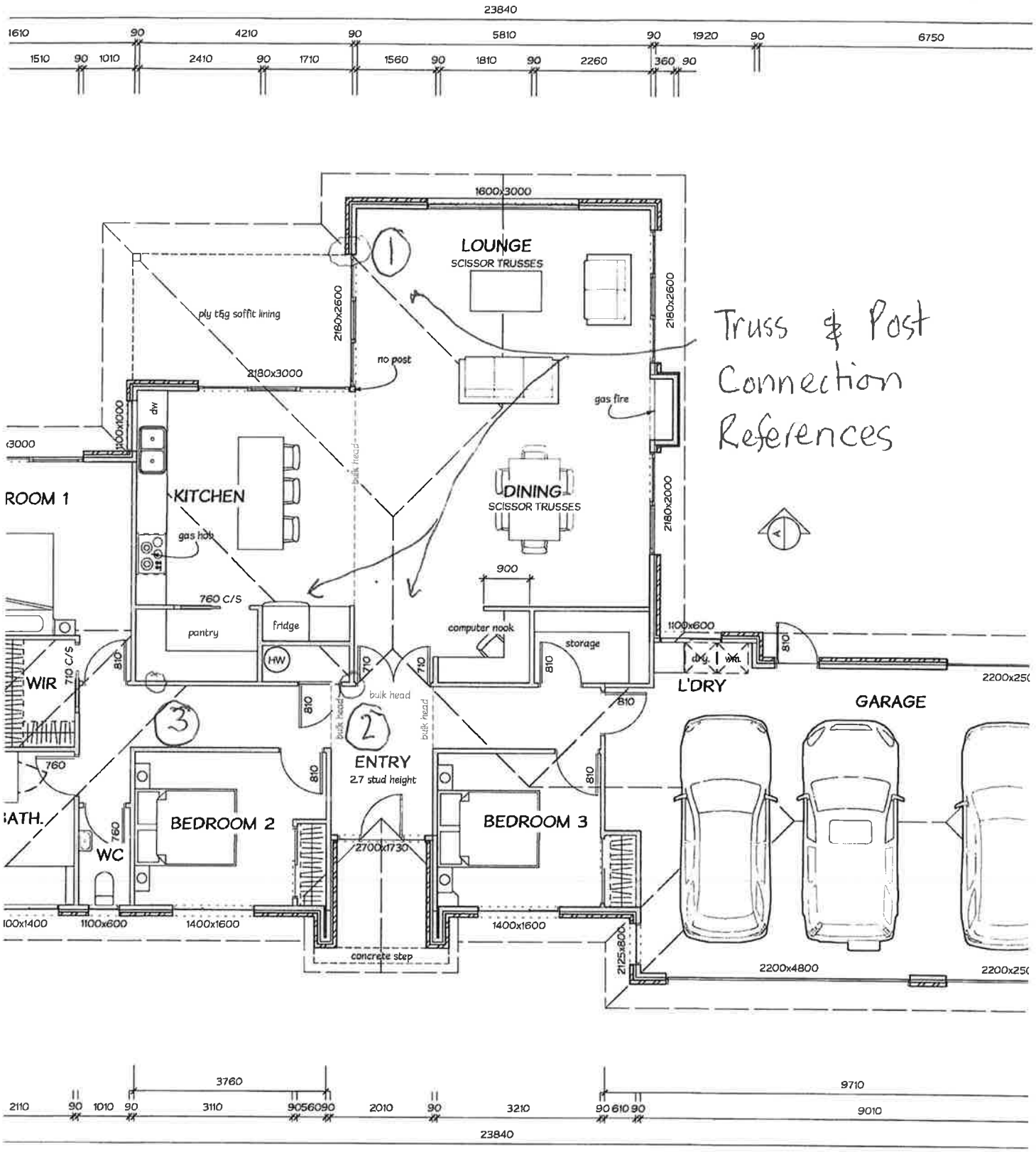
nts.

for (1) & (2) & (3)

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Dick 15'65. D4



UND FLOOR PLAN 1:100

REA OVER FRAMING 220m²

REA OVER 70 SERIES BRICK 229.44m²

se drawings are limited to and by the extent of the detail ired in the drawings to meet the current New Zealand Building e (NZBC). Where detail is required for construction and to onstrate compliance with the current NZBC, a specific request uld be made for the required detail to be supplied. No liability e accepted for any detail or construction not covered in these ings and/or carried out by persons other than the designer ucing these documents.
GNATURE HOMES Ltd.

3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

FLOOR PLAN

Scale: 1:100 | Drawn: JA | Date:

Tasman District Council
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150582

MiTek New Zealand Limited

Correspondence from : **AUCKLAND**
40 Neales Road, East Tamaki 2013
PO Box 58-014, Botany 2163
Phone: 09 274 7109
Fax: 09 274 7100

CHRISTCHURCH
14 Pilkington Way, Wigram 8042
PO Box 8387, Riccarton 8440
Phone: 03 348 8691
Fax: 03 348 0314

www.miteknz.co.nz

PRODUCER STATEMENT for MiTek 20/20® TRUSS DESIGN - Version 4.6

ISSUED BY: **MiTek New Zealand Limited**

TO: **CARTERS Manufacturing**

IN RESPECT OF: **MiTek® Truss Designs**

This producer statement covers the MiTek 20/20® truss design and the structural performance of the GANG-NAIL® connector plate for the job reference **FE92528C** and may be used by a Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

The MiTek 20/20® truss design program has been developed by MiTek New Zealand Limited for the design of MiTek® timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20 ® are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution to satisfy the requirements of Clause B1 of the New Zealand Building Code.

On behalf of MiTek New Zealand Limited, and subject to:

i) All proprietary products meeting their performance specification requirements
ii) The provision of adequate roof bracing and overall building stability
iii) Correct selection and placement of GANG-NAIL connector plates
iv) Correct input of Truss Design Data as shown in the Fabricator Design Statement for this job
v) The design being undertaken by the accredited fabricator under the terms of the software licence

I believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20® truss design and shop drawings, will comply with the relevant provisions of the New Zealand Building Code.

MiTek New Zealand Limited holds a current policy of Professional Indemnity Insurance no less than $500,000.

On behalf of MiTek New Zealand Limited, **Date: Friday, 24 April 2015**



In Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Limited

Tasman District Council
APPROVED 09/07/2015

Job: FE92528C 150582
Description:
Building Consent No.:
Client: Signature Homes
Phone:
Site: J & J Dick
130 Ridgeview Rd
Appleby
Tasman
Phone:

MITEK FABRICATOR DESIGN STATEMENT

This statement is issued by MiTek accredited fabricator **CARTERS Manufacturing**, being licensed to use the MiTek 20/20® software, to the client listed above and may be used by the Building Consent Authority to assist in determining compliance with the New Zealand Building Code.

MiTek 20/20® TRUSS DESIGN DATA

The MiTek 20/20® computer design for this job is based on the following design parameters entered into the program. The Fabricator shall ensure that these job details are current and relevant to the project for the design of the MiTek ® trusses.

Job Details

Roof Truss

Timber Group:	MSG8 DDP H1.2	Importance Level :	2	Design Working Life :	50 years
Roof		Pitch:	25.000 deg	Nominal Overhang:	600 mm
Material:	Metal Tiles	**Ceiling**		**Wind**	
Dead Load:	0.210 kPa	Material:	Gib Board 12mm	Area:	Very High (50.0 m/s)
Restraints:	400 mm centres	Dead Load:	0.200 kPa	Pressure Coeff:	Cpe = varies; Cpi = -0.30, 0.20
Live Load:	Qur = 0.250 kPa	Restraints:	600 mm centres	**Snow**	
	Qc = 1.100 kN	Live Load:	Qc = 1.400 kN	Location:	Nelson (N3) at 220 m
				Open Ground Load:	0.300 kPa
				Basic Roof Load:	0.400 kPa

The timber for these MiTek® trusses shall be treated to the requirements of NZS 3602:2003 and shall be graded to the requirements of NZS 3603:1993. Unless otherwise noted, this design assumes that the steel fixings and timber connectors proposed are located in a **"closed environment"**, as defined by NZS3604:2011 Section 4.

MiTek® Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral bracing required GB = gable brace required

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
CT01	1	4463	25.000	900	J02B	2	2172	25.000	900	V07	1	1533	25.000	900
CT01A	2	4463	25.000	900	J02C	1	2172	25.000	900	V08	1	2455	25.000	900
HT01	1	4490	25.000	900	J02D	1	2172	25.000	900	V09	1	1555	25.000	900
HT02	1	4490	25.000	900	J03	1	1272	25.000	900	V10	1	655	25.000	900
HTG01	1D	8690	25.000	900 LB	J03A	1	1272	25.000	900	V11	1	1317	25.000	900
J01	1	3072	25.000	900	J03B	1	1272	25.000	900	V12	1	2217	25.000	900
J01A	1	3072	25.000	900	J04	1	2477	25.000	900	*HB01	3	5171	18.249	900
J01B	1	3072	25.000	900	J04A	1	2477	25.000	900	*HB02	1	1187	18.249	900
J06	1	3522	25.000	900	J04B	1	2477	25.000	900	*HB03	2	5603	18.249	900
J09	1	4300	25.000	900	J04C	1	2477	25.000	900	*HB04	1	7080	18.249	900
J09A	1	4300	25.000	900	J04D	1	2477	25.000	900	*HB05	1	2460	18.249	900
J10	1	3400	25.000	900	J05	1	1577	25.000	900	*HB06	1	8092	18.249	900
S01	1	5900	25.000	900	J05A	1	1577	25.000	900	*HB07	1	3198	18.249	900
S01A	3	5900	25.000	900	J05B	1	1577	25.000	900	*HB08	1	3733	18.249	900
S02	4	5900	25.000	900	J07	1	2622	25.000	900	*HB09	1	1777	18.249	900
S02A	1	5900	25.000	900	J07A	1	2622	25.000	900	*R01	1	985	25.000	900
S03	1	5900	25.000	900	J08	1	1722	25.000	900	*R01A	1	985	25.000	900
S04	1	5900	25.000	900	J08A	1	1722	25.000	900	*R01B	2	985	25.000	900
T01	1	6190	25.000	900	J10A	1	3400	25.000	900	*R01C	2	985	25.000	900
T01A	1	6190	25.000	900	J11	1	2500	25.000	900	*R02	1	1290	25.000	900
T02	3	6190	25.000	900	J11A	1	2500	25.000	900	*R02A	1	1290	25.000	900
T04	1	5790	25.000	900	J12	1	1600	25.000	900	*R03	5	913	25.000	900
T05	3	8745	25.000	900	J12A	1	1600	25.000	900	*R03A	5	913	25.000	900
T05A	1	8745	25.000	900	T03	1	2410	25.000	900	*R03B	1	913	25.000	900
T06	1	6223	25.000	900	T08	1	3100	25.000	900	*R04	1	901	25.000	900
T07	3	4490	25.000	900	T08A	1	3100	25.000	900	*R05	1	1435	25.000	900
TG01	1	5790	25.000	900	T09	1	2190	25.000	900	*R06	1	1479	25.000	900
TG02	1	8745	25.000	900	V01	1	1245	25.000	900	*R07	1	1313	25.000	900
ET01	1	2410	25.000	900	V02	1	1355	25.000	900	*R08	1	3010	25.000	900
ET02	1	5990	25.000	900	V03	1	2045	25.000	900	*R09	1	7190	25.000	900
J01C	1	3072	25.000	900	V04	1	1145	25.000	900	*R10	1	1800	25.000	900
J02	1	2172	25.000	900	V05	1	3333	25.000	900	*R11	1	1340	25.000	900
J02A	1	2172	25.000	900	V06	1	2433	25.000	900	*R12	1	440	25.001	900

Total quantity : 125

The computer design input has been carried out by:

MiTek 20/20 Software Operator: Austin Brown

Qualifications: MiTek 101, MiTek 201, MiTek 301, MiTek Certificate of Competence

MiTek Candidate Number:

Accredited Fabricator: CARTERS

A Division of Carter Holt Harvey

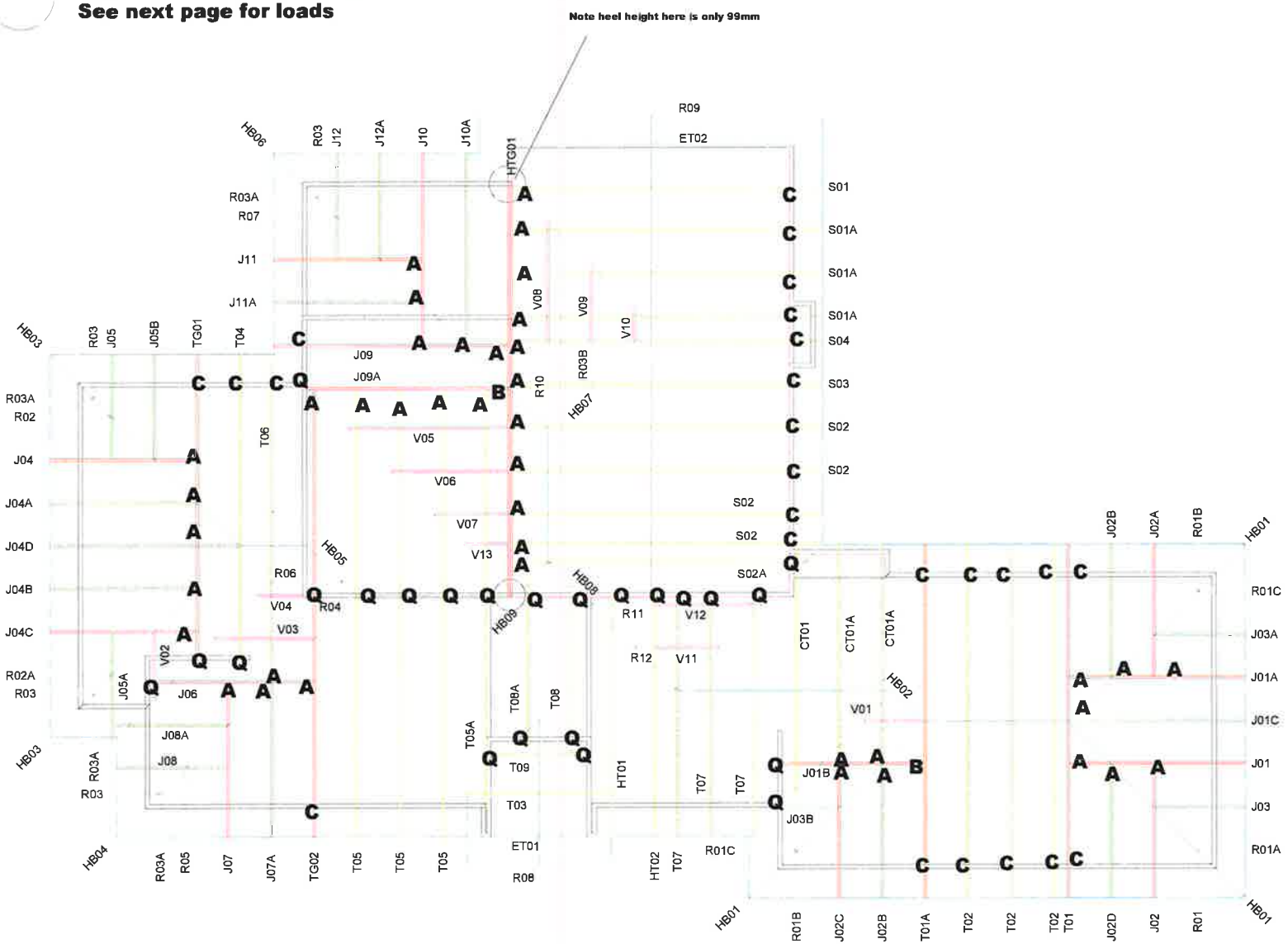
Dated: Friday, 24 April 2015

150582

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BUILDING CONSENT LAYOUT

Engineered hold down required.
See next page for loads



CARTERS
YourBuildingPartner

CARTERS Manufacturing
Nayland Rd
(03) 547 8174

JOB No **FE92528C**

Client: Signature Homes
Job Name: J & J Dick
Address: 130 Ridgeview Rd
Appleby
Tasman

Pitch: 25.0deg
Roof Material: Metal Tiles
Soffit Overhang: 600mm
Wind Area: Very High
Snow Load(factored): 0.400kPa

Trusses and rafters at 900mm max centres unless stated otherwise.

This layout is to be read in conjunction with the Architectural plans.

DRAWN BY Austin Brown

DATE 24 Apr,2015

PAGE 1 of 2

FIXINGS

A= 47x90 JH
B= 47x120 JH
D= 47x190 JH
E= 95x165 JH

C= CT200 (pair)
M= Multigrips (pair)
N= Nailon Plate
Q= 9kN Pack
P= 16kN Pack



All other truss fixings must have two wire dogs unless indicated as above

NOTE

Please contact your local CARTERS Manufacturing Branch for any queries regarding this layout.

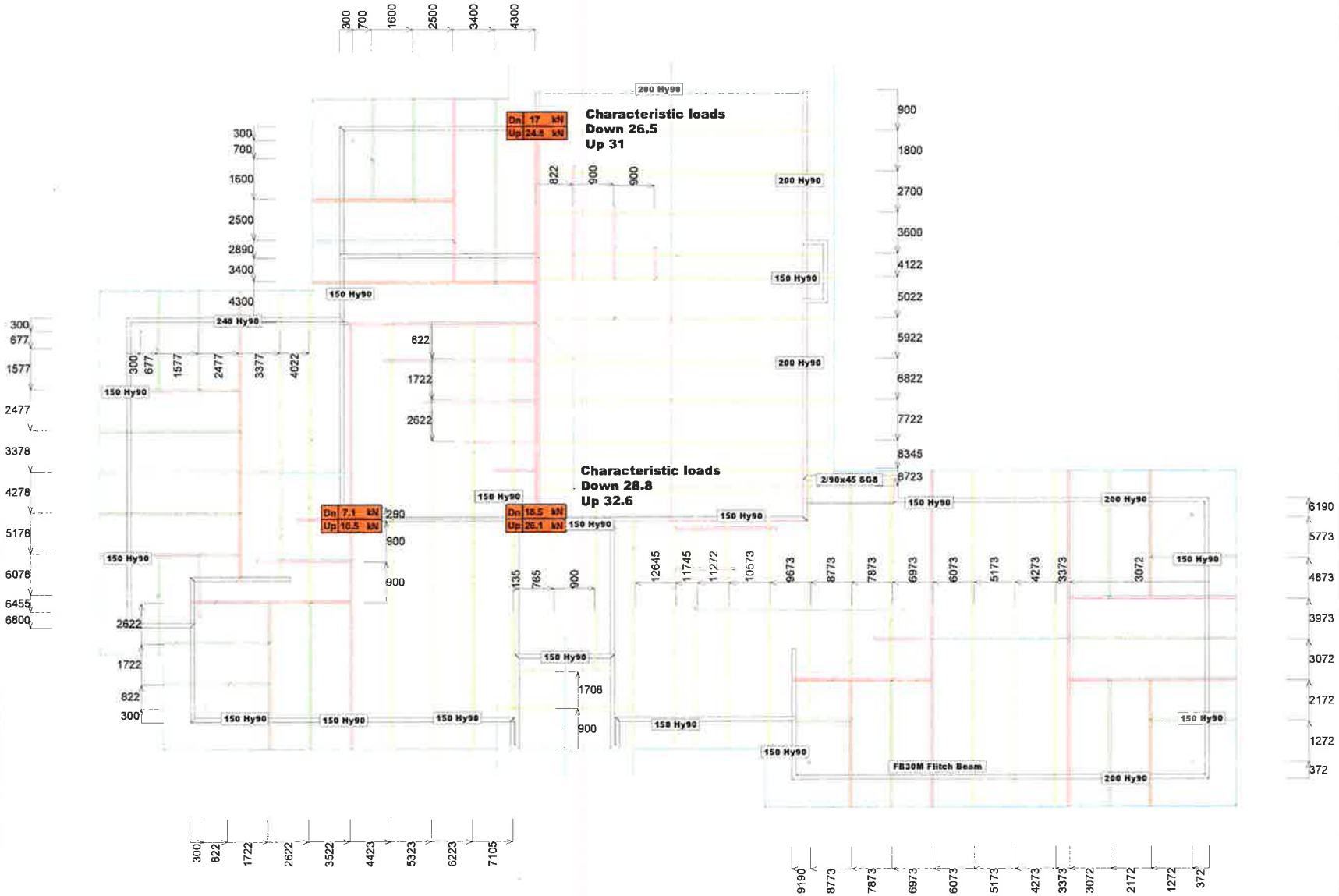
QUALITY ASSURANCE FTMA NEW ZEALAND

See Page 2 for Dimensions, Lintel Statement & Point Load Notification

150582

BUILDING CONSENT LAYOUT

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CARTERS
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PAGE 2 of 2

These lintels have been sized using one of the following :

The GANGLAM 04/2008 and FLITCH BEAM 12/2007 selection manuals from MiTek NZ Ltd.

hy90 and hyONE lintels have been sized using designIT v5 NZ software (Incl. sub versions) or selection manuals, hy90 Edition 1, and hyONE April 2008, as provided by CHH Woodproducts.

Unless otherwise stated the timber grade for all lintels is SG8. Lintels not shown are to be selected as per NZS3604: 2011.

All walls shown on this layout are considered to be load bearing.

FTMA QUALITY ASSURANCE NEW ZEALAND

See Page 1 for Truss Layout and Fixings

_kN NOTIFICATION OF POINT LOADED LINTELS AND POINT LOADS ON INTERNAL OR EXTERNAL WALLS WHERE THE DOWNLOAD IS HIGHER THAN 10kN.
Note: If no point loads indicated, loading does not exceed 10kN.

150582

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SPECIFICATION

for

3 BEDROOM RESIDENCE

at

130 RIDGEVIEW ROAD

APPLEBY

Tasman District Council
BUILDING CONSENT AUTHORITY
APPROVED
9/07/2015
BC 150582
BUILDING CONSENT
ALL WORK IS TO COMPLY WITH THE NZ BUILDING CODE
DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL

for

JACKIE & JEFF DICK

Gowans Walters & Associates Ltd

Jeremy Ritchie Allan Walters

Phone 544 9499 Fax 544 9488

building design

Box 3608 Richmond
99 Gladstone Road
Richmond

JOB No 15155

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PRELIMINARY & GENERAL

1.01 SCOPE OF WORK

This contract comprises the erection and completion in the best trade practice all the work shown or reasonably implied on the accompanying drawings and this specification, the supply of all necessary plant, tools and materials and the maintenance of all works as stated in these conditions.

1.02 BUILDING CONSENT AND NOTICES

The contractor shall be responsible for applying (as agent for the owner) to and uplifting from the local authority the building consents and for paying all necessary fees. It shall be the Contractors responsibility to give the required notice and the ensure that required inspections are carried out by the Local Authority and to ensure that all work is carried out to enable compliance certificates to be issued at completion of the works. The cost of any additional inspections required because of insufficient or faulty work by the Contractor shall be borne by the contractor.

1.03 COMPLIANCE CERTIFICATES

The contractor shall ensure that all relevant compliance certificates are issued.

1.04 N Z BUILDING REGULATIONS

All work shall be carried out to comply with the N Z Building Act 2004 & Regulations and shall conform to the NZBC Approved Documents.

1.05 CONTRACT

Signature Homes Building Agreement Issue no XVI (No Land) Sep 2012 shall apply to this project unless otherwise agreed upon by both parties. The contractor shall be responsible for presenting two identically filled in contract documents for signing by both parties prior to the commencement of any work.

1.06 HEALTH AND SAFETY

The Contractor shall comply with the Health and Safety in Employment Act 1992, effectively operating a Safety Management Programme for the duration of the contract.

1.07 SUBCONTRACTORS

All Subcontractors employed by the main Contractor shall be equally bound by the Preliminary & General section of this specification.

1.08 INSURANCE

The Contractor shall at all times keep the whole of the works fully covered by insurance, as set out in NZS 3902 : 2004 section10. The Contractor shall also carry a minimum of $1,000,000 public liability insurance.

1.09 INTERPRETATION

Materials or work shown on the drawings but not specified (or specified and not shown), shall be supplied as if both shown and specified. Materials shown but not specified must be of types commonly employed for the service

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they are intended to perform. The Contractor shall be responsible for setting out the work and shall make good at this own expense any errors that occur through his lack of checking or faulty workmanship.
All figured dimensions shall be used in preference to scale.
Unless written as "provide only" or "fix only" the words "provide" and "fix" shall mean provide and fix.

1.10 STABILITY DURING CONSTRUCTION

The contractor shall carefully brace and support all parts of his work against damage by wind and protect work from the elements as necessary during the contact period.

1.11 PROTECTION OR PROPERTY

The contractor shall take care to protect all existing buildings, roads, grounds, shrubbery etc, on or about the site from damage by his operations. Any such damage shall be made good at the Contractors expense.

1.12 TEMPORARY SERVICES

The Contractor shall arrange for all temporary services, pay all fees in connection therewith and remove same on completion of the contract.

1.13 SITE VISIT

Tenderers shall visit the site and ascertain the nature and extent of the work and the rights and interests that may be interfered with any other matter that may influence the making up of a tender or the carrying out of the contract. The levels shown on the plans are approximately correct but Tenderer shall verify these as no claims will be allowed on the bases of incorrect levels shown.

1.14 WORKMANSHIP

All workmanship shall be in accordance with the best trade practice. Work shall be accurately set out, structurally sound, true to line and face and shall be neatly finished to the satisfaction of the Owner.

1.15 ENGINEERS INSPECTIONS

The Contractor shall note the Engineers producer statement and inspection schedule and shall allow to provide notifications and co-operation for all inspections required by the Engineer.

1.16 ATTENDANCE

The Contractor shall allow for attendance upon all sub contractors as necessary to enable satisfactory completion of the works. Allow to form all holes, chases, building in, making good and cutting away for all trades.

1.17 COMPLETION

The Contractor at the conclusion of the Contact shall have all trade debris removed from the site and the building left clean and ready for occupancy. All services and mechanical parts shall be in good working order.

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EXCAVATION & BACKFILLING

3.01 PRELIMINARY & GENERAL

Refer to Conditions of Contract and preliminary clauses of this specification which shall apply equally to this section

3.02 SCOPE

The Contractor shall perform all excavation and backfill as necessary to complete the works.

3.03 EXCAVATIONS

The Contractor shall remove all vegetation, topsoil, etc. Over the area to be built over. If topsoil is to be stockpiled it shall be as directed by the owner or his representative.

All foundations shall be excavated to take piles and concrete encasement. Over excavation shall be filled with hardfill and compacted at the contractors expense.

3.04 INSPECTION

Excavations shall be inspected by the Engineer after full excavation and prior to placing of any boxing, reinforcing, or concrete. The Contractor shall notify the Engineer when the excavations are ready for inspection.

3.05 CONTROL OF WATER

The Contractor shall keep the excavations free of water at all times and shall provide all such pumping plant and other materials as may be required for this purpose.

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CONCRETE WORK & REINFORCING

4.01 PRELIMINARY & GENERAL

Refer to Conditions of Contract and preliminary clauses of this specification which shall apply equally to this section.

4.02 SCOPE OF WORK

Allow to set out to profiles shown and reinforce as detailed all concrete to foundations including walls slab thickenings floor slabs, steps etc as shown on the plans.

4.03 FORMWORK

Formwork shall be constructed to ensure concrete thickness and shapes required as indicated on the plans. Methods of construction and pouring and curing of concrete and times of removal shall be as set down in NZS 3109.

4.04 CONCRETE

All concrete shall be premixed in a certified plant.
All concrete shall be min 20 Mpa at 28 days.
Floor slabs shall be power float finished to a smooth hard surface.

4.05 REINFORCING

Reinforcing shall be deformed bars and mesh, sizes as indicated on the drawings, and shall be free from rust, scale, oil or paint and shall be securely tied to provide min 75 bottom cover to foundation walls and 50 cover to all other areas. Bind all rods with black tie wire. Laps shall be min 40 diameters of rod. Mesh shall be 500E or similar approved ductile mesh lapped minimum 200.

4.06 VAPOUR BARRIERS

Concrete floors shall be poured over 250 micron polythene underlay or similar vapour barrier with joints lapped min 150mm and sealed with polythene tape. Any holes shall be sealed prior to concrete being poured and the contractor shall take adequate care to ensure that the vapour barrier is protected during the pouring.

4.07 CONCRETE FOUNDATIONS & FLOORS

Concrete floor slabs shall be formed to profiles shown on plans and shall be reinforced as detailed. Slab thickness shall be as shown on plans. Floor slabs shall have shrinkage control joints formed with sawcuts to a quarter depth of slab at max 6 metres centres. Sawcutting shall take place no later than 24hrs for average ambient temperatures above 20°C, and 48 hrs for average ambient temperatures below 20°.

4.09 BUILDING IN

Build in as work proceeds all bolts, ties, etc.

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Leave PVC piping through foundation for power, telephone, water pipes and drains. Positions to be determined on site in consultation with relevant subcontractors.

4.10 SUBCONTRACTORS

Co-operate with all subcontractors for the laying of pipes conduits cables etc.

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BRICKWORK

9.01 PRELIMINARY AND GENERAL

Refer to Conditions of Contract and preliminary clauses of this specification which shall apply equally to this section.

9.02 STANDARDS

All work shall be in accordance with the requirements of NZBC E2/AS1 9.2

9.03 SCOPE OF WORK

Brick veneer cladding where shown on plans.

9.04 MATERIALS

Bricks

Shall be clay or concrete bricks as shown on the plans. Brick colour and type to be as selected.

Cement

Shall be ordinary Portland Cement and at the time of use shall comply with NZS 3122.

Plasticisers

Shall be used in accordance with the manufacturers instructions and no other additives are to be used in conjunction with these materials.

Water

Shall be drinking quality.

Sand

Shall comply with the relevant clauses of NZS 3103.

Mineral Oxide pigment.

Shall not exceed 3% by weight to weight of cement.

Ties

Shall be approved screw fixed, hot dipped galvanised mild steel or stainless steel where the building is in corrosion zone D.

9.05 PREPARATION OF MORTAR

Mix in an approved mixer. Measure materials by volume using suitable containers. Mix until an homogenous mass is obtained but for not less than 5 minutes. All mortar whether on boards or left in the mixer shall be used within 90 minutes. Mortar not used in this time shall be discarded, retempering by dashing water over mortar shall not be permitted. Mortar shall be min 12.5 Mpa.

9.06 BRICKLAYING

Bricks shall be laid in stretcher bond true to line level and plumb and in accordance with the best trade practice. All corners shall be half bonded. All work shall be laid from the lowest corner and no corner shall be raised more than 900 mm above wall line. Corners shall be raked back. All joints shall be completely filled with mortar and the bricks shall be disturbed as little as possible after initial positioning. Joints shall be, unless indicated on plans as otherwise, 10 thick and shall be tooled as work proceeds.

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9.07 BRICK VENEER

Construct brick veneer with heavy duty screw fixed ties spaces in accordance with NZBC E2/AS1
Maintain a cavity of not less than 40 mm and not more than 70 mm between the building paper and veneer. Every third perpend of the bottom course shall be raked to provide weepholes and ventilation. Keep the cavity and ties clean and free from mortar protrusions and droppings. Form neat and weatherproof junctions to timber or aluminium joinery. Clean off mortar splashings before they harden or stain adjoining materials.
Sills shall be brick on edge.

9.08 COMPLETION

On completion all work shall be left in a clean state. Remove all debris from the site.

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CARPENTRY

11.01 PRELIMINARY AND GENERAL

Refer to Conditions of Contract and preliminary clauses of this specification, which shall apply equally to this section. All work shall comply with NZS 3604 and NZBC acceptable solutions.

11.02 EXTENT OF WORK

The work shall include all labour, materials and equipment necessary to carry out and complete the carpentry as shown, or as further required by this specification. Any work that is intended or implied but not specifically shown but necessary for proper completion of the building shall be included.

11.03 ATTENDANCE & PROTECTION

Arrange and attend upon all works by other trades. Provide all blockings fixings, trims as necessary for completion of their respective works and make good after all trades. Provide all temporary supports. Provide for temporary protection from adverse weather and damage and ensure the closing in of the building as soon as possible.

11.04 MATERIALS AND WORKMANSHIP

All materials shall be the best of their respective kinds. All timber and wood products shall conform to NZS 3602 requirements, "Timber and Wood Based Products for use in Building". All framing timber in walls shall be gauged four sides. Moisture content for framing timber shall not be greater than 16% at time of lining. Timber sizes, spacing and treatment shall be as designated on the plans.

11.05 COMPLIANCE WITH THIS SPECIFICATION

a. Do any work under specific design in accordance with details provided. The Contractor and Carpenter shall do all other work in accordance with NZS 3604. In particular complying with the whole of Section 2 - General of NZS 3604. The requirement here shall be to meet NZBC Approved Documents B1 - Structure, B2 - Durability, E2 - External Moisture.

b. All fixings of materials shall be the equal of that in Appendix (a) of NZS 3604. Including sheet lining and cladding materials that are not wood based, e.g. Gibraltar board or wood cellulose sheeting, especially when used as diaphragms and for wall bracing.

c. Mild steel structural components used in sheltered subfloor spaces shall be hot dip galvanized after forming. Structural components in subfloor locations that are within 600mm of the ground or are exposed to the weather shall be type 316 stainless steel and shall provide the necessary capacities called from by NZS 3604 dependent on function and location.

d. Bolts acting as structural fixings to H3.2 treated radiata shall be Type 316 stainless steel.

11.06 DAMP PROOF COURSE

Provide continuous two ply bituminous damproof course between all timber and concrete that would otherwise be in contact.

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11.07 HOLDING DOWN BOLTS

Bottom plates shall be fixed down over DPC with min 144 long 10 Diam Hilti HUS-H screw anchors at 900 crs with 50x50x3 galv washers or 12mm diam bolts cast into concrete min 100mm at max 900 centres.
(see manufacturers producer statement for fixing associated with gib bracing system)

11.08 FINISHING TIMBERS

All exposed finishing timbers shall be dressed to a smooth surface and shall be sanded to a smooth even surface ready for painting.

11.09 ROOF TRUSSES

Roof trusses shall be Gangnail or equivalent factory manufactured trusses spaced as shown on the plans. The manufacturer shall provide setout drawings to the Contractor. All trusses shall be fixed at each end with min. 2/100 x 4 nails and 2 galv Z nails.

11.10 BUILDING WRAP

Fix breather type synthetic building wrap to the exterior face of stud framing or sheet bracing material prior to the fixing of cladding materials. Building wrap shall extend from top plate to the under side of bearers supporting wall claddings. Paper shall be run horizontally with top sheet lapping over sheet with laps not less than 75mm and shall be adequately secured to plates and studs. Where cladding is over a cavity type construction fix danband tapes overbuilding wrap horizontally at max 300crs between dwangs to prevent wrap bulging into cavity when batt insulation is placed in framing.

11.11 CLADDING

BRICK VENEER

See brick veneer section of this specification.

LINEA WEATHERBOARD

Linea weatherboards shall be fixed with galvanized nails strictly to the manufacturers specification and details including all flashing tapes and flashings.

11.12 LININGS

10 Gibraltar Board

Shall be fixed to manufacturers specifications with galvanised clouts, adhesives or coated screws. Allow to tape joints, stop all surfaces sand and leave ready for painting. Replace 10 Gibraltar Board where required for bracing panels as set out on plans. Fixings shall be as required by manufacturers and BRANZ appraisal certificates for the relevant brace panel type.

9mm UT ply

Shall be fixed to manufacturers specifcation. Fixings for braced panels shall be in accordance with manufacturers and BRANZ appraisal certificates for the relevant brace panel type and shall include Gib Handibracs where required.

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11.13 SOFFIT LININGS

Fix 4.5 Hardiflex to all soffits with galvanised 40 x 2.5 FH nails. Joints shall be made with PVC Hardijointer.

11.14 INSULATION

Ceilings R 3.6Batts
External Walls R 2.6Batts
Batts shall be friction fitted between framing members, care shall be taken to ensure there are no gaps and that all gaps around doors and windows are also filled.

11.15 SCHEDULE OF LININGS

Room	Wall lining	Finish	Ceiling lining	Finish
Living areas	10 gibboard	Paint	13 Gibboard	Paint
Bathrooms	10 Aqualine	Paint	13 Aqualine	Paint
Laundry	10 gibboard	Paint	13 gibboard	Paint
Garage	9 UT Plywood	Paint	13 Giboard	Paint

Bathrooms, ensuites,laundry & kitchen areas shall be finished with minimum 3 coat semi gloss or gloss paint.

11.16 SKIRTING AND SCOTIA

Skirting & Architrave 60 x 12 FJ Radiata
Scotia 55 gibcove & Square stopped
Nail fixings of all finishing timbers shall be punched

11.17 GARAGE DOOR

Provide and install garage door as shown on the plans door. The manufacturer shall measure for doors on the site and installation shall be strictly to manufacturers specifications. The owner shall select the colour.

11.18 INTERIOR DOORS AND DOOR JAMBS

Interior doors shall be flush hollow core Paint Quality with clashing strip on one edge. Hang on 1.5 pair of AC loose pin butt hinges. Door frames shall be grooved MDF with MDG clashing strip.

11.19 ALUMINIUM JOINERY

All exterior window frames, sashes, door frames and doors shall be powdercoated aluminium, fixed in accordance with manufacturers specifications. Sizes are as shown on the plans. Liners to domestic quality windows and doors shall be 20mm Radiata. All glazing shall comply with NZS 4223 Pt 3 1993. Provide all necessary flashings to ensure a completely watertight job. Units shall be complete with latches and commercial quality locksets. All glass to insulated envelop shall be double glazed.

11.20 JOINERY UNITS

Kitchen units - provide and install kitchen joinery units as shown on the plans. Units shall be constructed from Meltica board. Bench tops shall be selected Formica with rolled front edge with a double stainless steel bowl as selected

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by the owner. Provide five Meltica board shelves to pantry. The joinery shall verify dimensions on the site before construction work commences. Colours and patterns shall be as selected by the owner.

Laundry tub cabinet - provide and install selected laundry cupboard with centre shelf. Plumber to supply tub.

11.21 CEILING ACCESS

Provide 18mm MDF ceiling access panel (size as shown on the plans) set into powdercoated aluminium frame where shown on the plans.

11.22 WARDROBES

Provide 400 deep shelf of 18mm MDF and 1/20 diameter galv pipe hanging rail.

11.23 LINEN CUPBOARD

Provide five full depth shelves constructed with 18mm MDF board and supported on three sides with MDF rails.

11.24 HARDWARE

Interior doors	Selected latch sets
WC & bathroom doors	Selected latch set with privacy bolt.

11.25 COMPLETION

On completion remove all debris from the site sweep all floors and generally leave the building clean and ready for occupation.

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13.01 PRELIMINARY & GENERAL

Refer to Conditions of Contract and preliminary clauses of this specification which shall apply equally to this section.

13.02 SCOPE

Provide and install all roof coverings, valleys, ridges, barges spouting downpipes and any other associated flashings required to ensure a thoroughly watertight job. Colours shall be as selected by the owner.

13.03

Selected metal tile, shall be stored on site and fixed in accordance with the manufacturers specifications by a Manufacturer approved fixer. Battens shall be 50 x 40 H3.1 where truss spacings are 900 cc and 50 x 50 H3.1 where truss spacings are 1200 cc. Battens shall be laid over self supporting building paper. Ridges and hips shall be Mission profile.

Valleys - 0.55 Colorsteel G2z valleys shall be laid over building paper on 2/200 x 25 valley boards.

Ridges and barge flashings - shall be .55mm thick, edges shall be prepainted soft aluminium to be worked down into troughs. Flashings shall match the material used for the main roof.

Sealants - use only neutral cure silicone rubber sealants.

Downpipes shall be Colorsteel and round pipes. Sizes shall be as shown on the plans.

13.04 HANDLING AND STORAGE

Metaltiles shall be stored in dry well ventilated conditions. Care shall be taken with handling to ensure coated surface is not damaged. Damaged materials shall be replaced at the contractors expense.
Metaltiles shall not be cut using abrasive discs.
At the completion of each days work thoroughly clean down all surfaces to remove all metal swarfing.

13.05 METAL FASCIA & GUTTER SYSTEMS

Provide and install selected colorsteel external fascia gutter system as shown on the drawings. All work shall be carried out by an approved fixer to Manufacturers specifications.

13.06 COMPLETION

On completion clean down all surfaces and remove all debris from the site.

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PLUMBING WORK

14.01 PRELIMINARY & GENERAL

Refer to conditions of contract and preliminary clauses of this specification which shall apply equally to this section. All work shall comply with the acceptable solutions as found in the NZBC approved documents.

14.02 GENERAL

All work is to be carried out by competent tradesmen registered as required by the plumbing and drainage regulations. All pipework shall be concealed where possible within the wall spaces. The main contractor shall fix all necessary dwangs and blocking. All work shall be carried out according to the best trade practices. Co-operate with all other trades for the laying of the pipework.

14.03 SCOPE

Provide and install all fittings as shown on plans complete with all associated pipework, valves, wastes, traps and wastepipes. Provide and fit spouting and downpipes in colorsteel. Test all fittings and pipework and ensure that there are no leaks and all are in good working order.

14.04 PIPEWORK

All water pipes shall be polybutylene. All supplies to wet areas shall be 20mm with 15mm branches.

14.05 FITTINGS

WC 2 off Selected vitreous china pans to be complete with dual flushing systems and plastic seats.

SINK Kitchen sink shall be stainless steel within a stainless steel drainer installed in a Formica bench top, all supplied and fitted by others. Allow to provide waste, taps, plug etc and to connect and leave in working order.

TUB
Allow to provide and install a pressed stainless steel laundry tub on cupboard unit.

HWC Provide and install a 250l mains pressure solar ready water heater complete with pressure reducing and relief valves. Provide 25mm copper drain to exterior of building for water cylinder to discharge over gully trap. Installation shall be complete with seismic restraints to comply with NZBC G12/AS1
Water cylinders shall be complete with a water tempering valve set to maximum delivery temperature of 55° C.

GAS Provide and install selected gas cooker. All gas fitting work shall be carried out by a registered gasfitter in accordance with NZBC G11/AS1.

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BATH Bath shall be a selected bath installed to manufacturers specification. Owner to select.

SHOWER Shall be moulded acrylic fitted with easiclean traps. See plans for size and shape. Provide mixer valves and roses. Formed floor showers shall be tiled over Ardex Superflex waterproof membrane fixed in accordance with the Manufacturers specification by an approved applicator. Waterproof membrane shall extend min 500 across floor outside of shower area and shall be coved up walls to a minimum of 1800mm and 300 above shower rose.

VANITY Joiner shall provide vanity basins and cupboards. Allow to provide wastes, plugs and taps and to connect and leave in good working order connect and leave in good working order.

TAPS Provide and install selected ceramic disc tapware. Provide 3 brass hose taps around perimeter of the building, positions to be as selected by owner.

14.06 FLASHINGS

Provide and fix all necessary flashings, caps, silltrays, etc in conjunction with builder to ensure a thoroughly watertight job.

14.07 TESTING

Test all water pipes prior to wall linings being fixed and ensure all units are in working order on completion of work.

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15.01 PRELIMINARY & GENERAL

Refer to conditions of contract and preliminary clauses of this specification which shall apply equally to this section.

15.02 SCOPE OF WORK

This section comprises the installation of the sewage and stormwater drainage systems including subsoil drains, sumps etc. as shown on the drawings, complete with all labour and materials as required.

15.03 REGULATIONS

All work shall comply with NZBC B2, E1/AS1 and G13/AS1 & AS2.

15.05 DRAIN TRENCHES

The excavation of trenches for drains shall be accurately made with base clear and true to grade so that no unnecessary filling is required. Adequate width shall be allowed in accordance with depth of drain to enable laying and jointing to be carried out. Trenches shall be kept firm and dry and shall be opened up only in lengths that can be protected, utilised and refilled within a reasonable time.

15.06 LAYING OF DRAINS

All drains shall be adequately supported in the bottom of the trench. Backfill in layers not exceeding 150 thick. If drains are to be encased in concrete, pre-wrap with densotape to allow for movement.

15.07 FITTINGS

The plan shows the layout of the system. Additional fittings that are normally required such as inspection bends etc that may be required to comply with normal practice or regulations but are not specifically shown must be allowed for by the Drainlayer.

15.08 FALL OF DRAINS

The whole of the soil and stormwater drains shall be laid to a regular and even fall.

15.09 INSPECTIONS

Provide notices as required for the Local Authority to make inspections required before drains are covered. Any work unsatisfactory to the inspector shall be rectified at the Contractors expense.

15.10 SEWAGE TREATMENT SYSTEM

Connect drains to septic tank with filter to discharge to disposal beds. Provide ground water cut off drains above soakage field. All sewage works shall be in accordance with the effluent disposal report.

15.11 COMPLETION

Backfill all trenches, consolidate as filling proceeds and leave area in a tidy state.

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16.01 PRELIMINARY & GENERAL

Refer to conditions of contract and preliminary clauses of this specification which shall apply equally to this section.

16.02 SCOPE OF WORK

The work comprises locating of the existing supply point, the running of an underground main to the building meter board and switchboard and for the installation of all lighting and power outlets as required by the owners plans including the provision of all labour and materials required to complete this work.

16.03 GENERAL

All work shall comply with NZBC G9, Electrical safety regulations and associated Codes of Practice. (Specifically NZECP51 and NZECP52).

16.04 FEES

Pay all fees and charges and obtain all necessary permits for this trade.

16.05 MATERIALS AND WORKMANSHIP

All materials used shall be to approved New Zealand standards. Allow for materials necessary to complete the Contract, whether specified or not. All work shall be carried out by a Registered Electrician holding a current practice license in accordance with the regulations and best trade practice and in a manner that will cause minimum inconvenience to other trades and the work as a whole. Do all cutting away, drilling etc and with timber, cut the minimum only for the entry of cables. Verify with the Builder or Engineer prior to cutting through any structural members.

16.06 MAINS CABLE

Allow to visit the site and to determine the length of mains cable required to complete the work. The cable shall be of adequate size to meet the required loads.

16.07 MCB PANEL

Provide and install a recessed switchboard complete with all necessary control equipment.

16.08 WIRING

Run new 2 and 3 core TPS cable for sub circuit wiring to lights, power outlets, switches and for installation of appliances shown on the plans. Run all speaker circuits television aerials and wiring shown for computers, fax machines, outdoor power etc. Provide all outlets as shown on the plan. Arrange for the provision and running of all telecom cabling as shown on the plan. Locate cable runs in centre of walls so that nailing or screwing of linings can be done without damaging cables. Holes made should be just sufficient in size to pull cables through - not adversely affect the strength of the framing.
Ensure wiring is to locations agreed with the owner without fouling installations by other trades, e.g. to required mounting height of switches and power outlets above floor level or above work tops and to required alignment of lights along and across ceilings.

16.09 INSPECT, TEST AND CERTIFY

Inspect, test, certify and connect to mains when wiring and installation has been completed. Alternatively, if requested arrange independent testing and certification and give a copy of the Compliance Certificate (Energy Work Certificate) to the Owner to forward to the Territorial Authority. Note that the latter serves the purpose of a guarantee. Delay in issuing the Certificate shall delay final payment.

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ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part

Single Component Undertile Waterproofing Membrane

BRANZ Appraised

Low VOC content – meets Green Building Council of Australia Green Star IEQ-13 requirements

Fast drying one part acrylic membrane

DISCLAIMER The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable New Zealand Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program. Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may effect specific installation recommendations. The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

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ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part Undertile Waterproofing Membrane

BRANZ Appraised
Appraisal No.472 [2011]

BRANZ Appraised
Appraisal No.473 [2011]

PRODUCT DESCRIPTION

Ardex WPM 001 (Superflex Bathroom & Balcony Premixed 1 Part) is a tough, ready to use waterproofing membrane specifically designed for use under tiles. Ardex WPM 001 has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. Ardex WPM 001 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification once cured.

Ardex WPM 001 is flexible, safe to use, low in odour, and is fully compatible with polymer modified tile adhesives. Ardex WPM 001 is one of the fastest drying one part acrylic membranes on the market – normally ready to tile in 48 hours @ 23°C.

Ardex WPM 001 meets the Green Building Council of Australia Green Star IEQ-13 requirements for Architectural Sealant when tested in accordance with SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168.

FEATURES/BENEFITS

- Fast drying Ardex WPM 001 can be tiled over in 48 hours in non critical areas*
- Liquid reinforced: Excellent strength, eliminates need for reinforcing mat
- Flexible: Accommodates normal building movement class 3 membrane as per AS/NZ 4858: 2004 Wet Area Membranes
- Advanced acrylic: Will not re-emulsify once cured
- Designed for tiling - Fully compatible with Ardex tile adhesive systems
- Water based, safe to use, low odour & easy cleaning
- CSIRO Appraisal #91 for undertile waterproofing in shower recesses
- Conforms to the requirements of AS/NZ 4858: 2004 Wet Area Membranes. (Ref: CSIRO Report 3779)

*Critical areas include areas where the membrane is applied at greater than 0.5mm or over impermeable substances such as over bond breakers or incorporating other reinforcement. Longer drying times are necessary in these areas.

APPLICATION RANGE

Performance Levels
Commercial and residential

Location
Internal wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

Surfaces
Walls & floors

Substrates

Concrete	Cured for min. 28 days or sealed when set with one coat of Ardex WPM 300 (HydrEpoxy 300) at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. External wet concrete should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Renders and screeds	Cured for min. 7 days or sealed when set with one coat of Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Fibre cement	Suitable for wet area grade fibre cement.
Plasterboard	Wet area grade only.
Plywood	Structural plywood (PAA branded), marine grade or other wet area grade only.
Particleboard	Wet area grade, internal use only (special preparation is required – contact Ardex).
Permanent Immersion	In conditions of permanent immersion, it is recommended that Ardex WPM 002 (Superflex Two Part) is used. Must be covered with tiles for full immersion.

Contact Ardex for use over existing membranes, covering materials, and any other substrates not listed.

SPECIFICATION CLAUSE

ARDEX WPM 001 (Superflex Premixed)
The waterproofing membrane shall be Ardex WPM 001: a one part acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

PACKAGING

Single component: 20kg (approx 15 litres) or 6.5kg (approx 5 litres).

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TABLE 1

	Thickness per Coat		Total Dry Film Thickness (2 coats)	Theoretical Coverage		Per Unit
	Dry Film	Wet Film		Per coat	For 2 coats	
FLOORS	0.5mm	1.0mm	1.0mm	15m²	7.5m²	20kg(15L) unit
WALLS	0.25mm	0.5mm	0.5mm	30m²	15m²	20kg(15L) unit

SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Use remaining contents from part used containers within 3 months.

COVERAGE

Two coats are recommended for an effective waterproof membrane.

Coverage will vary depending on the porosity of the surface.

One 20kg (15 litre) unit will cover approximately 7.5-15m² (based on two coats) depending on area requirements between wall and floor surfaces to be treated. Refer Table I.

DRYING TIMES

Recoat time

1-2 hours at (23°C/50% RH) between first and second coats. Alternatively, if a polyester mat is used between coats then the second coat can be applied whilst the first coat is still wet.

Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry. Ardex WPM 001 is totally dry in 48 hours at 23°C/50% RH, but can take up to 72 hours at 10°C/50% RH in corners or for thick films.

Fully cured

The shower should not be used until the membrane has reached its full strength. Ardex WPM 001 membrane is fully cured after 3 days at 23°C, or after 5 days at 10°C.

Drying times will vary depending on humidity, surface temperature and surface porosity.

Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

SAFETY PRECAUTIONS

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with Ardex WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).
- Where the surface temperature is below 10°C or greater than 35°C.
- All floor areas must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to application of the Ardex WPM 001.

For substrates or situations other than those listed contact Ardex.

SAFETY DATA

Ardex WPM 001 is non-hazardous and non dangerous. It may produce discomfort of the eyes, respiratory tract and skin. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin. Wear eye/face protection. In case of contact with eyes, rinse with plenty of water and seek medical advice.

ADDITIONAL INFORMATION IS LISTED IN THE MATERIAL SAFETY DATA SHEET.

QUALITY PRODUCT

Ardex WPM 001 is manufactured and tested to Ardex procedures which are maintained in accordance with Quality System Standard ISO 9001.

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ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part Undertile Waterproofing Membrane

USER NOTES

The technical details and recommendations contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is the responsibility of the user to ensure that the product is used in accordance with Ardex instructions and in applications for which they are intended.

APPLICATION

Apply Ardex WPM 001 by brush or roller. A medium nap (12-15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time.

For best results with a paint brush use a good quality, 50mm long bristle variety.

To achieve the required dry film thickness per coat, application must consist of laying the product onto the surface and light finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25-40 micrometers wet film thickness while Ardex WPM 001 needs to be applied at between 0.5 and 1.0 mm per coat depending on product and application (Refer Table 1).

Critical Areas:

INTERNAL WET AREAS

1. Construction should be in accordance with Australian 3740 - 2004 Waterproofing of wet areas within residential buildings.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall & floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber).
5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2mtr)) before waterproofing. Ensure outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cure silicone sealant spread approximately 6mm on either side of the joint.
7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls. Spreading the sealant to 6mm on either side of the joint.
11. Waste outlets shall incorporate a puddle flange or similar in accordance with AS3740 & the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the screed/ floor.
12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 150mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Apply the membrane 1800mm up the walls or to the height of the shower rose within the shower recess.
14. Install the shower screen to inside edge of the hob.

Fig.1 – Shower Recess – Critical Areas

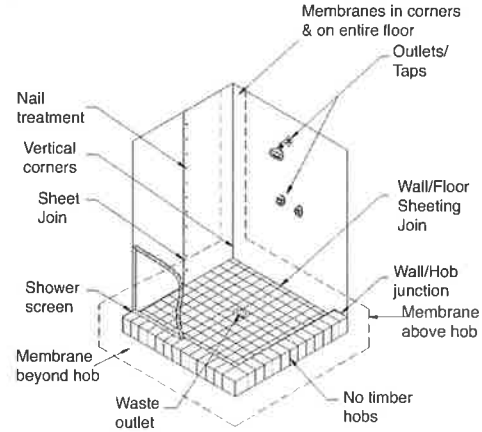
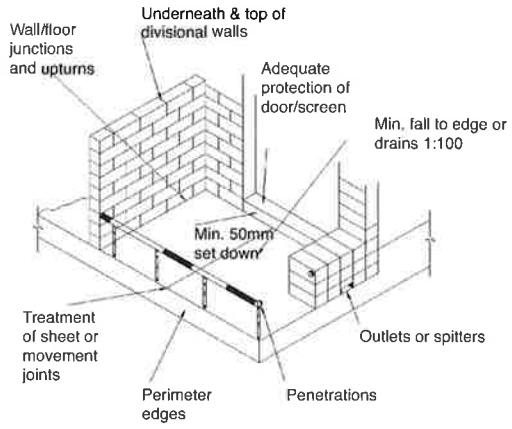


Fig.2 – Balcony – Critical Areas



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BALCONIES AND DECKS

1. Ensure that the deck is constructed with falls to edge/drains of min 1:100 (ie. 20mm in 2m) or else achieve the fall with a sand/cement screed.
2. Ensure a min set down (step down) of 50mm to the finished floor level (ie. top of tiles).
3. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/ sliding door.
4. Treat any sheet joints with a neutral cure silicone prior to waterproofing.
5. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.
6. Apply the membrane up the step down and as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
7. Where possible, apply the membrane prior to building divisional walls, or other items such as planter boxes.
8. Apply the membrane to the entire balcony floor and at least 50mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
9. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
10. Apply the membrane down over the front edge of the balcony onto the drip rail.
11. Carefully seal any gaps around balcony penetrations prior to applying the membrane.
12. Apply the membrane down into outlets and drains, ensuring excess material is removed.
13. Ensure all weep holes are above the membrane application area.

APPLICATION NOTES

Surface preparation

- Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.
- Falls to outlets of at least 1:60 or approx. 30mm in 2mtr (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired (leveled) and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.
- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

Priming

The primer is a critical part of the waterproofing system. Apply one coat of Ardex WPM 265 (Sheltercoat/ Superflex Water Based Primer) by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to completely dry prior to the application of the Ardex WPM 001 membrane. This will take around 20-30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m^2 per litre. Plastic (eg. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

GENERAL APPLICATION

Crack preparation

Cracks <2mm:

Clean and remove any loose particles in the crack. Prime the crack and adjacent area carefully with Ardex WPM 265 and allow to dry before applying two coats of Ardex WPM 001 membrane in a band at least 200mm wide equidistantly across the crack, along the length of the crack.

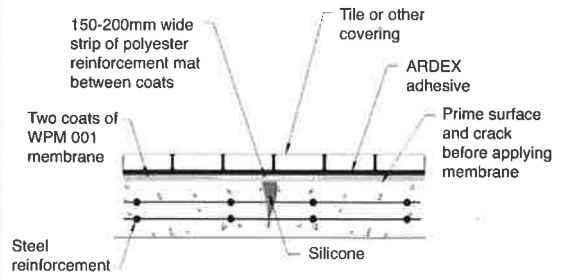
Cracks 2-6mm:

(Refer Fig. 3) Prepare and prime the crack as above. Apply a bead of neutral cure silicone into the crack and extend it 6mm either side. Apply a 300mm wide band of Ardex WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth preferably using a fluted roller, and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Cracks >6mm:

Contact your local Ardex representative.

Fig.3 Crack Treatments



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Movement/construction joints

Movement joints (<6mm)

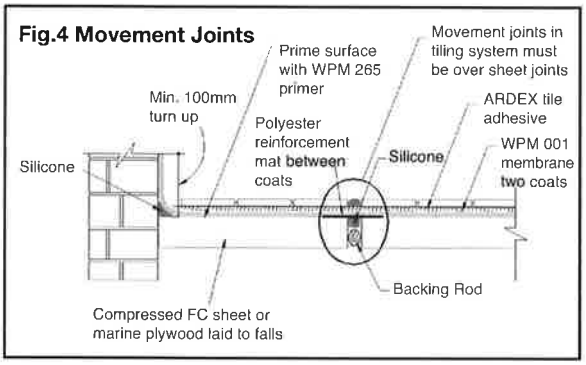
Use same procedure as in crack preparation.

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply a 300mm wide band of Ardex WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the mat and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

Use the same procedure as above, but replace the reinforcing mat with 120mm of Ardex Coving Bandage. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer Fig.4)

Fig.4 Movement Joints



Corners & coving areas

After priming with Ardex WPM 265 and allowing to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates in coving areas and corners.Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry.

Apply a first coat of Ardex WPM 001 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be minimum of 1.0mm). Alternatively, if a polyester reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with Ardex WPM 265 and allowing to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry. Place a 190mm wide band of Ardex "Deckweb" polyester woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The Ardex WPM 001 should be applied to at least 100 mm up the wall surfaces as per the recommendations for the application of Ardex WPM 001 to floors.

Walls

Two coats of Ardex WPM 001 are required to achieve a minimum total dry film thickness of 0.5mm.

After priming with Ardex WPM 265 and allowing to dry, apply two coats of Ardex WPM 001 (to achieve a minimum dry film thickness of 0.5mm) in two opposite directions. Wall sheet joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

Two coats of Ardex WPM 001 are required to achieve a minimum total dry film thickness of 1.0mm. The flooring recommendations should be extended at least 150 mm up all perimeter walls.

Prime the surface with Ardex WPM 265 and allow to dry.

Apply the first coat over the primed surface and allow it to dry (1-2 hours at 23°C, 50%RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone treatment. If a flange is not installed the membrane must be applied down into the pipe. (Refer Fig.5) Allow the membrane to dry completely before tiling. Refer drying times above.

Waste Outlet

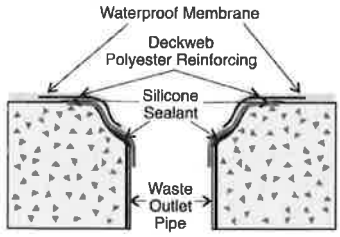
Prime the surface with Ardex WPM 265 and allow to dry. Surfaces of the outlet flange must be primed with an appropriate primer.

Apply Ardex WPM 001 over the adjacent floor surface extending down into the waste outlet flange overlapping the edge of flange by at least 30mm. Place Ardex "Deckweb" polyester woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig. 5)

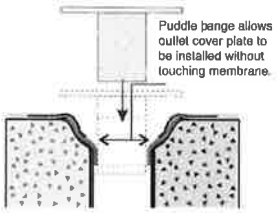
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Fig.5 – Waste outlet



Outlet Detail Using
Puddle Flange



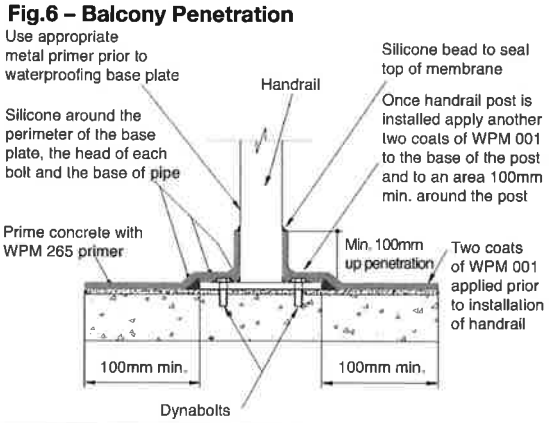
Balcony penetrations (Refer Fig.6)

All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 10mm bead of neutral cure silicone around the perimeter of the penetration. Apply the first coat of Ardex WPM 001 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.0mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

Fig.6 – Balcony Penetration



Tiling systems

It is advisable to conduct a flood test of the shower once the membrane has cured (normally after 72 hours), and before the tiling commences. A broad range of Ardex tile adhesives can be used over Ardex membranes. Contact Ardex or your nearest Ardex stockist for advice on the most suitable system.

TECHNICAL DATA

Ardex WPM 001 (Superflex Premixed)
Characteristics of liquid

Form & Colour	Blue viscous paste
Type	Single part
Specific Gravity	Approx. 1.34kg/litre
pH of Liquid	8.5
Viscosity of Liquid (RVT Brookfield, spindle 7 speed 10)	52,000cps
Non Volatile Matter (volume) AS1321.10	50.3%±1
Tensile Strength 7 days dry AS1145	1.04 MPa
Full Cure	1.92 MPa
Elongation at Break 7 days dry AS1145	780%

Conforms to requirements of class 3 membrane of AS/NZ 4858: 2004 Wet Area Membranes.

NOTE: Most of the tests have been carried out in the Ardex laboratory under standard conditions (23±2°C, 50±5% R.H)

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APPROVED 09/07/2015

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BRANZ Appraised
Appraisal No.472 [2011]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 472 (2011)

Amended 31 January 2012

SUPERFLEX™ WET AREA MEMBRANES

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WFTAO

Product

1.1 Superflex™ Wet Area Membranes are premixed and two-part, liquid applied waterproofing membranes for use under ceramic or stone finishes in internal wet areas.



Scope

2.1 Superflex™ Wet Area Membranes have been appraised for use as waterproofing membranes for internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particleboard, plywood, and fibre cement sheet tile underlay, and on wall substrates of wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by ceramic or stone tile finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360th of the span.

2.2 The use of Superflex™ Wet Area Membranes on concrete slabs where hydrostatic or vapour pressure is present is outside the scope of this Appraisal.

2.3 Building structural movement and control joints in the substrate must be carried through to the tile finish. The design and construction of the substrate and movement and control joints are specific to each building, and therefore the responsibility of the building designer and building contractor and are outside the scope of this Appraisal.

2.4 Ceramic or stone tile finishes are outside the scope of this Appraisal.

2.5 The membranes must be installed by Ardex New Zealand Ltd trained and approved applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Superflex ™ Wet Area Membranes if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. Superflex™ Wet Area Membranes meet this requirement. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating Superflex™ Wet Area Membranes will meet this requirement. See Paragraphs 11.1- 11.6.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Superflex™ Wet Area Membranes meet this requirement and will not present a health hazard to people.

This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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Technical Specification

4.1 Materials supplied by Ardex New Zealand Ltd are as follows:

Superflex™ WPM001 Premixed Bathroom and Balcony

- A one part, polymer-based, ready-to-use, liquid-applied membrane containing micro-fibres, supplied as a light blue thixotropic paste in 6.5 kg (approximately 5 litres) and 20 kg (approximately 15 litres) pails.

Superflex™ WPM002 Two Part Bathroom and Balcony

- A fast drying, two part, flexible, cementitious-based, liquid applied membrane containing micro-fibres. It is supplied as Superflex™ WPM002 Part A Liquid in 10 and 20 kg pails and Superflex™ WPM002 Part B Powder in 10 kg multi-wall bags. When dry, the membrane is light grey in colour.

Superflex™ Primer

- A water-based primer used to seal substrates and enhance the adhesion of the membranes. It is supplied as a red coloured liquid in 20 kg plastic containers.

Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and out of freezing conditions. The membrane products have a shelf life of 12 months from date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Superflex™ Wet Area Membranes. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

7.1 Superflex™ Wet Area Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.

7.2 Superflex™ WPM002 Two Part is designed to be used where a quicker curing time is required, such as in cool or humid conditions.

7.3 The membranes must be protected from physical damage by the application of ceramic or stone tile finishes.

7.4 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ "Good Practice Guide Tiling".

7.5 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

Substrates

Plywood

8.1 Plywood must be a minimum of 17mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3 (CCA treated). LOSP treated plywood must not be used. The plywood must be supported with dwangs or framing with a maximum span of 400mm in each direction, fixed with 10g x 50mm stainless steel countersunk head screws at 150mm centres on the edges and 200mm through the body of the sheets.

Fibre Cement Compressed Sheet/Fibre Cement Sheet Tile Underlay

8.2 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area substrate. Fibre cement sheet tile underlay must be covered by a valid BRANZ Appraisal for use in internal wet areas. Installation must be in accordance with manufacturer's. instructions.

Particleboard

8.3 Particleboard must be specified for the end use in accordance with NZS 3602.

Concrete and Concrete Masonry

8.4 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101 and NZS 3604 Concrete Slab-On-Ground Floors and Concrete masonry to NZS 4229 and NZS 4230.

Wet Area Wall Linings

8.5 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588, and be covered by a valid BRANZ Appraisal for use in internal wet areas.

8.6 Fibre Cement Sheet must be covered by a valid BRANZ Appraisal for use in wet areas.

Durability

Serviceable Life

9.1 Superflex™ Wet Area Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design service life of 15-25 years.

Maintenance

10.1 No maintenance of the membranes will be required provided significant substrate movement does not occur and the tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grouts and sealants.

10.2 In the event of damage to the membranes, the tiling must be removed and the membrane repaired by removing the damaged portion and applying as for new work.

10.3 Drainage outlets must be maintained to operate effectively, and ceramic or stone tile finishes must be kept clean.

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Internal Moisture

11.1 Superflex™ Wet Area Membranes are impervious to water and when appropriately designed and installed will avoid the likelihood of water penetrating behind linings or entering concealed spaces.

11.2 Superflex™ Wet Area Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of Code Compliance for overflow is given in NZBC Acceptable Solution E3/AS1 Paragraph 2.

11.3 Surfaces must be finished with ceramic or stone tile finishes. A means of Code Compliance to NZBC Clause E3.3.3 and E3.3.4 is given in NZBC Acceptable Solution E3/AS1 Paragraph 3.1.1 (b), 3.1.2 (b) and 3.3.1 (b).

11.4 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1500 mm out from the shower rose. Floor wastes must be provided and the floor must fall to the outlet.

11.5 The waterproofing membrane must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, BRANZ "Good Practice Guide Tiling", and flooring and wallboard manufacturers.

11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must flash over the membrane a minimum of 30mm.

Installation Information

Installation Skill Level Requirement

12.1 Installation of the membranes must be completed by Ardex New Zealand Ltd trained and approved applicators.

12.2 Installation of substrates must be completed by tradespersons with an understanding of internal wet area construction, in accordance with instructions given within the Ardex New Zealand Ltd Technical Literature and this Appraisal.

Preparation of Substrates

13.1 Substrates must be dry, clean and stable before installation commences. With surfaces that are even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.

13.2 The relative humidity of the concrete must be 75% or less before membrane application. Concrete substrates can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 424.

13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have fiberglass mesh installed as set out in the Technical Literature.

Membrane Installation

14.1 Installation must not be undertaken where the substrate surface temperature is below 10°C or above 35°C.

14.2 Superflex™ WPM002 Two Part Bathroom and Balcony liquid and dry components must be mixed and left to stand for 5 minutes before re-mixing, then applying. Superflex™ WPM001 Premixed Bathroom and Balcony must be thoroughly stirred before application.

14.3 The membranes must be applied in a minimum of two coats at the rates set out in the Technical Literature to give a total finished thickness of 1.2 – 1.5 mm. Subsequent coats must be applied at an opposite direction to the previous coat.

14.4 Application can be made by roller (medium/long nap), brush (long bristle), or a flat steel trowel.

14.5 Reinforcement fabric is bedded into the wet layer between coats to provide movement protection at wall/wall and wall/floor junctions, and at any other areas such as joints in the flooring substrate, floor cracks or around penetrations in the membrane.

14.6 Clean up may be undertaken with water.

Tiling

15.1 The membranes must be fully cured before tiling. The cured membranes must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.

15.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ "Good Practice Guide, Tiling". The compatibility of tile adhesive must be confirmed with the adhesive manufacturer or Ardex New Zealand Ltd.

Inspections

16.1 Critical areas of inspection are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the membrane.
- Acceptance of the substrate by the membrane installer prior to application of the membrane.
- Installation of the membrane to the manufacturer's instructions, particularly installation to the correct thickness and use of reinforcement.
- Membrane curing and integrity prior to the installation of tiles including protection from mechanical damage during curing and prior to tile installation.

Health and Safety

17.1 Safe use and handling procedures for the membranes are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

18.1 The following testing of Superflex™ WPM001 Premixed Bathroom and Balcony and Superflex™ Two Part Bathroom and Balcony has been undertaken by Ardex Australia Pty Ltd research and development laboratory: water vapour transmission; water absorption; tensile strength and elongation before and after UV exposure, immersion in bleach, immersion in industrial detergent and immersion in water. Test methods and results were reviewed by BRANZ and found to be satisfactory.

18.2 The following testing of Superflex™ WPM001 Premixed Bathroom and Balcony was undertaken by the Commonwealth Scientific Industrial Research Organisation (CSIRO) Australia:

- In accordance with ANSI A118.10 for ICBO Evaluation Service - dimensional stability; waterproofness; shear strength to ceramic tile and cement mortar; and fungal and micro-organism resistance.
- In accordance with AS 1145 – behaviour under cyclic strain.

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18.3 Testing of Superflex™ WPM001 Premixed Bathroom and Balcony and Superflex™ WPM002 Two Part Bathroom and Balcony has been undertaken by BRANZ for low temperature flexibility and peel adhesion after heat/humidity aging.
18.4 Testing for suitability over particleboard in accordance with AS/NZS 4858-2004, Appendix C has not been undertaken because compliance with the standard has been met by satisfactory water vapour transmission test results.

The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of the Superflex™ Wet Area Membranes by BRANZ technical experts.
19.2 Site visits have been carried out by BRANZ to assess the practicability of installation and to examine completed installations.
19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

20.1 The manufacture of the membrane has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
20.2 The quality management system of membrane's manufacturer has been assessed and found to be satisfactory.
20.3 The quality of supply of the membrane system materials to the market is the responsibility of Ardex New Zealand Ltd.
20.4 Quality on site is the responsibility of the Ardex New Zealand Ltd approved and trained applicators.
20.5 Designers are responsible for the substrate design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of the substrate manufacturer, Ardex New Zealand Ltd and this Appraisal.
20.6 Building owners are responsible for the maintenance of the tiling or stone finishing systems in accordance with the instructions of Ardex New Zealand Ltd.

Sources of Information

- AS 2908.2: 2000 Cellulose-cement products - flat sheet.
- AS 3740 – 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 1991 Guide to the installation of ceramic tiles.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2008 Plywood - Structural.
- AS/NZS 4858 - 2004 Wet area membranes.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3602: 2003 Timber and wood-based products for use in buildings.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 1999 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 1990 Code of practice for the design of masonry structures.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 5, 1 August 2011).
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.
- Good Practice Guide Tiling, BRANZ, March 2004.
- Good Practice Guide Membrane Roofing, BRANZ, October 2003.

Amendment No. 1, dated 31 January 2012.
This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011 and NZBC Acceptable Solution E2/AS1 Third Edition, Amendment 5.

BRANZ

In the opinion of BRANZ, Superflex™ Wet Area Membranes are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.
The Appraisal is issued only to Ardex New Zealand Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
a) relates only to the product as described herein;
b) must be read, considered and used in full together with the technical literature;
c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
d) is copyright of BRANZ.
2. Ardex New Zealand:
a) continues to have the product reviewed by BRANZ;
b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
c) abides by the BRANZ Appraisals Services Terms and Conditions.
d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
c) any guarantee or warranty offered by Ardex New Zealand.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Ardex New Zealand or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 15 April 2011

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Tasman District Council
APPROVED 09/07/2015

MiTek®

INTERNAL LOAD BEARING
ON CONCRETE FLOOR SLABS



★ Covers floor thickening and supporting stud requirements.
★ Covers floor slabs on buildings complying with NZS 3604:2011.
★ All concrete slabs to be constructed as per NZS 3604:2011.
★ Thickening requirements apply to reinforced floor slabs.
★ Provides solutions for stud requirements where point loads exceed 10 kN.
★ All slabs assumed to be supported on soils that have Ultimate Bearing Capacity of 300 kPa ($Ø_b$=0.50).

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Establishing Thickening & Stud Requirements

1. Establish the type of load applied to the floor as being either a UDL (uniformly distributed load) or a concentrated load. Girder trusses will always give concentrated loads and a run of two or more trusses with the same loads will give a UDL.

2. Establish the maximum load value via the MiTek 20/20® Truss Design Software by using the Truss Bearings Exceeding 10 kN Report (see example below). Choose the maximum DOWN value in kN.

3. Go to the Slab Thickening & Stud Requirement Table on page 3 and choose from the appropriate section; either no change for up to 10 kN, FP1 and FS1 for up to 20 kN, or FP2 and FS2 for up to 30 kN.

4. Choose from the selection of stud options (height, centres and grade).

5. Apply the relevant slab and stud requirements as specified and detailed on page 3.

6. Where the maximum positive bearing reaction exceeds 10 kN (uplift), refer to MiTek for Special Design.

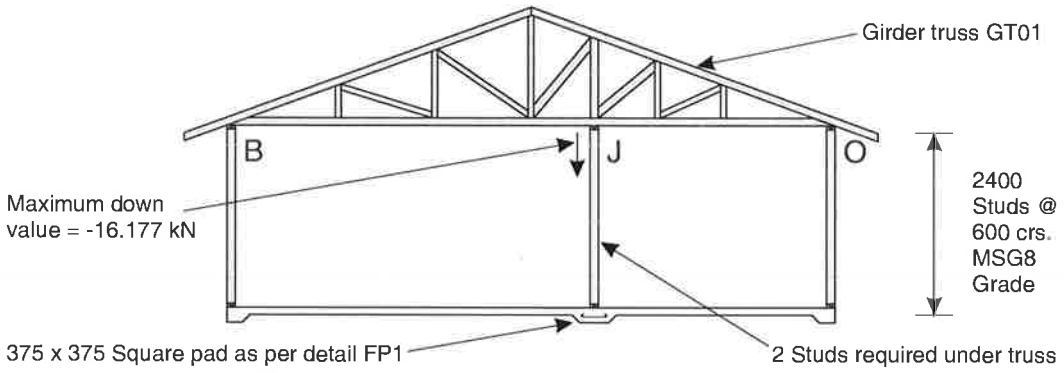
MiTek 20/20® Example Selection

TRUSS BEARINGS EXCEEDING 10 kN REPORT

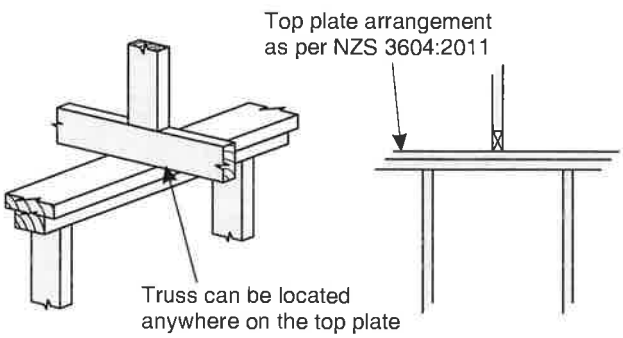
Truss List

Legend: ? = input only, ~~Txx~~ = failed design, Unmarked trusses = designed successfully

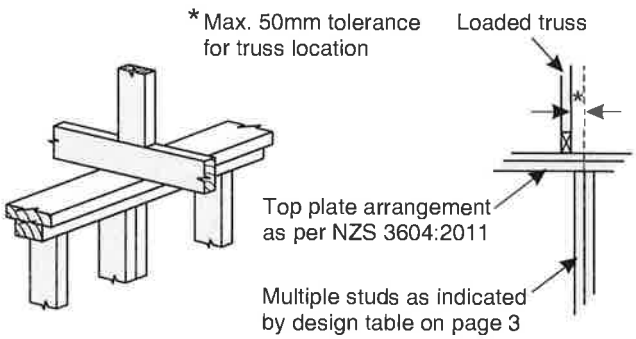
Critical Trusses	Qty	Span (mm)	Joint	Bearing Reactions (kN) Down	Uplift
GT01	1	8000	J	16.177	7.292



SINGLE STUD OPTION



MULTIPLE STUD OPTION



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Slab Thickening & Stud Requirement Table

CONSTRUCTION SPECIFICATIONS

Max. truss crs. @ 1200mm, Min. truss crs. @ 600mm.
Assume walls are fully lined on at least one face.
Assume full bearing on top plate (i.e. no eccentric loading).

TRUSS BEARING REACTION	SLAB THICKENING DETAIL		STUD REQUIREMENTS UNIFORM DIST. LOADS OR CONCENTRATED LOADS		
	CONCENTRATED LOAD	UNIFORM DIST. LOAD	STUD HEIGHT	STUD REQUIREMENTS	
Bearing reaction up to & including 10 kN	STANDARD reinforced slab floor as per NZS 3604:2011	STANDARD reinforced slab floor as per NZS 3604:2011	2400 2700 3000	Refer to NZS 3604:2011	
			STUD HEIGHT	NO. OF STUD UNDER TRUSS	MIN. TIMBER SIZE
Bearing reaction up to & including 20 kN	TYPE FP1 375 x 375 PAD	TYPE FS1 300 STRIP THICKENING	2400	2	90 x 35
			2700	2	90 x 45
			3000	3	90 x 45
			STUD HEIGHT	NO. OF STUD UNDER TRUSS	MIN. TIMBER SIZE
Bearing reaction up to & including 30 kN	TYPE FP2 450 x 450 PAD	TYPE FS2 450 STRIP THICKENING	2400	3	90 x 45
			2700	3	90 x 45
			3000	4	90 x 45

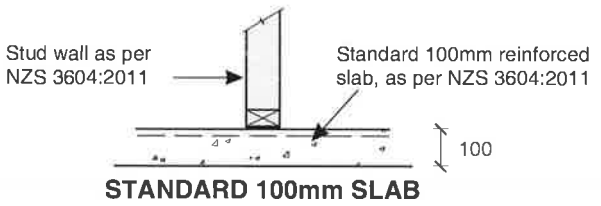
TIMBER SPECIFICATIONS

Timber properties based on NZS 3603:1993 Amendment No.4 March 2005.
Minimum grade specified is SG8 unless otherwise noted.
For SG6 use the studs for the next highest category.
i.e. - For loads up to 10 kN select studs from the 20 kN table.
- For loads up to 20 kN select studs from the 30 kN table.
- For loads above 20 kN Special Design is required.

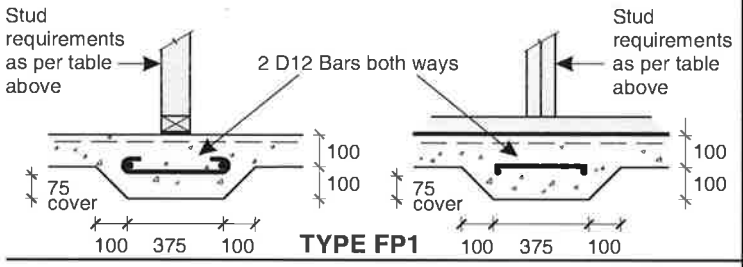
* Note: The stud requirement for 20 kN & 30 kN bearing reactions can be applied to external walls as well.

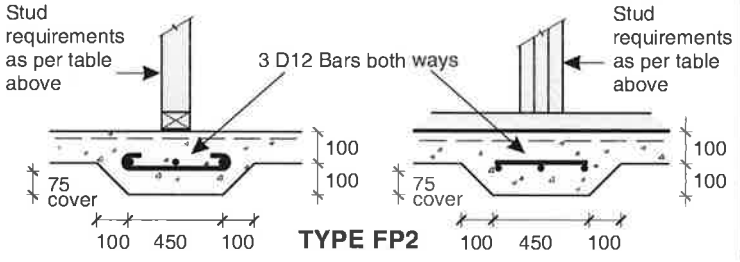
Slab Thickening Details

CONCRETE PAD OPTIONS
(for concentrated loads)

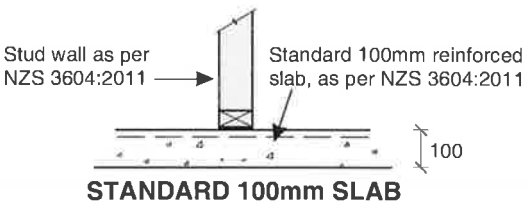


STANDARD 100mm SLAB

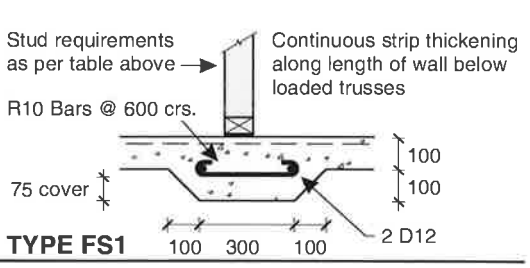


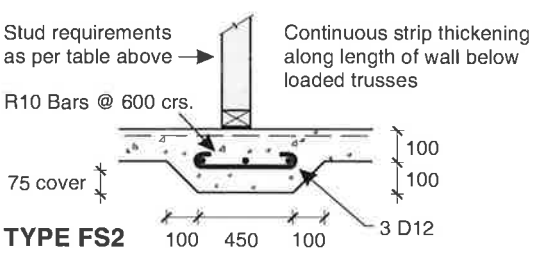


CONTINUOUS CONCRETE THICKENING OPTIONS
(for uniformly distributed loads)



STANDARD 100mm SLAB





NOTE: FP = Foundation Pad FS = Foundation Strip

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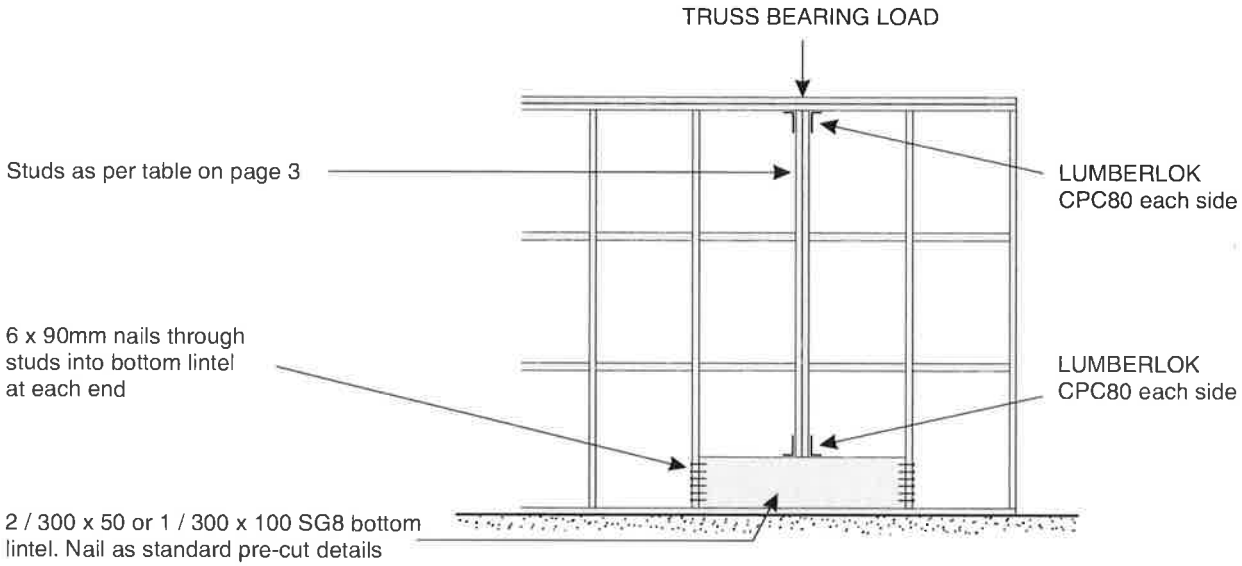
Retro Fitted Load Bearing Option

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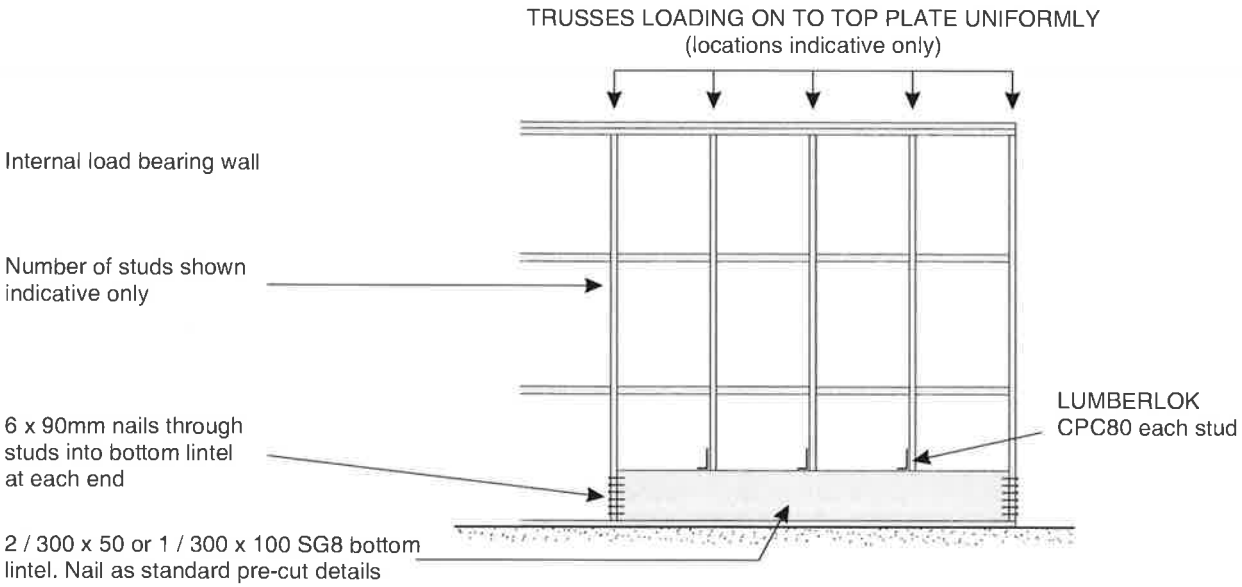
Note:

- Covers slab details where no thickening has been built into the foundation.
- For loads exceeding 10 kN install bottom lintel (300 x 100) between two adjacent studs as detailed below. For loads 30 kN or more, special design is required.
- Ensure the studs comply with requirements on page 3 and are located directly under concentrated loads. This may require on-site installation of these studs.

Concentrated Load



Uniformly Distributed Loads



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GANG-NAIL® LUMBERLOK® BOWMAC®

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BRANZ Appraised
Appraisal No.679 [2010]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 679 (2010)

Amended 31 January 2012.

HILTI HUS-H SCREW ANCHORS

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WFTAO

Product

1.1 Hilti HUS-H screw anchors are used to resist earthquake and wind loads on the bottom plates of timber frame buildings designed and constructed in accordance with NZS 3604. The range consists of screw-type fasteners for proprietary bracing systems hold downs to concrete slab-on-ground construction. They are also for fixing non-bracing internal and external walls to concrete slab-on-ground.



Hilti HUS-H Screw Anchor

Scope

2.1 The Hilti HUS-H screw anchors have been appraised for use as wall bracing system hold downs and bottom plate fixings to concrete slab-on-ground in buildings designed and constructed in accordance with NZS 3604. They are for use in internal, dry, protected environments.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the Hilti HUS-H screw anchors, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. The Hilti HUS-H screw anchors meet these requirements for loads from imposed gravity loads arising from use, earthquake, snow, wind and impact [i.e. B1.3.3 (b), (f), (g), (h), and (j)]. See Paragraphs 8.1 - 8.2.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years. The Hilti HUS-H screw anchors meet this requirement. See Paragraph 9.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Hilti HUS-H screw anchors meet this requirement and will not present a health hazard to people.

3.2 This is an appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance when used with proprietary bracing systems.

3.3 This is an appraisal of an **Acceptable Solution** in terms of New Zealand Building Code compliance. The Hilti fasteners meet the requirements of Section 7.5.12 of NZS 3604 which is a NZBC Compliance Document.

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Technical Specification

Description

4.1 The following fasteners are covered by this Appraisal

HUS-H 10 x 140 Screw Anchor

These screw anchors are manufactured from steel and are coated with a nominal 5 micron zinc layer. The screw anchor has a hexagonal head and a nominal shank diameter of 10 mm. The under-head anchor or shank length is 140 mm. They are identified with "HUS-H HILTI 10 x 140" stamped on the head.

HUS-H 10 x 120 Screw Anchor

These screw anchors are manufactured from steel and are coated with a nominal 5 micron zinc layer. The screw anchor has a hexagonal head and a nominal shank diameter of 10 mm. The under-head anchor or shank length is 120 mm. They are identified with "HUS-H HILTI 10 x 120" stamped on the head.

HUS-HR 10 x 130 Screw Anchor

These screw anchors are manufactured from Grade 316 stainless steel. The screw anchor has a hexagonal head and a nominal shank diameter of 10 mm. The under-head anchor or shank length is 130 mm. they are identified with 'HUS-HR HILTI 10 x 130' stamped on the head.

Handling and Storage

5.1 Hilti HUS-H screw anchors should be stored in a clean, dry area until they are used. Their exposure to the elements after installation should be kept to a minimum. Closing the building in within the required time to protect the framing timber from the environment will be suitable.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Hilti HUS-H screw anchors. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

7.1 The Hilti HUS-H screw anchors are concrete fasteners used to resist earthquake and wind loads on timber frame buildings designed and constructed in accordance with NZS 3604. They are for fixing the bottom plates of walls to concrete slab-on-ground construction. They include fasteners for in situ concrete foundation edge detail, concrete masonry foundation edge detail and internal slab detail.

Proprietary Bracing Systems

7.2 The Hilti HUS-H screw anchors are for use as 15 kN characteristic strength hold downs for proprietary bracing systems rated up to 150 BU/m (bracing units per metre) as described in Table 1.

Formed Concrete Foundations

7.3 In accordance with NZS 3604 the minimum concrete strength for formed concrete foundations must be 17.5 MPa in Zone B, 20 MPa in Zone C and 25 MPa in Zone D (refer 4.5.2 of NZS 3604).

Concrete Masonry Header Block Foundations

7.4 In the Zone D, as defined by NZS 3604, insufficient cover is able to be achieved and so Hilti HUS-H screw anchors must not be used in external walls in concrete masonry header block foundations.

7.5 When Hilti HUS-H screw anchors are used as fixings for external walls with concrete masonry header block foundations in Zone B as defined by NZS 3604, then the minimum grout/concrete strength is 17.5 MPa. In Zone C the minimum grout/concrete strength is 20 MPa.

Internal Walls

7.6 When Hilti HUS-H screw anchors are used as fixings for internal walls the minimum concrete strength is 17.5 MPa.

7.7 Holes that are drilled for the fasteners must be 10 mm deeper than their embedment depth. Care should be taken as this may require slab thickening in some situations, and this must be taken into account when the slab is laid.

Table 1: Bracing hold-down characteristic tensile strengths

Fastener	Wall Type	Characteristic Strength	Minimum Edge Distance*	Minimum Embedment Depth
HUS-H 10 x 120	Internal wall	15 kN	60 mm	70 mm
	External wall - formed concrete foundation	15 kN		
	External wall - masonry header block foundation	Not Tested		
HUS-HR 10 x 130	Internal wall	15 kN	60 mm	70 mm
	External wall - formed concrete foundation	15 kN		
	External wall - masonry header block foundation	Not Tested		
HUS-H 10 x 140	Internal wall	15 kN	60 mm	90 mm
	External wall - formed concrete foundation	15 kN		
	External wall - masonry header block foundation	15 kN		

*This edge distance is to the centre of the fastener (which is 55 mm cover).

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Table 2: Bottom plate fastener spacings

Fastener	Wall Type	Maximum Fastener Spacing	Minimum Edge Distance*	Minimum Embedment Depth
HUS-H 10 x 120	Internal wall	900 mm	60 mm	70 mm
	External wall - formed concrete foundation	900 mm		
	External wall - masonry header block foundation	600 mm		
HUS-HR 10 x 130	Internal wall	900 mm	60 mm	70 mm
	External wall - formed concrete foundation	900 mm		
	External wall - masonry header block foundation	600 mm		
HUS-H 10 x 140	Internal wall	900 mm	60 mm	90 mm
	External wall - formed concrete foundation	900 mm		
	External wall - masonry header block foundation	900 mm		

*This edge distance is to the centre of the fastener (which is 55 mm cover).

Structure

Bracing systems hold downs

8.1 The Hilti HUS-H screw anchors may be used for proprietary bracing systems hold down bolts to concrete slab-on-ground construction. The maximum characteristic uplift strengths for the fasteners are given in Table 1. The Technical Literature of the proprietary bracing system must be referenced to determine the required hold down characteristic strength for the bracing elements.

NZS 3604 Fixing of Timber

8.2 The Hilti HUS-H screw anchors meet the requirements of 7.5.12 of NZS 3604. Table 2 gives the maximum fastener spacing allowed to meet the requirements of NZS 3604 Paragraphs 7.5.12.3 and 7.5.12.4.

Durability

Serviceable Life

9.1 The Hilti HUS-H screw anchors are expected to have a serviceable life of at least 50 years, provided they are designed, used, installed and maintained in accordance with this Appraisal and the Technical Literature.

Maintenance

10.1 The Hilti HUS-H screw anchors will not normally require maintenance. However, if damage occurs to the cladding or lining covering the Hilti fasteners, then repairs or replacement of the cladding or lining must be carried out to ensure the integrity of the Bracing System.

External and Internal Moisture

11.1 The Hilti HUS-H screw anchors are protected from moisture by the exterior cladding and internal lining systems of the building, which must meet the provisions of NZBC Clause E2 and Clause E3.

Installation Information

Installation Skill Level Requirement

12.1 Installation of the Hilti HUS-H screw anchors can be carried out by any competent building contractor.

Fastener Installation

13.1 Installation instructions are included in each box of Hilti HUS-H screw anchors. The Hilti HUS-H screw anchors must be installed in accordance with the Technical Literature.

13.2 Hilti HUS-H screw anchors can be installed either by using the Hilti tools or by drilling a 10 mm diameter hole into the concrete to the depth specified in the Technical Literature and tightening up the fastener with a torque wrench to the required load given in the Installation Instructions.

13.3 Prior to wall lining application, when all timber framing moisture content is 20% or less, as required by the wall lining manufacturer, fasteners must be checked for tightness.

Inspections

14.1 The Technical Literature of Hilti HUS-H screw anchors and the bracing system proprietor must be referred to during the inspection of installations.

14.2 Critical areas of inspection for wall bracing systems are:

- The bracing schedule; and,
- Bracing rating and fastener strength; and,
- Hold down fastener type by checking the markings on the screw anchor head; and,
- Edge detail and distance; and,
- Fasteners are not to be used in header block foundations in Zone D as defined in NZS 3604 (except the HUS-HR 10 x 130, which is stainless steel).

Health and Safety

15.1 Suitable precautions should be taken when drilling concrete to prevent the inhalation of concrete dust. Care should also be taken when using power tools.

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Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

16.1 Testing of the Hilti HUS-H screw anchors was carried out by BRANZ in accordance with BRANZ Evaluation Method EM1 (1999), as required by NZS 3604.

Other Investigations

17.1 Structural and durability assessments have been provided by BRANZ technical experts.

17.2 Observations have been made by BRANZ to assess the practicability of installation, and to examine completed installations.

17.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

18.1 The manufacture of Hilti HUS-H screw anchors has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

18.2 The quality of Hilti HUS-H screw anchors supplied is the responsibility of Hilti (New Zealand) Limited.

18.3 Designers are responsible for the design of buildings incorporating the Hilti HUS-H screw anchors and the proprietary bracing systems.

18.4 The building contractors are responsible for the quality of construction of the building structure in accordance with the Technical Literature.

18.5 Building owners are responsible for the maintenance of wall claddings and linings as applicable so that the Hilti HUS-H screw anchors remain protected during their service life.

Sources of Information

- BRANZ Evaluation Method EM1 Method for Evaluating the Strength and Stiffness of Structural Joints, 1999.
- NZS 3604: 2011 Timber-framed buildings.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.

Amendment No. 1, dated 16 April 2010.
This Appraisal has been amended to include additional fixings.
Amendment No. 2, dated 31 January 2012.
This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011.

BRANZ

In the opinion of BRANZ, Hilti HUS-H Screw Anchors are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Hilti (New Zealand) Limited, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
a) relates only to the product as described herein;
b) must be read, considered and used in full together with the technical literature;
c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
d) is copyright of BRANZ.
2. Hilti (New Zealand) Limited:
a) continues to have the product reviewed by BRANZ;
b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
c) abides by the BRANZ Appraisals Services Terms and Conditions;
d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
c) any guarantee or warranty offered by Hilti (New Zealand) Limited.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Hilti (New Zealand) Limited or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 25 February 2010

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Selection Charts

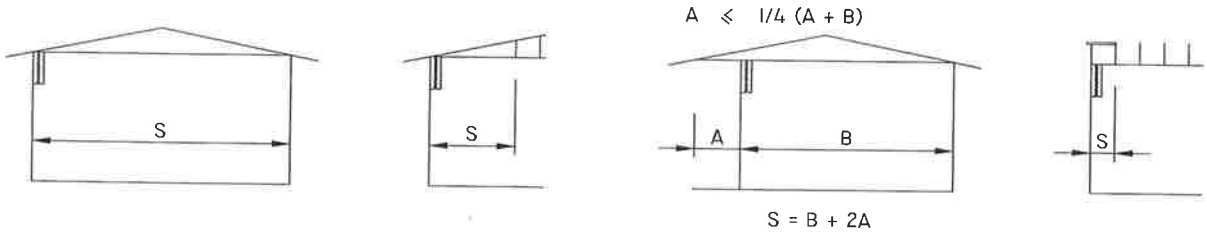


TABLE 1: MSG8, VSG8, MSG6 or Unverified No. 1 Framing

LINTELS SUPPORTING ROOF AND CEILING ONLY

	LINTEL SIZE	MAXIMUM LINTEL SPAN (m) SUPPORTED ROOF SPAN 'S' (m)												
		3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
LIGHT ROOF	FB15L	3.44	3.21	3.03	2.89	2.75	2.60	2.47	2.36	2.26	2.17	2.10	2.03	1.96
	FB20M	4.93	4.68	4.48	4.32	4.15	4.00	3.87	3.73	3.58	3.44	3.32	3.21	3.11
	FB25L	5.17	4.91	4.70	4.53	4.26	4.02	3.82	3.65	3.50	3.37	3.25	3.14	3.04
	FB25M	5.90	5.59	5.36	5.16	5.00	4.86	4.74	4.63	4.53	4.37	4.22	4.08	3.95
	FB30M	6.81	6.46	6.19	5.96	5.78	5.61	5.47	5.35	5.23	5.13	5.04	4.95	4.79
HEAVY ROOF	FB15L	2.92	2.72	2.57	2.45	2.30	2.17	2.06	1.97	1.89	1.82	1.75	1.69	1.64
	FB20M	4.21	3.99	3.82	3.68	3.52	3.39	3.26	3.12	2.99	2.87	2.77	2.68	2.59
	FB25L	4.41	4.19	4.01	3.79	3.56	3.36	3.19	3.05	2.92	2.81	2.71	2.62	2.54
	FB25M	5.03	4.77	4.57	4.41	4.27	4.15	4.04	3.95	3.80	3.65	3.52	3.40	3.30
	FB30M	5.81	5.51	5.28	5.09	4.93	4.79	4.67	4.56	4.47	4.38	4.27	4.13	4.00

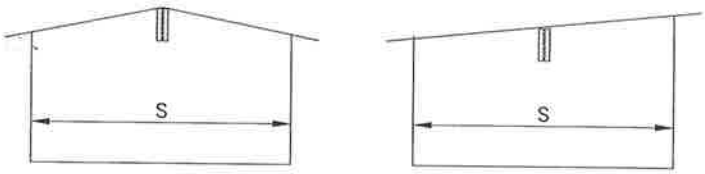


TABLE 2: MSG8, VSG8, MSG6 or Unverified No. 1 Framing

FLITCH BEAM RIDGE BEAM SUPPORTING ROOF AND SARKING OR CEILING (RAFTERS @ 1200mm CRS MAX)

	LINTEL SIZE	MAXIMUM LINTEL SPAN (m) SUPPORTED ROOF SPAN 'S' (m)									
		5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0
LIGHT ROOF	FB15L	3.03	2.89	2.75	2.60	2.47	2.36	2.26	2.17	2.10	2.03	1.96
	FB20M	4.55	4.34	4.15	4.00	3.87	3.73	3.58	3.44	3.32	3.21	3.11
	FB25L	4.85	4.54	4.26	4.02	3.82	3.65	3.50	3.37	3.25	3.14	3.04
	FB25M	5.78	5.50	5.27	5.07	4.90	4.74	4.55	4.37	4.22	4.08	3.95
	FB30M	6.85	6.60	6.39	6.15	5.94	5.75	5.52	5.30	5.12	4.95	4.79
HEAVY ROOF	FB15L	2.57	2.45	2.30	2.17	2.06	1.97	1.89	1.82	1.75	1.69	1.64
	FB20M	3.86	3.68	3.52	3.39	3.26	3.12	2.99	2.87	2.77	2.68	2.59
	FB25L	4.08	3.79	3.56	3.36	3.19	3.05	2.92	2.81	2.71	2.62	2.54
	FB25M	4.90	4.66	4.47	4.30	4.15	3.96	3.80	3.65	3.52	3.40	3.30
	FB30M	5.84	5.63	5.42	5.21	5.03	4.81	4.61	4.43	4.27	4.13	4.00

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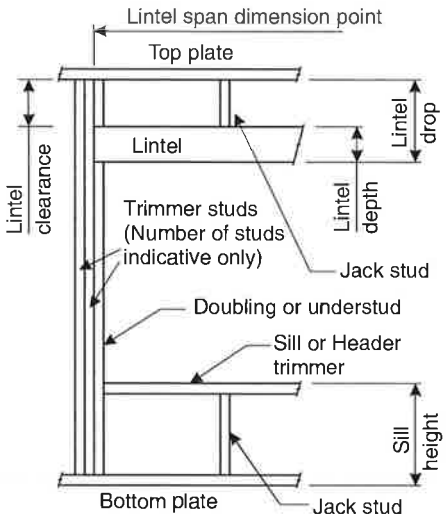
LUMBERLOK

LINTEL FIXING SCHEDULE
ALTERNATIVE TO TABLE 8.14 & FIGURE 8.12
NZS 3604:2011

NOTE:

- All fixings are designed for vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20 kPa.
- Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist horizontal loads.
- These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- All fixings assume bottom plate thickness of 45mm maximum. Note: TYLOK options on timber species.
- Wall framing arrangements under girder trusses are not covered in this schedule.
- All timber selections are as per NZS 3604:2011.

DEFINITIONS



Lintel Supporting Girder Trusses:

Roof Tributary Area	Light Roof Wind Zone			Heavy Roof Wind Zone		
	L, M, H	VH	EH	L, M, H	VH	EH
8.6 m²	G	G	H	G	G	H
11.6 m²	G	H	H	G	G	H
12.1 m²	G	H	H	G	H	H
15.3 m²	H	H	-	G	H	H
19.1 m²	H	-	-	G	H	-
20.9 m²	H	-	-	H	H	-
21.8 m²	H	-	-	H	-	-
34.3 m²	-	-	-	H	-	-

Notes:
1) Roof Tributary Area = approx. 1/2 x (Total roof area on girder and rafter trusses supported by lintel)
2) Assumed girder truss is at mid-span or middle third span of lintel
3) Use similar fixings for both ends of lintel
4) All other cases require specific engineering design

SELECTION CHART FOR LINTEL FIXING

Lintel Span	Loaded Dimension (See Fig. 1.3 NZS 3604:2011)	Light Roof Wind Zone					Heavy Roof Wind Zone				
		L	M	H	VH	EH	L	M	H	VH	EH
0.7	2.0	E	E	E	E	F	E	E	E	E	E
	3.0	E	E	E	F	F	E	E	E	E	F
	4.0	E	E	F	F	F	E	E	E	F	F
	5.0	E	F	F	F	G	E	E	F	F	F
	6.0	E	F	F	G	G	E	E	F	F	G
0.9	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	E	F	F
	4.0	E	E	F	F	F	E	E	F	F	F
	5.0	E	F	F	F	G	E	E	F	F	F
	6.0	E	F	F	G	G	E	E	F	F	G
1.0	2.0	E	E	E	F	F	E	E	E	E	F
	3.0	E	E	F	F	F	E	E	E	F	F
	4.0	E	F	F	F	G	E	E	F	F	F
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	E	F	F	G	G	E	E	F	F	G
1.2	2.0	E	E	F	F	F	E	E	E	F	F
	3.0	E	E	F	F	F	E	E	F	F	F
	4.0	E	F	F	G	G	E	E	F	F	G
	5.0	E	F	F	G	G	E	E	F	F	G
	6.0	F	F	G	G	H	E	E	F	G	G
1.5	2.0	E	E	F	F	F	E	E	E	F	F
	3.0	E	F	F	F	G	E	E	F	F	F
	4.0	E	F	F	G	G	E	E	F	F	G
	5.0	F	F	G	G	H	E	E	F	G	G
	6.0	F	F	G	H	H	E	E	F	G	H
2.0	2.0	E	F	F	F	G	E	E	F	F	F
	3.0	E	F	F	G	G	E	E	F	F	G
	4.0	F	F	G	G	H	E	E	F	G	G
	5.0	F	F	G	H	H	E	E	F	G	H
	6.0	F	G	G	H	H	E	F	G	H	H
2.4	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	F	F	G	G	H	E	E	F	G	G
	4.0	F	F	G	H	H	E	E	F	G	H
	5.0	F	G	G	H	H	E	F	G	H	H
	6.0	F	G	H	H	-	E	F	G	H	H
3.0	2.0	E	F	F	G	G	E	E	F	F	G
	3.0	F	F	G	H	H	E	E	F	G	H
	4.0	F	G	G	H	H	E	F	G	H	H
	5.0	F	G	H	H	-	E	F	G	H	H
	6.0	F	G	H	-	-	E	F	G	H	-
3.6	2.0	F	F	G	G	H	E	E	F	G	G
	3.0	F	F	G	H	H	E	F	G	G	H
	4.0	F	G	H	H	-	E	F	G	H	H
	5.0	F	G	H	-	-	E	F	G	H	-
	6.0	G	H	H	-	-	E	F	H	-	-
4.2	2.0	F	F	G	G	H	E	E	F	G	G
	3.0	F	G	H	H	-	E	F	G	H	H
	4.0	F	G	H	-	-	E	F	G	H	-
	5.0	G	H	H	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
4.5	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	F	G	H	H
	3.4	F	G	H	H	-	E	F	G	H	-
	4.0	F	G	H	-	-	E	F	G	H	-
	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-
4.8	2.0	F	F	G	H	H	E	E	F	G	H
	3.0	F	G	H	H	-	E	F	G	H	H
	3.2	F	G	H	H	-	F	F	G	H	-
	4.0	F	G	H	-	-	E	F	H	H	-
	5.0	G	H	-	-	-	E	F	H	-	-
	6.0	G	H	-	-	-	E	F	H	-	-

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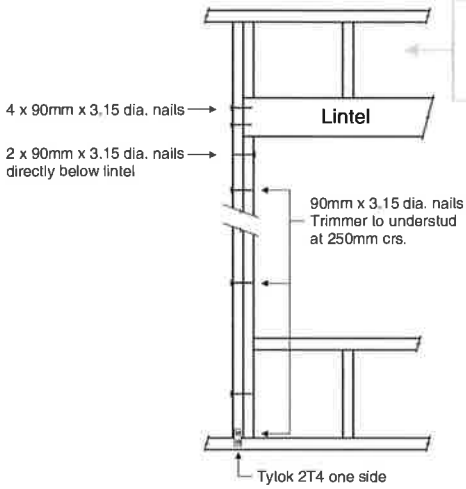
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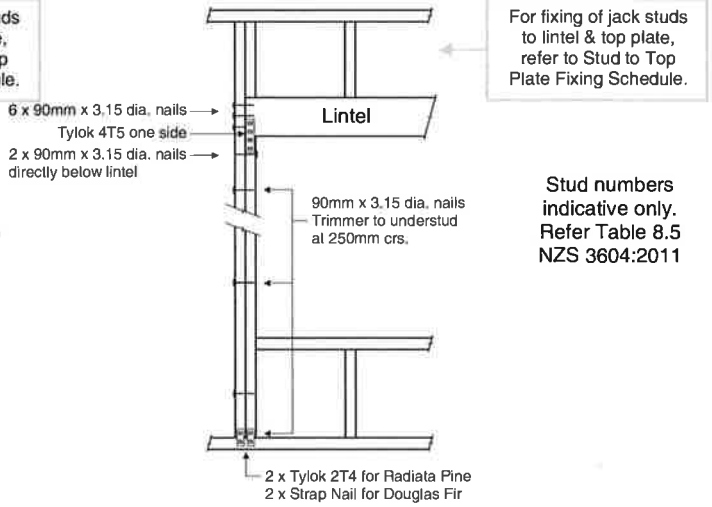
LINTEL FIXING OPTIONS

TYPE E
1.4 kN



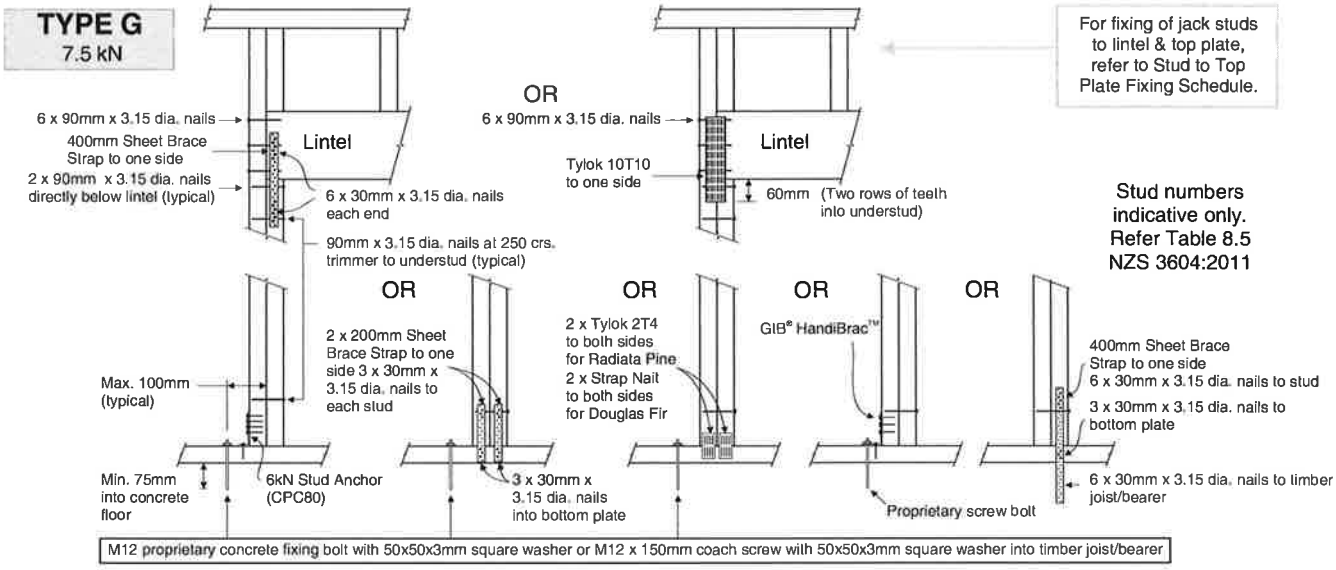
Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

TYPE F
4.0 kN



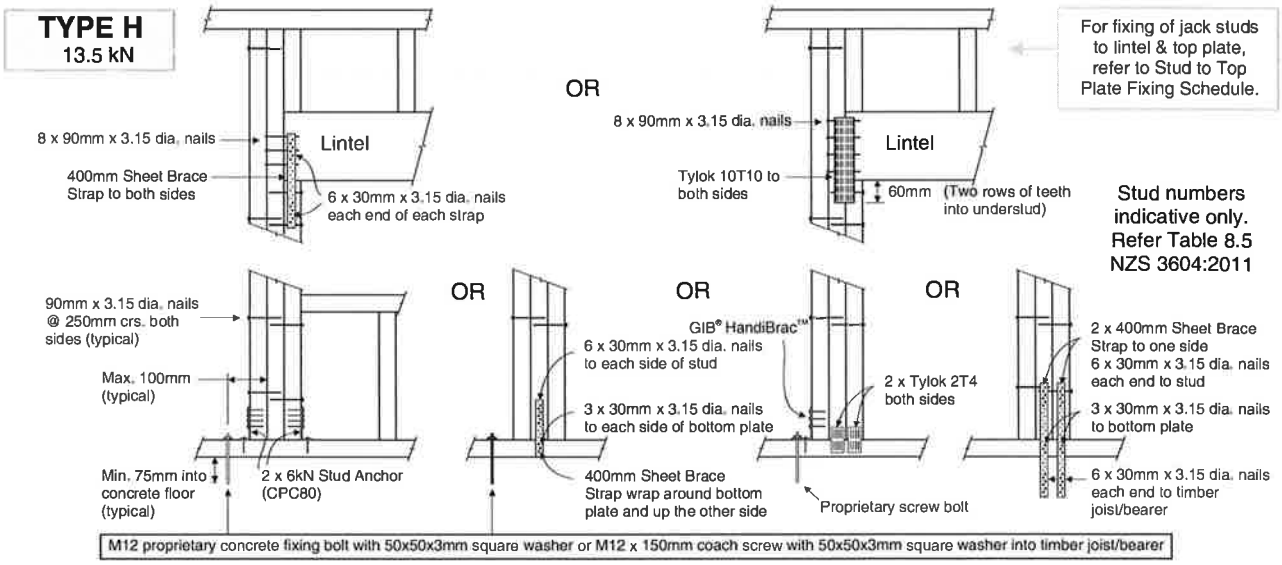
Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

TYPE G
7.5 kN



Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

TYPE H
13.5 kN



Stud numbers indicative only. Refer Table 8.5 NZS 3604:2011

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09/2011

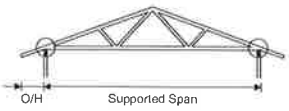
LUMBERLOK®

STUD TO TOP PLATE FIXING SCHEDULE
ALTERNATIVE TO TABLE 8.18 NZS 3604:2011

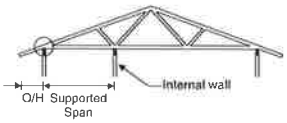
NOTE:

- All fixings are designed to resist vertical loads only. Dead loads include the roof weight and standard ceiling weight of 0.20 kPa.
- Refer to Table 8.19 NZS 3604:2011 for nailing schedule to resist lateral loads.
- These fixings assume the correct choice of rafter/truss to top plate connections have been made.
- Gable end wall top plate/stud connections where the adjacent rafter/truss is located within 1200mm of gable end wall with a maximum verge overhang of 750mm, requires fixing type A as shown below.
- All fixings assume top plate thickness of 45mm maximum.
- Wall framing arrangements under girder trusses are not covered in this schedule.
- All timber selections are as per NZS 3604:2011.

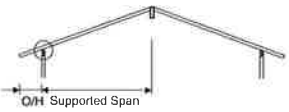
LOADED DIMENSION DEFINITION



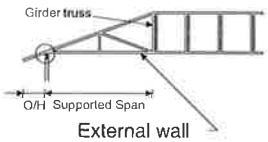
External wall
Standard truss



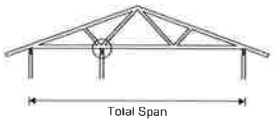
External wall
Internally supported truss



External wall
Rafter roof



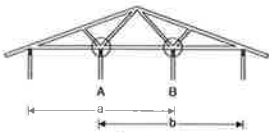
External wall
Jack truss



Internal wall
Internally supported truss
(overhang dimension does not apply)

EXTERNAL WALL
LOADED DIMENSION =
$\frac{\text{SUPPORTED SPAN}}{2}$ + O/H

INTERNAL WALL
LOADED DIMENSION =
$\frac{\text{TOTAL SPAN}}{2}$



Multiple internal walls
(overhang dimension does not apply)

MULTIPLE INTERNAL WALL
LOADED DIMENSION FOR
WALL A = $\frac{a}{2}$
WALL B = $\frac{b}{2}$

FIXING SELECTION CHART

(Suitable for walls supporting roof members at 600, 900 or 1200mm crs.)

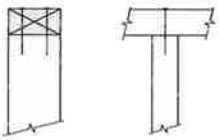
Wind Zones L, M, H, VH, EH, as per NZS 3604:2011

Loaded Dimension (m) Stud Centres			Light Roof Wind Zone					Heavy Roof Wind Zone				
300mm	400mm	600mm	L	M	H	VH	EH	L	M	H	VH	EH
3.0	2.3	1.5	A	A	B	B	B	A	A	B	B	B
4.0	3.0	2.0	A	A	B	B	B	A	A	B	B	B
5.0	3.8	2.5	A	B	B	B	B	A	A	B	B	B
6.0	4.5	3.0	A	B	B	B	B	A	A	B	B	B
7.0	5.3	3.5	A	B	B	B	B	A	A	B	B	B
8.0	6.0	4.0	A	B	B	B	B	A	A	B	B	B
9.0	6.8	4.5	B	B	B	B	B	A	A	B	B	B
10.0	7.5	5.0	B	B	B	B	B	A	A	B	B	B
11.0	8.3	5.5	B	B	B	B	B	A	A	B	B	B
12.0	9.0	6.0	B	B	B	B	B	A	A	B	B	B

FIXING OPTIONS

FIXING TYPE A
0.7 kN

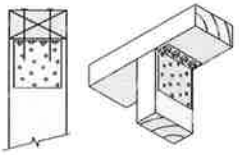
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



FIXING TYPE B
4.7 kN

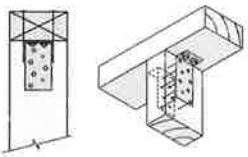
CHOOSE ANY OF THE 3 OPTIONS BELOW

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
LUMBERLOK
6kN Stud Anchor
(CPC80)

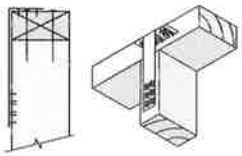
2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
2 x LUMBERLOK
CPC40

Recommended for internal wall options to avoid lining issues

2 x 90mm x 3.15 dia. plain steel wire nails driven vertically into stud.



Plus
LUMBERLOK
Stud Strap
(one face only)

Note:
To calculate the number of B type fixings required, divide the wall length by the stud centres, add 1 to this figure and locate this number of fixings as evenly as possible along the wall length. This figure includes the start and end studs in each wall length.

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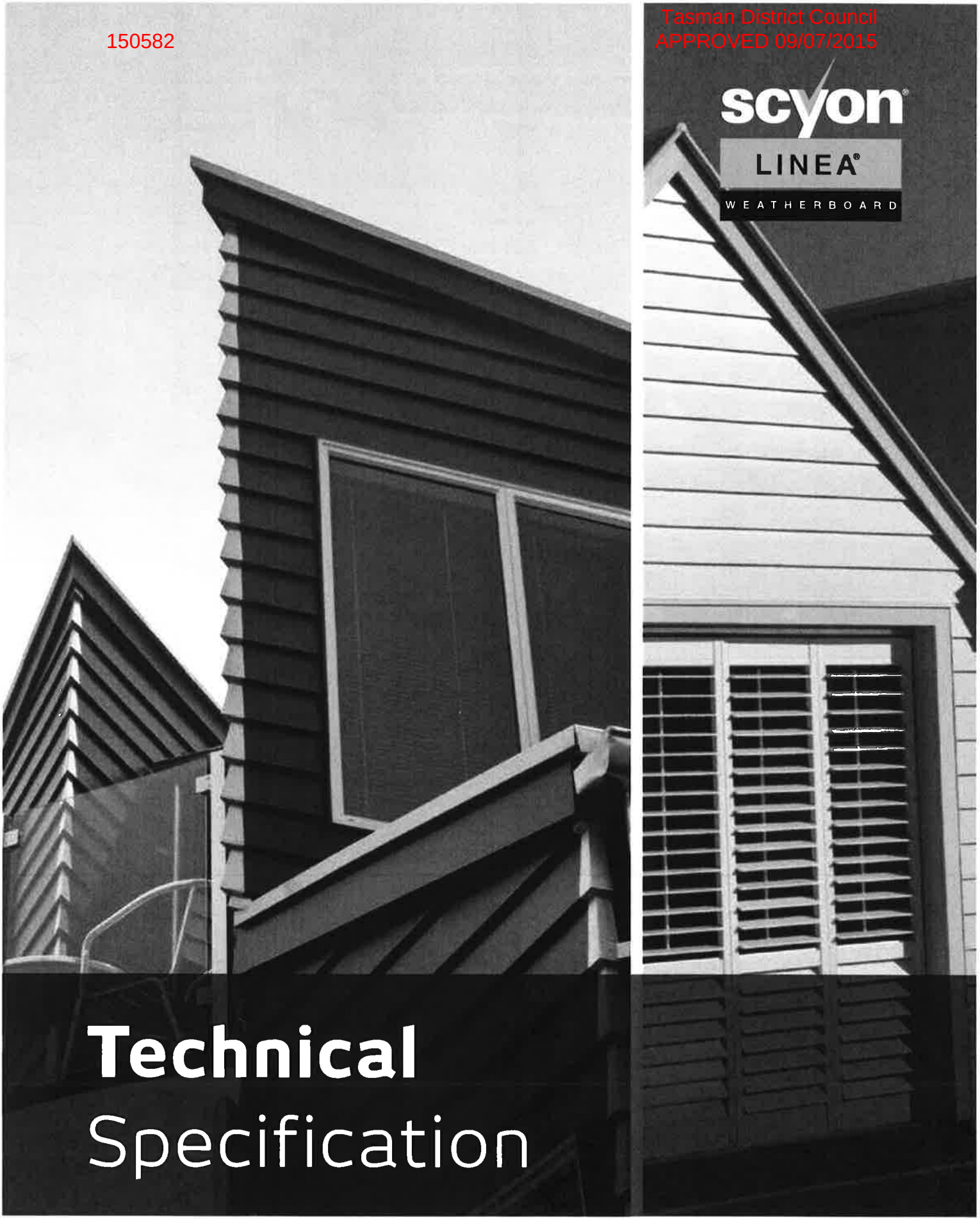
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scyon®

LINEA®

WEATHERBOARD



Technical Specification

JANUARY 2013 | NEW ZEALAND

CODEMARK 30018

James Hardie
a smarter way

150582

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WE VALUE YOUR FEEDBACK

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

Ask James Hardie™
Fax 0800 808 988
literaturefeedback@jameshardie.co.nz

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1 Application and scope

1.1 APPLICATION

Scyon® Linea® Weatherboard is a 16mm thick, pre-primed bevel back fibre cement weatherboard and is classified as lightweight wall cladding suitable for residential and light commercial construction using timber framed external walls. Scyon Linea Weatherboard is available in 135mm, 150mm and 180mm widths.

James Hardie also has available:

- Scyon® Axent™ Fascia in two widths. Scyon Axent Fascia is a 16mm thick, pre-primed fibre cement product designed to accommodate James Hardie soffit linings.
- Scyon® Axent™ Trim comes in a variety of widths for use as decorative trims around openings and external corners. Scyon Axent Trim is a 16mm thick, pre-primed fibre cement product.

If you are a specifier
Or other responsible party for a project ensure that the information in this document is appropriate for the application you are planning and that you undertake specific design and detailing for areas which fall outside the scope of these specifications.

If you are an installer
Ensure that you follow the design, moisture management and associated figures and material selection provided by the designer and this James Hardie Technical Specification.

All the details provided in this document must be read in conjunction with the specifiers specification.

Make sure your information is up to date
When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or, if you need more information, visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

1.2 SCOPE

This specification covers the use of Scyon Linea Weatherboard on buildings that fall within the scope limitations of New Zealand Building Code (NZBC) Acceptable Solution E2/AS1, Paragraph 1.1.

This specification includes the use of Scyon Linea Weatherboard in both direct to stud and cavity construction method and must be read in conjunction with the current BRANZ Appraisals for Scyon Linea Weatherboard.

This specification also covers the use of Scyon Linea Weatherboard in cavity construction for specific design projects (SED) subject to a wind pressure of 2.5kPa (ULS) maximum. This document is intended for use by architects, designers, specifiers or builders who are involved in specifying Scyon Linea Weatherboard. The document also serves the purpose of an installation manual for this product.

1.3 DETAILS

Various Scyon Linea Weatherboard details are provided in the Details section of this document. This specification and details in CAD file are also available to download from our website at www.jameshardie.co.nz.

1.4 SPECIFIC DESIGN

For use of Scyon Linea Weatherboard outside this published scope, the architect, designer or engineer must undertake specific design.

For advice on designs outside the scope of this specification, Ask James Hardie on 0800 808 868.

2 Design

CODEMARK 30018

2.1 COMPLIANCE

Scyon Linea Weatherboard direct fixed and cavity cladding has been issued a CodeMark certificate number GM-10-30018 which confirms Scyon Linea Weatherboard is deemed to comply with the requirements of NZBC. Please refer to our website www.jameshardie.co.nz for a copy of the CodeMark certificate. Scyon Linea Weatherboard also has a BRANZ Appraisal number 446 (2010) and 447 (2010) at www.branz.co.nz or www.jameshardie.co.nz.

2.2 RESPONSIBILITY

The specifier or other party responsible for the project must ensure that the information and details in this specification are appropriate for the intended application and that additional detailing is performed for specific design or any areas that fall outside the scope of this technical specification. For applications outside the scope of this literature and figures which are not provided herein, the architect, designer or engineer must undertake specific design and it should be ensured that the intent of their design meets the requirements of the NZBC.

All dimensions shown are in millimetres unless noted otherwise. All New Zealand Standards referenced in this manual are current edition and must be complied with.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

2.3 SITE AND FOUNDATION

The site on which the building is situated must comply with the NZBC Acceptable Solution E1/AS1 'Surface Water'. Foundation design must comply with the requirements of NZS 3604 'Timber Framed Buildings' or be as per specific engineering design. The grade of adjacent finished ground must slope away from the building to avoid any possibility of water accumulation in accordance with NZBC requirements.

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2.4 GROUND CLEARANCES

The clearance between the bottom edge of cladding and paved/unpaved ground must comply with section 9.1.3 of E2/AS1. The finished floor must also comply with these requirements. These clearances must be maintained throughout the life of the building.

Scyon Linea Weatherboards must overhang the bottom plate on a concrete slab by a minimum of 50mm as required by NZBC Acceptable Solution, E2/AS1 Table 18.

On the roofs and decks the minimum clearance must be 50mm.

Do not install external cladding such that it may remain in contact with water or ground.

2.5 MOISTURE MANAGEMENT

It is the responsibility of the specifier to identify moisture related risks associated with any particular building design.

Wall construction design must effectively manage moisture, considering both the interior and exterior environments of the building, particularly in buildings that have a higher risk of wind driven rain penetration or that are artificially heated or cooled. Walls shall include those provisions as required by NZBC Acceptable Solution E2/AS1 'External Moisture'. In addition, all wall openings, penetrations, junctions, connections, window sills, heads and jambs must incorporate appropriate flashings for waterproofing. The other materials, components and installation methods used to manage moisture in the walls, must comply with the requirements of relevant standards and the NZBC. For information in relation to designing for weathertightness, refer to BRANZ and the Department of Building and Housing (DBH) updates on the following websites, respectively www.branz.co.nz and www.dbh.govt.nz.

2.6 STRUCTURE

Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific engineering design in accordance with NZS 3603 and AS/NZS 1170. Where specific engineering design is required, the framing stiffness must be equivalent to or more than the framing provisions of NZS 3604. In all cases stud spacing must not exceed 600mm centres maximum for buildings designed to NZS 3604 and 400mm centres maximum for specific engineering design buildings subject to design wind pressures higher than 1.5kPa.

2.7 WIND LOADING

Scyon Linea Weatherboard cladding is suitable for use in all wind zones as defined in NZS 3604 and is also suitable for use in SED wind pressures up to 2.5kPa (uls).

For wind pressures higher than those mentioned above, contact James Hardie at 0800 808 868 for assistance.

2.8 STRUCTURAL BRACING

Scyon Linea Weatherboard installed as per Scyon Linea Weatherboard specific bracing details will provide bracing for buildings designed and constructed in accordance with NZS 3604. The Scyon Linea Weatherboard bracing systems have been independently tested by SCION using direct fixed construction. The following range of bracings can be achieved

- Wind 75 – 130 BU'S/m
- Earthquake 67 – 101 BU'S/m

Refer to the James Hardie Bracing Design Manual for details.

2.9 FIRE RATED WALLS

Walls clad with Scyon Linea Weatherboard using a direct fix or cavity construction method can achieve fire ratings of up to 90/90/90 when constructed in accordance with the James Hardie 'Fire and Acoustic' Design Manual. Scyon Linea Weatherboard must be face fixed for Fire Rated applications.

Refer to Fire and Acoustic Design Manual for further information about fire rated systems.

2.10 ENERGY EFFICIENCY

External walls constructed using Scyon Linea Weatherboard, and bulk insulation, where the area of glazing is 30% or less of the total wall area and constructed as per this technical specification complies with the requirements for walls in NZBC Acceptable Solution H1/AS1 (NZBC Clause H1 Energy Efficiency), Replacement Table 1. To meet the minimum thermal insulation requirements for the construction, the bulk insulation as specified in Table 1 must be used. This insulation may be substituted with insulation material having higher R-values. The thermal insulation of a wall is affected when the depth of the timber framing is increased or decreased or stud spacing is decreased. The calculation used in Table 1 is based on a timber framing size 90 x 45mm and an internal lining material such as James Hardie Villaboard® Lining or a 10mm plasterboard.

Table 1

Insulation capability		
Climate Zone	**Construction R-Value Requirement**	**Minimum R-Value of Insulation Required**
1 and 2	1.9 m2 °C/W	#R2.0
3	2.0 m2 °C/W	#R2.2

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Total construction R-Value depends on the insulation material used and the framing ratio. The insulation material R-Values specified in this table are for studs spaced at 600mm c/c and nogs spaced at 800mm c/c.

To achieve higher construction R-Values the wall insulation material must be replaced with an insulation material having higher R-Values to suit the requirements.

For further guidance on insulation requirement refer to current edition of 'House Insulation Guide' published by BRANZ.

3 Framing

3.1 GENERAL

This Scyon Linea Weatherboard technical specification is only suitable for timber-framed buildings. Other framing materials are outside the scope of this specification.

For Steel Framing refer to James Hardie Claddings Installation to Steel Framing Technical Supplement.

3.2 DIMENSIONS

A 35mm minimum stud width is required unless noted otherwise in this specification.

3.3 TIMBER GRADE

Timber must be graded in accordance with NZS 3631 'New Zealand Timber Grading Rules'. The timber grade to be used must be in accordance with NZS 3604 requirements.

3.4 DURABILITY

To comply with NZBC requirements the external framing must be treated to a minimum H1.2 treatment. Refer to NZBC Acceptable Solution B2/AS1 Durability for further information about the durability requirements. For timber treatment information refer to NZS 3602 (Timber and Wood-Based Products for use in Buildings) and NZS 3640 (Chemical Preservation of Round and Sawn Timber) for minimum timber treatment selection and treatment requirements. Also refer to framing manufacturer's literature for further guidance on timber selection.

Framing must be protected from moisture at sites in accordance with the recommendations of framing manufacturers.

Note: refer to NZS 3602 for information about the allowable moisture content in timber.

3.5 FRAME CONSTRUCTION

For buildings within the scope of NZS 3604 the framing sizes and set-out must comply with NZS 3604 with stud, nog/dwang centres as required by this specification.

3.5.1 Direct fixed construction method

The following framing must be provided for direct fixed construction method:

- Studs must be provided at 600mm centres maximum.
- Nogs must be provided at 1200mm centres maximum.
- Double studs are required at internal corners.
- Extra packers may be required at external corners.
- Extra studs are required for aluminium internal corner sections.

3.5.2 Cavity construction method

The following framing must be provided for cavity construction method:

- When studs are at 600mm centres the nogs must be provided at 800mm centres maximum.
- When studs are at 400mm centres the nogs may be provided at 1200mm centres maximum.
- Double studs are required at internal corners.
- Extra packers may be required at external corners.
- Extra studs are required for aluminium internal corner sections.

3.5.3 Specific Engineering Design (SED)

For EH wind zone and specific engineering design projects the timber framing is required to be designed in accordance with NZS 3603 and AS/NZS 1170. The minimum framing sizes and layout must comply with this specification.

- Stud spacing 400mm centres maximum
- Nog spacing 1200mm centres maximum
- Other requirements as per 3.5.2 above

3.6 TOLERANCES

In order to achieve an acceptable wall finish, it is imperative that framing is straight and true. Framing tolerances must comply with the requirements of NZS 3604. All framing must be made flush.

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4 Preparation

4.1 BUILDING UNDERLAY OR HOMERAB PRECLAD LINING

Building underlay must be provided as per the requirements of NZBC Acceptable Solution E2/AS1 'External Moisture' Table 23. The building underlay must be fixed in accordance with E2/AS1 and the underlay manufacturer's recommendations. Walls which are not lined on the inside face e.g. garage walls or gable ends must include a rigid sheathing or an air barrier behind the cladding which complies with the requirements of NZBC Acceptable Solution E2/AS1 Table 23. HomeRAB PreClad Lining is suitable for use in these applications. It must be installed in accordance with James Hardie Rigid Air Barriers installation manual.

4.2 RIGID AIR BARRIER

For EH wind zone or Specific Engineering Design (SED) projects where the design wind pressures are between 1.5kPa (uls) and 2.5kPa (uls), RAB Board (6mm) must be used. Refer to James Hardie Rigid Air Barriers installation manual for information regarding its installation.

4.3 FLASHING

All wall openings, penetrations, intersections, connections, window sills, heads and jambs must be flashed prior to weatherboard installation. Please refer to moisture management requirements in Clause 2.5. The building underlay must be appropriately incorporated with penetration and junction flashings. Materials must be lapped in such a way that water tracks down to the exterior on the face of building underlay. James Hardie will assume no responsibility for water infiltration within the wall due to poor installation of flashings or building underlays. The selected flashing materials must comply with the durability requirements of Table 20 of NZBC Acceptable Solution E2/AS1.

4.4 VENT STRIP

The James Hardie uPVC cavity vent strip must be installed at the bottom of all walls constructed using the drained and ventilated cavity construction method. James Hardie uPVC vent strip has an opening area of 1000mm2/m length. It is important that the openings in the vent strip are kept clear and unobstructed to allow free drainage and ventilation of cavities.

4.5 CAVITY BATTENS

Buildings with a risk score of 13-20 calculated in accordance with NZBC Acceptable Solution E2/AS1 Table 3 require Scyon Linea Weatherboards to be installed on a cavity.

The cavity battens provide airspace between the frame and cladding and are considered a "packer" only in this specification.

The timber battens must be minimum H3.1 treated in accordance with NZS 3640 (Chemical Preservation of Round and Sawn Timber) to comply with the durability requirements of B2/AS1.

Cavity battens must comply with E2/AS1 and:

- be minimum 18mm thick.
- be minimum as wide as the width of studs.
- be fixed by the cladding fixings to the main framing through the building underlay.
- until claddings are fixed the battens need only to be tacked to framing.

(Batten fixing is required temporarily to keep them straight on the wall during construction.)

The cavity battens are installed as described below:

- Fix cavity battens to studs at maximum 600mm centres.
- Battens should be fixed with 40 x 2.8mm nails at 800mm centres maximum.

4.6 INTERMEDIATE SUPPORT

Where studs are at 600mm centres an intermediate means of restraining the building underlay and insulation from bulging into the cavity shall be installed. An acceptable method to achieve this is using one of the following:

- intermediate cavity batten between the studs.
- 75mm galvanised mesh.
- polypropylene tape at 300mm centres fixed horizontally and drawn taut.

No intermediate supports are required:

- where studs are at maximum 400mm centres; or,
- when rigid sheathings instead of building underlays are used.

4.7 CORNERS

Anticipated joist shrinkage must be allowed for in the design process. Do not run trims or aluminium extrusions continuously across solid floor joists. There are a number of options to select from when detailing external corners:

- 90° corner soaker in aluminium, copper or stainless steel. Refer to Figures 7 and 33.
- Box corners using Scyon Axent Trim. Refer to Figures 3, 4 and 30.
- Mitred corners to weatherboards. Refer to Figures 5 and 31.
- Aluminium boxed corners. Refer to Figures 6 and 32.

There are a number of options to select from when detailing internal corners:

- Scribed corner. Refer to Figures 8 and 34.
- 90° or 135° Aluminium W-mould. Refer to Figures 9, 10, 35 and 36.

4.8 JUNCTIONS AND PENETRATIONS

Refer to Clause 2.5 of this specification for moisture management requirements. All windows and doors must be detailed as per the requirements of this specification. James Hardie has developed the window details for Scyon Linea Weatherboards which meet the requirements of E2 'External Moisture', an approved document of the NZBC. Refer to Figures 11 to 22 and 38 to 51.

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5 Fixing Linea Weatherboard

5.1 GENERAL

The horizontal lap of Scyon Linea Weatherboards must be 30mm minimum. Scyon Linea Weatherboards must be kept dry whilst in storage prior to and during fixing. Cut ends which are exposed after installation or where sealant is applied to the boards such as slimline box corners, internal corners, mitred external corners etc, must be primed prior to installation. Dust and loose material must be removed before priming.

An H3.1 treated timber cant strip must be provided to support the bottom board on the wall. Refer to Figure 1 and Figure 26.

5.2 FASTENER DURABILITY

Fasteners must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing's material to be used in relation to the exposure conditions and are summarised in Table 2.

Table 2

Exposure conditions and nail selection prescribed by NZS 3604

NAIL MATERIAL

Zone D *	Zone C outside sea spray zone and Zone B and Geothermal hot spots	Bracing — All zones
Grade 316 Stainless	Hot-dipped galvanised or 316 stainless	Grade 316 stainless

* (Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made) Microclimate conditions as detailed in NZS 3604, Paragraph 4.2.4 require SED.

Also refer to NZBC Acceptable Solution 'E2/AS1' Table 20 and 21 for information regarding the selection of suitable fixing materials and their compatibility with other materials.

5.3 NAIL SIZE AND FIXING METHOD

Scyon Linea Weatherboards and Scyon Axent Trim must be fixed to timber with the types of nails specified in Tables 3 and 4, in accordance with the following requirements:

- Scyon Linea Weatherboard can either be face/exposed fixed or concealed fixed.
- Scyon Linea Weatherboard must be fixed into studs at maximum 600mm centres. Fixing centres to coincide with stud spacing. Refer to Figure 2 and 28.
- All concealed nails must be driven flush with the board surface.
- When concealed fixing Scyon Linea Weatherboards, nails must be driven under the lap of boards, except at all corners and vertical edges of openings where Scyon Linea Weatherboards must be face fixed. Refer to Figure 2 and Figure 28.
- Nails must be fixed 25mm from the end of the board when hand nailing. For gun nailing refer to Section 5.4.
- When using concealed fixing method, any gaps that may appear under the lap due to site conditions can be minimised by fixing a jolt head nail as per the face fixing method in the affected area.
- When using concealed fixing method, Scyon Linea Weatherboard can also be tied together by face fixing through the lap using 32mm brad nails if desired.
- When using a rigid air barrier like HomeRAB PreClad Lining or RAB Board, the cladding fixing nails must be increased in length equal to the thickness of the rigid air barrier.

Table 3

Nail requirements for Scyon Linea Weatherboards

DIRECT TO STUD FIXING

Concealed Nailing	
40 x 2.8mm HardieFlex™ nails	Finish flush with the board surface.
Face Nailing	
60 x 3.15mm jolt head nails	Hot-dipped galvanised may require pre-drilling through the top weatherboard.
	Stainless steel jolt heads will require pre-drilling* of the top weatherboard.

CAVITY FIXING

Concealed Nailing	
60 x 3.15mm HardieFlex™ nails	Finish flush with the board surface.
Face Nailing	
75 x 3.15mm jolt head nails	Hot-dipped galvanised may require pre-drilling through the top weatherboard.
	Stainless steel jolt heads will require pre-drilling* of the top weatherboard.
EH Wind Zone and SED Projects (1.5kPa - 2.5kPa Wind Pressure)	
90 x 4.0mm jolt head nail	Hot-dipped galvanised. Pre-drill before fixing.
	Stainless steel ring shank nail. Pre-drill before fixing.

Table 4

Nail requirements for trim

Single Thickness	60mm jolt head nails. If fixing over Scyon Linea Weatherboard use predrilled* 75 x 3.15mm jolt head nails.
Double Thickness	60mm jolt head nails.
Single plus packer	If fixing over Scyon Linea Weatherboard use 75 x 3.15mm jolt head nails through a pre-drilled* hole. When fixing to timber support use 60mm jolt head nails.

* Use a 3.0mm drill bit

Note: Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information Ask James Hardie on 0800 808 868.

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5.4 GUN NAILING

Scyon Linea Weatherboard can also be gun-nailed with a D head or RounDrive nail when concealed fixing method is used.

- Gun-nailing must not be used when Scyon Linea Weatherboard is used for bracing.
- Nails must be no closer than 50mm from the ends of boards when gun nailing is used — double studs will be required.
- Be minimum length and gauge as per Table 3.
- Be finished flush with surface of board.

6 Jointing

The ends of Scyon Linea Weatherboards are jointed off-stud by means of a tongue and groove joint. Tongue and groove joints may be located centrally between studs but no closer than 100mm from the edge of a stud. The joints must be staggered by 600mm minimum. Sealant must be provided in the tongue and groove joint.

7 Finishing

Note: Protective coating of Scyon Linea Weatherboard and Scyon Axent Trim is required in order to meet the durability requirements of the NZBC.

7.1 PREPARATION AND PRIMING

The Scyon Linea Weatherboard and Scyon Axent Trim must be dry before painting. Punch and fill all exposed nails a maximum of 2mm below the surface. Fill the hole with an exterior grade builders fill, allow to cure and sand smooth ready for priming. Prime the filled holes in accordance with paint manufacturer's specifications.

7.2 SEALANTS

All sealants must demonstrate the ability to meet the relevant requirements of the NZBC and hold a current BRANZ Appraisal. Application and use of sealants must comply with manufacturer's instructions. Sealants, if coated, must be compatible with the paint system.

7.3 PAINTING

All Scyon Linea Weatherboards are pre-primed on their face and bottom edge with a factory applied acrylic base coat.

Scyon Linea Weatherboard must be painted within 90 days of installation. There is no restriction on the LRV of paint to be applied on the Scyon Linea Weatherboard. All exposed faces, including the top edges under the sills and bottom edges of Scyon Linea Weatherboard, Scyon Axent Trim and accessories must be finished with latex exterior paint system complying with any of parts 7, 8, 9, and 10 of AS 3730.

Dark coloured paints can be used on Scyon Linea Weatherboard and Trim. The dark colours in certain environments may fade over a period of time. Special paints/coatings are required in certain harsh environments.

8 Storage and handling

Paint selection and the preparation required is dependant on paint chosen. Refer to the paint manufacturer for information before starting painting.

Scyon Linea Weatherboards and Scyon Axent Trim must be laid flat on a smooth level surface. To ensure optimum performance, store weatherboards under cover and keep dry prior to fixing. If the weatherboards should become wet, allow to dry thoroughly before fixing. Do not carry weatherboards on the flat, carry in the vertical position to avoid excessive bending.

9 Maintenance

It is the responsibility of the specifier to determine normal maintenance requirements to comply with NZBC Acceptable Solution B2/AS1. The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months*,
- Re-applying exterior protective finishes**,
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants,
- Cleaning out gutters, blocked pipes and overflows as required,
- Pruning back vegetation close to or touching the building,
- The clearances between the bottom edge of Scyon Linea Weatherboard and the finished/unfinished ground must always be maintained.
- Stainless steel flashings used in extreme coastal conditions or in sea spray zones may show some signs of staining. It is an aesthetic issue and to minimise it cladding must be washed frequently

*Do not use a water blaster to wash down the cladding.

*In extreme coastal conditions or sea spray zones, wash every 3-4 months.

**Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.

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10 Product information

10.1 MANUFACTURING AND CLASSIFICATION

James Hardie New Zealand is an ISO 9001 Telarc certified manufacturer. Scyon Linea Weatherboard and Scyon Axent Trim are manufactured to meet the requirements of AS/NZS 2908.2: 2000 'Cellulose-Cement Products', Scyon Linea Weatherboard has a classification of Type A Category 3 in accordance with this Standard. Scyon Linea Weatherboard is an advanced lightweight cement composite building product incorporating James Hardie proprietary Scyon technology.

Scyon Linea Weatherboard has a bevel back and tongue and groove at the ends for jointing. The bottom front edge of Scyon Linea Weatherboard is chamfered. The weatherboards are supplied pre-primed on their face and bottom edge with an acrylic primer.

Scyon Linea Weatherboards and Scyon Axent Trim are identified by the printing at regular intervals of the name Scyon Linea on the back face.

10.2 JAMES HARDIE TRIM

The Scyon Axent Trim, used for box corners, around windows and doors as well as special architectural features, is also made with the CLD technology and is supplied pre-primed with an acrylic primer.

10.3 DURABILITY

Scyon Linea Weatherboard and Scyon Axent Trim, when installed and maintained as per the technical specification, will meet the durability requirements for claddings as required in the NZBC Approved Document B2 'Durability'.

10.3.1 Resistance to moisture/rotting

Scyon Linea Weatherboard and Scyon Axent Trim have demonstrated resistance to permanent moisture-induced deterioration (rotting) and has passed the following tests in accordance with AS/NZS 2908.2:

- Water Permeability (Clause 8.2.2)
- Warm Water (Clause 8.2.4)
- Heat Rain (Clause 6.5)
- Soak Dry (Clause 8.2.5).

10.3.2 Resistance to fire

Scyon Linea Weatherboard and Scyon Axent Trim has the following Early Fire Hazard Indices (tested to AS 1530 Part 3).

Table 5

Early fire hazard indices	
Flammability (FI)	0
Spread of Flame Index (SFD)	0
Heat evolved index	0
Smoke developed index (SDI)	0 - 1

10.3.3 Alpine regions

In regions subject to freeze/thaw conditions, Scyon Linea Weatherboard must not be in direct contact with snow or ice build up for extended periods, e.g. external walls in alpine regions subject to snow drifts over winter.

The Scyon Linea Weatherboard has been tested in accordance with AS/NZS 2908.2 Clause 8.2.3.

10.4 PRODUCT SIZES AND MASS

Available sizes of Scyon Linea Weatherboard and Scyon Axent Trim and its weight are given in Table 6.

10.5 SIZE AND WEIGHT

Scyon Linea Weatherboard is categorised as a Light Weight Wall Cladding as described in NZS 3604. Physical properties of Scyon Linea Weatherboard and Scyon Axent Trim are provided in Table 6.

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11 Safe working practices

WARNING — DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA

James Hardie products contain respirable crystalline silica which is considered by some international authorities to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) minimise dust when cutting by using either 'Score and Snap' knife, fibre cement shears or, where not feasible, use a HardieBlade™ Saw Blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area to avoid breathing dust; (4) wear a properly-fitted, approved dust mask or respirator (e.g. P1 or P2) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods — never dry sweep. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

James Hardie recommended safe working practices

CUTTING OUTDOORS

1. Position cutting station so wind will blow dust away from the user or others in working area.
2. Use one of the following methods based on the required cutting rate:

BEST

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and HEPA vacuum extraction.

GOOD

- Dust reducing circular saw with HardieBlade™ Saw Blade.

SANDING/REBATING/DRILLING/OTHER MACHINING

When sanding, rebating, drilling or machining you should always wear a P1 or P2 dust mask and warn others in the immediate area.

IMPORTANT NOTES

1. For maximum protection (lowest respirable dust production), James Hardie recommends always using "Best" — level cutting methods where feasible.
2. NEVER use a power saw indoors.
3. NEVER use a circular saw blade that does not carry the HardieBlade™ logo.
4. NEVER dry sweep — Use wet suppression or HEPA vacuum.
5. NEVER use grinders.
6. ALWAYS follow tool manufacturers' safety recommendations.

P1 or P2 respirators should be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at www.jameshardie.co.nz to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

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Working instructions

Refer to recommended Safe Working Practices before starting any cutting or machining of product.

HardieBlade™ Saw Blade



The HardieBlade™ Saw Blade used with a dust-reducing saw connected to a HEPA vacuum is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. When sawing, clamp a straight-edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.

Hole-forming

For smooth clean cut circular holes:

Mark the centre of the hole on the sheet.

Pre-drill a pilot hole.

Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill.

For irregular holes:



Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face.

Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported.

Storage and handling

All James Hardie building products should be stored to avoid damage, with edges and corners of the sheets protected from chipping.

James Hardie building products must be installed in a dry state and be protected from rain during transport and storage. The product must be laid flat under cover on a smooth level surface clear of the ground to avoid exposure to water or moisture, etc.

Quality

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets aesthetic requirements before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation.

12 Product sizes

Table 6

Scyon Linea Weatherboard and Scyon Axent Trim sizes

						Coverage Information			
Product	Length (mm)	Width (mm)	Thickness (mm)	End Details	Effective Cover (mm)	No. of planks/ metre height (approx.)	Mass kg/lineal m (approx. at EMC)	Mass kg/m² (approx. at EMC)	Weight/ packs (60 units/ pack)
Scyon Linea Weatherboard 135	4200*	135	16	T & G	105	9.5	2.62	24.93	660.00
Scyon Linea Weatherboard 150	4200*	150	16	T & G	120	8.3	3.1	25.70	781.00
Scyon Linea Weatherboard 180	4200*	180	16	T & G	150	6.7	3.57	23.92	899.00
Scyon Axent Trim 84mm	2600	84	16	Square	N/A	N/A	1.6	N/A	N/A
Scyon Axent Trim 100mm	2600	100	16	Square	N/A	N/A	1.9	N/A	N/A

*Length is 4200mm plus 5mm for the tongue and groove making overall length 4205mm

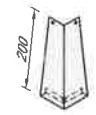
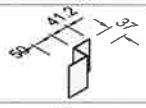
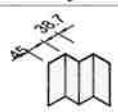
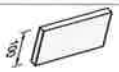
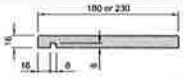
*The effective thickness of finished Scyon Linea Weatherboard on the wall at the lap is approximately 33 to 35mm

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13 Accessories

Table 7

Accessories/Tools supplied by James Hardie				
	Accessory and material number		**Size (mm)**	**Material / appearance**
	External corner soaker 90° for Scyon Linea Weatherboards 180mm • Aluminium • Copper • Stainless Steel	**301186** **301188** **301197**	200 long	Self colour
	External corner soaker 135° for Scyon Linea Weatherboards 180mm • Aluminium	**301178**	200 long	Self colour
	External corner soaker 90° for Scyon Linea Weatherboards 150mm • Aluminium • Stainless Steel	**302820** **302821**	170 long	Self colour
	External corner soaker 90° for Scyon Linea Weatherboards 135mm • Aluminium • Stainless Steel	**301185** **301196**	155 long	Self colour
	External Slimline Box Corner Mould	**301195**	2700 long	Etch Primed Aluminium
	Box Corner 'Z' Flashing	**301203**	2700 long	uPVC Grey
	Internal 'W' Mould 90°	**301184**	2700 long	Etch Primed Aluminium
	Internal 'W' Mould 135°	**301183**	2700 long	Etch Primed Aluminium
	Vent Strip	**302490**	3000 long	uPVC White
	JH Corner Under Flashing 50 x 50mm	**303745**	3000 long	uPVC White
	Scyon Axent Trim 84mm	**401943**	84 x 2600 long	Fibre Cement primed
	Scyon Axent Trim 100mm	**401930**	100 x 2600 long	Fibre Cement primed
	HardieFlex™ nail - 5kg	**302782**	60 x 3.15mm	316 Stainless Steel
	HardieFlex™ nail - 5kg	**302784**	60 x 3.15mm	Hot Dip Galvanised
	HardieBlade™ Saw Blade	**300660**	4 tooth - 184mm	Diamond Tipped
	Scyon Axent Fascia - 180mm - 230mm	**401843** **402230**	4200 long	Fibre Cement primed

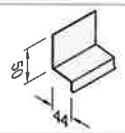
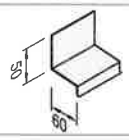
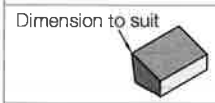
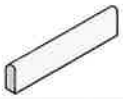
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Table 8

Accessories not supplied by James Hardie

James Hardie recommends the following products for use in conjunction with its Scyon Linea Weatherboard and Scyon Axent Trim.
James Hardie does not supply these products. There may also be some other accessories required depending upon the application. Please contact component manufacturer for information on their warranties and further information on their products.

	Accessory and material number	Size (MM)	Material/ appearance
	Head Flashing for Direct Fixed without Scyon Axent Trim facings	To suit	Etch Primed Aluminium/Powder Coated
	Head Flashing for Direct Fixed with Scyon Axent Trim facings	To suit	Etch Primed Aluminium/Powder Coated
	HardieFlex™ nail	40 x 2.8mm	316 Stainless Steel
	HardieFlex™ nail	40 x 2.8mm	Hot Dip Galvanised
	Flexible Sealant or Expandable foam	Tube	Sika, Holdfast
	PEF Rod	Polyethylene foam	Sika or similar
	Flashing Tape	Proprietary tape to adhere to building underlay	Tyvek, Protecto wrap or similar
	Flashing Material as per Table 20, 'E2/AS1'		Flashing Fabricator
	Jolt Head Nail - Hot Dip Galvanised or 316 Stainless Steel	50 x 2.8mm 60 x 3.15mm 75 x 3.15mm 90 x 4.0mm	Self colour
	Planted Sill	As shown	H3.1 Treated Timber Timber Merchant or cut on site
	Titanium Coated High Speed Drill Bit	3.0mm	
	Timber Scriber	As required	H3.1 Treated Timber Timber Merchant or cut on site
	Fibre Cement Cutting Blade	254mm	Diamond Tipped
	Fibre Cement Cutting Blade	305mm	Diamond Tipped
	Electra Meter Box Refer Electrical Suppliers		
	Cant Strip Redway Developments 03 358 5775 Predrill the weatherboards when fixing using Redway Development Cant/Vent Strips	To suit	uPVC
	Inseal 3109 Sealing Strip	5 x 3mm x 25mm	Black Compressible Foam

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BRANZ Appraised
Appraisal No.695 [2010]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 695 (2010)

Amended 2 September 2013

WATERGATE-PLUS FIRE RETARDANT WALL UNDERLAY

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WFTAO

Product

1.1 Watergate-Plus is a fire retardant, flexible synthetic wall underlay for use under direct fixed and non-direct fixed wall cladding on timber and steel framed buildings. The product is manufactured from coated, non-woven polyolefin and is coloured white.



Scope

2.1 Watergate-Plus has been appraised for use as a flexible wall underlay on timber framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent and non-absorbent wall claddings directly fixed to framing; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 Wind Zones up to, and including 'Very High'.

2.2 Watergate-Plus has been appraised for use as a flexible wall underlay on steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent and non-absorbent wall claddings; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 Wind Zones up to, and including 'Very High'.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

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2.3 Watergate-Plus has been appraised for use as a flexible wall underlay over rigid wall underlays on timber and steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 Wind Zones up to and including 'Extra High'.

2.4 Watergate-Plus has also been appraised for use on buildings subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Watergate-Plus into their design in accordance with the declared properties and the instructions of Thermakraft Industries (NZ) Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Watergate-Plus, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet, or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1(a), not less than 50 years, B2.3.1(b), 15 years and B2.3.2. Watergate-Plus meets these requirements. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, Watergate-Plus will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Watergate-Plus meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an **Alternative Solution** in terms of the New Zealand Building Code compliance.

Technical Specification

4.1 Watergate-Plus is a white, 112 g/m^2 non-woven, microporous polyolefin fabric underlay.

4.2 The product is supplied in rolls 1.370 m wide x 54.8 and 30 m long and 2.740 m wide x 30 and 18.5 m long. The product is printed with the Watergate-Plus logo repeated along the length of the roll and is labelled with the marketing or construction company's name. The rolls are wrapped in clear polythene film.

Accessories

4.3 Accessories used with Watergate-Plus which are supplied by the installer are:

- Fixings - staples, clouts, screws or proprietary underlay fixings, or other temporary fixings to attach the wall underlay to the framing.
- Building underlay support - polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to support the wall underlay in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

Handling and Storage

5.1 Handling and storage of the product, whether on or off site, is under the control of the installer. The rolls must be protected from damage and weather. They must be stored on end, under cover, in clean, dry conditions and must not be crushed.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Watergate-Plus. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Timber and Steel Framing

7.1 Studs must be provided at maximum 600 mm centres. Dwangs must be fitted flush between the studs at maximum 1200 mm centres.

General

7.2 Watergate-Plus is intended for use as an alternative to conventional building papers which are fixed over timber or steel framed walls in order to limit the entry of wind into building cavities, and to act as a secondary barrier to wind-driven rain.

7.3 The material also provides a degree of temporary weather protection during early construction. However, the product will not make the building weathertight and some wetting of the underlying structure is always possible before the building is closed in. Hence, the building must be closed-in and made weatherproof before moisture sensitive materials such as wall or ceiling linings and insulation materials are installed.

7.4 Watergate-Plus is suitable for use under wall claddings as a wall underlay as called up in NZBC Acceptable Solution E2/AS1, Table 23 on timber framed buildings, including non-absorbent metal based sidings or metal based weatherboards in direct fixed installations. Watergate-Plus is suitable for use under cavity based wall claddings as an absorbent synthetic wall underlay as called up in NZS 2295, Table 2.4 on steel framed buildings. Refer to Table 1.

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Table 1: NZBC E2/AS1 Table 23 Requirements

NZBC E2/AS1 Table 23 Wall Underlay Properties	Property Performance Requirement	Actual Property Performance
Absorbency	≥ 100 g/m²	Pass
Vapour Resistance	≤ 7 MN s/g	Pass
Water Resistance	≥ 20 mm	Pass
pH of Extract	≥ 6 and ≤ 9	Pass
Shrinkage	≤ 0.5%	Pass
Mechanical	Edge tear and tensile strength	Edge tear: Machine direction (average) = 110 N Cross direction (average) = 91 N Tensile strength: Machine direction (average) = 2.09 kN/m Cross direction (average) = 1.78 kN/m
Air Barrier	Air resistance: ≥ 0.1 MN s/m³	Pass. Watergate-Plus can be used as an air barrier.

7.5 In cavity installations where the cavity battens are installed at greater than 450 mm centres, the building underlay must be supported between the battens to prevent the underlay bulging into the cavity space when bulk insulation is installed in the wall frame cavity in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

Stucco Plaster

7.6 Watergate-Plus is suitable for use as a non-rigid backing material for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.5.1. The underlay must be supported with 75 mm galvanised mesh or plastic tape or wire at 150 mm centres run across the cavity battens to limit deflection to a maximum of 5 mm.

7.7 Watergate-Plus may also be used as a slip layer over rigid backings for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.3.1(b).

Structure

8.1 Watergate-Plus is suitable for use in all Wind Zones of NZS 3604 up to, and including, 'Very High' when used as a stand-alone flexible building underlay, and all Wind Zones of NZS 3604 up to, and including, 'Extra High' when used as an overlay for rigid building underlays.

Durability

9.1 Watergate-Plus meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for building underlays used where the cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry veneer, and code compliance with NZBC Clause B2.3.1 (b), 15 years for building underlays used where the cladding durability requirement is 15 years.

Serviceable Life

9.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 60 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, Watergate-Plus is expected to have a serviceable life equal to that of the cladding.

Control of Internal Fire and Smoke Spread

10.1 Watergate-Plus has an AS 1530 Part 2 flammability index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 4.17.8 (b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces. It may therefore be used with no restrictions in all buildings.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to Watergate-Plus from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

12.1 Watergate-Plus must be used behind claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1, or claddings covered by a valid BRANZ Appraisal.

12.2 Watergate-Plus, when installed in accordance with the Technical Literature and this Appraisal will assist in the total cladding systems compliance with NZBC Clause E2.

Installation Information

Installation Skill Level Requirements

13.1 Installation must always be carried out in accordance with the Watergate-Plus Technical Literature and this Appraisal, by competent tradespersons with an understanding of wall underlay installation.

Underlay Installation

14.1 Watergate-Plus must be fixed to all framing members at maximum 300 mm centres with large-head clouts 20 mm long, 6-8 mm staples, self drilling screws or proprietary underlay fixings. The underlay must be pulled taut over the framing before fixing.

14.2 Watergate-Plus must be run horizontally and must extend from the upper-side of the top plate to the under-side of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be no less than 150 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the membrane. End laps must be made over framing and be no less than 150 mm wide.

14.3 The wall underlay should be run over openings and these left covered until windows and doors are ready to be installed. Openings are formed in the underlay by cutting on a 45 degree diagonal from each corner of the penetration. The flaps of the cut underlay must be folded inside the opening and stapled to the penetration framing. Excess underlay may be cut off flush with the internal face of the wall frame.

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14.4 Watergate-Plus can be added as a second layer over head flashings in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10.3.

14.5 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.

14.6 Any damaged areas of Watergate-Plus, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping, or by taping small tears.

Inspections

14.7 The Technical Literature must be referred to during the inspection of Watergate-Plus installations.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

15.1 The following tests have been carried out on Watergate-Plus in accordance with NZBC Acceptable Solution E2/AS1, Table 23: tensile strength, edge-tear resistance and resistance to water vapour transmission in accordance with AS/NZS 4200.1, shrinkage in accordance with AS/NZS 4201.3, resistance to water penetration in accordance with AS/NZS 4201.4, surface water absorbency in accordance with AS/NZS 4201.6, pH of extract in accordance with AS/NZS 1301.421s and air resistance to BS 6538.3. A range of these tests were completed before and after Watergate-Plus was exposed to ultra-violet light.

15.2 The flammability Index of Watergate-Plus has been evaluated in accordance with AS/NZS 1530.2.

Other Investigations

16.1 A durability opinion has been given by BRANZ technical experts.

16.2 An evaluation of the expected performance of Watergate-Plus in direct contact with metal wall cladding has been completed by BRANZ.

16.3 The practicability of installation of Watergate-Plus has been assessed by BRANZ and found to be satisfactory.

16.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

17.1 The manufacture of Watergate-Plus has not been examined by BRANZ, but details of the methods adopted for quality control and the quality of the materials used, have been obtained and found to be satisfactory.

17.2 The quality of supply to the market is the responsibility of Thermakraft Industries (NZ) Ltd.

17.3 Building designers are responsible for the design of the building, and for the incorporation of the wall underlay into their design in accordance with the instructions of Thermakraft Industries (NZ) Ltd.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Thermakraft Industries (NZ) Ltd.

Sources of Information

- AS 1530.2 - 1993 Test for flammability of materials.
- AS/NZS 1301.421s: 1988 Determination of the pH value of aqueous extracts of paper, board and pulp - cold extraction method.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
- AS/NZS 4201.1: 1994 Pliable building membranes and underlays - Methods of test – Resistance to dry delamination.
- AS/NZS 4201.2: 1994 Pliable building membranes and underlays - Methods of test – Resistance to wet delamination.
- AS/NZS 4201.3: 1994 Pliable building membranes and underlays - Methods of test – Shrinkage.
- AS/NZS 4201.4: 1994 Pliable building membranes and underlays - Methods of test – Resistance to water penetration.
- AS/NZS 4201.6: 1994 Pliable building membranes and underlays - Methods of test – Surface water absorbency.
- BS 6538.3: 1987 Method for determination of air permeance using the Garley apparatus.
- NZS 2295: 2006 Pliable, permeable building underlays
- NZS 3604: 2011 Timber-framed Buildings.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 5, 1 August 2011).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.

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BRANZ

In the opinion of BRANZ, the Watergate-Plus Wall Underlay is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to Themakraft Industries (NZ) Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
a) relates only to the product as described herein;
b) must be read, considered and used in full together with the technical literature;
c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
d) is copyright of BRANZ.
2. Thermakraft Industries (NZ) Ltd:
a) continues to have the product reviewed by BRANZ;
b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
c) abides by the BRANZ Appraisals Services Terms and Conditions.
d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
c) any guarantee or warranty offered by Thermakraft Industries (NZ) Ltd.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to Thermakraft Industries (NZ) Ltd or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 13 July 2010

Amendment No. 1, dated 17 March 2011.
This Appraisal has been amended to cover the use of Watergate-Plus in direct contact with metal based wall cladding.
Amendment No. 2, dated 31 January 2012.
This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011 and NZBC Acceptable Solution E2/AS1 Third Edition, Amendment 5.
Amendment No. 3, dated 2 September 2013.
This Appraisal has been amended to update clause changes as required by the introduction of NZBC Fire Clauses C1 – C6 Protection from Fire and A3 Building Importance Levels.

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Cl/SfB

JUNE 2010

Thermakraft

THERMOBAR 344 FIRE RETARDANT LIGHT DIFFUSER FOIL INSULATION

APPLICATION AND INSTALLATION

Product Description

THERMOBAR 344 FIRE RETARDANT LIGHT DIFFUSER FOIL INSULATION is a high strength insulation and sarking material, consisting of a layer of highly burnished aluminium foil bonded with flame retardant adhesive to a white woven polymeric mesh.

Product Advantage

THERMOBAR 344 whilst being completely inert and unaffected by moisture, provides extreme tear resistance. **THERMOBAR 344** provides a quality white aesthetic finish increasing light diffusion and reflection when applied with the white surface facing down.

NOTE: It can also be used in reverse (foil facing down), which will provide an inert surface against all types of roofing.

THERMOBAR 344 should be supported by **Thermakraft Safety Mesh** 300mm x 150mm or on hexagonal netting 50mm or 75mm.

THERMOBAR 344 can be used as a vapour barrier and improve thermal performance if installed and taped on the warm side of bulk insulation. (Bulk insulation available in 1200mm widths by 60mm, 80mm, 90mm, 120mm, 130mm and 145mm).
Use **Thermakraft Pure Foil Self Adhesive Tape No. 403F.**

FLAMMABILITY ®

FLAMMABILITY INDEX OF ≤5
AS1530: PART 2 1993

Applications
Roofing

THERMOBAR 344 is ideal for a commercial roof and wall sarking.
THERMOBAR 344 may be laid vertical i.e. from gutter to ridge or laid horizontally weatherboard fashion from gutter. Ensure minimum 150mm lap for either method.

If used on its own as a vapour control layer or for thermal insulation, **THERMOBAR 344** should be installed with an air gap separating it from roof cladding. Refer the NZ Metal Roofing Manufacturers (MRM) Code of Practice.

Wall

Lay **THERMOBAR 344** wallpaper fashion from top plate to bottom plate. Maintain tension during the fixing, ensuring a tight smooth finish. Minimum lap for both walls and roof is 150mm. Where air conditioning is to be installed use **Thermakraft Pure Foil Self Adhesive Tape No. 403F** to tape laps.

Farm Buildings

THERMOBAR 344 provides insulation as well as a clean hygienic white surface facing down for implement, packing and storage sheds.

Animal Sheds

THERMOBAR 344 use with white surface facing down. This will provide protection to the whole roof structure from corrosive effects due to animal excrement (i.e. piggeries, cow barns, poultry) and boiler sheds. It is recommended to use 150mm lap.
All joins must be taped using **Thermakraft Pure Foil Self Adhesive Tape No. 403F.**
If taping from the underside use **Thermakraft White P.V.C. Tape**, 48mm wide.

Control of Condensation

In climatic regions where condensation risks are high, such as cold or high humidity areas, care needs to be taken in specifying the correct design and installation to prevent moisture build-up in the roof cavities.

Factors which adversely affect the condensation risk in roofing systems include;

- Humid, and/or cold climatic regions
- Warm/Skillion roof construction
- Low roof cavity air volume and restricted air movement
- Omitting Vapour Control Layers
- Ceiling penetrations and entry of warm air into roof cavities
- Occupancy activities which have high moisture loading on conditioned spaces
- Low pitched roof
- Bulk insulation
- Building structures ability to naturally dry Construction Moisture

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer MRM Code of Practice for details.

Roll Dimensions

1350mm x 75m = 100m² 1350mm x 56m = 75m² 1350mm x 38m = 50m²

E. & O. E.

150582

Tasman District Council
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CI/SfB

JUNE 2010

Thermakraft

THERMOBAR 344 FIRE RETARDANT LIGHT DIFFUSER FOIL INSULATION

TECHNICAL SPECIFICATIONS

Durability

THERMOBAR 344 FIRE RETARDANT LIGHT DIFFUSER FOIL INSULATION will meet the performance requirements of NZBC Clauses B2, Durability (B2.3.1[b] 15 years), E2 External Moisture E2.3.2, F2 Hazardous Building Materials F2.3.1, providing:

- it is not damaged
- installed in accordance to the "APPLICATION and INSTALLATION GUIDELINES"
- it is covered within 24 hours
- installed to the Roofing Code of Practice
- installed by or under guidance of Licensed Building Practioners
- it has not come into contact with wet concrete or other lime based products

Physical Properties

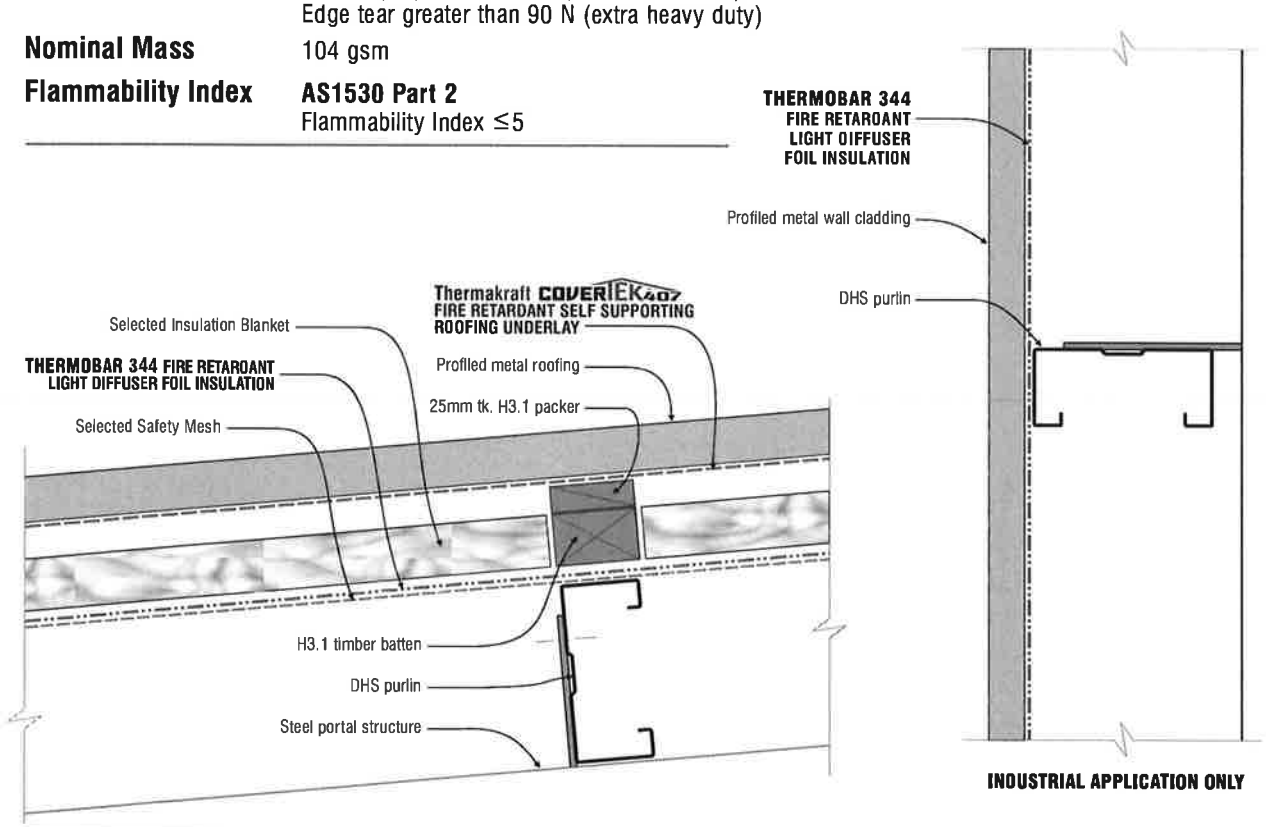
Tested to AS/NZS 4200:1994
ASTM C-445
Reflectivity of Foil Surface 0.95
Emissivity of Foil Surface 0.05
Tensile (MD) >13.0 kN/m (extra heavy duty)
Tensile (CD) >10.5 kN/m (extra heavy duty)
Edge tear greater than 90 N (extra heavy duty)

Nominal Mass

104 gsm

Flammability Index

AS1530 Part 2
Flammability Index ≤5



INDUSTRIAL APPLICATION ONLY

The recommendations contained in **Thermakraft's** literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of **Thermakraft** (for example quality of workmanship and design), **Thermakraft** shall not be liable for the recommendations in that literature and the performance of **the Product**, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards.

Thermakraft Industries (NZ) Ltd

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PO Box 58-112, Botany, Manukau 2163, New Zealand
Phone: 09-273 3727 Fax: 09-273 3726 Free Phone: 0800 806 595
Email: sales@thermakraft.co.nz Website: www.thermakraft.co.nz

E. & O. E.

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Masport Heating	MODEL	R1500P / R1500L R1500WS R1500R(Rural) R1600

INSTALLATION SPECIFICATION SHEET

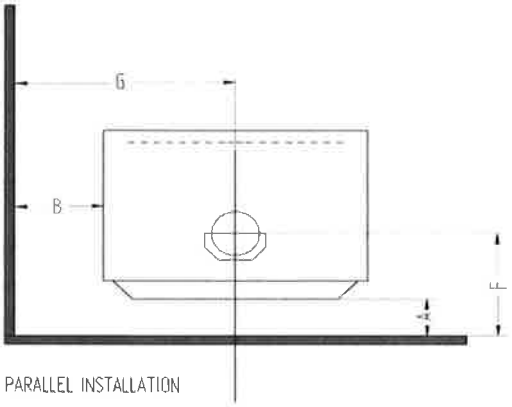
These instructions must be used in conjunction with the 'General Installation Instructions' for Masport wood fires.

CLEARANCE REQUIREMENTS

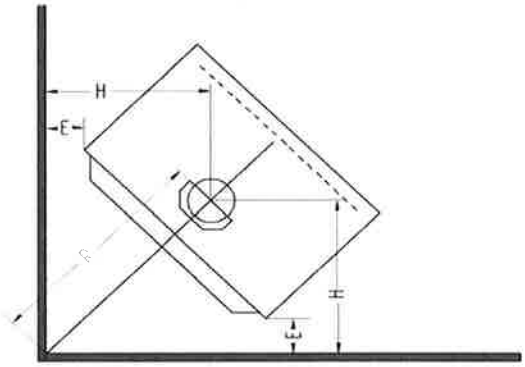
This fire has been tested and complies to the Australian/New Zealand Standard AS/NZS 2918:2001 and all installations must be in accordance with the minimum clearances to combustibles indicated in these instructions.

The minimum clearances to combustables may be reduced if the combustable walls are shielded with an approved non-combustable material. Details of suitable materials and appropriate clearance reduction factors are present in Section 3 of AS/NZS 2918:2001.

POSITIONING YOUR FREE-STANDING WOODFIRE



PARALLEL INSTALLATION



CORNER INSTALLATION

NEW ZEALAND

MINIMUM DISTANCES TO HEAT SENSITIVE WALLS (mm)

MODEL	FLUE HEAT SHIELD	A	B	E	F	G	H	R§
R1500P / R1500L R1500R / R1600	MASPORT/LOGAIRE DOUBLE SKIN S/S POLISHED	110	290	55	285	590	382	541
R1500WS		110	290	100	285	590	427	604

AUSTRALIA

MINIMUM DISTANCES TO HEAT SENSITIVE WALLS (mm)

MODEL	FLUE HEAT SHIELD	A	B	E	F	G	H	R§
R1500 R1600	FLOMET UNIVERSAL FLUE SYSTEM	150	245	115	377	545	442	624
	FLOMET FLUE + MASPORT DOUBLE SKIN SHIELD	30	285	80	257	585	407	575
	AIR-GROUP SPECIAL INSULATED FLUE KIT *	40	310	140	267	610	467	660

§ Valid only when the room walls are at 90° to each other.

‡ Note: Clearances are for fire hazard only. For durability of finishes or surfaces you should contact the relevant manufacturer for their specification. Masport accepts no responsibility for the deterioration of surfaces or finishes.

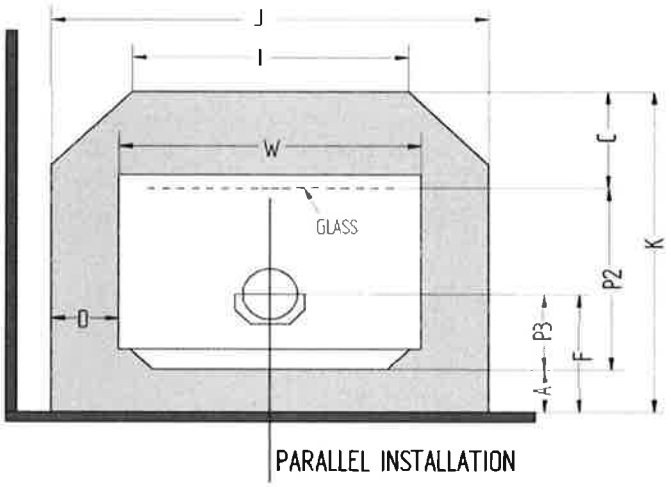
* Air-Group Special Insulated Flue Kit is same as AHD Special Insulated Flue Kit

PRT. NO.	593791
DATE:	19.03.2014

Tasman District Council
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FLOOR PROTECTOR (Hearth) REQUIREMENTS
PARALLEL INSTALLATION

MINIMUM FLOOR PROTECTOR DIMENSIONS IN mm



DIMENSIONS IN THE TABLE ARE VALID ONLY WHEN THE FIRE IS EXACTLEY AT ITS MINIMUM ALLOWABLE WALL CLEARANCE.

NEW ZEALAND

MODEL	Flue Shield	Floor Protector height	A#	C#	D	F	I	J	K#	P2	P3	W	Floor Protector Type Ø
R1500P / R1500L R1500R/R1600	LDS	ANY	110	300	111	285	522	822	835	425	175	600	AFP
R1500WS	LDS	ANY	110	300	111	285	522	822	835	425	175	600	AFP

LDS = MASPORT / LOGAIRE DOUBLE SKIN S/S POLISHED 1200mm HIGH

AFP = ASH FLOOR PROTECTOR

AUSTRALIA - ALL WITH FLUE HEATSHIELD

MODEL	Flue Shield	Floor Protector height	A#	C#	D	F	I	J	K#	P2	P3	W	Floor Protector Type Ø
R1500 R1600													
	FUF	ANY	150	300	111	377	522	822	925	475	227	600	AFP
	FUL	ANY	30	300	111	257	522	822	805	475	227	600	AFP
	AGA	ANY	40	300	111	267	522	822	815	475	227	600	AFP

FUF = FLOWMET UNIVERSAL FLUE SYSTEM

FUL = FLOWMET UNIVERSAL FLUE WITH MASPORT/LOGAIRE DOUBLE FLUE SHIELD

AGA = AIR GROUP / AHD SPECIAL INSULATED FLUE KIT WITH 900mm S/S REFLECTOR SHIELD

AFP = ASH FLOOR PROTECTOR

Ø for minimum constructional requirements see general installation instructions.

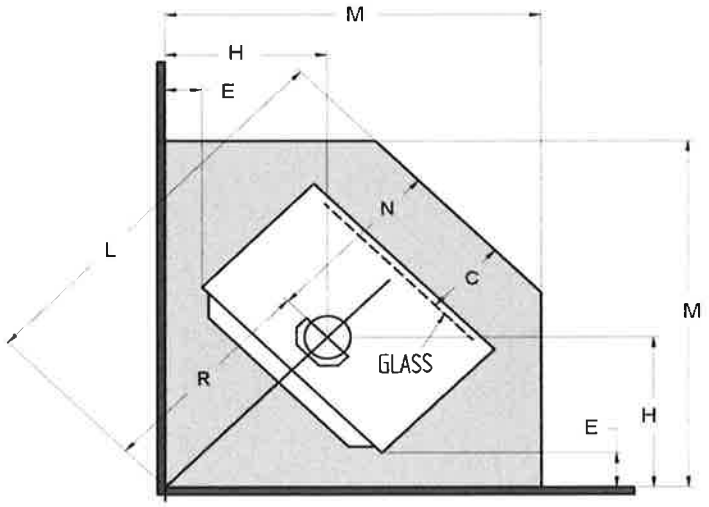
Valid only when the fire is exactly at its minimum allowable wall clearance.

NOTE: Where a fan is being fitted, you may prefer to increase the 'A' dimension to 100 mm to provide easier access for servicing. If so, the amount you add to 'A' to bring it to 100 mm must also be added to the 'C' and 'S' dimensions.

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FLOOR PROTECTORS (Hearth) REQUIREMENTS
CORNER INSTALLATION

MINIMUM FLOOR PROTECTOR DIMENSIONS IN mm



DIMENSIONS IN THE TABLE ARE VALID ONLY WHEN THE FIRE IS EXACTLEY AT ITS MINIMUM ALLOWABLE WALL CLEARANCE.

NEW ZEALAND

MODEL	Flue Shield	Floor Protector Distance above Floor	C	E	H#	L#	M#	N	R#	FLOOR PROTECTOR TYPE
R1500P / R1500L R1500R/R1600	LDS	ANY	300	55	382	1091	956	550	541	ASH
R1500WS	LDS	ANY	300	100	427	1154	1001	550	604	ASH

LDS = MASPORT / LOGAIRE DOUBLE SKIN S/S POLISHED 1200mm HIGH

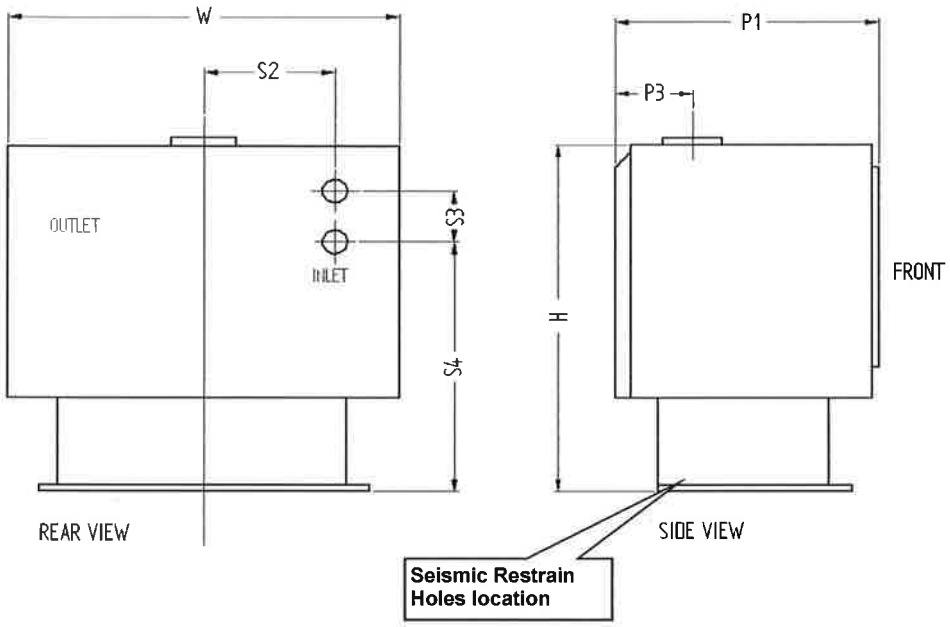
AUSTRALIA

MODEL	Flue Shield	Floor Protector Distance above Floor	C	E	H#	L#	M#	N	R#	FLOOR PROTECTOR TYPE
R1500 R1600										
	FUF	ANY	300	115	442	1172	1013	548	624	ASH
	FUL	ANY	300	80	407	1123	978	548	575	ASH
	AGA	ANY	300	140	467	1208	1038	548	660	ASH

FUF = FLOWMET UNIVERSAL FLUE SYSTEM
FUL = FLOWMET UNIVERSAL FLUE WITH MASPORT/LOGAIRE DOUBLE FLUE SHIELD
AGA = AIR GROUP/AHD SPECIAL INSULATED FLUE KIT WITH 900mm S/S REFLECTOR SHIELD
AFP = ASH FLOOR PROTECTOR

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FREE STANDING FIRE DIMENSIONS



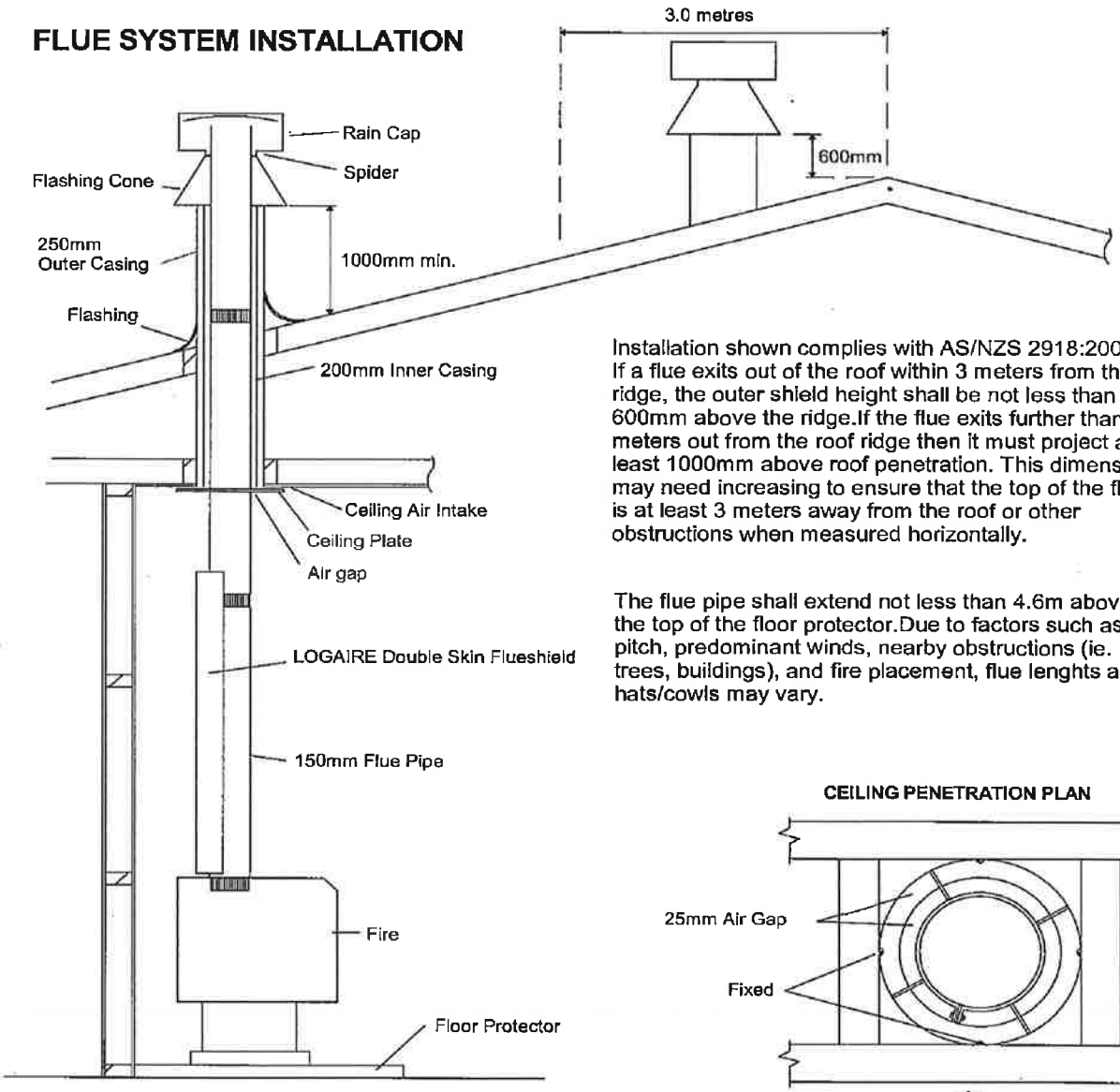
MODEL	P1	P3	H	W	S1	S2	S3	S4
R1500P/R1500P NZ	439	175	658	600	-	184	164	354
R1500WS NZ	439	175	743	600	-	184	164	439
R1500R NZ	439	175	658	600	-	184	164	354
R1600 NZ	439	175	658	600	-	184	164	354
R1500 AU	491	227	658	600	-	184	164	354
R1600 AU	491	227	658	600	-	184	164	354

Seismic Restrain - In New Zealand and some part of Australia, it is required that the wood fire and floor protector are secured to prevent shifting in the event of an earthquake. This is best done by fastening the wood fire right through the protector to the floor, using two screws not less than 12 guage or the equivalent size of coach bolts or toggle fasteners.

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**THIS FLUE INSTALLATION DIAGRAM BELOW IS VALID FOR NZ INSTALLATIONS ONLY.
FOR INSTALLATIONS IN AU PLEASE REFER TO SPECIFIC FLUE INSTALLATION SPECIFICATIONS SUPPLIED BY FLUE MANUFACTURER.**

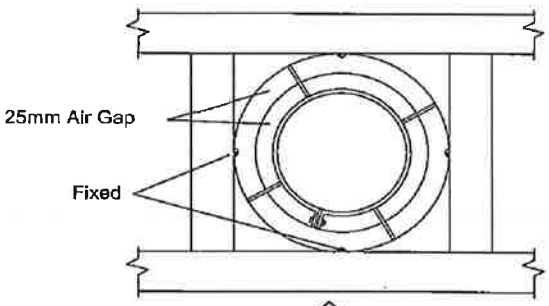
FLUE SYSTEM INSTALLATION



Installation shown complies with AS/NZS 2918:2001. If a flue exits out of the roof within 3 meters from the ridge, the outer shield height shall be not less than 600mm above the ridge.If the flue exits further than 3 meters out from the roof ridge then it must project at least 1000mm above roof penetration. This dimension may need increasing to ensure that the top of the flue is at least 3 meters away from the roof or other obstructions when measured horizontally.

The flue pipe shall extend not less than 4.6m above the top of the floor protector.Due to factors such as roof pitch, predominant winds, nearby obstructions (ie. trees, buildings), and fire placement, flue lenghts and hats/cowls may vary.

CEILING PENETRATION PLAN



Above plan is valid only for flue manufactured by Glen Dimplex New Zealand Ltd or Sheetmetal Fabricated Products Ltd, Auckland, New Zealand. For other products, use specific flue installation specifications supplied by the manufacturer.

FLUE SYSTEM INSTALLATION 150mm

150582

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BRACING CALCULATIONS & DETAILS

for

3 BEDROOM RESIDENCE

at

130 RIDGEVIEW ROAD

APPLEBY

for

JACKIE & JEFF DICK

Gowans Walters & Associates Ltd

Jeremy Ritchie Allan Walters

Phone 544 9499 Fax 544 9488

building design

Box 3608 Richmond
99 Gladstone Road
Richmond

JOB No 15155

Tasman District Council
APPROVED 09/07/2015

GIB EzyBrace® 2011 Software

Demand Calculation Sheet

single storey

V06/11

Job Details

Name	Dick
Street and Number	130 Ridgeveiw Road, Appleby
Lot and DP Number	Lot 42 DP 474760
City/Town/District	Nelson
Designer	Jason
Company Name	Gowans Walters & Associates
Date	4/05/2015

BRANZ Appraised
Appraisal No.294 [2011]

Select Lining Option: 10 or 13 mm GIB® Plasterboard

Building Specification

Number of storeys	single
Floor Loading	2kPa
Foundation Type	slab

	Single Floor	Complete Single Floor Column only
Cladding Weight	heavy	
Roof Weight	light	
Room in Roof Space	no	
Roof Pitch (degrees)	25	
Roof height above eaves (m)	2.9	
Building height to apex (m)	5.0	
Ground to lower floor level (m)	0.4	

check heights, storey less than 2 m

Stud Height (m)	2.4
Building Length (m)	23.8
Building Width (m)	15.2
Building Plan Area (m2)	220

Building Location

Wind Zone	***Very High***	**Earthquake Zone**	**Soil Type**
Select by Building Consent Authority Map		2	D&E (deep to very soft)
or Preference	Not Available	**Annual exceedance probability**	
Wind Region	A	1/500 (NZS3604:2011 default)	
Lee Zone	no		
Ground Roughness	Open		
Site Exposure	Exposed		
Topographic Class	T2		

Bracing Units required for Wind

Demand W (BU)		
		Walls single
along	slab	972
across	slab	1681

Bracing Units required for Earthquake

Demand along / across E (BU)		
		Walls
		single
slab		1208

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Dick Jason

GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ALONG

V06/11

Lines		Bracing Elements							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
156	**A**	1	1.3		2.4	GS1-N	GIB®	90	78
		2	1.3		2.4	GS1-N	GIB®	90	78
171	**B**	1	0.7		2.4	GS1-N	GIB®	41	41
		2	0.7		2.4	GS1-N	GIB®	41	41
		3	1.1		2.4	GS1-N	GIB®	74	66
		4	0.4		2.4	GS1-N	GIB®	21	23
778	**C**	1	2.5		2.4	GS1-N	GIB®	173	150
		2	1.6		2.4	GS1-N	GIB®	110	96
		3	3.1		2.4	GS1-N	GIB®	214	186
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	2		2.4	EP1 1.2	Ecoply®	240	270
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38
432	**D**	1	2.1		2.4	GS1-N	GIB®	145	126
		2	2.8		2.4	GS1-N	GIB®	193	168
		3	2.3		2.4	GS1-N	GIB®	159	138
354	**E**	1	0.9		2.4	GS1-N	GIB®	57	53
		2	1.3		2.4	GS1-N	GIB®	90	78
		3	1.4		2.4	GS1-N	GIB®	97	84
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	0.6		2.4	EP1 0.6	Ecoply®	57	63
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38

					Wind	Earthq.
Totals Achieved	W	208%	EQ	157%	2019	1892
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)					972	1208

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Dick

Jason

GIB EzyBrace® 2011 Software

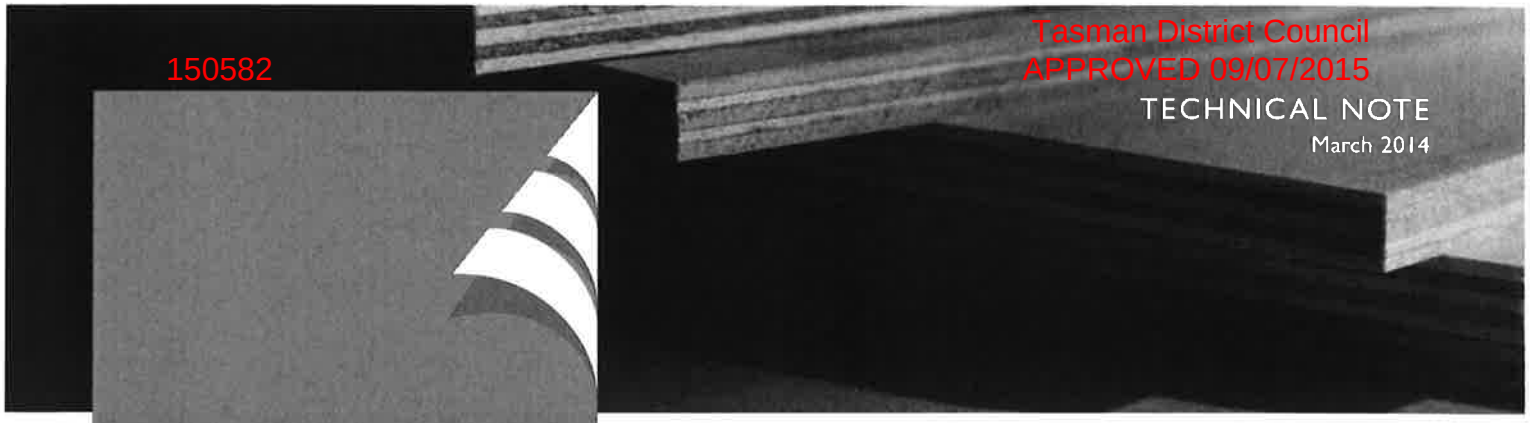
SINGLE OR UPPER STOREY WALLS ACROSS

V06/11

Lines		Bracing Elements							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
221	**M**	1	0.9		2.4	GS1-N	GIB®	57	53
		2	2.8		2.4	GS1-N	GIB®	193	168
426	**N**	1	4.2		2.4	GS1-N	GIB®	290	252
		2	2.9		2.4	GS1-N	GIB®	200	174
305	**O**	1	0.8		2.4	GS1-N	GIB®	49	47
		2	1.4		2.4	GS1-N	GIB®	97	84
		3	2.9		2.4	GS1-N	GIB®	200	174
462	**P**	1	0.4		2.4	GS1-N	GIB®	21	23
		2	1.1		2.4	GS1-N	GIB®	74	66
		3	2.4		2.4	GS1-N	GIB®	166	144
		4	1.7		2.4	EP1 1.2	Ecoply®	204	230
292	**Q**	1	0.8		2.4	EP1 0.6	Ecoply®	76	84
		2	1.8		2.4	EP1 1.2	Ecoply®	216	243

					Wind	Earthq.
Totals Achieved	W	110%	EQ	144%	1842	1742
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)					1681	1208

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TECHNICAL NOTE
March 2014

ecoply
Proven. Durable. Strong

ECOPLY® STRUCTURAL Square EDGE | ECOPLY® STRUCTURAL FLOORING | ECOPLY® STRUCTURAL ROOFING | ECOPLY® STRUCTURAL Grooved LINING | ECOPLY® STRUCTURAL Cut To SIZE

ECOPLY® BRACING SPECIFICATIONS: EP1

SINGLE SIDED STRUCTURAL PLYWOOD BRACE

Specification No.	Minimum Wall Length	Lining Requirements	BUs/m Wind	BUs/m Earthquake
EP1_0.4	0.4 m	Ecoply® one side	80	95
EP1_0.6	0.6 m		95	105
EP1_1.2	1.2 m		120	135

FRAMING

Wall framing must comply with:

- NZBC B1 - Structure: AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability: AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height are as determined by the NZS 3604 stud and top plate tables for load bearing and non load bearing walls. Kiln dried verified structural grade timber must be used. Machine stress graded timber, such as Laserframe® of SG8 stress grade minimum, is recommended.

BOTTOM PLATE FIXING

Use GIB Handibrac® hold-down connections at each end of the bracing element. Refer to manufacturer installation instructions supplied with the connectors for correct installation instructions and bolt types to be used for either concrete or timber floors. Within the length of the bracing element, bottom plates are fixed in accordance with the requirements of NZS 3604.

LINING

One layer of 7 mm, 9 mm or 12 mm Ecoply® plywood fixed directly to framing or over cavity battens. If part sheets are used, ensure nailing at required centres is carried out around the perimeter of each sheet or part sheet. A 2-3 mm expansion gap should be left between sheets.

FASTENING THE ECOPLY®

Fasteners

Fasten with 50 x 2.8 mm galvanised or stainless steel flat head nails for direct fix, or 60 x 2.8 mm over cavity battens. Place fasteners no less than 7 mm from sheet edges. Screws cannot be used. Power driven nails are suitable. Do not overdrive, nails must be full round head.

Fasteners for H3.2 CCA treated Ecoply

Where fasteners are in contact with H3.2 CCA treated timber or plywood, fasteners shall be a minimum of hot dip galvanised.

In certain circumstances stainless steel fasteners may be required. Refer to table 8 of the Ecoply Specification and Installation Guide for these circumstances and further fastener selection advice. Where stainless steel nails are required, annular grooved nails must be used.

CarterHoltHarvey
Woodproducts New Zealand

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For further information contact customer services or visit www.chhwoodproducts.co.nz

0800 326 759
www.chhwoodproducts.co.nz

Ecoply® Bracing Systems are designed to meet the requirements of the New Zealand Building Code and have been tested and analysed using the P21 method referenced in NZS 3604:2011 listed as an acceptable solution B1/AS1 Structure. Testing was carried out using Ecoply manufactured by Carter Holt Harvey and SG8 timber framing, and GIB® products manufactured by Winstone Wallboards Ltd. Substituting materials may compromise performance of the system. GIB® and GIB HandiBrac® are registered trade marks of Fletcher Building Holdings Ltd.

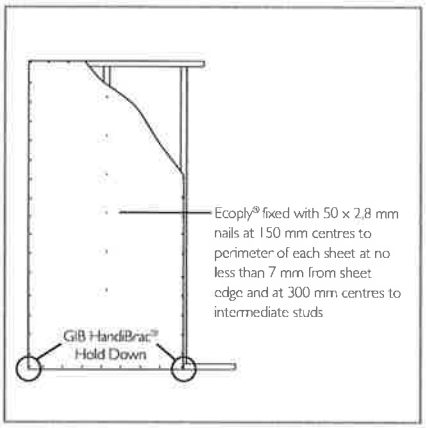
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Fastening centres

Fasteners are placed at 150 mm centres around the perimeter of each sheet and 300 mm centres to intermediate studs. Where more than one sheet forms the brace element each sheet must be nailed off independently.



ECOPLY® SUITABILITY FOR BRACING APPLICATIONS INCLUDING TREATMENT TYPE AND FASTENER MATERIAL*

Application	Plywood Treatment	Fastener Material
Plywood bracing in interior spaces with no risk of exposure to weather or moisture penetration conducive to decay (all exposure zones[1] including sea spray):	Ecoply Untreated	Hot dipped galvanised or better
Plywood bracing in enclosed spaces (protected from the weather) but with a risk of moisture penetration conducive to decay in exposure zones[1] B & C:	Ecoply H3.1 LOSP/H3.2 CCA treated Ecoply Barrier (rigid air barrier)	Hot dipped galvanised or better
Plywood bracing in enclosed spaces (protected from the weather) but with a risk of moisture penetration conducive to decay in exposure zone[1] D (sea spray):	Ecoply H3.1 LOSP/H3.2 CCA treated Ecoply Barrier (rigid air barrier)	Stainless steel
Cladding	Refer to Shadowclad® Specification & Installation Guide	
Rigid Air Barrier	Refer to Ecoply Barrier® Specification & Installation Guide	
Bracing on framing exposed to ground atmosphere in exposure zones[1] B & C	Ecoply H3.1 LOSP/H3.2 CCA treated	Hot dipped galvanised or better
Bracing on framing exposed to ground atmosphere in exposure zones[1] D	Ecoply H3.1 LOSP/H3.2 CCA treated	Stainless steel
Bracing in wet process buildings in all exposure zones[1] (including sea spray)	Ecoply H3.1 LOSP/H3.2 CCA treated	Stainless steel

1 Exposure zones as per section 4 of NZS 3604

* Refer to Table 8, page 15 of Ecoply Specification & Installation Guide.

Ecoply® Bracing Systems are designed to meet the requirements of the New Zealand Building Code and have been tested and analysed using the P21 method referenced in NZS 3604:2011 listed as an acceptable solution B1/AS1 Structure. Testing was carried out using Ecoply manufactured by Carter Holt Harvey and SG8 timber framing, and GIB® products manufactured by Winstone Wallboards Ltd. Substituting materials may compromise performance of the system. GIB® and GIB HandiBrac® are registered trade marks of Fletcher Building Holdings Ltd.

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GIB® Plasterboard Linings

When fixing part sheets of GIB® Plasterboard, a minimum width of 300mm applies for bracing elements. Horizontal fixing is recommended. If fixing vertically, full height sheets shall be used where possible. Where sheet end butt joints are unavoidable they must be formed over nogs or over the studs and fastened at 200mm centres. Alternatively, and preferably, the sheet end butt joints may be back-blocked.

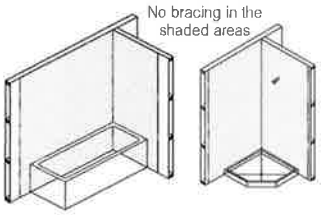
Plasterboard bracing element sheets must be fixed directly to the wall framing, eg bracing must be provided by the inner layer of a multilayer system. When a GIB® bracing element has been designated for a section of wall, BU ratings can not be increased by incorporating additional proprietary bracing elements within that same section of wall.

Limitations

GIB® Plasterboard must be stacked flat and protected from the weather. GIB® Plasterboard must be handled as a finishing material. GIB® Plasterboard in use must not be exposed to liquid water or be installed in situations where extended exposure to humidities above 90% RH can reasonably be expected. GIB EzyBrace® Systems must not be used in showers or behind baths. It is highly recommended not to install GIB® Plasterboard in any situation where external claddings are not in place or the property is not adequately protected from the elements. If GIB® Plasterboard is installed under these conditions, the risk of surface defects such as joint peaking or cracking is greatly increased.

GIB EzyBrace® Systems in Water-Splash Areas

When GIB® Plasterboard is installed in locations likely to be frequently exposed to liquid water it must have an impervious finish. Examples are adhesive fixed acrylic shower linings or ceramic tiles over an approved waterproof membrane over GIB Aqualine®. The NZBC requires 15 years durability in these situations. Bracing elements are required to have a durability of 50 years. Bracing elements are not to be located in shower cubicles or behind baths because of durability requirements, the likelihood of renovation, and practical issues associated with fixing bracing elements to perimeter framing members. Otherwise GIB EzyBrace® Systems can be used in water-splash areas as defined by NZBC Clause E3, provided these are maintained impervious for the life of the building.

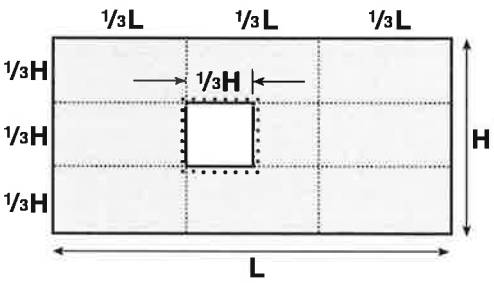


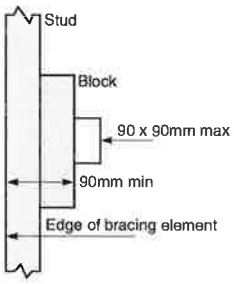
Renovation

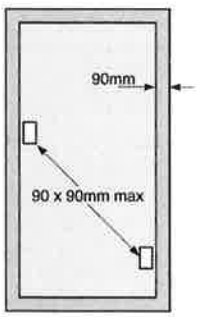
When relining walls during the process of renovation, ensure that bracing elements are reinstated (check the building plans).

Openings in Bracing Elements

Openings are allowed within the middle third of a wall bracing element's length and height. Neither opening dimension shall be more than one third of the element height. Wall linings are fixed to opening trimmers at 150mm centres. Small openings (e.g., power outlets) of 90 x 90mm or less may be placed no closer than 90mm to the edge of the braced element. A block may need to be provided alongside the perimeter stud as shown below.







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Framing

General framing requirements such as grade, spacings and installation shall comply with the New Zealand Building Code and the provisions of NZS 3604:2011. To achieve the published bracing performance the minimum actual framing dimensions are 90 x 35mm for external walls and 70 x 45mm for internal walls. Wall bracing tests on GIB EzyBrace® Systems were undertaken without nogs. Nogs are not considered to add to the bracing performance of the wall.

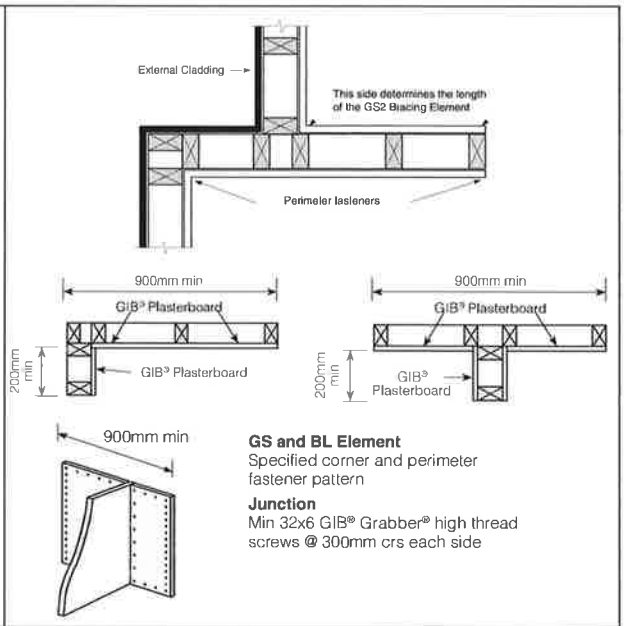
Guidelines for intersection walls

Where the lining on a double lined internal GS2 Bracing Element is shorter on one side, the length of the element is taken as the shorter wall length but bracing fasteners can still follow the wall perimeter on both sides.

GIB® Bracing Elements may have intersecting walls with a minimum length of 200mm. Fasteners are required around the perimeter of the bracing element. Vertical joints at T-junctions shall be fixed and jointed as specified for intermediate sheet joints. **The bracing element length must be no less than 900mm.**

Where a Wall Bracing Element is interrupted by a T or L junction the element is deemed to be continuous for the whole length (900mm in the example illustrated).

When fixing part sheets of GIB® Plasterboard, a minimum width of 300mm applies for bracing elements.



GS and BL Element
Specified corner and perimeter fastener pattern

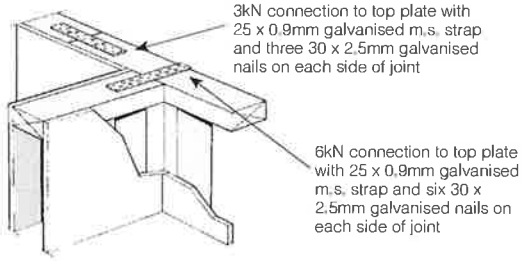
Junction
Min 32x6 GIB® Grabber® high thread screws @ 300mm crs each side

Top Plate Connections

The top plate of a wall that contains one or more wall bracing elements shall be jointed according to the rating of the highest-rated individual wall bracing element as follows:

(a) Rating not exceeding 100 bracing units: A 3kN connection as shown or by an alternative fixing of 3kN capacity in tension or compression along the plate;

(b) Rating exceeding 100 bracing units: A 6kN connection as shown or by an alternative fixing of 6kN capacity tension or compression along the plate.



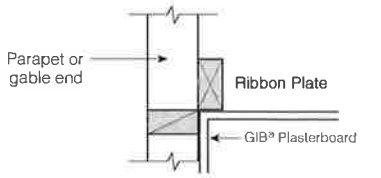
Parapets and Gable End Walls

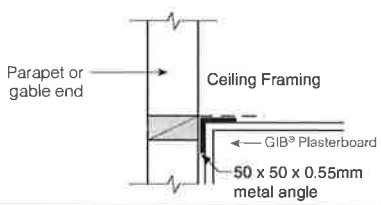
Bracing elements must be fixed from top plate to bottom plate. Fixing to a row of nogs is not acceptable unless either:

A continuous member such as an ex 90x45mm ribbon plate is fixed across the studs just above a row of nogs at the ceiling line.

OR

A minimum 50x50x0.55mm metal angle is installed as shown. The angle is fixed to a row of nogs with 30x2.5mm galv FH nails at 300mm centres.





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Bottom Plate Fixing

JUNE 2011

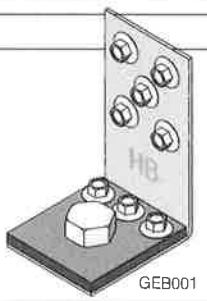
Bottom plate fixings for GIB® Bracing Elements			
Brace type	**Concrete slabs**		**Timber floors**
	External wall	**Internal wall**	**External and Internal walls**
GS1-N	As per NZS 3604:2011. No specific additional fastening required	As per NZS 3604:2011. Alternatively use 75 x 3.8mm shot-fired fasteners with 16mm washers, 150mm and 300mm from each end of the bracing element and at 600mm thereafter.	Pairs of 100 x 3.75mm flat head hand driven nails or 3 / 90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011
GS2-N	Not applicable		
GSP-H BL1-H BLP-H	Intermediate fastenings to comply with NZS 3604:2011. In addition: GIB Handibrac® fixings or metal wrap-around strap fixings and bolt as illustrated on pages 19 and 20.		Pairs of 100 x 3.75mm flat head hand driven nails or 3 / 90 x 3.15mm power driven nails at 600mm centres in accordance with NZS 3604:2011. In addition: GIB Handibrac® fixings or metal wrap-around strap fixings and bolt as illustrated below.
BLG-H	Not applicable	As for GSP-N, BL1-H, BLP-H on concrete slab above	

Panel Hold-down Details

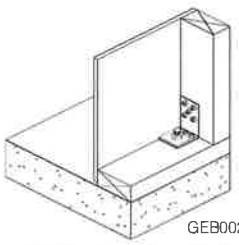
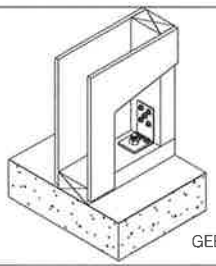
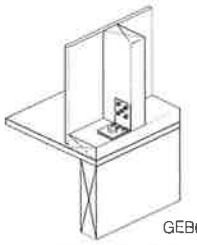
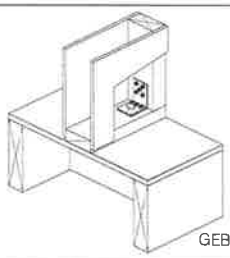
GIB HandiBrac® – RECOMMENDED METHOD

Developed in conjunction with MiTek™ NZ, the GIB HandiBrac® has been designed and tested for use as a hold-down in GIB® BL and GSP bracing elements.

- The GIB HandiBrac® registered design provides for quick and easy installation
- The GIB HandiBrac® provides a flush surface for the wall linings because it is fitted inside the framing. There is no need to check in the framing as recommended with conventional straps
- The GIB HandiBrac® is suitable for both new and retrofit construction
- The design also allows for installation and inspection at any stage prior to fitting internal linings



GEB001

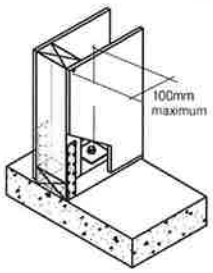
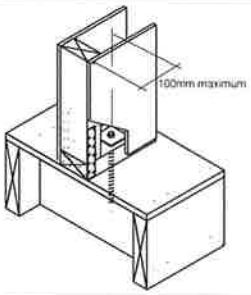
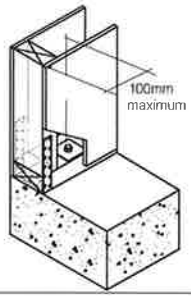
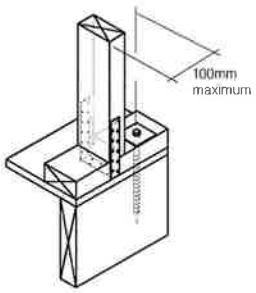
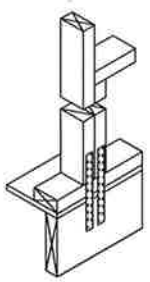
Concrete Floor		Timber Floor	
External walls	**Internal walls**	**External walls**	**Internal walls**
 GEB002	 GEB003	 GEB004	 GEB005
Position GIB HandiBrac® as close as practicable to the internal edge of the bottom plate	Position GIB HandiBrac® at the stud / plate junction	Position GIB HandiBrac® in the centre of the perimeter joist or bearer	Position GIB HandiBrac® in the centre of floor joist or full depth solid block
Hold-down fastener requirements			
A mechanical fastening with a minimum characteristic uplift capacity of 15kN.		12x150mm galvanised coach screw	

Refer to gib.co.nz/cad for CAD details.

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Panel Hold-down Details

JUNE 2011

Bracing strap installation	
Care needs to be taken with the installation of the bracing strap. It should be checked in to be flush with the face of the stud providing a flat substrate for the plasterboard. It should be positioned in such a way that the important corner fastenings of the bracing element are not affected by it. Keeping the strap to the edge of the end stud as shown will allow the important corner fastenings to be installed without having to penetrate the bracing strap.	
Concrete Floor	**Timber Floor**
400 x 25 x 0.9mm galvanised strap to pass under the plate and up the other side of the stud. Six 30x2.5mm flat head galvanised nails to each side of the stud. Three 30x2.5mm flat head galvanised nails to each side of the plate. Hold down bolt to be fitted within 100mm of the end of the element.	
Internal wall	
 GEB006	 GEB007
External wall	
 GEB008	 GEB009
NB: where applicable drawings have been produced for CAD design. These are identified by a unique number in the bottom corner of each detail box that can be found at the web address gib.co.nz/cad	2/300 x 25 x 0.9mm galvanised straps with six 30 x 2.5mm flat head galvanised nails to each stud and into the floor joist and three nails to the plate. Block to nog fixed with 3/100 x 3.75mm nails to stud.  GEB010
Hold-down fastener requirements	
Concrete floor	**Timber floor**
A mechanical fastening with a minimum characteristic uplift capacity of 15kN fitted with a 50x50x3mm square washer within 100mm of the ends of the bracing element.	12x150mm galvanised coach screw fitted with a 50x50x3mm square washer within 100mm of the ends of the bracing element

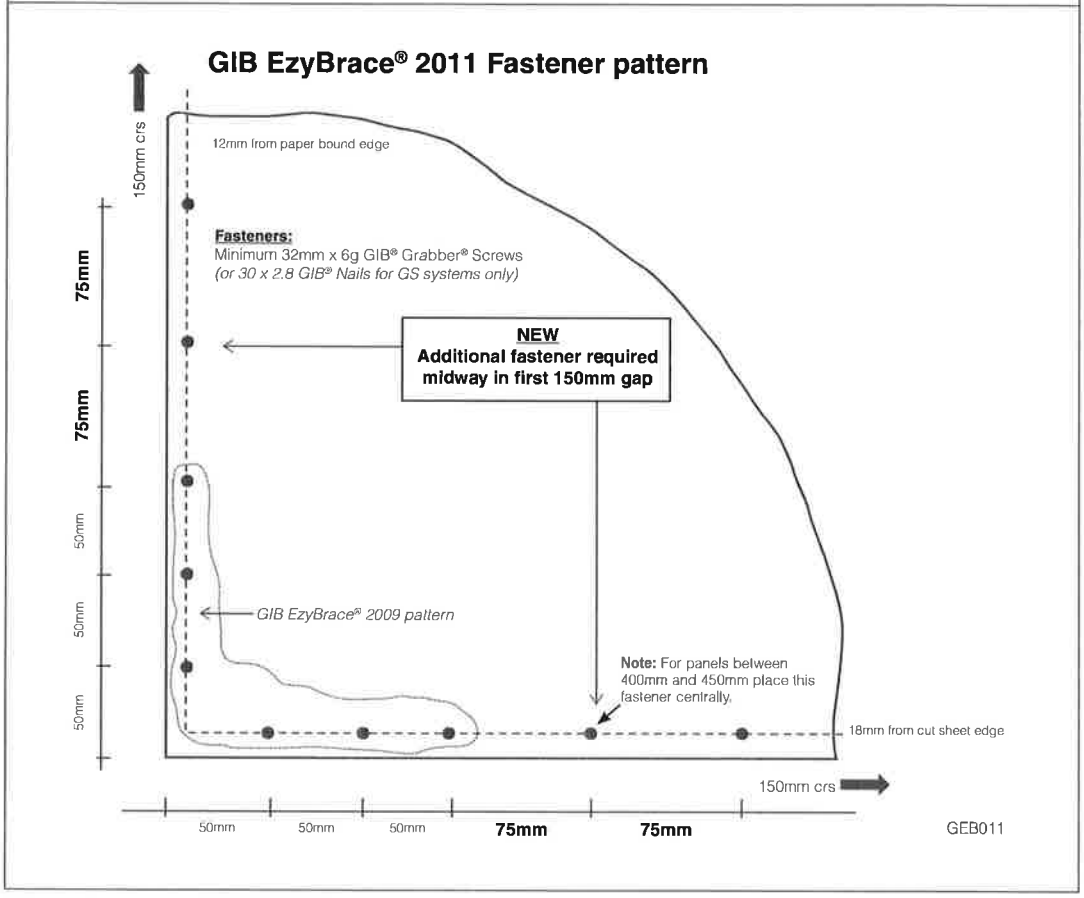
Refer to gib.co.nz/cad for CAD details.

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Revised Fastener Pattern for *all four corners* of GIB EzyBrace® Elements

As GIB Braceline® screws are no longer required for BL bracing elements, two additional fasteners must be installed in ***all four corners*** of GIB EzyBrace® GS and BL elements, as shown.
Fasteners must be placed no closer than 12mm from the paper bound sheet edge and no closer than 18mm from sheet ends or cut edges.



Refer to gib.co.nz/cad for CAD details.

PERMITTED GIB® PLASTERBOARD SUBSTITUTIONS IN GIB EZYBRACE® SYSTEMS

GIB Ezybrace® Systems have been designed and tested using only the products specified. Occasionally additional properties may be required to be provided by a different GIB® Plasterboard product. The following table provides acceptable substitution options.

Specified	Permitted alternative GIB® Plasterboard products								
	GIB® Standard	GIB Ultraline®	GIB Braceline/ Noiseline®	GIB Aqualine®	GIB Toughline®	GIB Fyreline®			
						10mm	13mm	16mm	19mm
GIB® Standard		OK	OK	OK	OK	OK	NOTE 2		
GIB Braceline®	X	X		NOTE 1	OK	X	NOTES 1 and 2		

NOTE 1 The element must be 900mm or longer. Use 32mm x 6g GIB® Grabber® drywall screws at ***100mm*** centres to the perimeter of the bracing element. The bracing corner fastening pattern, as illustrated above, applies to all four corners of the element. Panel hold-down fixings are required.

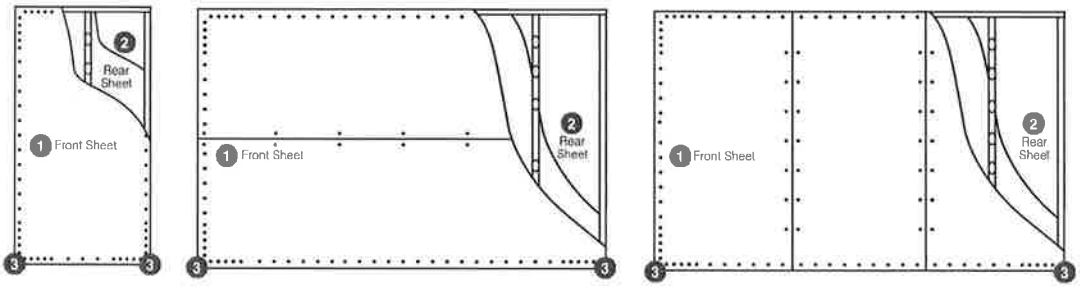
NOTE 2 The fastener type and length must be as required for the relevant FRR system but the fixing pattern must be as shown above.

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Construction Details

JUNE 2011



System	Lining one side ❶		Lining opposite side ❷		Panel Hold-Down Fixings ❸	Fastener spacing
	Lining	Fasteners	Lining	Fasteners		
GS1-N	Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws	Not required	Not required	Not required	*GIB® Plasterboard* Corner fastening pattern as illustrated above Fasteners at 150mm to bracing element perimeter, and: • at 300mm centres to intermediate sheet joints for vertical fixing, or • at stud / sheet junction for horizontally fixed elements, and • GIBFix adhesive daubs at 300mm crs to intermediate framing *Plywood* Fasteners at 150mm around the perimeter of every sheet and at 300mm centres to intermediate studs. Place fasteners no closer than 7mm from sheet edges. Plasterboard corner fastener pattern does not apply to plywood.
GS2-N			Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws		
GSP-H			Minimum 7mm Ecoply manufactured to AS/NZS 2269	50mm x 2.8mm Flat head galvanised or stainless steel nails	Yes, see Pages 19 and 20	
BL1-H	10mm or 13mm GIB Braceline®	minimum 32mm x 6g GIB® Grabber® high thread screws GIB Braceline® Nails may be used for 10mm GIB Braceline® ONLY	Not required	Not required		
BLG-H			Any 10mm or 13mm GIB® Plasterboard	30mm GIB® nails, or minimum 32mm x 6g GIB® Grabber® high thread screws		
BLP-H			Minimum 7mm Ecoply manufactured to AS/NZS 2269	50mm x 2.8mm flat head galvanised or stainless steel nails		

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GIB EzyBrace® System Specification – GS1-N

JUNE 2011

Specification Code	Minimum Length (m)	Lining requirement
GS1-N	0.4	Any 10mm or 13mm GIB® Standard Plasterboard to one side only

WALL FRAMING

Wall framing to comply with;

- NZBC B1 - Structure; AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height as determined by NZS 3604 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber Floor

Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or
Three power driven 90 x 3.15 nails at 600mm centres.

Concrete floor

INTERNAL WALL BRACING LINES

In accordance with the requirements of NZS 3604:2011 for internal wall plate fixing or 75 x 3.8mm shot fired fasteners with 16mm discs spaced at 150mm and 300mm from end studs and 600mm centres thereafter.

EXTERNAL WALL BRACING LINES

In accordance with the requirements of NZS 3604 for external plate fixing.

WALL LINING

Any 10mm or 13mm GIB® Plasterboard lining.
Sheets can be fixed vertically or horizontally.
Sheet joints shall be touch fitted.
Use full length sheets where possible.

PERMITTED SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB Ezybrace® Systems 2011.

FASTENING THE LINING

Fasteners

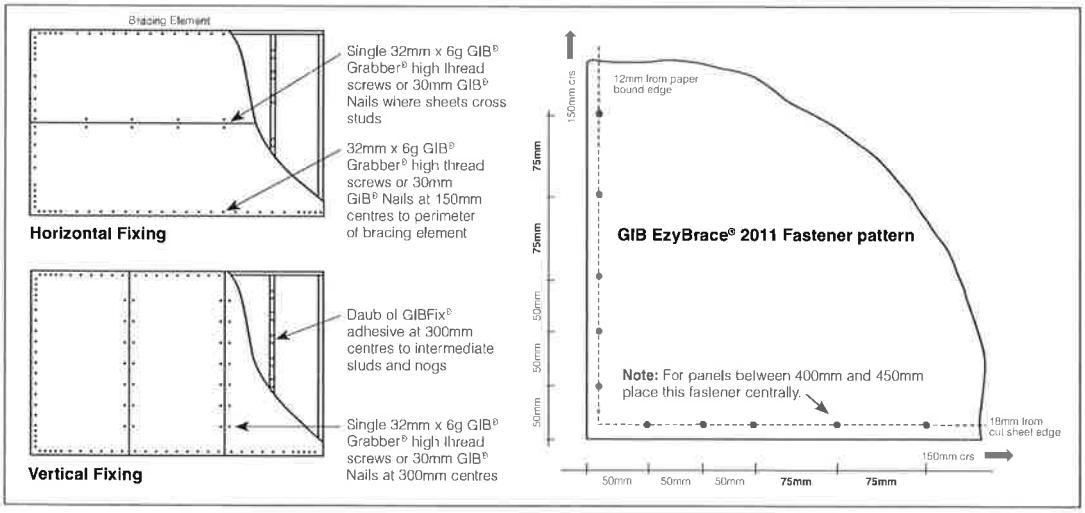
32mm x 6g GIB® Grabber® high thread screws; or
30mm GIB® Nails.

Fastener centres

50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.
For vertically fixed sheets place fasteners at 300mm centres to intermediate sheet joints.
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.
Use daubs of GIB Fix® adhesive at 300mm centres to intermediate studs.
Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No 294 (2011)

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APPROVED 09/07/2015

GIB EzyBrace® System Specification – BL1-H

JUNE 2011

Specification Code	Minimum Length (m)	Lining requirement	Other requirements
BL1-H	0.4	10mm or 13mm GIB Braceline® to one side only	Hold downs

WALL FRAMING

Wall framing to comply with;

- NZBC B1 - Structure; AS1 Clause 3 Timber (NZS 3604:2011)
- NZBC B2 - Durability AS1 Clause 3.2 Timber (NZS 3602)

Framing dimensions and height as determined by NZS 3604 stud and top plate tables for load bearing and non-bearing walls. The use of kiln dried stress graded timber is recommended.

BOTTOM PLATE FIXING

Timber Floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB Ezybrace® Systems 2011 or GIB® Site Guide.
Pairs of hand driven 100 x 3.75mm nails at 600mm centres; or
Three power driven 90 x 3.15 nails at 600mm centres.

Concrete floor

Use panel hold downs at each end of the bracing element. The GIB HandiBrac® is recommended. See details in GIB Ezybrace® Systems 2011 or GIB® Site Guide. Within the length of the bracing element bottom plates are to be fixed in accordance with the requirements of NZS 3604.

WALL LINING

One layer 10mm or 13mm GIB® Braceline.
Sheets can be fixed vertically or horizontally.
Sheet joints shall be touch fitted.
Use full length sheets where possible.

PERMITTED SUBSTITUTION

For permitted GIB® Plasterboard substitutions refer to Page 21 in GIB Ezybrace® Systems 2011.

FASTENING THE LINING

Fasteners

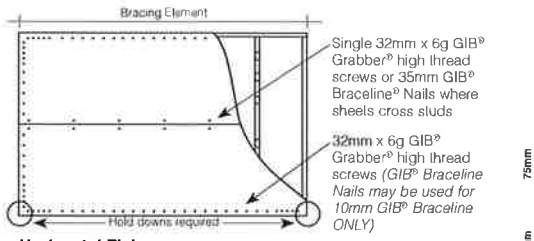
32mm x 6g GIB® Grabber® high thread screws.
(GIB Braceline® Nails may be used with 10mm GIB Braceline® only.)

Fastener centres

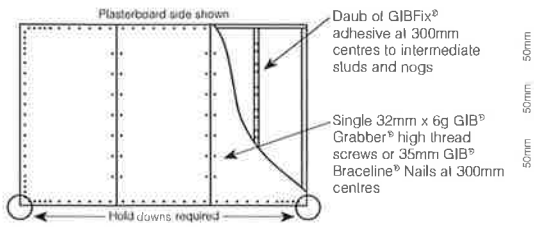
50,100,150, 225, 300mm from each corner and 150mm thereafter around the perimeter of the bracing element.
For vertically fixed sheets place fasteners at 300mm centres to the sheet joint.
For horizontally fixed sheets place single fasteners to the sheet edge where it crosses the stud.
Use daubs of GIB Fix® adhesive at 300mm centres to intermediate studs.
Place fasteners no closer than 12mm from paper bound sheet edges and 18mm from any sheet end or cut edge.

JOINTING

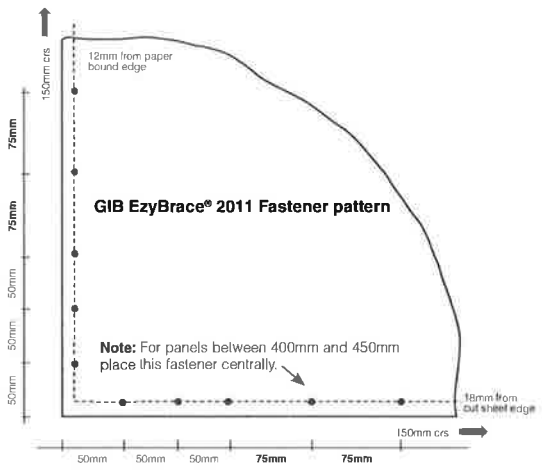
All fastener heads stopped and all sheet joints paper tape reinforced and stopped in accordance with the GIB® Site Guide.



Horizontal Fixing



Vertical Fixing



In order for GIB® systems to perform as tested, all components must be installed exactly as prescribed. Substituting components produces an entirely different system and may seriously compromise performance. Follow the specifications. This Specification sheet is issued in conjunction with the publication GIB EzyBrace® Systems 2011 and has been appraised in accordance with the BRANZ Appraisal No. 294 (2011).

BRANZ Appraised
Appraisal No 294 [2011]

Construction

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Tasman District Council
APPROVED 09/07/2015

HEAT LOSS CALCULATIONS & DETAILS

for

3 BEDROOM RESIDENCE

at

130 RIDGEVIEW ROAD

APPLEBY

for

JACKIE & JEFF DICK

Gowans Walters & Associates Ltd

Jeremy Ritchie Allan Walters

Phone 544 9499 Fax 544 9488

building design

Box 3608 Richmond
99 Gladstone Road
Richmond

JOB No 15155

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Zone 3
Non-Solid Reference Building.

Go back to Start

Component	Description	Area	R-value	Heat Loss	Heat Loss =
Roof		160.4	3.3	48.6	Area/R-value
Wall		105.6	2.0	52.8	
Floor		160.4	1.3	123.4	
Glazing (30%)		42.24	0.26	162.5	Total Loss
Glazing (>30%)			0.34		387.3

Set wall area as either 70% of total wall area, or actual wall area, whichever is **lower**
Set glazing area as either 30% of total wall area, or actual glazing area, whichever is **higher**
Total area of glazing (including skylights) must be ≤50% of the total wall area
An R-value of 0.26 may be used for traditional leadlight glass if the total area is ≤ 2.6 m²
Non-glazed areas of door openings greater than 3 m² are treated as wall.

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Proposed Design

Go back to Start

Component	Description	Area	R-value	Heat Loss
Roof 1	R3.6 Batts	149.2	3.91	38.2
Roof 2	R2.6 Batts	11.26	2.91	3.9
Wall 1	70 Series Brick	80.56	2.11	38.2
Wall 2	Linea	8.6	2.18	3.9
Wall 3	Party Wall	16.9	2.18	7.8
Floor 1	Conc Floor	160.4	1.41	113.8
Floor 2				
Glazing 1	Double Glazed	44.76	0.26	172.2
Glazing 2	Single Glazed			
Skylight 1				
Skylight 2				

Heat Loss = Area / R-value

Total Loss

377.8

R-values must be no less than 60% of the R-value of the corresponding Schedule values

Total area of glazing (including skylights) must be ≤50% of the total wall area

Non-glazed areas of door openings greater than 3 m² are treated as wall.

An R-value of 0.26 may be used for traditional leadlight glass if the total area is ≤ 2.6 m²

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Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the new Design Navigator message board [i].

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel [i].

Floors ○
Walls ○
Roofs ◉

Metal Tile R3.6 — 3.91 m²K/W

Type: Roof: Timber framed roof, direct fixed or battened flat ceiling

Pitched timber framed roof, flat ceiling

external surface 0.03

Roofing: Metal tiles with building paper
R-value: 0.01

Pink®Batts® R3.6 Ceiling 3.6

Timber Frame & Cavity: 90mm rafters or joists @ 900mm, battens (covered with insulation)
Roof Frame Area: 5.0% *Cavity Area: 95.0%*

Roof space (still air) 0.11 | Roof space (still air) 0.11
Framing: *R-value: 0.75* | Insulation:

Roof Lining: Gypsum plasterboard 13mm
R-value: 0.06

internal surface 0.09

Recessed downlights
Ceiling Area [m²]: Number of downlights: Clearance from lamp holder side [m]: [i]

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction) [i]:

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets [i]:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

List of Insulation Products

The listed R-values are based on manufact information.

The selected R-value will be automatically into the currently selected cell of the constr calculator. [i]

EARTHWOOL GLASSWOOL

+

Bradford gold insulation

+

GreenStuf

+

−

	Product	R-value (m²K/W)
select	Pink®Batts® R2.2 Wall	2.2
select	Pink®Batts® R2.4 Wall	2.4
select	Pink®Batts® Ultra R2.6 Wall	2.6
select	Pink®Batts® Ultra R2.8 Wall	2.8
select	Pink®Batts® R3.2 140mm Wall	3.2
select	Pink®Batts® R3.6 140mm Wall	3.6
select	Pink®Batts® R4.0 140mm Wall	4
select	Pink®Batts® Masonry R0.5 Wall	0.5
select	Pink®Batts® Masonry R0.7 Wall	0.7
select	Pink®Batts® Masonry R1.0 Wall	1
select	Pink®Batts® Masonry R1.2 Wall	1.2
select	Pink®Batts® R1.8 Ceiling	1.8

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Construction R-value Calculator

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Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel.

Floors ○
Walls ○
Roofs ◉

Metal Tile R2.6 — 2.91 m²K/W

Type: Roof: Timber framed roof, direct fixed or battened flat ceiling

Pitched timber framed roof, flat ceiling

external surface 0.03

Roofing : Metal tiles with building paper
R-value: 0.01

Pink®Batts® R2.6 Ceiling 2.6

Timber Frame & Cavity : 90mm rafters or joists @ 900mm, battens (covered with insulation)

Roof Frame Area: 5.0% *Cavity Area: 95.0%*

Roof space (still air) 0.11	Roof space (still air) 0.11
Framing : *R-value: 0.75*	Insulation :

Roof Lining : Gypsum plasterboard 13mm
R-value: 0.06

internal surface 0.09

Recessed downlights

Ceiling Area [m²]: Number of downlights: Clearance from lamp holder side [m]:

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

List of Insulation Products

The listed R-values are based on manufacturer information.

The selected R-value will be automatically into the currently selected cell of the constr calculator.

EARTHWOOL
GLASSWOOL

+

Bradford gold insulation

+

GreenStuf

+

−

	Product	R-value (m²K/W)
select	Pink®Batts® R2.2 Wall	2.2
select	Pink®Batts® R2.4 Wall	2.4
select	Pink®Batts® Ultra R2.6 Wall	2.6
select	Pink®Batts® Ultra R2.8 Wall	2.8
select	Pink®Batts® R3.2 140mm Wall	3.2
select	Pink®Batts® R3.6 140mm Wall	3.6
select	Pink®Batts® R4.0 140mm Wall	4
select	Pink®Batts® Masonry R0.5 Wall	0.5
select	Pink®Batts® Masonry R0.7 Wall	0.7
select	Pink®Batts® Masonry R1.0 Wall	1
select	Pink®Batts® Masonry R1.2 Wall	1.2
select	Pink®Batts® R1.8 Ceiling	1.8

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Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

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Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel [i].

Floors ○
Walls ◉
Roofs ○

70 Series Brick — 2.11 m²K/W

Type: Wall: Timber frame with vented cavity

timber frame with vented cavity

external surface 0.03

Cladding : 70mm brick
R-value: 0.06

Air Barrier : Building paper
R-value: 0.01

Timber Frame & Cavity : 90mm, studs @ 400mm, dwangs @ 800mm

Wall Frame Area: 17.9%	*Cavity Area: 82.1%*
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : *R-value: 0.75*	Pink®Batts® Ultra R2.6 Wall 2.6
	still Airgap: none *R-value: 0.00*

Wall Lining : Gypsum plasterboard 10mm
R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction) [i]:

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets [i]:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

List of Insulation Products

The listed R-values are based on manufacturer information.

The selected R-value will be automatically transfered into the currently selected cell of the construction calculator. [i]

EARTHWOOL GLASSWOOL +

Bradford gold insulation +

GreenStuf +

−

	Product	R-value (m²K/W)	Thickness (mm)
select	Pink®8atts® R2.2 Wall	2.2	90
select	Pink®8atts® R2.4 Wall	2.4	90
select	Pink®Batts® Ultra R2.6 Wall	2.6	90
select	Pink®Batts® Ultra R2.8 Wall	2.8	90
select	Pink®Batts® R3.2 140mm Wall	3.2	140
select	Pink®Batts® R3.6 140mm Wall	3.6	140
select	Pink®Batts® R4.0 140mm Wall	4	140
select	Pink®Batts® Masonry R0.5 Wall	0.5	19
select	Pink®Batts® Masonry R0.7 Wall	0.7	25
select	Pink®Batts® Masonry R1.0 Wall	1	40
select	Pink®Batts® Masonry R1.2 Wall	1.2	50
select	Pink®Batts® R1.8 Ceiling	1.8	95

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Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the new Design Navigator message board [i].

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel [i].

Floors ○
Walls ◉
Roofs ○

Linea — 2.18 m²K/W

Type: Wall: Timber frame with vented cavity

timber frame with vented cavity

external surface 0.03

Cladding : Rusticated or shiplap weatherboard
R-value: 0.16

Air Barrier : Building paper
R-value: 0.01

Timber Frame & Cavity : 90mm, studs @ 400mm, dwangs @ 800mm

Wall Frame Area: 17.9%	*Cavity Area: 82.1%*
15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08	15-90mm vented cavity (all R-values on ext. side of cavity will be halved), R: 0.08
Framing : *R-value: 0.75*	Pink®Batts® Ultra R2.6 Wall 2.6
	still Airgap: none *R-value: 0.00*

Wall Lining : Gypsum plasterboard 10mm
R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction) [i]:

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets [i]:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

List of Insulation Products

The listed R-values are based on manufacturer information.

The selected R-value will be automatically transfered into the currently selected cell of the construction calculator. [i]

EARTHWOOL GLASSWOOL

+

Bradford gold insulation

+

GreenStuf

+

−

	Product	R-value (m^2K/W)	Thickness (mm)
select	Pink®Batts® R2.2 Wall	2.2	90
select	Pink®Batts® R2.4 Wall	2.4	90
select	Pink®Batts® Ultra R2.6 Wall	2.6	90
select	Pink®Batts® Ultra R2.8 Wall	2.8	90
select	Pink®Batts® R3.2 140mm Wall	3.2	140
select	Pink®Batts® R3.6 140mm Wall	3.6	140
select	Pink®Batts® R4.0 140mm Wall	4	140
select	Pink®Batts® Masonry R0.5 Wall	0.5	19
select	Pink®Batts® Masonry R0.7 Wall	0.7	25
select	Pink®Batts® Masonry R1.0 Wall	1	40
select	Pink®Batts® Masonry R1.2 Wall	1.2	50
select	Pink®Batts® R1.8 Ceiling	1.8	95

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Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the new Design Navigator message board [i].

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel [i].

Floors ○
Walls ◉
Roofs ○

Party Wall — 2.18 m²K/W

Type: Wall: Timber frame (direct fixed cladding)

timber frame (direct fixed cladding)

external surface 0.03

Cladding : Gypsum plasterboard 10mm into still air (garage, etc.)
R-value: 0.10

Air Barrier : none
R-value: 0.00

Timber Frame & Cavity : 90mm, studs @ 600mm, dwangs @ 800mm
Wall Frame Area: 14.4% *Cavity Area: 85.6%*

Framing : *R-value: 0.75*

Pink®Batts® Ultra R2.6 Wall 2.6

still Airgap: none
R-value: 0.00

Wall Lining : Gypsum plasterboard 10mm
R-value: 0.04

internal surface 0.09

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction) [i]:

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets [i]:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

List of Insulation Products

The listed R-values are based on manufacturer information.

The selected R-value will be automatically transfered into the currently selected cell of the construction calculator. [i]

EARTHWOOL GLASSWOOL

+

Bradford gold insulation

+

GreenStuf

+

−

	Product	R-value (m^2K/W)	Thickness (mm)
select	Pink®Batts® R2.2 Wall	2.2	90
select	Pink®Batts® R2.4 Wall	2.4	90
select	Pink®Batts® Ultra R2.6 Wall	2.6	90
select	Pink®Batts® Ultra R2.8 Wall	2.8	90
select	Pink®Batts® R3.2 140mm Wall	3.2	140
select	Pink®Batts® R3.6 140mm Wall	3.6	140
select	Pink®Batts® R4.0 140mm Wall	4	140
select	Pink®Batts® Masonry R0.5 Wall	0.5	19
select	Pink®Batts® Masonry R0.7 Wall	0.7	25
select	Pink®Batts® Masonry R1.0 Wall	1	40
select	Pink®Batts® Masonry R1.2 Wall	1.2	50
select	Pink®Batts® R1.8 Ceiling	1.8	95

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Construction R-value Calculator

This webpage calculates the R-value of walls, roofs and suspended floors for most insulation material R-values. It uses the "iso-thermal planes" method, the same method as used in NZS4214:2006.

Some of the possible material combinations may not be suitable for actual constructions, i.e. EPS based claddings directly fixed on timber framing. Please make sure to select only appropriate material combinations.

If your construction is not listed, please send an e-mail to designnavigator@gmail.com with a description and a detail drawing (pdf) of it or use the new Design Navigator message board.

Please select the element type. Then choose the construction details and enter the R-value of the insulation either directly in the text box or by choosing a product from the right panel!

Floors ◉
Walls ○
Roofs ○

Concrete Floor — 1.41 m²K/W

Type: Floor: Slab floor

Slab floor

internal surface 0.09

Flooring : none (Example: polished surface of a concrete floor)

R-value: 0.00

Slab Insulation

Slab floor area [m²]:	160.4		
Perimeter length [m]:	62.84		
External wall thickness [mm]:	90		
Soil conductivity [W/m °C]	1.2		
Underslab insulation:	none	Insulation :	
Piles Footings:	Number:	Penetration Diameter:	
Slab edge insulation:	none	Insulation :	

Print Page

Current NZS4218/H1 Schedule minimum R-value Targets (non-solid contruction):

	Zone 1	Zone 2	Zone 3
Roof	R-2.9	R-2.9	R-3.3
Wall	R-1.9	R-1.9	R-2.0
Floor	R-1.3	R-1.3	R-1.3
Glazing (vertical)	R-0.26	R-0.26	R-0.26
Glazing (skylights)	R-0.26	R-0.26	R-0.31

Australian Building Code Targets:

	All Zones except NSW	NSW
Roof	R-4.1	R-6.3
Wall	R-2.9	R-3.8

List of Insulation Products

The listed R-values are based on manufacturer information.

The selected R-value will be automatically transfered into the currently selected cell of the construction calculator.

EARTHWOOL
GLASSWOOL

Bradford gold insulation

GreenStuf

NOVAtherm

Mammoth

POLYGOLD

PREMIER INSULATION

Terra Lana

latitude

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MORE THAN COMFORT

Roof
PINK® BATTS® CEILING INSULATION
PRODUCT DATA SHEET

Application
Pink® Batts® ceiling insulation is a lightweight flexible glasswool insulation product designed to:

- Reduce heat loss through the roof in new homes, be retrofitted into existing homes with no insulation or over existing insulation for better thermal performance
- Fit easily into standard roof constructions, or be easily cut to fit in non-standard constructions
- Meet the requirements of the New Zealand Building Code (NZBC) for different designs and environments

Features and Benefits
- BRANZ appraised, a durable product for 50 years as required by the NZBC
- Energy saving – a well insulated home can save up to $1,800[1] on energy bills annually
- Non-combustible, will not burn for a safer environment
- R-values up to R5.0, to assist in keeping homes above 18°C, as per the World Health Organisation recommendation for a healthy and comfortable home
- Absorbs sound for a quieter more relaxing home

[1] Department of Building and Housing, Your guide to a smarter home, 2008, p. 28

Environment
- Manufactured using up to 80% recycled glass, making sustainable use of waste
- Energy used during the manufacture of Pink® Batts® products is offset by the energy saved by a home fully insulated with Pink® Batts® products within 3-15 months[2]
- Locally manufactured in Auckland and Christchurch, minimising shipping distances compared to imported products

Green Star New Zealands Credits
Green Star New Zealand is a comprehensive environmental rating system for buildings. Pink® Batts® insulation may contribute to points under Green Star New Zealand.

Environmental Choice
Higher R-value Pink® Batts® insulation products have Environmental Choice New Zealand Accreditation (refer to the product specifications).

- Independently assessed for:
  - Waste Minimisation: Recycled content, and recycling of process waste
  - Energy Management: Effective energy management policies and procedures
  - Manufacturing Process: Not manufactured using blowing agents with a global warming potential (GWP) or ozone-depleting potential (ODP)
  - Product Characteristics: Durability and performance

Licence No 2504017.
Thermal (resistive type) building insulants.

While only the higher R-value products are eligible for Environmental Choice, all Pink® Batts® insulation products are manufactured in the same environmentally considerate way. Certification and further information is available at www.nzgbc.org.nz.

[2] (Beca Carter Hollings & Ferner Ltd, Energy Economics of Fibreglass Insulation, 2005)

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Roof
PINK® BATTS® CEILING INSULATION

PRODUCT DATA SHEET

Health & Safety

Product Safety

Pink® Batts® insulation is a non-hazardous, safe product.

- IARC (International Agency for Research on Cancer) classifies the glass wool formulation used to manufacture Pink® Batts® insulation as Group 3: 'Not classifiable as to its carcinogenicity to humans'
- This the same classification as caffeine, tea, hair colouring, chlorinated drinking water and saccharin
- Pink® Batts® insulation is bio-soluble. In the unlikely event any fibres are inhaled into the lungs they will dissolve in the body fluids and be cleared from the body

BIO SOLUBLE NK8340 INSULATION

General Health

- Pink® Batts® insulation will assist in meeting the World Health Organisation recommendation for houses to be maintained at a minimum temperature of 18°C to provide a healthy and comfortable home
- Pink® Batts® insulation has been accepted into the Asthma and Respiratory Foundation of New Zealand's Sensitive Choice programme. Insulating with Pink® Batts® insulation is beneficial to those suffering from asthma
- A Wellington School of Medicine study found insulated houses resulted in families with fewer sick days and the economic benefit was double the initial cost of the insulation[3]

[3] Howden-Chapman, P. et al. "Effect of insulating existing houses on health inequality: cluster randomised study in the community" British Medical Journal, 2007, p334:460

Technical Data

Properties	Result		Test/Method/Standard	Test Results
Combustibility	Non-Combustible	✓	NZS/AS 1530.1:1994	
Flammability	Non-Flammable	✓	NZS/AS 1530.3:1993	
			Ignitability (Range 0-20)	= 0
			Spread of Flame Index (Range 0-10)	= 0
			Heat Evolved Index (Range 0-10)	= 0
			Smoke Developed Index (Range 0-10)	= 0-1
R-value	Various*	✓	AS/NZS 4859.1:2002	
Corrosion	Non-Corrosive	N/A	AS/NZS 4859.1:2002-Glasswool exempt	
Moisture Absorption	Non-Hygroscopic	N/A	AS/NZS 4859.1:2002-Glasswool exempt	
Vermin Resistance	No Food Source	✓	AS/NZS 4859.1:2002-Glasswool exempt	

* Refer to product specifications

Acoustic Properties

Pink® Batts® insulation will assist with noise control, however penetrations in ceilings and walls will transmit sound readily. Superior noise control can be achieved by using Pink® Batts® insulation products in conjunction with good acoustic design.

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Roof
PINK® BATTS® CEILING INSULATION
PRODUCT DATA SHEET

New Zealand Building Code (NZBC) and Limitations

Pink® Batts® insulation when used, installed and maintained in accordance with the requirements outlined in this datasheet, will meet or contribute to meeting the following provisions of the NZBC:

NZBC Clause B2: Durability
Meets the requirement NZBC B2.3.1 a) 50 years and NZBC B2.3.1 b) 15 years

NZBC Clause E3: Internal Moisture
Contributes to meeting these requirements

NZBC Clause F2: Hazardous Building Materials
Meets this requirement and will not present a health hazard to people

NZBC Clause H1: Energy Efficiency
Contributes to meeting these requirements

Limitations

To meet the provisions of the NZBC as outlined in this datasheet, Pink® Batts® insulation **MUST** be:

- Installed and maintained in a dry protected environment
- Installed in a building where the provisions of NZBC E2 and E3 are met
- Installed to the requirements of NZS 4246:2006: Energy Efficiency-Installing Insulation in Residential Buildings

Pink® Batts® insulation should **NOT** be:

- Crushed or folded

Installation Instructions

Correct installation with no compression, gaps or folds is critical to ensure Pink® Batts® insulation performance is not compromised.

Safety:

Prior to installation check for all hazards that may cause injury. Carry out repair work without delay.

- Ensure there is adequate lighting to identify any hazards
- Treat all electrical cables as live
  - Repair damaged, exposed or hanging cables immediately
  - Be careful not to cut or expose cables and wires
- Beware of other sharp objects (protruding nails, splinters etc.), pests (bees and wasps), loose boards and pipe work
- Avoid installing during the warmest part of the day. The roof cavity temperature can increase to uncomfortable levels

Seek professional advice if you are unsure how best to isolate the hazard or have a professional installer carry out the work on your behalf

Equipment required:

- Protective loose fitting, long sleeve clothing
- Dust mask
- Rubber faced gloves
- Rubber soled footwear
- Safety glasses
- Step ladder
- Knife and cutting board
- Planks (long enough to span across joists)
- Lamp and extension cord (15m long)
- Install rod (25mm diameter, 1m long) for tight spaces

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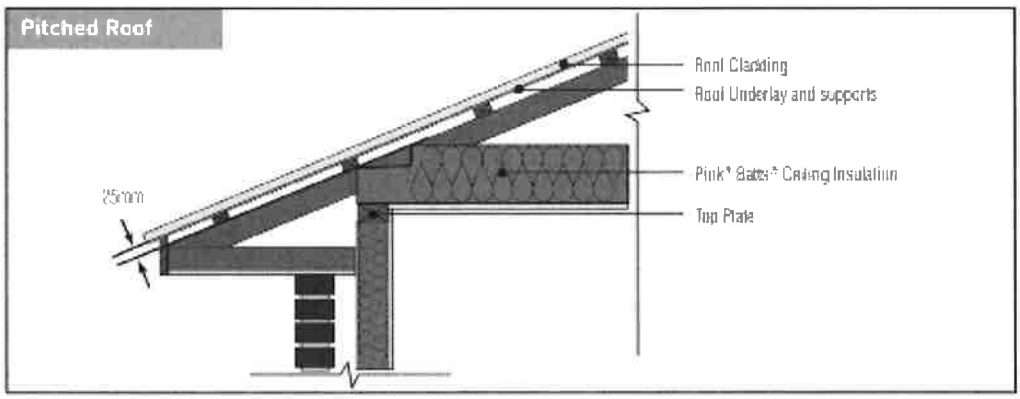
Roof
PINK® BATTS® CEILING INSULATION

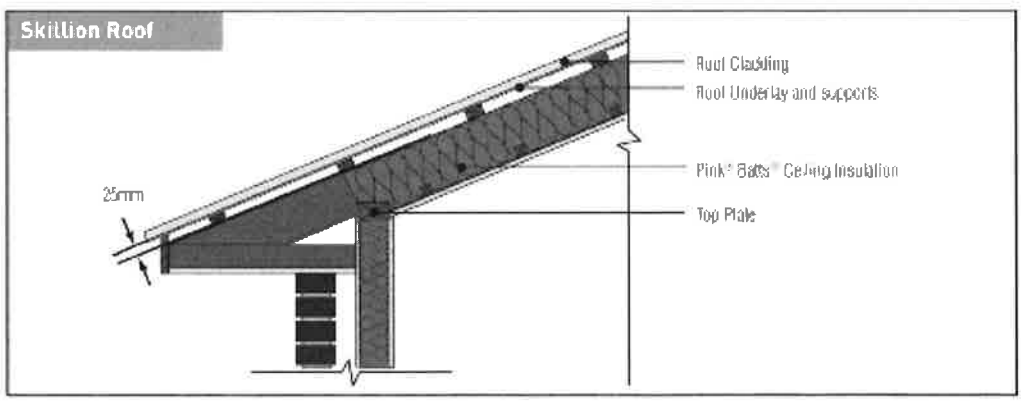
PRODUCT DATA SHEET

Installation Instructions continued...

Installation:
Confirm the correct product and R-value is used for the ceiling application. Refer to drawings/specifications where available. Ceiling insulation may only be installed in roof cavities and is not suitable for installation in walls.

- Ensure the product is installed dry. If the product is wet, replace it before installing
- Use planks laid across joists to walk and work on
- Any existing insulation should be levelled and refitted and any damp insulation to be removed
- Adhere to correct clearances around electrical fittings, heat sources etc. where required (refer to table overleaf)
- Ensure there are no gaps, folds or compression of product
- Start installation at point furthest away from the ceiling manhole
- Insulate the entire area up to the outer edge of the top plate
- Friction fit product between framing, ensuring there are no gaps, folds or compression of product
- If cutting is required, cut oversize by 5-10mm to ensure a friction fit
- For retrofitting, install over framing where insulation already exists or where appropriate. Any open air pockets beside joist/truss cord ends at the roof perimeter to be blocked off with insulation off-cuts
- Fit insulation behind electrical wiring and plumbing work





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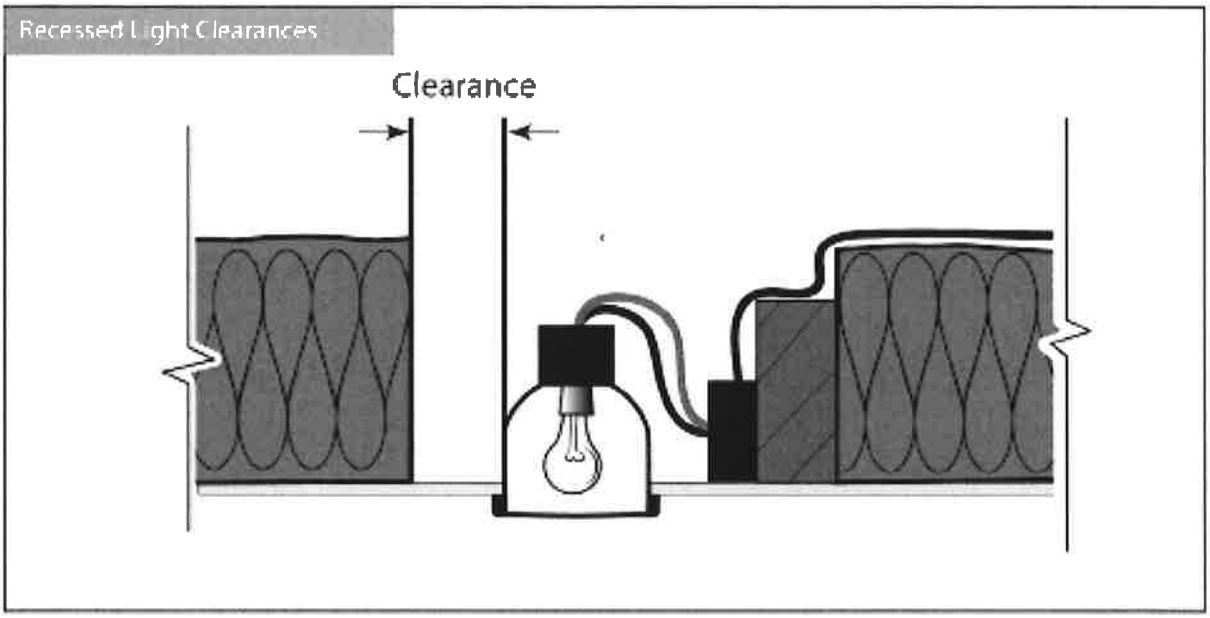
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Installation Instructions continued...

• Adhere to the clearances below to reduce risk of fire

Area	Minimum Clearance	Comments
Incandescent light	50mm	
CA Rated light	Nil	Do not install over the top
Unknown lights & Halogen	200mm	From outer edge of downlight, to ALL other insulation including existing insulation (Transformers can sit in the clearance zone, but **MUST NOT** be covered)
Extractor Fans	200mm	From outer edge of extractor fan to ALL other insulation including existing insulation
Flues	50mm	From outer edge of flue to ALL other insulation including existing insulation
Chimneys	50mm	From outer edge of chimney to ALL other insulation including existing insulation
Roofing material	25mm	To the roofing material i.e. - to the roof itself and building paper



Caution: Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail. This applies to wiring installed prior to 1989.

Tip: To verify Building Code Compliance, staple a product label at an easy to find location – away from any hot items such as downlights or water cylinders.

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Roof
PINK® BATTS® CEILING INSULATION

PRODUCT DATA SHEET

Specification Notes

State the following:

Product Required: Pink® Batts® ceiling insulation and required R-value

Product Specifications

	BRANZ APPRAISED	ENVIRONMENTAL CHOICE	CODE	SIZE (mm)	NOMINAL STABILISED THICKNESS** (mm)	NOMINAL TOTAL AREA PER PACK (m2)	APPROX COVERAGE PER PACK* (m2)
Pink® Batts® Classic R1.8 Ceiling	✓		7110118	1220 X 432	95	13.70	14.39
Pink® Batts® Classic R2.2 Ceiling	✓		7110122	1220 X 432	115	12.65	13.28
Pink® Batts® Classic R2.6 Ceiling	✓		7110126	1220 X 432	140	10.54	11.07
Pink® Batts® Classic R3.2 Ceiling	✓		7110132	1220 X 432	170	8.43	8.85
Pink® Batts® Classic R3.6 Ceiling	✓	✓	7110136	1220 X 432	180	7.38	7.75
Pink® Batts® Ultra® R4.0 Ceiling	✓	✓	7110140	1220 X 432	195	6.32	6.64
Pink® Batts® Ultra® R4.6 Ceiling	✓	✓	7110146	1220 X 432	205	5.27	5.53
Pink® Batts® Ultra® R5.0 Ceiling	✓	✓	7110150	1220 X 432	210	4.22	4.43

*Coverage relates to standard structure and actual coverage may vary.

**Designers should allow for an additional 10% increase for restricted cavities e.g. skillion roofs.

Storage

Pink® Batts® insulation must be protected from damage and weather. Store under cover in clean dry conditions. The installed product must remain dry at all times. The roof area should be inspected each year for leaks and excessive dampness. If the product has become wet or damp, the source of the dampness (e.g. leak in roof) must be repaired immediately and insulation replaced with new product of an equivalent R-value.

Accreditations/Appraisals/Certifications

BRANZ Appraised
Appraisal No.238 [2008]

Licence No 2504017
Thermal (resistive type) building insulants

Tasman Insulation New Zealand Ltd Certified QMS
Quality ISO 9001

* Please refer to www.pinkbatts.co.nz for specific appraisal and accreditation details.

TASMAN INSULATION NEW ZEALAND

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This document supersedes all previous versions and may have been superseded; is a guide only and the purchaser should ascertain the suitability of this product for the end-use situation intended and when used in conjunction with other products; and is provided without prejudice to Tasman Insulation New Zealand Ltd (Tasman) standard terms of sale. Tasman retains the right to change specifications without prior notice. Refer to www.pinkbatts.co.nz or consult Tasman for further information. Do not use this product for any application not detailed in this document. All claims about this product are subject to any variation caused by normal manufacturing process and tolerances. The liability of Tasman and its employees and agents for any errors or omissions in this document or otherwise in relation to the product is limited to the fullest extent permitted by law. Except where the consumer acquires the goods for the purposes of a business, any rights a consumer may have under the Consumer Guarantees Act are not affected.

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pink batts®
ANOTHER GOOD CALL

Wall
PINK® BATTS® WALL INSULATION

PRODUCT DATA SHEET

Application

Pink® Batts® wall insulation is a lightweight flexible glass wool insulation product designed to:

- Thermally insulate timber and steel framed walls
- Fit easily in standard wall constructions, or be easily cut to fit in non-standard constructions
- Meet the requirements of the New Zealand Building Code (NZBC) for different designs and environments

Features and Benefits

- High R-values – R-values up to R4.0 to assist in keeping homes above 18°C as per the World Health Organisations recommendation for a healthy and comfortable home
- Easy to install – Lightweight, flexible and simple design makes the installation fast and easy
- Internationally certified for Indoor Air Quality – Gives assurance that products meet strict chemical emissions limits
- Non-combustible – will not easily burn in the event of a fire
- Made from over 80% recycled glass – saving the equivalent to a window the size of 60 football fields from NZ landfill
- Made in New Zealand – designed for New Zealand building conditions and reduces emissions associated with the importing of overseas manufactured product

Environment

Pink® Batts® insulation is a sustainable, energy efficient product.

- Manufactured using over 80% recycled glass, making sustainable use of waste
- Energy used during the manufacture of Pink® Batts® products is offset by the energy saved by a home fully insulated with Pink® Batts® products within 3-15 months[1]
- Locally manufactured in Auckland and Christchurch, minimising shipping distances compared to imported products

Green Star New Zealand Credits

Green Star NZ is a comprehensive environmental rating system for buildings. Pink® Batts® insulation may contribute the following points under Green Star. Further information is available at www.nzgbc.org.nz

Environmental Choice

Higher R-value Pink® Batts® Wall insulation products have Environmental Choice New Zealand Accreditation (refer to the product specifications)

Independently assessed for:

- Waste Minimisation: Recycled content, and recycling of process waste
- Energy Management: Effective energy management policies and procedures
- Manufacturing Process: Not manufactured using blowing agents with a Global Warming Potential (GWP) or Ozone Depleting Potential (ODP)
- Product Characteristics: Durability and performance

While only the higher R-value products are eligible for Environmental Choice, all Pink® Batts® Thermal Insulation Products are manufactured in the same environmentally considerate way.

[1] (Beca Carter Hollings & Ferner Ltd, Energy Economics of Fibreglass Insulation, 2005)

Licence No 2504017, Thermal (resistive type) building insulation

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pink batts®
ANOTHER GOOD CALL

Wall
PINK® BATTS® WALL INSULATION
PRODUCT DATA SHEET

Health & Safety

Product Safety

Pink® Batts® insulation is a non-hazardous, safe product.

- IARC (International Agency for Research on Cancer) classifies glass wool formulation used to manufacture Pink® Batts® products as Group 3: 'Not classifiable as to its carcinogenicity to humans'. This is the same classification as caffeine, tea, hair colouring, chlorinated drinking water, saccharin
- Pink® Batts® insulation is bio-soluble. In the unlikely event any fibres are inhaled into the lungs they will dissolve in the body fluids and be cleared from the body

Indoor Air Quality

- Pink® Batts® insulation is both Finnish RTS M1certified and North American GREENGUARD Indoor Air Quality Certified®. Being certified for indoor air quality gives an assurance that products meet strict chemical emissions limits (including minimal levels of VOCs and Formaldehyde), to help create healthier indoor environments.

General Health

- Pink® Batts® insulation will assist in providing a healthy and comfortable home by maintaining the minimum temperature of 18°C recommended by the World Health Organisation
- A Wellington School of Medicine study found insulated houses resulted in families with fewer sick days and the economic benefit was double the initial cost of the insulation[2]

[2] (Howden-Chapman, P. et al. "Effect of insulating existing houses on health inequality: cluster randomised study in the community" British Medical Journal, 2007, p334:460)

Technical Data

Properties	Result		Test/Method/Standard	Test Results
Combustibility	Non-Combustible	✔	NZS/AS 1530.1:1994	Group Number 1S
Flammability	Non-Flammable	✔	NZS/AS 1530.3:1993	
			Ignitability (Range 0-20)	= 0
			Spread of Flame Index (Range 0-10)	= 0
			Heat Evolved Index (Range 0-10)	= 0
			Smoke Developed Index (Range 0-10)	= 0-1
R-value	Various*	✔	AS/NZS 4859.1:2002	
Corrosion	Non-Corrosive	N/A	AS/NZS 4859.1:2002-Glass wool exempt	
Moisture Absorption	Non-Hygroscopic	N/A	AS/NZS 4859.1:2002-Glass wool exempt	
Vermin Resistance	No Food Source	✔	AS/NZS 4859.1:2002-Glass wool exempt	

* Refer to product specifications

Acoustic Properties

Pink® Batts® insulation will assist with noise control, however penetrations in walls will transmit sound readily. Superior noise control can be achieved by using Pink® Batts® insulation products in conjunction with good acoustic design.

150582

Tasman District Council
APPROVED 09/07/2015

pink batts®
ANOTHER GOOD CALL

Wall
PINK® BATTS® WALL INSULATION
PRODUCT DATA SHEET

New Zealand Building Code (NZBC) and Limitations

Pink® Batts® wall insulation when used, installed and maintained in accordance with the requirements outlined in this datasheet, will meet or contribute to meeting the following provisions of the NZBC:

NZBC Clause B2:	**Durability**
	Meets the requirement NZBC B2.3.1 a) 50 years and NZBC B2.3.1 b) 15 years
NZBC Clause C1 - C6:	**Protection from Fire**
	Contributes to meeting these requirements
NZBC Clause F2:	**Hazardous Building Materials**
	Meets this requirement and will not present a health hazard to people
NZBC Clause H1:	**Energy Efficiency**
	Contributes to meeting this requirement

Limitations

To meet the provisions of the NZBC as outlined in this datasheet, Pink® Batts® wall insulation **MUST** be:

- Installed and maintained in a dry protected environment
- Installed in a building where the provisions of NZBC E2 and E3 are met
- Installed to the requirements of NZS 4246:2006: Energy Efficiency-Installing Insulation in Residential Buildings

Pink® Batts® wall insulation should **NOT** be crushed or folded

Installation Instructions

Correct installation with no compression, gaps or folds is critical to ensure Pink® Batts® wall insulation performance is not compromised.

Safety:

Prior to installation check for all hazards that may cause injury. Carry out repair work without delay.

- Ensure there is adequate lighting to identify any hazards
- Treat all electrical cables as live
  - Repair damaged, exposed or hanging cables immediately
  - Be careful not to cut or expose cables and wires
- Beware of other sharp objects (protruding nails, splinters etc.), pests (bees and wasps), loose boards and pipe work

Note: Seek professional advice if you are unsure how best to isolate the hazard or have a professional installer carry out the work on your behalf.

We can recommend professional installers throughout New Zealand who guarantee installation to NZS 4246:2006. Go to www.pinkbatts.co.nz or call 0800 PINK BATTS (746 522) to locate an installer in your region.

Equipment required:

- Protective loose fitting, long sleeve clothing
- Dust mask
- Rubber faced gloves
- Rubber soled footwear
- Step ladder
- Knife and cutting board
- Safety glasses

Installation:

Use only wall products for installing in wall applications, ceiling products are not suitable. However, wall products may be used in ceilings - particularly those with restricted space. (Please refer to Pink® Batts® Skillion Roof product data sheet for further information on insulation suitable for restricted roof cavities.) Refer to drawings/specifications where available for R-value selection.

- Ensure the product is installed dry. If the product is wet, replace it before installing
- Friction fit product between framing
- If cutting is required, cut oversize by 5-10mm to ensure a friction fit

150582

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APPROVED 09/07/2015

pink batts®
ANOTHER GOOD CALL

Wall
PINK® BATTS® WALL INSULATION
PRODUCT DATA SHEET

Installation Instructions continued...

- Ensure there are no gaps, folds or compression of product
- Fill gaps around windows and doors with off-cuts
- Do not cover vents. Insulate around vents to allow unhindered ventilation
- Fit insulation behind electrical wiring* and plumbing work. Partially cut insulation and place around wires or pipes if necessary

***CAUTION:** Electrical cables and equipment partially or completely surrounded with bulk thermal insulation may overheat and fail. This applies to wiring installed prior to 1989.

Specification Notes

State the following:

Product Required: Pink® Batts® wall insulation and required R-value

Product Specifications

	BRANZ APPRAISED	ENVIRONMENTAL CHOICE	GREENGUARD IAQ CERTIFIED	CODE	SIZE (mm)	NOMINAL STABILISED THICKNESS* (mm)	NOMINAL TOTAL AREA PER PACK (m^2)	APPROX COVERAGE PER PACK** (m^2)
Pink® Batts® R1.8 Wall	✔		✔	7120118	1140 X 580	90	17.2	19.6
Pink® Batts® R2.2 Wall	✔		✔	7120122	1140 X 580	90	13.9	15.8
Pink® Batts® R2.4 Wall	✔		✔	7120124	1140 X 580	90	10.6	12.1
Pink® Batts® Ultra® R2.6 Wall	✔	✔	✔	7120126	1140 X 580	90	9.9	11.3
Pink® Batts® Ultra® R2.8 Wall	✔	✔	✔	7120128	1140 X 580	90	6.6	7.5
Pink® Batts® R3.2 140mm Wall	✔	✔	✔	7120132	1140 X 580	140	9.9	11.3
Pink® Batts® R3.6 140mm Wall	✔	✔	✔	7120136	1140 X 580	140	7.3	8.3
Pink® Batts® R4.0 140mm Wall	✔	✔	✔	7120140	1140 X 580	140	5.3	6.0
Pink® Batts® R2.2 Narrow Wall	✔		✔	7120123	1140 X 380	90	9.5	11.2
Pink® Batts® R2.6 Narrow Wall	✔	✔	✔	7160207	1140 X 380	90	7.8	9.2
Pink® Batts® Steel R2.2 Wall	✔		✔	7160214	1220 X 610	90	15.6	15.6
Pink® Batts® Steel R2.6 Wall	✔	✔	✔	7160215	1220 X 610	90	9.7	9.7

* Stated thicknesses are values at which stated R-values are achieved and are likely to be minimum values.
**Coverage relates to standard structure and actual coverage may vary.

Storage and Maintenance

Pink® Batts® insulation must be protected from damage and weather. Store under cover in clean dry conditions. The installed product must remain dry at all times. If the product has become wet or damp, the source of the dampness (e.g. leak in plumbing) must be repaired immediately and insulation replaced with new product of an equivalent R-value.

Accreditations/Appraisals/Certifications

BRANZ Appraised
Appraisal No.238 (2012)

Licence No 2504017.
Thermal (resistive type) building insulants.

Tasman Insulation New Zealand Ltd Certified QMS
Quality ISO 9001

EMISSION CLASS FOR BUILDING MATERIAL M1

TASMAN INSULATION NEW ZEALAND

DISTRIBUTED BY
TASMAN INSULATION NEW ZEALAND LTD
9-15 HOLLOWAY PLACE, PENROSE,
AUCKLAND, NEW ZEALAND

This document supersedes all previous versions and may have been superseded; is a guide only and the purchaser should ascertain the suitability of this product for the end-use situation intended and when used in conjunction with other products; and is provided without prejudice to Tasman Insulation New Zealand Ltd (Tasman) standard terms of sale. Tasman retains the right to change specifications without prior notice. Refer to www.pinkbatts.co.nz or consult Tasman for further information. Do not use this product for any application not detailed in this document. All claims about this product are subject to any variation caused by normal manufacturing process and tolerances. The liability of Tasman and its employees and agents for any errors or omissions in this document or otherwise in relation to the product is limited to the fullest extent permitted by law. Except where the consumer acquires the goods for the purposes of a business, any rights a consumer may have under the Consumer Guarantees Act are not affected.

6/7/2015 Consent Planner - Sloan, Lisa TDC.

Landscping concept plan for Jeff and Jackie Dick 130 Ridgeview Road Appleby

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
06/07/15



Concept overview

- Areas of native plantings surrounded by large flowing lawns
- Since Jeff and Jackie own Stihl Shop Nelson they have great acess to slope mowing equipment.

SHERLOCK LANDSCAPING

Planting Specifications

Species used are in keeping with plantings in adjacent and comon areas:

- Phormium Tenax
- Cordalyne Australis
- Hebes
- Pseudopanax Varieties
- Low growng ground covers such as Coprosma Talko, Coprosma Hawera etc.
- All plantings are set below ridgelines and are not over 2m in height.

Rear Utility Area

- Behind the garage is situated another surface for locating traller.
- Raised vege planters are shown.

Driveways and Patios

- Exposed agregate concrete

Paths

- Decorative gravel and timber edge

Steps

- Simple sleeper steps to enable ease of walking.

Tasman District Council
BUILDING CONSENT AUTHORITY
RECEIVED
06/07/15

RM030632
Writer's Direct Dial No. (03) 528 2014
Writer's E-mail: pauline.webby@tasman.govt.nz

4 May 2015

Jason Anderson
PO Box 3608
Richmond

Dear Jason

RESOURCE CONSENT RM 030632 – APPROVAL OF COLOURS FOR (dwelling) AT 130 Ridgeview Road (Lot 42 DP480593), Building consent 150582.

I wish to acknowledge our email today in relation to the above matter.

The colours and materials you have chosen for the exterior of the dwelling/garage have been approved as scheduled below:

dwelling/garage

Part of building	**Colour**
Walls -	Brick – Country brick soapstone (50 %) Linea - Ironsand (9%)
Roof - Corrugated Colorsteel	Ironsand
Window Joinery - Aluminium	
Front Door -	
Garage Door -	

I have advised the Council's building consent administrators of the approved colour scheme for RM030632 which relates to your proposed building consent for Lot 42 DP480593 (130 Ridgeview Road).

Please also be advised the landscape plan completed by Sherlock Landscaping for 130 Ridgeview road is approved.

If you have any further queries in relation to this matter, please feel free to contact me. My contact details are listed at the top of this letter.

Yours faithfully

Pauline Webby
Consent Planner- Subdivision

Tasman District Council
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

Richmond
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

Murchison
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

Motueka
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

Takaka
14 Junction Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

City Certifying Consultants Ltd

Ph 09 411 7515
Email: admin@citycertifiers.co.nz

18th June 2015

Allan Gowan
Gowans Walters & Associates Ltd
P.O. Box 3608
Richmond

Re: Building Consent Application – 130 Ridgeview Road

Consent Number 150582

Dear Allan,

City Certifying Consultants Ltd an accredited Building Consent Authority has been engaged by Tasman District Council to assist in processing Building Consent Applications. Your application has been forwarded to us and we have noted that some additional information is required.

Please respond to this request **within 20 working days** and provide a covering letter answering points listed below and if providing additional or revised drawings please ensure that they are appropriately referenced and to the same scale and sheet size as the originals.

To submit the requested documentation:

Please provide all documents in pdf format and email to citycertifiers@xtra.co.nz

Please do not lock or password-protect PDF's, as they have to be merged into final consent documents.

B1 Structure - Building

1. Sheet 04,09, – Please revise top cover note to concrete slab reinforcing in accordance with the Engineers specified cover of 40mm or provide written confirmation of 30mm allowable top cover from the engineer. Refer S1-4 See sheet 09A
2. Sheet 05 – Please revise plans to show lintel over Bathroom in accordance with Truss Design. See sheet 05B
3. Please provide Specific Engineering Design for hold down fixings at point loads as specified on the Truss Design. Attached
4. Sheet 12 - Detail A - Please revise top plate fixing note and NZS 3604:1999 reference in accordance with NZS3604:2011 Table 8.18 and with alternative Lumberlok fixing specs and details Sheet 06. See sheet 12A
5. Bracing Calculations – Please revise data page of Bracing Calculations to show the sub floor as concrete slab. Attached / See sheet

E 1 Surface Water

6. Sheet 03,04 - Please detail on the plans retaining wall subsoil drains connecting via silttraps to the drainage system outfall, including the concrete foundation walls as shown in Engineers drawings S1-S4 . See sheet 03B 03C
7. Sheet 03 – Please demonstrate on the plans the erosion control SW device at discharge point of SW drain as required by Building Site Engineering Report – Stormwater (refer to Swanney Geotechncial and Civil Engineering dated 9 May 2014 Page 4)

See Detail 1 sheet 03B 03C

E 2 External Moisture

8. Please provide on the plans the weather tight internal corner junction detail for Brick Veneer to Sycon Weatherboard at the chimney to demonstrate compliance with NZBC E2/AS1.

See sheet 10A

E 3 Internal Moisture

9. Please supply waterproofing details for junctions between fixtures i.e. baths, showers wall corners, tap penetrations, vanity , bench, and wall or floor linings to demonstrate compliance with NZBC E3/AS1 See sheet 15A

10. Please confirm wet area waterproof membrane. The Manufacturers documentation has both Mapei and Aredx Superflex. Sheet 10 shower detail refers to Ardex. Ardex

G 13 Foul Water

11. Sheet 03 – Please demonstrate how the GT outside Bed 2 will be 'charged ' as the copper sludge pipe is inadequate for this purpose. See sheet 03C

If you wish to discuss this request you can contact the writer at citycertifiers@xtra.co.nz

Regards

Jan Maguire

c.c. allan@gowanswalters.co.nz

GIB EzyBrace® 2011 Software

Demand Calculation Sheet — single storey — V06/11

Job Details

Name	Dick
Street and Number	130 Ridgeveiw Road, Appleby
Lot and DP Number	Lot 42 DP 474760
City/Town/District	Nelson
Designer	Jason
Company Name	Gowans Walters & Associates
Date	4/05/2015

BRANZ Appraised
Appraisal No.294 [2011]

Select Lining Option: 10 or 13 mm GIB® Plasterboard

Building Specification

Number of storeys	single
Floor Loading	2kPa
Foundation Type	slab

	Single Floor	Complete Single Floor Column only
Cladding Weight	heavy	
Roof Weight	light	
Room in Roof Space	no	
Roof Pitch (degrees)	25	
Roof height above eaves (m)	2.9	
Building height to apex (m)	5.0	
Ground to lower floor level (m)	0.4	

check heights, storey less than 2 m

Stud Height (m)	2.4
Building Length (m)	23.8
Building Width (m)	15.2
Building Plan Area (m2)	220

Building Location

Wind Zone	***Very High***	**Earthquake Zone**	**Soil Type**
Select by Building Consent Authority Map		2	D&E (deep to very soft)
or Preference	Not Available	**Annual exceedance probability**	
Wind Region	A	1/500 (NZS3604:2011 default)	
Lee Zone	no		
Ground Roughness	Open		
Site Exposure	Exposed		
Topographic Class	T2		

Bracing Units required for Wind

Demand W (BU)		
		Walls single
along	slab	972
across	slab	1681

Bracing Units required for Earthquake

Demand along / across E (BU)		
		Walls
		single
slab		1208

Dick Jason

GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ALONG

V06/11

Lines		*Bracing Elements*							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
156	**A**	1	1.3		2.4	GS1-N	GIB®	90	78
		2	1.3		2.4	GS1-N	GIB®	90	78
171	**B**	1	0.7		2.4	GS1-N	GIB®	41	41
		2	0.7		2.4	GS1-N	GIB®	41	41
		3	1.1		2.4	GS1-N	GIB®	74	66
		4	0.4		2.4	GS1-N	GIB®	21	23
778	**C**	1	2.5		2.4	GS1-N	GIB®	173	150
		2	1.6		2.4	GS1-N	GIB®	110	96
		3	3.1		2.4	GS1-N	GIB®	214	186
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	2		2.4	EP1 1.2	Ecoply®	240	270
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38
432	**D**	1	2.1		2.4	GS1-N	GIB®	145	126
		2	2.8		2.4	GS1-N	GIB®	193	168
		3	2.3		2.4	GS1-N	GIB®	159	138
354	**E**	1	0.9		2.4	GS1-N	GIB®	57	53
		2	1.3		2.4	GS1-N	GIB®	90	78
		3	1.4		2.4	GS1-N	GIB®	97	84
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	0.6		2.4	EP1 0.6	Ecoply®	57	63
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38

					Wind	Earthq.
Totals Achieved	W	208%	EQ	157%	2019	1892
Concrete Slab					*OK*	*OK*
Totals Required (from Demand)					972	1208

Dick

Jason

GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ACROSS

V06/11

Lines		Bracing Elements							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
221	**M**	1	0.9		2.4	GS1-N	GIB®	57	53
		2	2.8		2.4	GS1-N	GIB®	193	168
426	**N**	1	4.2		2.4	GS1-N	GIB®	290	252
		2	2.9		2.4	GS1-N	GIB®	200	174
305	**O**	1	0.8		2.4	GS1-N	GIB®	49	47
		2	1.4		2.4	GS1-N	GIB®	97	84
		3	2.9		2.4	GS1-N	GIB®	200	174
462	**P**	1	0.4		2.4	GS1-N	GIB®	21	23
		2	1.1		2.4	GS1-N	GIB®	74	66
		3	2.4		2.4	GS1-N	GIB®	166	144
		4	1.7		2.4	EP1 1.2	Ecoply®	204	230
292	**Q**	1	0.8		2.4	EP1 0.6	Ecoply®	76	84
		2	1.8		2.4	EP1 1.2	Ecoply®	216	243

						Wind	Earthq.
Totals Achieved	W	110%	EQ	144%		1842	1742
Concrete Slab						*OK*	*OK*
Totals Required (from Demand)						1681	1208

TASMAN CONSULTING ENGINEERS

PROPOSED NEW HOUSE

for

J & J DICK – SIGNATURE HOMES

130 RIDGEVIEW RD

SITE INVESTIGATION & STRUCTURAL CALCULATIONS

Job ref: 15165
May 2015

PO Box 3631, Richmond
Nelson 7050, New Zealand

Phone +64 3 544 6404
Fax +64 3 544 6694
Email admin@tcel.co.nz

TASMAN CONSULTING ENGINEERS
53 / 237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544 6404
www.tcel.co.nz

Project: Dick	Page No: 1
	Date: 27-05-15
File Ref: 15165	By: RJC

(1) Site Investigation.

Carried out 4x scala tests in area outside of NZS3604 approved area.

SP1 - 184 kPa ult bearing - worst case at 900 - 1100 deep.

SP2 - 169 kPa ult bearing - " " " 0 - 400 deep.

SP3 - 84 kPa ult bearing - " " " 250 - 700 deep.

SP4 - 120 kPa ult bearing - " " " 200 - 800 deep

Summary

As the soil is very soft and outside approved area the house foundations are to be supported by drilled piles.

(2)

Ron O'Hara BE (Civil) MIPENZ
David King ME (Civil) MIPENZ CPEng IntPE (NZ)

TASMAN CONSULTING ENGINEERS
53 / 237 Queen St
PO Box 3631
Richmond NELSON
Ph: (03) 544 6404
Fax: (03) 544 6694

INSPECTION REPORT

No:

CLIENT NAME: Dick. File Num: 15165

Inspection Date: 27-05-15 Time: 10.15

Consent Ref:

Location of work: 130 Ridgeview Rd.

Description of works: New house.

Weather at time of inspection: fine.

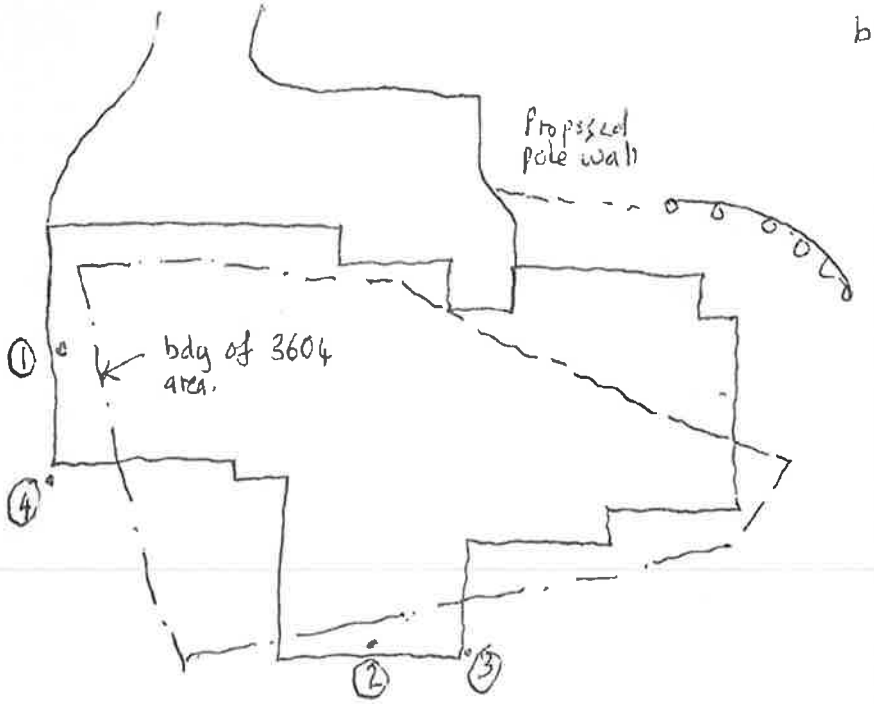
BUILDER NAME:

Contact Details:

INSPECTION DESCRIPTION:

Site Investigation.

INSPECTION NOTES:



blows	①	②	③	④
0	0	0	0	0
5	180	200	250	200
10	290	400	760	500
15	380	570	930	780
20	440	680	1090	850
25	530	850	1200	950
30	620	930		1050
35	740	840		1150
40	900	950		
45	1080	1030		
50	1150	1190		
55	1200			
60				
65				
70				
75				
80				
85				
90				
95				
100				

INSTRUCTIONS ISSUED:

- Area outside approved 3604 area is very soft.
- Drilled piles supporting foundations is required outside 3604 area.

Inspecting Engineer: (Ron O'Hara) R.J. O'Hara. | Builder: | Scanned:

SCALAR PENETROMETER TEST

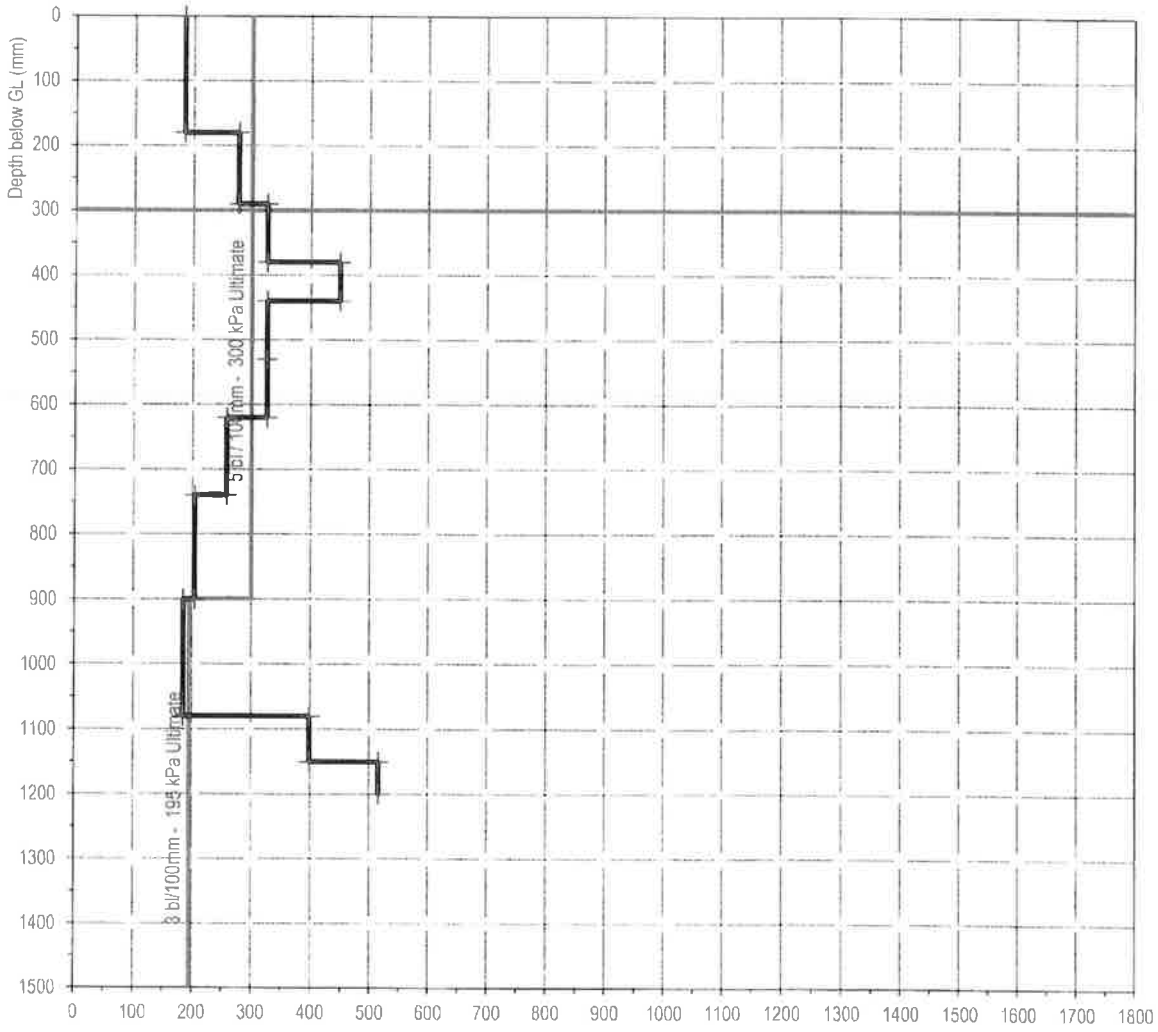
Depth	Blows	mm/Blow	Ultimate kPa
0	0		184
180	5	36	184
290	10	22	278
380	15	18	327
440	20	12	449
530	25	18	327
620	30	18	327
740	35	24	258
900	40	32	204
1080	45	36	184
1150	50	14	399
1200	55	10	515

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP1**



C:\Data\ENG\Ron\Foundations\15165_Dick_Scala_Tests_3604-2011_27-05-15

SCALAR PENETROMETER TEST

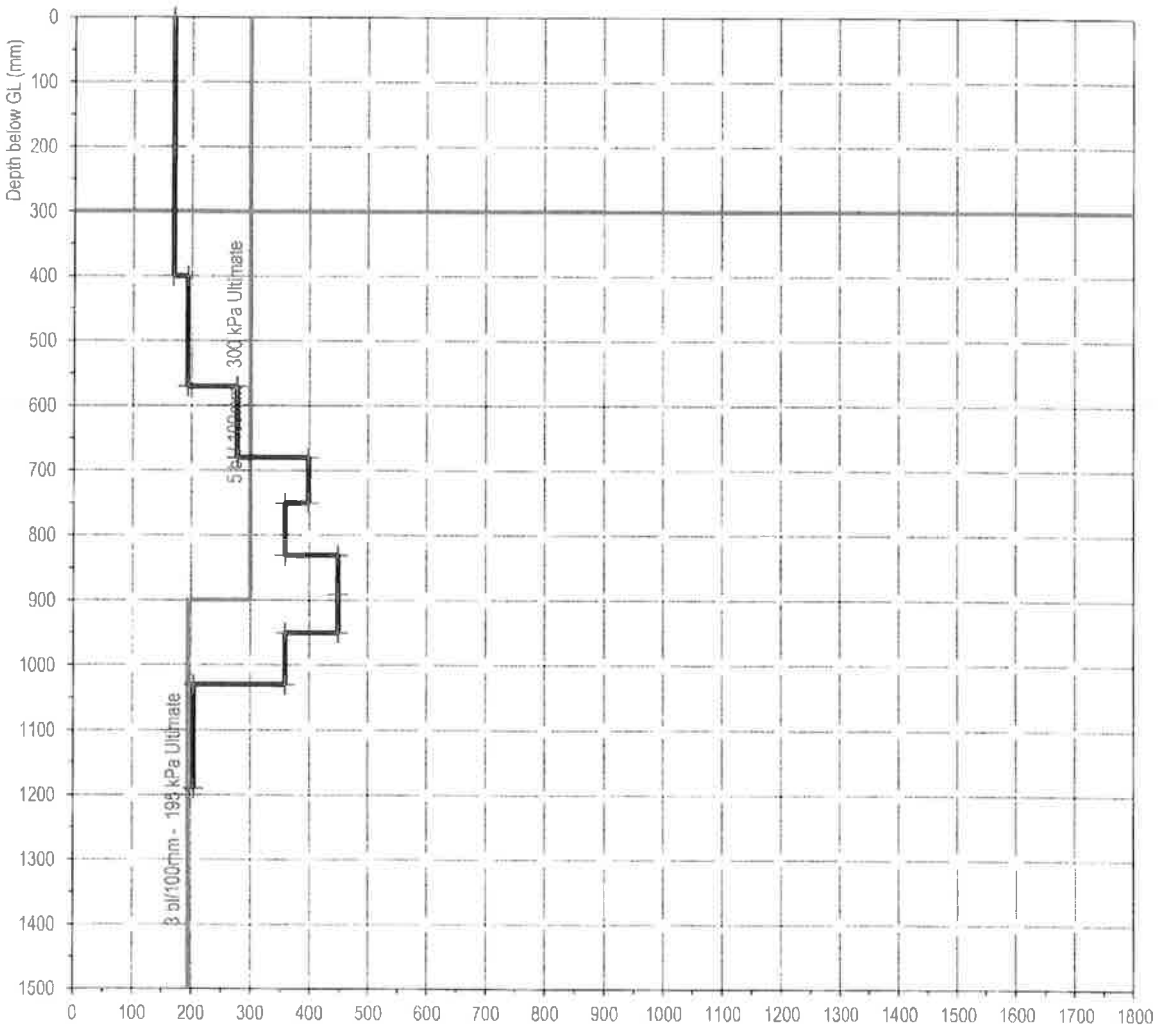
Depth	Blows	mm/Blow	Ultimate kPa
0	0		169
200	5	40	169
400	10	40	169
570	15	34	194
680	20	22	278
750	25	14	399
830	30	16	359
890	35	12	449
950	40	12	449
1030	45	16	359
1190	50	32	204

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP2**



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SCALAR PENETROMETER TEST

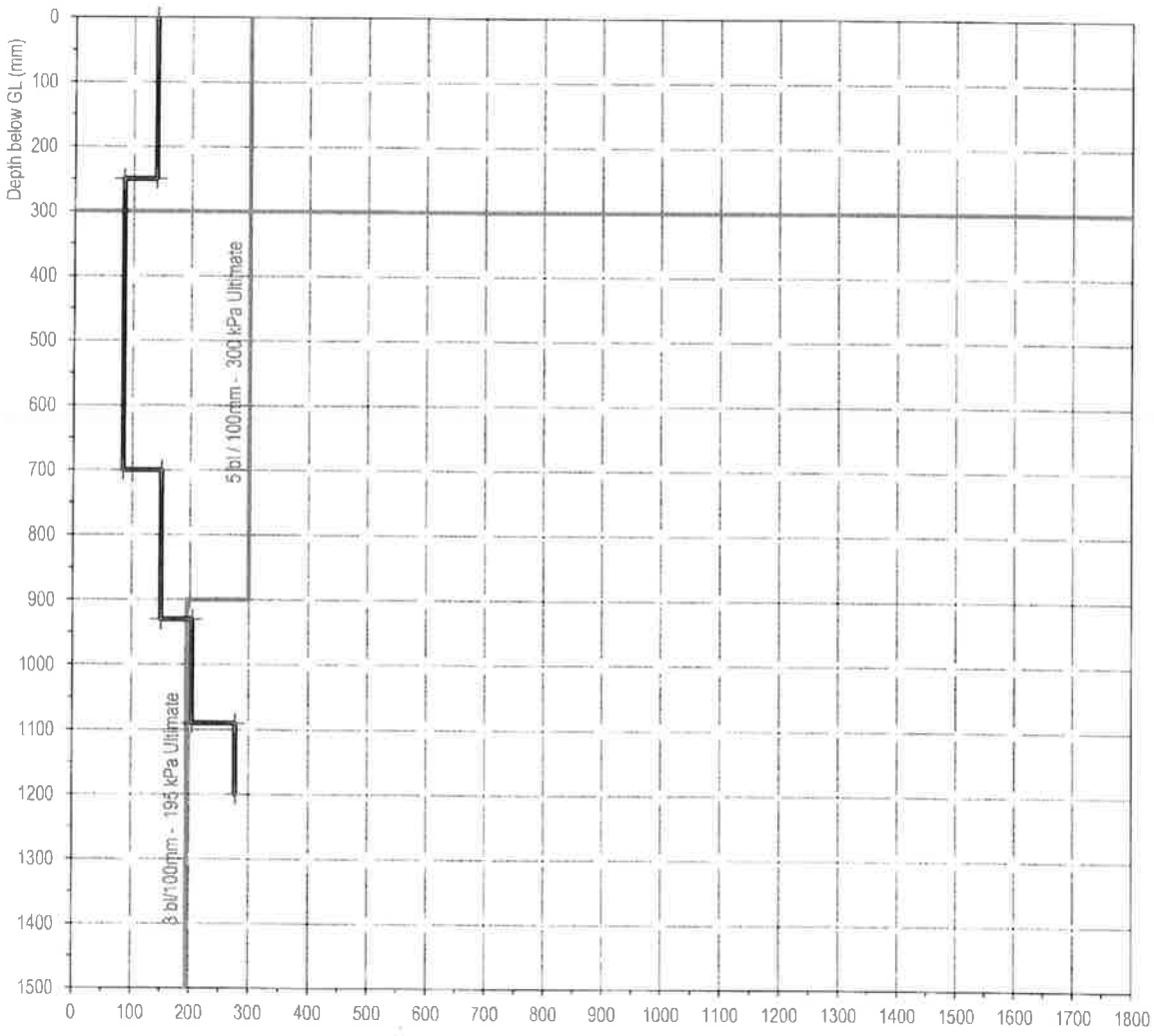
Depth	Blows	mm/Blow	Ultimate kPa
0	0		140
250	5	50	140
700	10	90	84
930	15	46	150
1090	20	32	204
1200	25	22	278

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP3**



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SCALAR PENETROMETER TEST

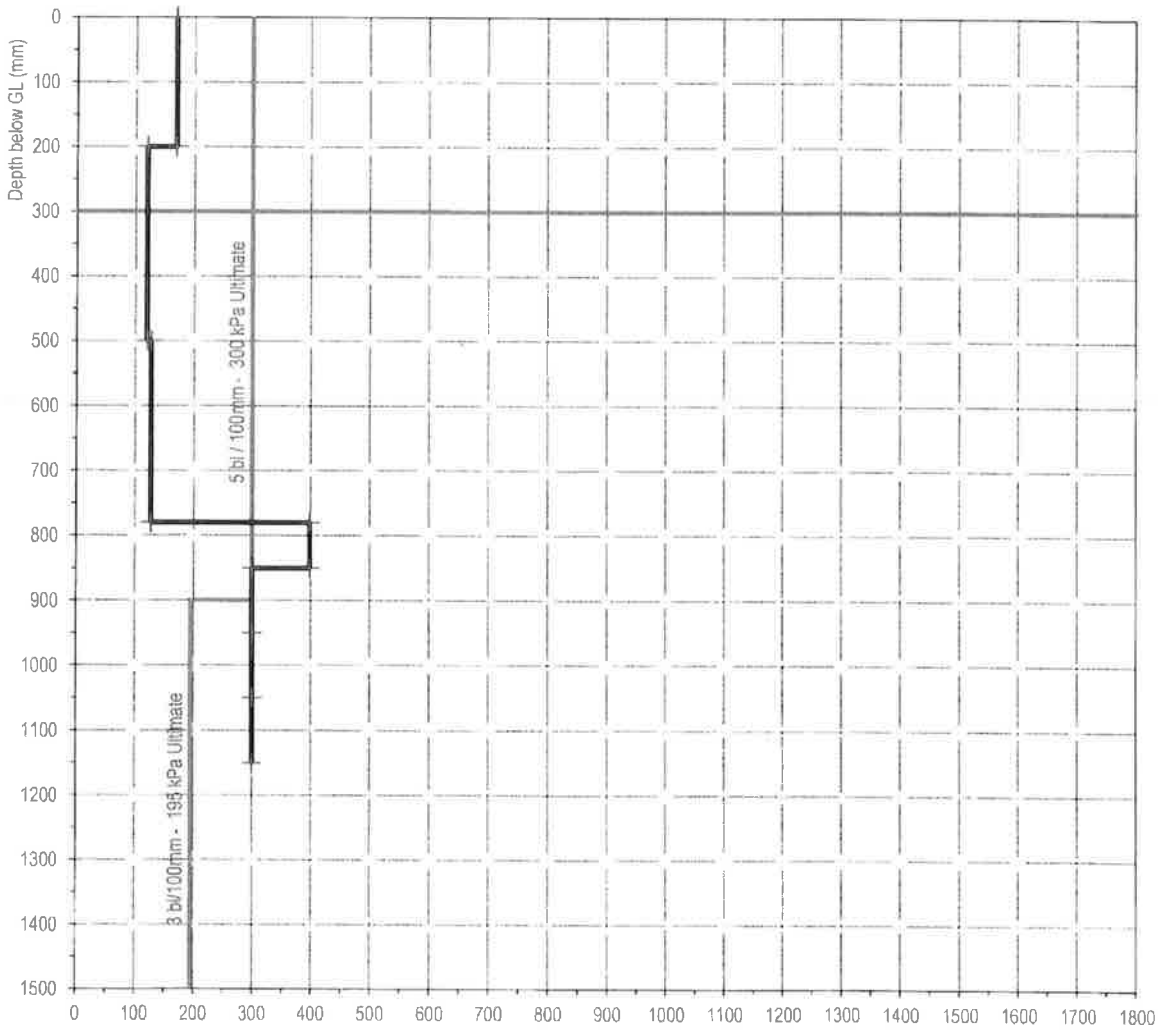
Depth	Blows	mm/Blow	Ultimate kPa
0	0		169
200	5	40	169
500	10	60	120
780	15	56	127
850	20	14	399
950	25	20	300
1050	30	20	300
1150	35	20	300

Test Date: **27-05-15**

Client: **Dick - Signature Homes**

Address: **130 Ridgeview Rd**
Appleby Hills
Redwood Valley

Lot Num: **Lot 42**
Test Ref: **SP4**



C:\Data\ENG\Ron\Foundations\15165_Dick_Scala_Tests_3604-2011_27-05-15

tasman consulting engineers

S3 / 237 Queen St
RICHMOND

Work: (03) 544-6404
Fax: (03) 544-6694

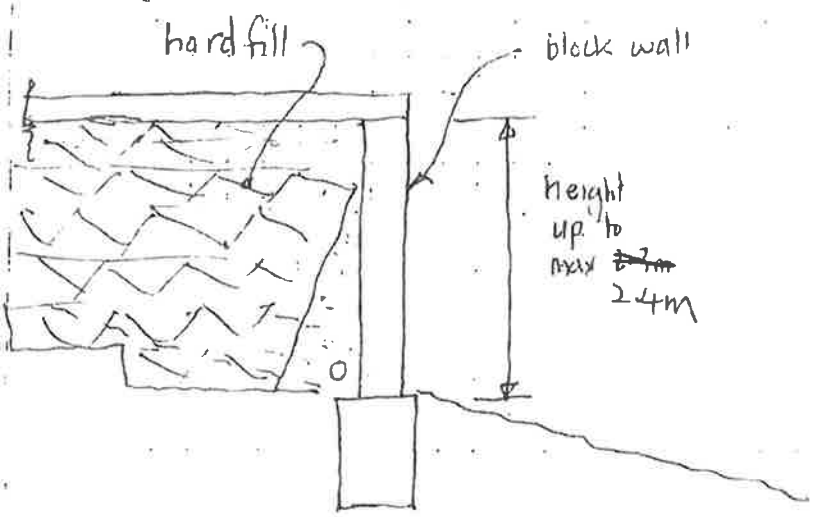
Project: Dick
Overheight Foundation Walls

File Ref: 15165

Date: 27-05-15

By: RO

- Design of overheight Foundation Walls



Soil parameters - $\phi = 32°$ for compacted granular hardfill

$\gamma = 19$

Surcharge = 5.0 kPa (garage + slab)

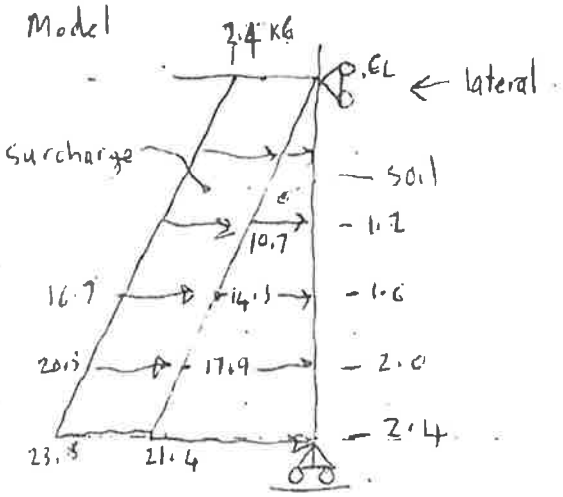
Design for earth pressure 'at rest' Ko

$Ko = 1 - \sin\phi$

$= 1 - \sin 32$

$= 0.47$

Structure Model



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Project: Dick Overheight Foundation Walls

File Ref: 15165

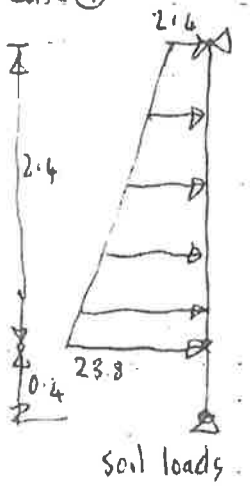
Page Num: 8

Date: 27-05-15

By: RO

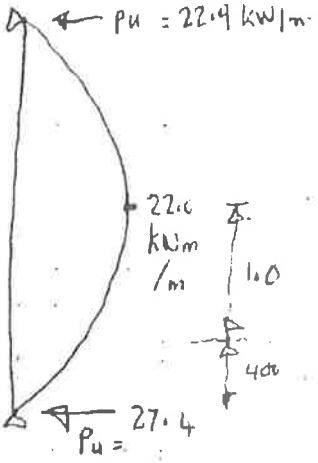
- Assume actual ground fixity is 400 below gl

Case ①

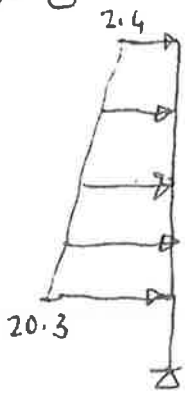


Soil loads

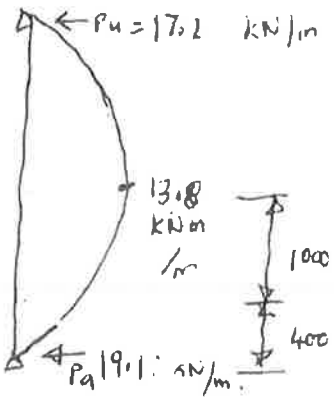
M_u (1.6 x Soil)



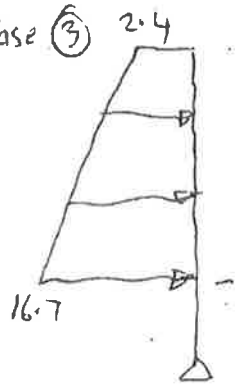
Case ②



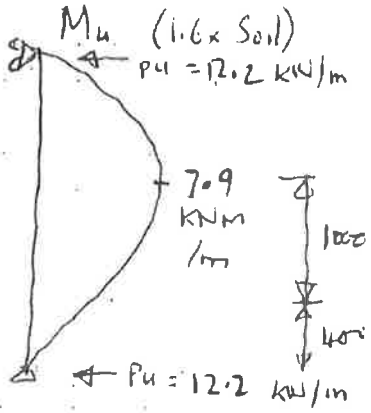
Mu (1.6 x Soil)



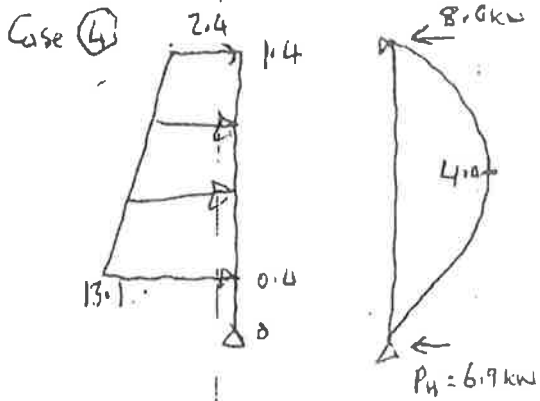
Case ③



M_u (1.6 x Soil)



Case ④



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RICHMOND

Work: (03) 544-6404
Fax: (03) 544-6694

Project: Dick Overheight Foundation Wall

File Ref: 15165

Page Num: 9

Date: 27-05-15

By: RC

• Capacity of masonry wall

assume $\phi = 0.8$

$f'_c = 12$ supervised masonry

$f'_y = 500$ Seismic 500 reinforcing.

• 20 series block

D12 - 400 on ℄ of wall $\phi M_i =$ ~~6.0~~ 6.5

HD 12 - 400 crs on ℄ of wall $\phi M_i =$ ~~9.6~~ 10.6

HD 16 - 400 crs on ℄ of wall $\phi M_i =$ ~~15.3~~ 17.7

HD16 - 400 crs 60 cover h $\phi M_i =$ ~~20.8~~ 23.4

(See printouts for specific calcs

• All are ok except highest wall

D12 - 400 on ℄ - ok to 1.2m of wal

HD12 - 400 on ℄ - ok to 1.6m of wall

HD16 - 400 on ℄ ok to 2.0m of wall

HD 16 - 400 60 cover = ~~2.07 of 2.4~~ OK to 2.4m of Wall

~~Reduce height above GL to 2.3m max)~~

Summary

1200 above GL 20 series block D12-400 on ℄

1600 above GL 20 series block HD12-400 on ℄

2000 " " " " " HD16-400 on ℄

~~2300~~ 2400 " " " " " HD16-400 - 60 front cover

Wall Capacities for 1m unit widths
with no compression steel.

Mi	7.7	kNm
ϕMi	6.5	kNm

INPUTS

ϕ	0.85		strength reduction factor
f'm or f'c	12	MPa	compression strength
fy	300	MPa	steel yield
Es	200	GPa	steel modulus
db	12	mm	bar diameter
s	400	mm	bar spacing
width	190	mm	width of wall
cover	89	mm	cover reo to back face
rakeout	0	mm	(if blockwork)
d	95	mm	effective depth section

VARIABLES

C	9.8	mm	neutal axis depth (must be +ve)
a	8.3		
Cc	84.8	kN	compression force
Ts	84.8	kN	tension force
	0.0		net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025		max compression strain
β_1	0.85		
α_1	0.85		
Ab	113.1	mm2	area one reinforing bar
As	282.74	mm^2	total area steel
ε_y	0.0015		
ε_s	0.0218		strain in reinforcing
fs	300	MPa	stress in steel

Wall Capacities for 1m unit widths
with no compression steel.

Mi	12.5	kNm
ϕMi	10.6	kNm

INPUTS

ϕ	0.85		strength reduction factor
f'm or f'c	12	MPa	compression strength
fy	500	MPa	steel yield
Es	200	GPa	steel modulus
db	12	mm	bar diameter
s	400	mm	bar spacing
width	190	mm	width of wall
cover	89	mm	cover reo to back face
rakeout	0	mm	(if blockwork)
d	95	mm	effective depth section

VARIABLES

C	16.3	mm	neutal axis depth (must be +ve)
a	13.9		
Cc	141.4	kN	compression force
Ts	141.4	kN	tension force
	0.0		net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025		max compression strain
β_1	0.85		
α_1	0.85		
Ab	113.1	mm2	area one reinforing bar
As	282.74	mm^2	total area steel
ε_y	0.0025		
ε_s	0.0121		strain in reinforcing
fs	500	MPa	stress in steel

Wall Capacities for 1m unit widths
with no compression steel.

Mi	20.8	kNm
ϕMi	17.7	kNm

INPUTS

ϕ	0.85		strength reduction factor
f'm or f'c	12	MPa	compression strength
fy	500	MPa	steel yield
Es	200	GPa	steel modulus
db	16	mm	bar diameter
s	400	mm	bar spacing
width	190	mm	width of wall
cover	87	mm	cover reo to back face
rakeout	0	mm	(if blockwork)
d	95	mm	effective depth section

VARIABLES

C	29.0	mm	neutal axis depth (must be +ve)
a	24.6		
Cc	251.3	kN	compression force
Ts	251.3	kN	tension force
	0.0		net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025		max compression strain
β_1	0.85		
α_1	0.85		
Ab	201.06	mm2	area one reinforing bar
As	502.65	mm^2	total area steel
ε_y	0.0025		
ε_s	0.0057		strain in reinforcing
fs	500	MPa	stress in steel

Wall Capacities for 1m unit widths
with no compression steel.

Mi	27.6 kNm	
ϕMi	23.4 kNm	

INPUTS

ϕ	0.85	strength reduction factor
f'm or f'c	12 MPa	compression strength
fy	500 MPa	steel yield
Es	200 GPa	steel modulus
db	16 mm	bar diameter
s	400 mm	bar spacing
width	190 mm	width of wall
cover	60 mm	cover reo to back face
rakeout	0 mm	(if blockwork)
d	122 mm	effective depth section

VARIABLES

C	29.0 mm	neutal axis depth (must be +ve)
a	24.6	
Cc	251.3 kN	compression force
Ts	251.3 kN	tension force
	0.0	net force (press solve to equal zero)

CALCULATIONS

ε_c	0.0025	max compression strain
β_1	0.85	
α_1	0.85	
Ab	201.06 mm2	area one reinforing bar
As	502.65 mm^2	total area steel
ε_y	0.0025	
ε_s	0.008	strain in reinforcing
fs	500 MPa	stress in steel

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Project: Dick	Page No: 14
	Date: 27-05-15
File Ref: 15165	By: RJO

Pile loads from foundations.

Brick Veneer cladding.

		G	Q
Roof - light - span = 7.4/2	G = 3.7 x .5	1.85	
	Q = 3.7 x .25		0.93
Wall - veneer	G = 2.5 x 1.8	4.5	
floor - span = 1m	G = 1.0 x 1 x 25	2.5	
	Q = 2.5 x 1		2.5
O/ht wall	G = 1.0 x .9 x .19 x 23	4.79	
found	G = .6 x .3 x 25	4.50	
		18.10	3.43

Piles at 45cr's G = 1.5 x 18.1 = 27.2 kN

Q = 1.5 x 3.43 = 5.15 kN

File Design - see attached spreadsheet.

300ϕ piles x 20D into firm original soil.

CONCRETE PILE DESIGN

INPUT DATA

Dead Load (Vu)	27.2	kN
Live Load (Vq)	5.2	kN

Load Combination	1	2
DL Factor	1.40	1.20
LL Factor	0.00	1.50

Pile Dia [B]	0.300	m
Concrete Density [CDen]	23.0	kN/m3
Ultimate Undrained Shear Strength (User Input) [Cu]	60.0	kPa
Ultimate Bearing Capacity (User Input) [Qu]	300.0	kPa
Phi for Soil Ultimate Loads [Phi] =	0.45	
Minimum Embedment depth [ED]	2.0	m
Neglect Skin Friction for first ...m [Dnsf]	0.5	m
Soil Density [SDen] =	19.0	kN/m3

CALCULATED DATA

Concr Pile Dead Weight [Wp] = ED * B^2 * Pi * Sden
= **3.252** KN

Load Combination	1	2	
Vertical Load [V]	**42.6**	**44.3**	kN

Design Load Case [V] = **44.3** KN

COHESION

Depth for skin friction (ED - Dnsf) =	1.500	
Cohesion (c) =	60.000	kN/m2
Reduction Factor (Phi) =	0.45	

Skin Friction Force [Rs] = c * (ED - Dnsf)* Phi * B
= **38.2** kN

END BEARING

Ult End Bearing Pressure [Qa]	300.000	KPa
Reduction Factor (Phi) =	0.45	

End Bearing Load Cap [Re] = B^2 * Pi / 4 * Qm * Phi
= **9.5** KN

Load Capacity of Foundation = Cohesion + End Bearing
= **47.7** KN

SUMMARY --> **-- OK --**

FOUNDATION PRESSURE CALCULATOR

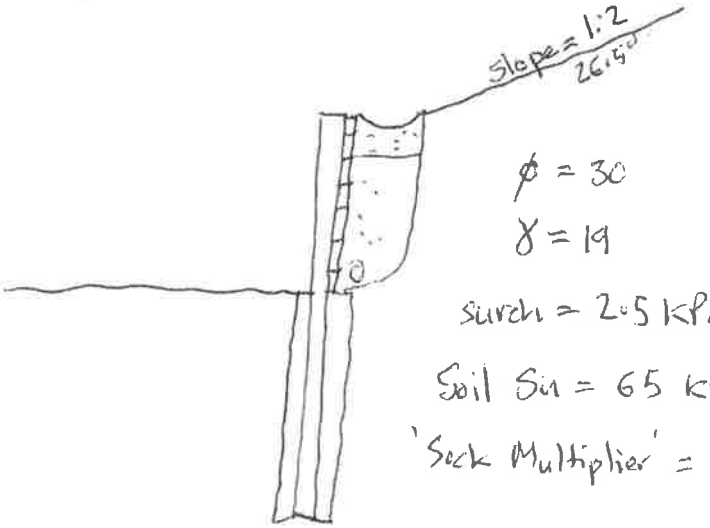
				Rate	Load
Roof	Type	Load Width	DL	**0.50** kN/m2	**1.85** kN/m
	LIGHT	3.70	LL	**0.25** kN/m2	**0.93** kN/m
Walls - Upper / Single	Type	Height			
	HEAVY	2.50	DL	**1.80** kN/m2	**4.50** kN/m
Walls - Lower / Basement	Type	Height	DL	**4.75** kN/m2	**4.75** kN/m
	190BLOCK	1.00			
Floor - Upper	Type	Load Width	DL	**0.00** kN/m2	**0.00** kN/m
			LL	**1.50** kN/m2	**0.00** kN/m
Floor - Lower	Type	Load Width	DL	**2.50** kN/m2	**2.50** kN/m
	RC100	1.00	LL	**2.50** kN/m2	**2.50** kN/m
Foundation Wall	Height	Width			
	0.60	0.30	DL	**25.00** kN/m3	**4.50** kN/m
Other (eg Deck)				DL ------->	kN/m
				LL ------->	kN/m
				Total Dead	18.10
				Total Live	3.43
				Total	21.53 kN/m
				Footing Width	0.300 m

WORKING or SERVICE LOADS	Reqd Working or Safe Bearing Pressure	**71.75** kPa
	Ultimate or Capacity UDL (1.4D)	**25.34** KN/m
	Ultimate or Capacity UDL (1.2D + 1.5L)	**26.86** KN/m
	Ultimate or Capacity Bearing Pressure (1.4D)	**84.47** kPa
	Ultimate or Capacity Bearing Pressure (1.2D + 1.5L)	**89.53** kPa
	Strength reduction Factor (phi) [range is 0.45 to 0.60]	0.45
ULTIMATE LOADS	Reqd Unfactored Rupture Soil Strength (Ultimate)	199 kPa
SAFE WORKING LOADS	Reqd Safe Soil Strength (Working)	72 kPa

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Project:	Page No: 17
Dick	Date: 27-05-15
File Ref: 15165.	By: RJC

Pole Retaining wall. - Max height = 800.



Height Retained	Poles	Holes
1200	175ϕ - 1000 crs	450ϕ x 1600 deep.
1000	150ϕ - 1000 crs	450ϕ x 1500 deep
800	150 ϕ - 1000 crs.	450ϕ x. 1300 deep

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on
NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	INPUT DATA				
Hr	*Height Retained*		800	*(mm)*	
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
AIF	*Angle of Int Friction(retained Soil) (AIF)*		30	*(degr)*	
W	*Weight of Soil Retained*		19	*kN/m 3*	
SS	*Slope of Soil retained by wall (Omega)*		27	*(degr)*	
K1a	*Soil Loading - Duration of Load Factor (K1)*		0.6		
Ep	*Earth Pressure Type (Active = Ko, AtRest = K)*		Ka	*(Ka or Ko)*	
SC	*Surcharge*		2.5	*(kPa)*	2.5
K1b	*SurchargeType and Duration of Load Factor (K1)*		0.6		Soil
DP	*Pole Diameter*		150	*(mm)*	150 mm sed — OK
Dpdes	*Pole Diameter at Groundline*		150	*(mm)*	No Taper
K20	*K20 Factor (Poles Peeled or Shaved?)*		0.9		Machine Peeled
K21	*K21 Factor (Poles Steamed during treatment?)*		0.85		Steamed
Fb	*Characteristic Bending Strength of Poles*		52	*MPa*	High Density
SP	*Pole Spacing(Use continuous for Pallisade type wall)*		1000	*(mm)*	1000mm
LSP	*Soil Type & Calculated Lateral Loading (kPa)*		60	*(kPa)*	Medium Clay
Df	*Footing Diameter*		450	*(mm)*	450mm dia
Smf	*Sock Multiplier Factor (1.0x to 1.5x hole diameter)*		1.50		
		(ignore first	*675.00*	*mm of embedment)*	
De	*Embedment Depth*		1300	*(mm)*	OK
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
Dt	*Total Embedded Depth*		1300	*(mm)*	
Ww	*Wall lining timber width*		40	*(mm)*	
Wd	*Wall lining depth*		190	*(mm)*	
Nwl	*Number of boards at base of wall*		2		OK
Fwb	*Characteristic Bending Strength - Wall lining timber*		10.00	*MPa*	
Dmlp	*Calculate Max Lateral Pressure at xxxx*		0.34	*x Embedment depth*	
LFa	*Load Factor for Soil Loading*		1.6		
LFb	*Load Factor for Surcharge Loading*		1.6		
SRF	*Strength Reduction Factor for Pile*		0.65		
	CALCULATED DATA				
AIF	*Angle of Int Friction(retained Soil) (AIF)*		**0.524**	*(Rad*	
SS	*Slope of Soil retained by wall (Omega)*		**0.471**	*(Rad)*	
	Earth Pressure Coefficient (calculated)				
Ka	*cos(omega)*(cos(omega) - sqrt((cos^2(omega) - cos^2(AIF))) / (cos(omega) + sqrt((cos^2(omega) - cos^2(AIF)))*		**0.552**		
Ko	*(1.0 - sin (AIF)) * (1 + sin (omega))*		**0.727**		

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on
NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	Earth Pressure Coefficient used in calculations	**0.552**		
Hc	*Total Height from Top of Footing to Top of Wall*	**800**	*(mm)*	
Fs	*Soil Loading on retaining wall Pole*	**5.368**	*kN*	
Hs	*Height above Footing to Point of Load Application (Soil Loads)*	**0.267**	*(m)*	
Fsc	*Surcharge Loading on Retaining Wall Pole*	**1.766**	*kN*	
Hsc	*Height above Footing to Point of Load Application Surcharge Loads)*	**0.400**	*(m)*	
Ft	*Combined Loading on Retaining Wall Pole*	**7.133**	*kN*	
Ht	*Height above Footing to Point of Combined Load Application*	**0.300**	*(m)*	
df	*Diameter of concrete sock*	0.45	m	
e0	*Zone of ineffective soil resistance= Msf*df*	0.675	m	
e	*Height of horizontal load*	0.300	m	
e'	*e+e0*	0.975	m	
D	*embedment depth*	1.300	m	
D'	*D-e0*	0.625	m	
Hu	*Ultimate horizontal load(after x SRF)for single pile*	11.785	kN	
Huc	*Ultimate horizontal load(after x SRF)for continous piles*	5.820	kN	
s_f	*spacing factor for pile groups*	0.407		
Hu,sp	*Ultimate horizontal load(after x SRF)for the spaced pile*	**8.250**	kN	
Z	*Section Modulus of Pole*	**3.313E-04**	m^3	
Posts				
Mus	*Ultimate Bending Moment at Base of Pole- Soil Only*	**1.431**	*(kNm)*	
	Ultimate Bending Stress	**4.320**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Muss	*Ultimate Bending Moment at Base of Pole- Soil & Surcharge*	**2.138**	*(kNm)*	
	Ultimate Bending Stress	**6.451**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Wall Lining				
	Factored Soil Pressure at lowest board	**14.032**	*kPa*	
Mwl	*Max Bending Moment in lowest board*	**0.333**	*kNm*	
Zwl	*Section Modulus for lowest board(s)*	**1.0133E-04**	m^3	
Fwl	*Bending Stress*	**3.29**	*Mpa*	
	Allowable Bending Stress	**4.80**	*Mpa*	*OK*

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on
NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	INPUT DATA				
Hr	*Height Retained*		1000	*(mm)*	
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
AIF	*Angle of Int Friction(retained Soil) (AIF)*		30	*(degr)*	
W	*Weight of Soil Retained*		19	*kN/m³*	
SS	*Slope of Soil retained by wall (Omega)*		27	*(degr)*	
K1a	*Soil Loading - Duration of Load Factor (K1)*		0.6		
Ep	*Earth Pressure Type (Active = Ko, AtRest = K)*		Ka	*(Ka or Ko)*	
SC	*Surcharge*		2.5	*(kPa)*	2.5
K1b	*SurchargeType and Duration of Load Factor (K1)*		0.6		Soil
DP	*Pole Diameter*		150	*(mm)*	150 mm sed — OK
Dpdes	*Pole Diameter at Groundline*		150	*(mm)*	No Taper
K20	*K20 Factor (Poles Peeled or Shaved?)*		0.9		Machine Peeled
K21	*K21 Factor (Poles Steamed during treatment?)*		0.85		Steamed
Fb	*Characteristic Bending Strength of Poles*		52	*MPa*	High Density
SP	*Pole Spacing(Use continuous for Pallisade type wall)*		1000	*(mm)*	1000mm
LSP	*Soil Type & Calculated Lateral Loading (kPa)*		60	*(kPa)*	Medium Clay
Df	*Footing Diameter*		450	*(mm)*	450mm dia
Smf	*Sock Multiplier Factor (1.0x to 1.5x hole diameter)*		1.50		
		(ignore first	*675.00*	*mm of embedment)*	
De	*Embedment Depth*		1450	*(mm)*	OK
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
Dt	*Total Embedded Depth*		**1450**	*(mm)*	
Ww	*Wall lining timber width*		40	*(mm)*	
Wd	*Wall lining depth*		190	*(mm)*	
Nwl	*Number of boards at base of wall*		2		OK
Fwb	*Characteristic Bending Strength - Wall lining timber*		10.00	*MPa*	
Dmlp	*Calculate Max Lateral Pressure at xxxx*		0.34	*x Embedment depth*	
LFa	*Load Factor for Soil Loading*		1.6		
LFb	*Load Factor for Surcharge Loading*		1.6		
SRF	*Strength Reduction Factor for Pile*		0.65		
	CALCULATED DATA				
AIF	*Angle of Int Friction(retained Soil) (AIF)*		**0.524**	*(Rad*	
SS	*Slope of Soil retained by wall (Omega)*		**0.471**	*(Rad)*	
	Earth Pressure Coefficient (calculated)				
Ka	*cos(omega)*(cos(omega) - sqrt((cos^2(omega) - cos^2(AIF))) / (cos(omega) + sqrt((cos^2(omega) - cos^2(AIF)))*		**0.552**		
Ko	*(1.0 - sin (AIF)) * (1 + sin (omega))*		**0.727**		

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	Earth Pressure Coefficient used in calculations	**0.552**		
Hc	*Total Height from Top of Footing to Top of Wall*	**1000**	*(mm)*	
Fs	*Soil Loading on retaining wall Pole*	**8.387**	*kN*	
Hs	*Height above Footing to Point of Load Application (Soil Loads)*	**0.333**	*(m)*	
Fsc	*Surcharge Loading on Retaining Wall Pole*	**2.207**	*kN*	
Hsc	*Height above Footing to Point of Load Application Surcharge Loads)*	**0.500**	*(m)*	
Ft	*Combined Loading on Retaining Wall Pole*	**10.594**	*kN*	
Ht	*Height above Footing to Point of Combined Load Application*	**0.368**	*(m)*	
df	*Diameter of concrete sock*	0.45	m	
e0	*Zone of ineffective soil resistance= Msf*df*	0.675	m	
e	*Height of horizontal load*	0.368	m	
e'	*e+e0*	1.043	m	
D	*embedment depth*	1.450	m	
D'	*D-e0*	0.775	m	
Hu	*Ultimate horizontal load(after x SRF)for single pile*	16.400	kN	
Huc	*Ultimate horizontal load(after x SRF)for continous piles*	8.099	kN	
s_f	*spacing factor for pile groups*	0.407		
Hu,sp	*Ultimate horizontal load(after x SRF)for the spaced pile*	**11.481**	kN	
Z	*Section Modulus of Pole*	**3.313E-04**	m^3	
Posts				
Mus	*Ultimate Bending Moment at Base of Pole- Soil Only*	**2.796**	*(kNm)*	
	Ultimate Bending Stress	**8.437**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Muss	*Ultimate Bending Moment at Base of Pole- Soil & Surcharge*	**3.899**	*(kNm)*	
	Ultimate Bending Stress	**11.768**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Wall Lining				
	Factored Soil Pressure at lowest board	**17.387**	*kPa*	
Mwl	*Max Bending Moment in lowest board*	**0.413**	*kNm*	
Zwl	*Section Modulus for lowest board(s)*	**1.0133E-04**	m^3	
Fwl	*Bending Stress*	**4.08**	*Mpa*	
	Allowable Bending Stress	**4.80**	*Mpa*	*OK*

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

NOTE: This spreadsheet is constructed based on NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	INPUT DATA				
Hr	*Height Retained*		1200	*(mm)*	
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
AIF	*Angle of Int Friction(retained Soil) (AIF)*		30	*(degr)*	
W	*Weight of Soil Retained*		19	*kN/m^3*	
SS	*Slope of Soil retained by wall (Omega)*		27	*(degr)*	
K1a	*Soil Loading - Duration of Load Factor (K1)*		0.6		
Ep	*Earth Pressure Type (Active = Ko, AtRest = K)*		Ka	*(Ka or Ko)*	
SC	*Surcharge*		2.5	*(kPa)*	2.5
K1b	*SurchargeType and Duration of Load Factor (K1)*		0.6		Soil
DP	*Pole Diameter*		175	*(mm)*	175 mm sed — OK
Dpdes	*Pole Diameter at Groundline*		175	*(mm)*	No Taper
K20	*K20 Factor (Poles Peeled or Shaved?)*		0.9		Machine Peeled
K21	*K21 Factor (Poles Steamed during treatment?)*		0.85		Steamed
Fb	*Characteristic Bending Strength of Poles*		52	*MPa*	High Density
SP	*Pole Spacing(Use continuous for Pallisade type wall)*		1000	*(mm)*	1000mm
LSP	*Soil Type & Calculated Lateral Loading (kPa)*		61	*(kPa)*	Medium Clay
Df	*Footing Diameter*		450	*(mm)*	450mm dia
Smf	*Sock Multiplier Factor (1.0x to 1.5x hole diameter)*		1.50		
		(ignore first	*675.00*	*mm of embedment)*	
De	*Embedment Depth*		1600	*(mm)*	OK
Hur	*Unretained Height Above Footing to U/S of Walling*		0	*(mm)*	
Dt	*Total Embedded Depth*		1600	*(mm)*	
Ww	*Wall lining timber width*		40	*(mm)*	
Wd	*Wall lining depth*		190	*(mm)*	
Nwl	*Number of boards at base of wall*		2		*Fails!!!*
Fwb	*Characteristic Bending Strength - Wall lining timber*		10.00	*MPa*	
Dmlp	*Calculate Max Lateral Pressure at xxxx*		0.34	*x Embedment depth*	
LFa	*Load Factor for Soil Loading*		1.6		
LFb	*Load Factor for Surcharge Loading*		1.6		
SRF	*Strength Reduction Factor for Pile*		0.65		
	CALCULATED DATA				
AIF	*Angle of Int Friction(retained Soil) (AIF)*		**0.524**	*(Rad*	
SS	*Slope of Soil retained by wall (Omega)*		**0.471**	*(Rad)*	
	Earth Pressure Coefficient (calculated)				
Ka	*cos(omega)*(cos(omega) - sqrt((cos^2(omega) - cos^2(AIF))) / (cos(omega) + sqrt((cos^2(omega) - cos^2(AIF)))*		**0.552**		
Ko	*(1.0 - sin (AIF)) * (1 + sin (omega))*		**0.727**		

For: DICK - SIGNATURE

Ref: 15165

At: 130 RIDGEVIEW RD - APPLEBY HILLS

Descr: SITE FILL RETAINING WALL

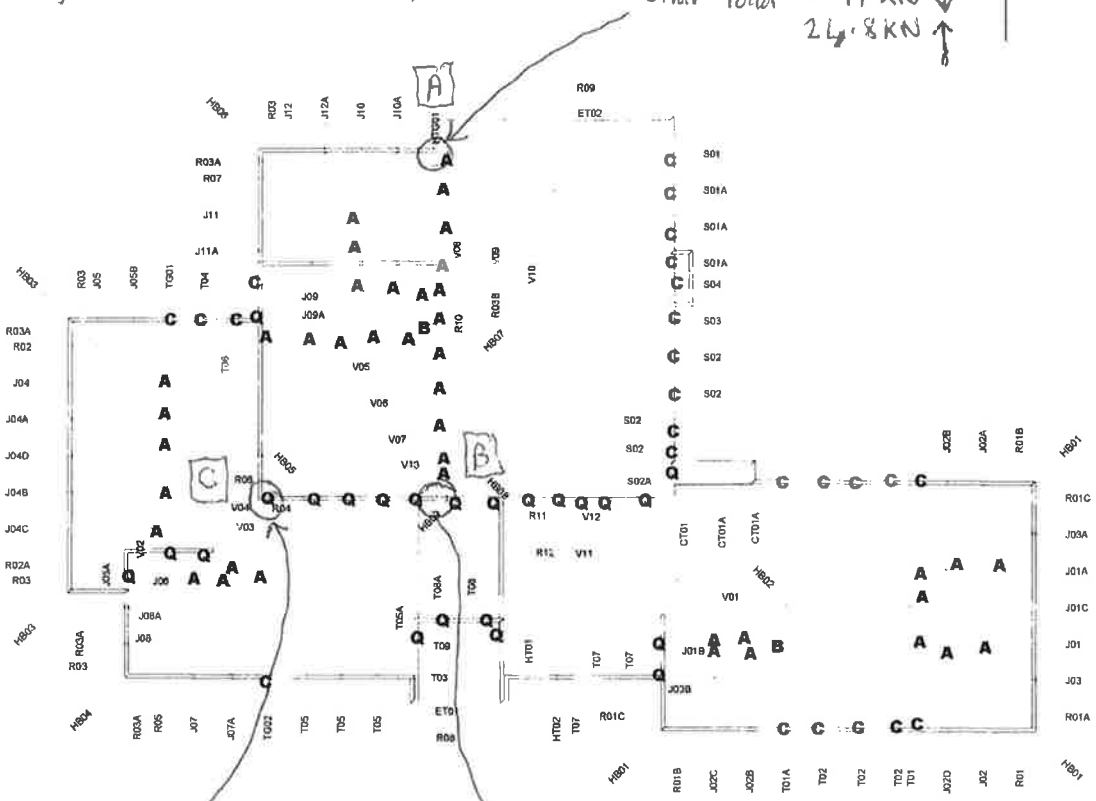
NOTE: This spreadsheet is constructed based on NZ Building Code B1 Clause 4.3
Only works for cohesive soil

	Earth Pressure Coefficient used in calculations	**0.552**		
Hc	*Total Height from Top of Footing to Top of Wall*	**1200**	*(mm)*	
Fs	*Soil Loading on retaining wall Pole*	**12.077**	*kN*	
Hs	*Height above Footing to Point of Load Application (Soil Loads)*	**0.400**	*(m)*	
Fsc	*Surcharge Loading on Retaining Wall Pole*	**2.648**	*kN*	
Hsc	*Height above Footing to Point of Load Application Surcharge Loads)*	**0.600**	*(m)*	
Ft	*Combined Loading on Retaining Wall Pole*	**14.725**	*kN*	
Ht	*Height above Footing to Point of Combined Load Application*	**0.436**	*(m)*	
df	*Diameter of concrete sock*	0.45	m	
e0	*Zone of ineffective soil resistance= Msf*df*	0.675	m	
e	*Height of horizontal load*	0.436	m	
e'	*e+e0*	1.111	m	
D	*embedment depth*	1.600	m	
D'	*D-e0*	0.925	m	
Hu	*Ultimate horizontal load(after x SRF)for single pile*	21.373	kN	
Huc	*Ultimate horizontal load(after x SRF)for continous piles*	10.554	kN	
s_f	*spacing factor for pile groups*	0.407		
Hu,sp	*Ultimate horizontal load(after x SRF)for the spaced pile*	**14.962**	kN	
Z	*Section Modulus of Pole*	**5.262E-04**	m^3	
Posts				
Mus	*Ultimate Bending Moment at Base of Pole- Soil Only*	**4.831**	*(kNm)*	
	Ultimate Bending Stress	**9.181**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Muss	*Ultimate Bending Moment at Base of Pole- Soil & Surcharge*	**6.420**	*(kNm)*	
	Ultimate Bending Stress	**12.201**	*MPa*	*OK*
	Allowable Bending Stress	**19.094**	*MPa*	
Wall Lining				
	Factored Soil Pressure at lowest board	**20.742**	*kPa*	
Mwl	*Max Bending Moment in lowest board*	**0.493**	*kNm*	
Zwl	*Section Modulus for lowest board(s)*	**1.0133E-04**	m^3	
Fwl	*Bending Stress*	**4.86**	*Mpa*	
	Allowable Bending Stress	**4.80**	*Mpa*	*Error*

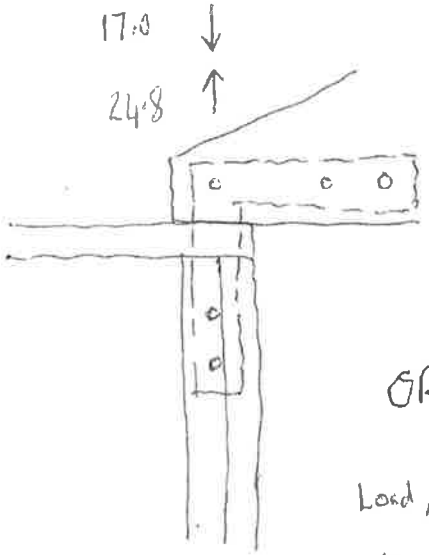
TASMAN CONSULTING ENGINEERS
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Project:	Page No: 24
Dick	Date: 30-06-15
File Ref: 15165	By: RJO

e Truss Hold Down Details.



A



- Top Fixing.

Try Lumberlok B 45 or B 48 to each side.

2x M12 in double shear.

See attached spreadsheet.

OR use 2x Multibrace with.

Load/nail = 0.63 (basic) × 0.8 (ϕ) × 1.25 (steel plate) = 0.63

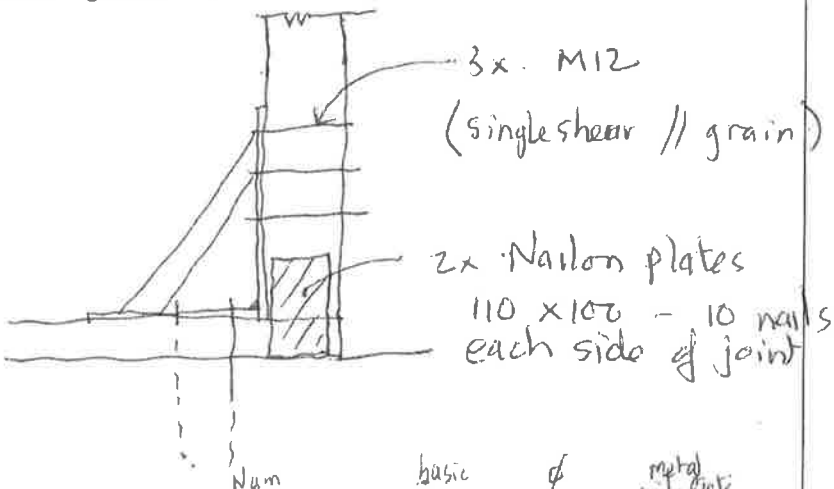
12.4 kN each plate = No. Nails = 12.4 / 0.63

= 20 nails.

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File Ref: 15165	By: RJO

Alternate hold down



a) Nail load = N_{um} × basic × ϕ × metal side plate
= 10 × 2 × 0.63 × .8 × 1.25 = 12.6

b) 3x Bolts = 27.8 kN.

BOLTED JOINT DESIGN - TO NZS 3603:1993

Client / Job Name: DICK - SIGNATURE - 130 RIDGEVIEW RD
File Number: 15165
Comment: UPLIFT AT OUTER END OF MAIN TRUSS

INPUT DATA	D	L	W/EQ	
Joint Load	0.00	0.00	24.80 kN	
Load Combinations (Load Factors)	D	L	W/EQ	*Check*
Load Combination 1	1.35	0.00	0.00	OK
Load Combination 2	1.20	1.50	0.00	OK
Load Combination 3	0.90	0.00	1.00	OK

Load type: Tens= 1, Compr= 0 (LT) **0** (for loads along member)
Load Angle to Grain: (ATG) **0** Deg
(0 = Parallel, 90 = Perpendicular)

Bolt diameter (Da) **12** mm (8, 10, 12, 16, 20, 24, 30)
Number of Rows of Bolts (R) **2**
Number of Bolts per row (C) **1**
NB: CALCS VALID FOR 4 OR LESS BOLTS ONLY

Timber Moisture State **DRY** (DRY or GREEN)
Single or Double Shear (ST) **DOUBLE** (SINGLE OR DOUBLE)
Metal Side Plate Factor **1.25** (1.0 no side plates OR 1.25 for metal sideplates)

Timber Thickness - Callup (W) **90** mm (15,19,35,45,65,90,130)
Effective Thickness is --> (EWF) **0.98** x Callup thickness

	DL	LL	WL
K1 Factor	0.60	0.80	1.00
Phi Factor	0.70	0.70	0.70

CALCULATED DATA

Effective Timber Thickness (EW)
(EW = W * EWF) = **88.2** mm

Angle of load to grain (ATGR)
(ATGR = ATG * PI / 180) = **0.00** Radians

Basic Load Parallel to Grain (PB) **10.4** kN (Taken from 3603
Basic Load Perpend to Grain (QB) **6.97** kN tables)
Load used (Single Shear) (NB) **10.40** kN
(NB = PB * QB / (PB * (Sin ATG)^2 + QB * (Cos ATG)^2))

Factor for Single/Double Shear (ST) **2** (1 for SINGLE or 2 for DOUBLE as per Table 4.9)
Timber Moisture State Factor **1.0** (1.0 for DRY or 0.7 for GREEN)
Total Number of Bolts in Joint (N)
(N = R * C) = **2** Bolts

(27)

BOLTED JOINT DESIGN - TO NZS 3603:1993

Ideal Load per Bolt (NW)
(NW = NB * ST * MSPF) = **26.00** kN

Total Load in Bolted Joint (LD)
(LD = NW * N) = **52.00** kN

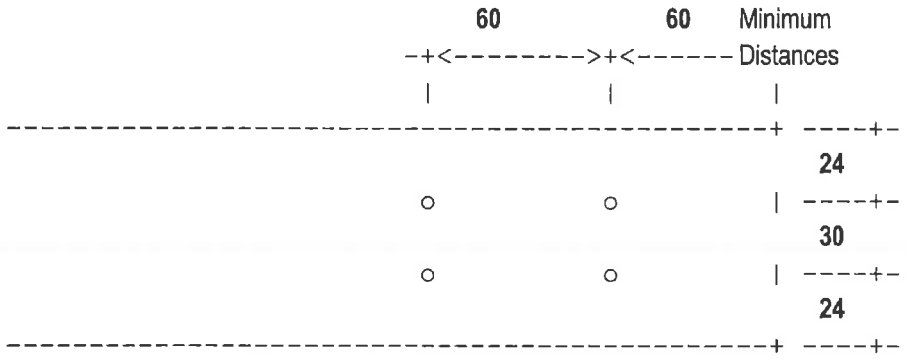
Factored Load Combinations	Factored Load	K1 * Phi	Allow Ld
Load Combination 1	**0.00** kN	**0.42**	**21.84** kN - OK
Load Combination 2	**0.00** kN	**0.56**	**29.12** kN - OK
Load Combination 3	**24.80** kN	**0.70**	**36.40** kN - OK

BOLT SPACINGS

	Tension Along	Compr Along	Load Across	Actual Used
End Distance	96	60	60	60 mm
Edge Distance - Loaded edge	24	24	48	24 mm
Edge Distance - Unloaded edge	24	24	24	24 mm
Bolt Spacing - Between Bolts on Row	60	60	60	60 mm
Bolt Separation - between rows	30	30	60	30 mm

NB: For loads applied at more than 22.5 Degrees to Grain
the distances for perpendicular loading are used.

GRAPHIC SUMMARY



2 Row x 1 M12 Bolts/Row (Total=2)

Assumed direction of load = -------> (COMPRESSION)

BOLTED JOINT DESIGN - TO NZS 3603:1993

Client / Job Name: DICK - SIGNATURE - 130 RIDGEVIEW RD
File Number: 15165
Comment: UPLIFT AT OUTER END OF MAIN TRUSS

INPUT DATA	D	L	W/EQ	
Joint Load	0.00	0.00	24.80 kN	
Load Combinations (Load Factors)	D	L	W/EQ	*Check*
Load Combination 1	1.35	0.00	0.00	*OK*
Load Combination 2	1.20	1.50	0.00	*OK*
Load Combination 3	0.90	0.00	1.00	*OK*

Load type: Tens= 1, Compr= 0 (LT) **0** (for loads along member)
Load Angle to Grain: (ATG) **0** Deg
(0 = Parallel, 90 = Perpendicular)

Bolt diameter (Da) **12** mm (8, 10, 12, 16, 20, 24, 30)
Number of Rows of Bolts (R) **1**
Number of Bolts per row (C) **3**
NB: CALCS VALID FOR 4 OR LESS BOLTS ONLY

Timber Moisture State **DRY** (DRY or GREEN)
Single or Double Shear (ST) **SINGLE** (SINGLE OR DOUBLE)
Metal Side Plate Factor **1.25** (1.0 no side plates OR 1.25 for metal sideplates)

Timber Thickness - Callup (W) **90** mm (15,19,35,45,65,90,130)
Effective Thickness is --> (EWF) **0.98** x Callup thickness

	DL	LL	WL
K1 Factor	0.60	0.80	1.00
Phi Factor	0.70	0.70	0.70

CALCULATED DATA
Effective Timber Thickness (EW)
(EW = W * EWF) = **88.2** mm

Angle of load to grain (ATGR)
(ATGR = ATG * PI / 180) = **0.00** Radians

Basic Load Parallel to Grain (PB) **10.4** kN (Taken from 3603
Basic Load Perpend to Grain (QB) **6.97** kN tables)
Load used (Single Shear) (NB) **10.40** kN
(NB = PB * QB / (PB * (Sin ATG)^2 + QB * (Cos ATG)^2))

Factor for Single/Double Shear (ST) **1** (1 for SINGLE or 2 for DOUBLE as per Table 4.9)
Timber Moisture State Factor **1.0** (1.0 for DRY or 0.7 for GREEN)
Total Number of Bolts in Joint (N)
(N = R * C) = **3** Bolts

BOLTED JOINT DESIGN - TO NZS 3603:1993

Ideal Load per Bolt (NW)
(NW = NB * ST * MSPF) = **13.00** kN

Total Load in Bolted Joint (LD)
(LD = NW * N) = **39.00** kN

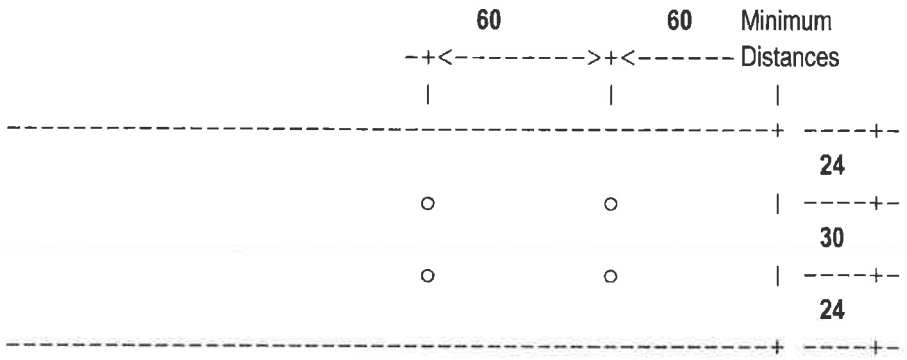
Factored Load Combinations	Factored Load	K1 * Phi	Allow Ld
Load Combination 1	**0.00** kN	**0.42**	**16.38** kN - OK
Load Combination 2	**0.00** kN	**0.56**	**21.84** kN - OK
Load Combination 3	**24.80** kN	**0.70**	**27.30** kN - OK

BOLT SPACINGS

	Tension Along	Compr Along	Load Across	Actual Used	
End Distance	96	60	60	60	mm
Edge Distance - Loaded edge	24	24	48	24	mm
Edge Distance - Unloaded edge	24	24	24	24	mm
Bolt Spacing - Between Bolts on Row	60	60	60	60	mm
Bolt Separation - between rows	30	30	60	30	mm

NB: For loads applied at more than 22.5 Degrees to Grain
the distances for perpendicular loading are used.

GRAPHIC SUMMARY



1 Row x 3 M12 Bolts/Row (Total=3)

Assumed direction of load = -------> (COMPRESSION)

Memorandum from licensed building practitioner (certificate of design work)

Section 30C or 45, Building Act 2004

THE BUILDING

Street address: **130 Ridgeview Road**

Suburb: **Redwood Valley**

Town / City: **NELSON** **Post code:** **7081**

THE OWNER

Name: **J & J Dick - Signature Homes**

Mailing address: **308 Queen St**

Suburb: **Richmond**

Town / City: **NELSON**

BASIS FOR PROVIDING THIS MEMORANDUM

I am providing this memorandum in my role as:

Specialist designer who carried out specific elements of RBW work as outlined in this memorandum - other designers will be providing a memorandum covering the remaining RBW design work.

IDENTIFICATION OF DESIGN WORK THAT IS RESTRICTED BUILDING WORK

I carried out/supervised the following design work that is restricted building work:

PRIMARY STRUCTURE

Design work that is restricted building work	Description of restricted building work	Carried out or supervised	Reference to plans and specifications
[Tick]	*[If appropriate, provide details of the restricted building work]*	*[Specify whether you carried out theis design work or supervised someone else carrying out this design work]*	*[If appropriate, specify references]*
Foundations and subfloor framing ✓	House foundations including piles	Carried Out	Engineering Details - Dick sheets 1 & 2
Walls ✗		N/A	
Roof ✓	Truss fixings - SED connections (3)	Carried Out	TCEL Sketch Details D1 to D4
Columns and beams ✓	Support Posts to SED truss connections	Carried Out	TCEL Sketch Details D1 to D4
Bracing ✗		N/A	

Other ☒		N/A	

EXTERNAL MOISTURE MANAGEMENT SYSTEMS			
Design work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**	**Reference to plans and specifications**
Damp proofing ☒		N/A	
Roof cladding or roof cladding system ☒		N/A	
Ventilation system (for example, subfloor or cavity) ☒		N/A	
Wall cladding or wall cladding system ☒		N/A	
Waterproofing ☒		N/A	
Other ☒		N/A	

FIRE SAFETY SYSTEMS			
Design work that is restricted building work	**Description of restricted building work**	**Carried out or supervised**	**Reference to plans and specifications**
Emergency warning systems ☒		N/A	

Note: The design of fire safety systems is only restricted building work when it involves small-to-medium apartment buildings as defined by the Building (Definition of Restricted Building Work) Order 2011

WAIVERS AND MODIFICATIONS

Waivers or modifications to the Building Code are required: ☒ No

[List relevant clause numbers of building code]	*[Specify nature of waiver or modification of building code required]*

ISSUED BY

Name:	David King	Chartered Professional Engineer number: 145511
Company:	Tasman Consulting Engineers Limited	TCEL Reference: 15165
Mailing address:	P.O. Box 3631, Richmond 7050	
Telephone number:	03 544 6404	
Fax number:	03 544 6694	
Email address:	admin@tcel.co.nz	

DECLARATION

I David King, LBP, state that I have applied the skill and care reasonably required of a competent design professional in carrying out or supervising the Restricted Building Work described on this form and that based on this I also state that the RBW

a) complies with Building Code Clauses indentified on this form

b) complies with the building code subject to any waiver or modification of the building code recorded on this form.

Signature: David King

Date: 30 June 2015

Building Code Clause(s)..... B1 .....

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]
(Design Firm)

TO: ..... J & J Dick - Signature Homes .....
(Owner/Developer)

TO BE SUPPLIED TO: ..... Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....
(Description of Building Work)

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....
(Address)
LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** ....

We have been engaged by the owner/developer referred to above to provide .....
..... design and detailing ..... services in respect of the requirements of
(Extent of Engagement)
Clause(s) ..... B1 ..... of the Building Code for

All ☐ or Part only ☒ (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

☒ Compliance Documents issued by the Ministry of Business, Innovation & Employment ..... B1/VM1 ..... or
(verification method / acceptable solution)

☐ Alternative solution as per the attached schedule ..... N/A .....

The proposed building work covered by this producer statement is described on the drawings titled ...*as referenced in the attachment to this statement*... and numbered...*as referenced in the attachment to this statement*... together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

(i) Site verification of the following design assumptions as specified in the attachment to this statement
(ii) All proprietary products meeting their performance specification requirements;

I **believe on reasonable grounds** that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation: [*as described in the attached inspection schedule*]

☐CM1 ☒CM2 ☐CM3 ☐CM4 ☐CM5 (Engineering Categories) or ☐ as per agreement with owner/developer (Architectural)

I, ... David King ..... am:
(Name of Design Professional)

☒CPEng ..... 145511 ..... #

☐Reg Arch ..... #

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications: ..... ME(Civil) .....
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ☐

SIGNED BY ..... David King ..... ON BEHALF OF ..Tasman Consulting Engineers Limited .....
(Design Firm)

Date ..... 30 June 2015 ..... (signature) .....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

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TASMAN CONSULTING ENGINEERS

PRODUCER STATEMENT – PS1 – ATTACHMENTS

(To be read in conjunction with Pages 1 and 3)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]

TO: ..... J & J Dick - Signature Homes ..... [Issue Date: 30/06/2015]

TO BE SUPPLIED TO: ..... Tasman District Council .....

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

Items covered by this Producer Statement:

1	Foundations including overheight foundations wall & piled foundations outside the approve 3604 area
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

Drawings describing the work covered by this Producer Statement:

Drawing/Sketch Title	Reference	No of Sheets	Date
Tasman Consulting Engineers – Dick – Engineering Details	15165	4	27-05-15
Tasman Consulting Engineers – Dick – Truss Hold Down Sketch Details (D1 to D4)	15165	4	30-06-15

Design assumptions to be verified during construction:

1	Piles and other foundations bear on ground complying with the requirements of NZS 3604:2011
2	
3	

Limitations:

- *This Producer Statement remains current for 12 months from the date of issue*
- *This Producer Statement does not cover stability of the site*
- *This Producer Statement does not cover waterproofing of retaining walls or slabs*

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TASMAN CONSULTING ENGINEERS

PRODUCER STATEMENT – PS1 – INSPECTION SCHEDULE

(To be read in conjunction with Pages 1 and 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]

TO:..... J & J Dick - Signature Homes ..... [Issue Date: 30/06/2015]

TO BE SUPPLIED TO:..... Tasman District Council.....

IN RESPECT OF:..... Proposed new house foundations and retaining wall .....

AT:..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

The following structural elements of this project require inspection by a representative of Tasman Consulting Engineers during construction in order to ensure compliance with the New Zealand Standard Code of Practice under which they were designed. Such inspection is considered an integral part of the structural design process, and is carried out to ensure that the structure will perform adequately.

Failure to carry out the required inspections listed below will restrict Tasman Consulting Engineers ability to issue a Producer Statement – Construction Review (PS4) for use in attaining a code compliance certificate for the completed work. It may also in some circumstances limit the designer's liability for subsequent problems. This applies particularly to foundation inspection / soil tests, and to inspection of steel placement in reinforced concrete/masonry components where verification of compliance with the structural design may not be possible after construction is complete.

Please book at least 24 hours before inspections are required. Ph (03) 544 6404

Element	Item(s) requiring inspection	Time of inspection
Pole retaining walls	Pole foundation holes	After drilling
	Poles and wall lining	After construction
	Drainage and backfilling	During backfilling
Foundations outside 3604 area	Foundation excvations	After excavation
	Pile foundation holes	After drilling
	Soil strength testing	After piles drilled & foundations excavated
	Foundation reinforcing	After placing reinf
	Wall reinforcing	After placing reinf
	Stripping to slab area	After stripping
	Drainage to O/H walls	After placing drain
	Placement & compaction of hardfill	After placing hardfilling
	Floor slab reinforcing	After placing reinf
SED truss hold down connections	Truss hold down connectors	After fixing / before interior lining

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]
(Construction Review Firm)

TO: .....J & J Dick - Signature Homes.....
(Owner/Developer)

TO BE SUPPLIED TO: ..... Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: .....Proposed new house foundations and retaining wall.....
(Description of Building Work)

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON.....
(Address)
LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** ....

Tasman Consulting Engineers Limited .... has been engaged by .....J & J Dick - Signature Homes.....
(Construction Review Firm)

To provide☐CM1☐CM2☐CM3☐CM4☐CM5*(Engineering Categories)* or ☐ observation as per agreement with owner/developer

or ☒other ..... observation of the items listed in the attached schedule ..... services
(Extent of Engagement)

in respect of clause(s) .....B1 .....of the Building Code for the building work described in documents relating to Building Consent No..... Click here to enter text. ..... and those relating to Building Consent Amendment(s) Nos. ..... Click here to enter text. ..... issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No .... (copies attached) or by the attached Schedule ☒ have been issued during the course of the works.

On by the basis of ☐this ☒these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐All ☒Part only of the building works have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, with respect to Clause(s)..... B1 ..... of the Building Code.

I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I,.....David King.....am: ☒CPEng No. ..... 145511.....
(Name of Construction Review Professional)
☐Reg Arch No. .....

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications: ..... ME(Civil) .....

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.

The Construction Review Firm is a member of ACENZ : ☐

SIGNED BY .....David King..... **ON BEHALF OF**..... Tasman Consulting Engineers Limited .....

Date: ..... Click here to enter a date. .....Signature:..... .....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

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TASMAN CONSULTING ENGINEERS

PRODUCER STATEMENT – PS4 – ATTACHMENTS

(To be read in conjunction with Page 1)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Reference: 15165]

TO: ..... J & J Dick - Signature Homes .....[Issue Date: Click here to enter a date.]

TO BE SUPPLIED TO: ..... Tasman District Council.....

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

Items covered by this Producer Statement:

1	Foundations including overheight foundations wall & piled foundations outside the approve 3604 area
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

The following significant changes were authorised to the design during the course of works:

None ☒ or as shown on the attached sheets numbered .....Click here to enter text. .....

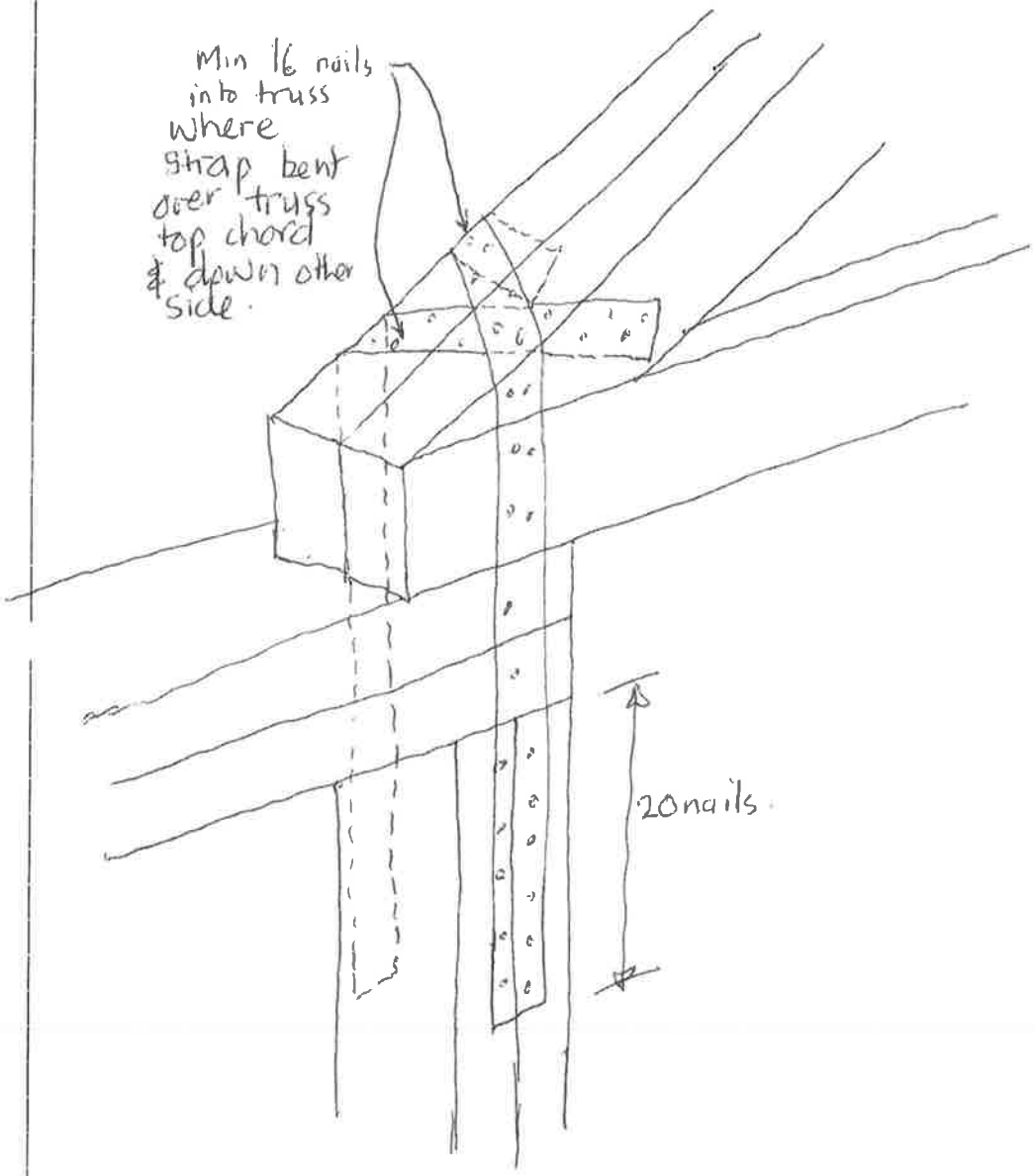
INSPECTION RECORDS

The following is a record of inspections and observations carried out during construction.

Item	Comments
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

Project: Dick	Page No: D1
	Date: 30-06-15
File Ref: 15165	By: RJO



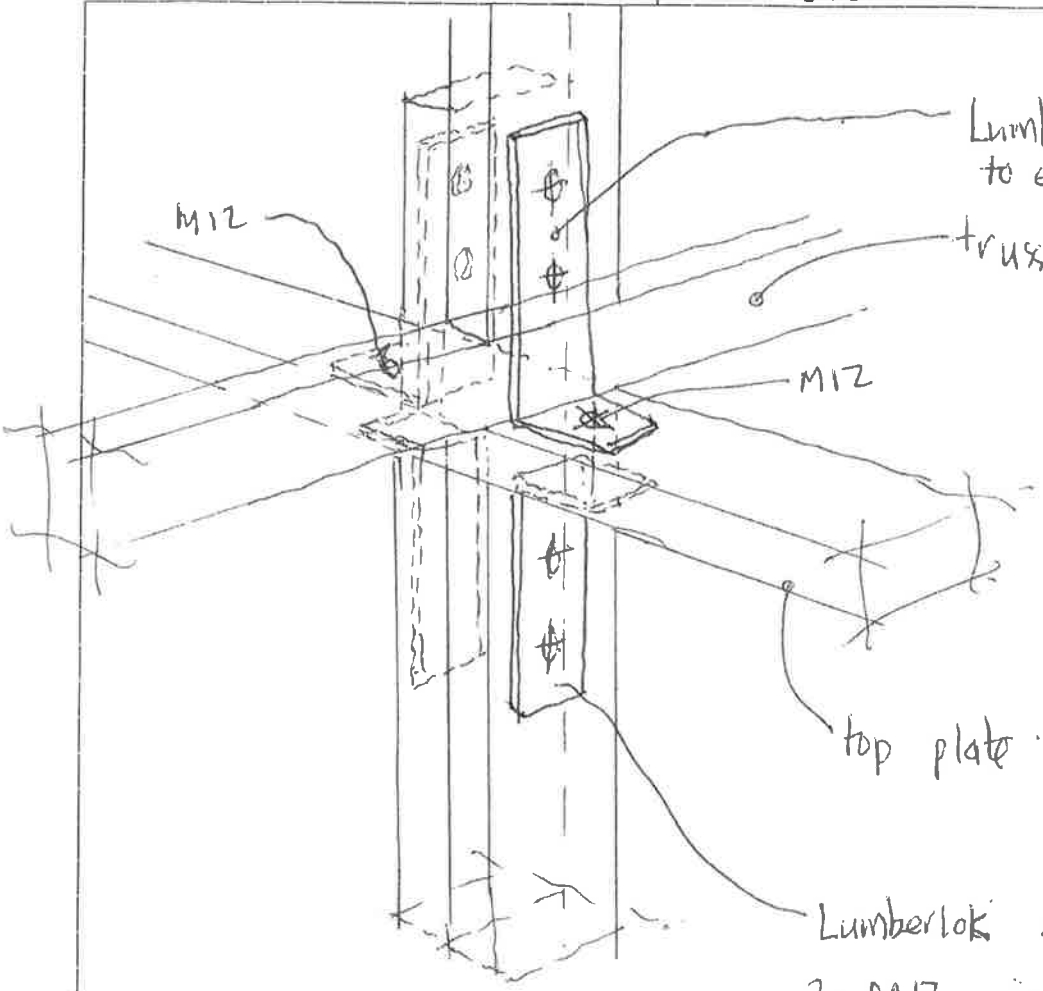
POST to TRUSS CONNECTION

nts.

For (1) & (2)

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
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t: (03) 544 6404
w: www.tcel.co.nz

Project: Dick	Page No: D2
	Date: 30-06-15
File Ref: 15165	By: RJD

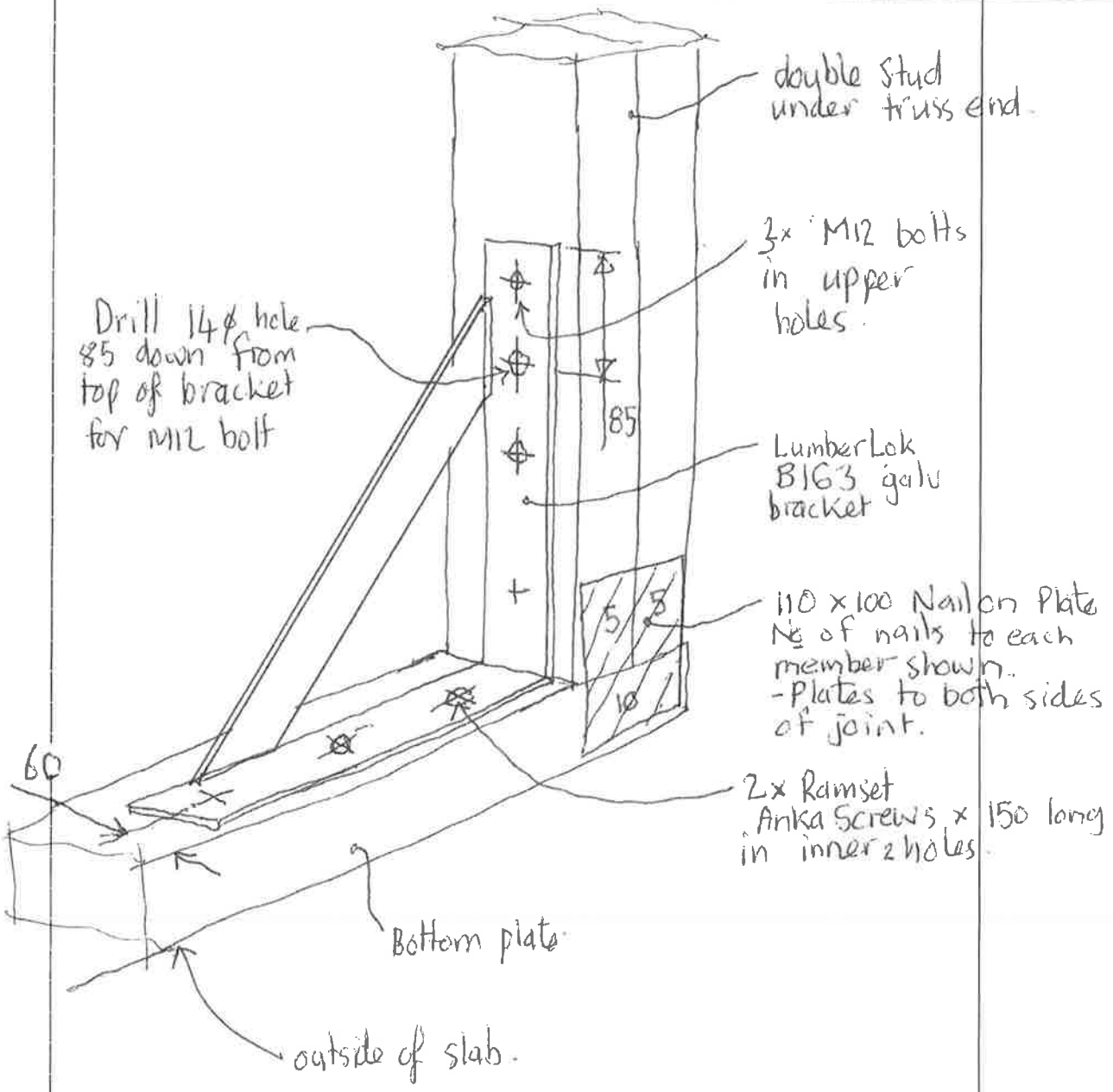


TRUSS TO POST CONNECTION

FOR (3)

TASMAN CONSULTING ENGINEERS
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w: www.tcel.co.nz

Project: Dick	Page No: 03
	Date: 30-06-15
File Ref: 15165	By: RJD

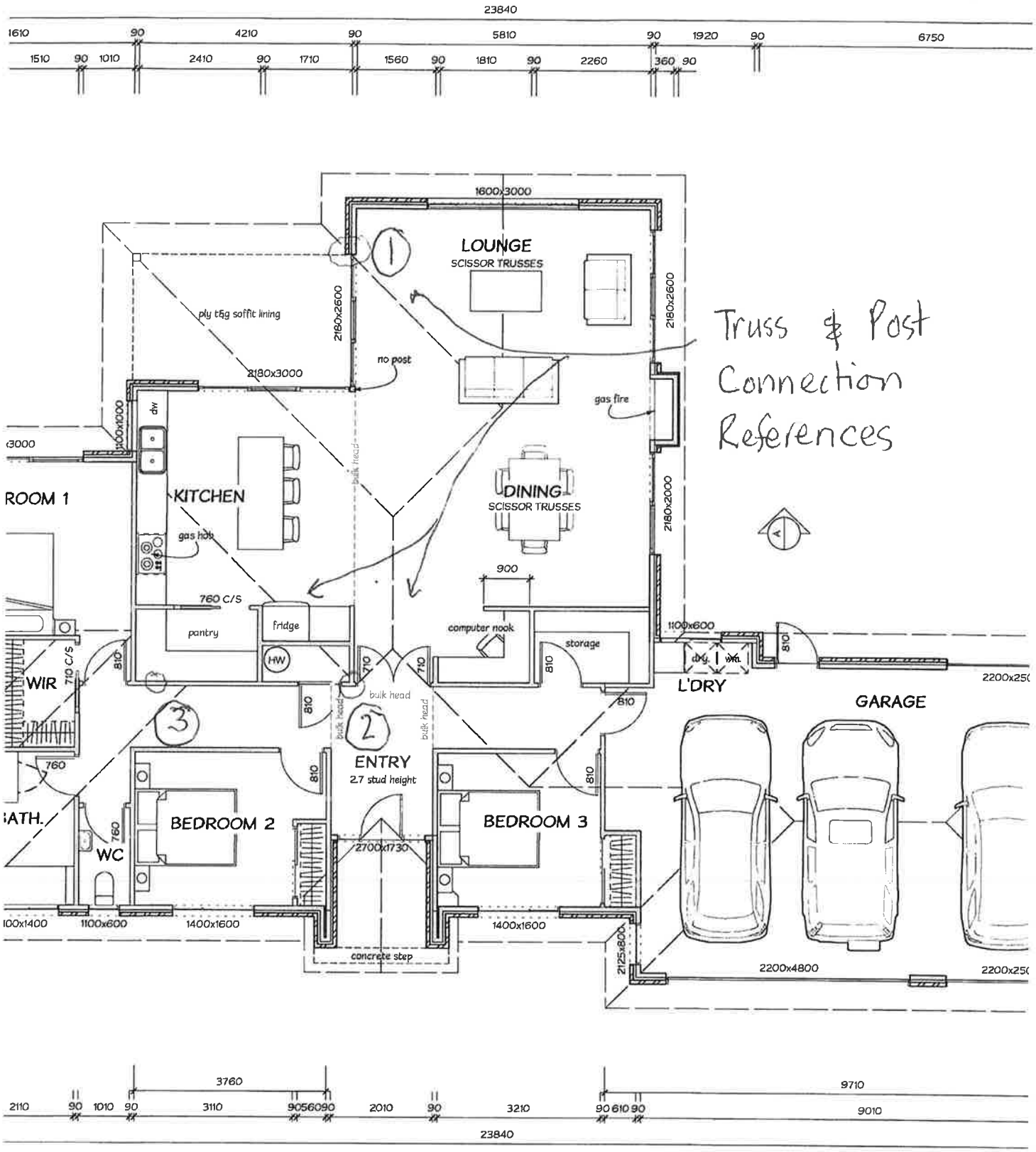


POST BASE FIXING

nts.

for (1) & (2) & (3)

Dick 15'65. D4



GROUND FLOOR PLAN 1:100

AREA OVER FRAMING 220m²

AREA OVER 70 SERIES BRICK 229.44m²

...e drawings are limited to and by the extent of the detail ...ired in the drawings to meet the current New Zealand Building ...e (NZBC). Where detail is required for construction and to ...onstrate compliance with the current NZBC, a specific request ...uld be made for the required detail to be supplied. No liability ...e accepted for any detail or construction not covered in these ...ings and/or carried out by persons other than the designer ...ucing these documents.

...GNATURE HOMES Ltd.

3 BEDROOM RESIDENCE
JACKIE & JEFF DICK
130 RIDGEVIEW ROAD, APPLEBY

FLOOR PLAN

Scale: 1:100 | Drawn: JA | Date:

City Certifying Consultants Ltd

Ph 09 411 7515
Email: admin@citycertifiers.co.nz

1st July 2015

Allan Gowan
Gowans Walters & Associates Ltd
P.O. Box 3608
Richmond

Re: Building Consent Application – 130 Ridgeview Road

Consent Number 150582

Dear Allan,

City Certifying Consultants Ltd an accredited Building Consent Authority has been engaged by Tasman District Council to assist in processing Building Consent Applications. Your application has been forwarded to us and we have noted that some additional information is required.

Please respond to this request **within 20 working days** and provide a covering letter answering points listed below and if providing additional or revised drawings please ensure that they are appropriately referenced and to the same scale and sheet size as the originals.

To submit the requested documentation:

Please provide all documents in pdf format and email to citycertifiers@xtra.co.nz

Please do not lock or password-protect PDF's, as they have to be merged into final consent documents.

B1 Structure - Building

1. Sheet 04 – As requested - Please revise top cover note to concrete slab reinforcing in accordance with the Engineers specified cover of 40mm . Refer S1-4 Attached
2. As requested - Please provide Specific Engineering Design for hold down fixings at point loads as specified on the Truss Design. *You have noted in your response letter it is attached but no documentation has been provided.* N/A
3. As requested - Bracing Calculations – Please revise data page of Bracing Calculations to show the sub floor as concrete slab. *You have noted in your response letter it is attached but no documentation has been provided.* N/A

E 3 Internal Moisture

4. The Manufacturers documentation for Ardex Superflex is only the BRANZ appraisal. Please also supply the manufacturer's specification and installation details.

Attached

If you wish to discuss this request you can contact the writer at citycertifiers@xtra.co.nz

Regards

Jan Maguire

c.c. allan@gowanswalters.co.nz

ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part

Single Component Undertile Waterproofing Membrane

BRANZ Appraised

Low VOC content – meets Green Building Council of Australia Green Star IEQ-13 requirements

Fast drying one part acrylic membrane

DISCLAIMER The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable New Zealand Standard, our instructions and recommendations and only for the uses they are intended. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program. Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may effect specific installation recommendations. The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part Undertile Waterproofing Membrane

BRANZ Appraised
Appraisal No.472 [2011]

BRANZ Appraised
Appraisal No.473 [2011]

PRODUCT DESCRIPTION

Ardex WPM 001 (Superflex Bathroom & Balcony Premixed 1 Part) is a tough, ready to use waterproofing membrane specifically designed for use under tiles. Ardex WPM 001 has been uniquely formulated with synthetic microfibres to increase its strength and eliminate the need for a separate reinforcement mat. Ardex WPM 001 is based on the most advanced acrylic polymer technology, and is totally resistant to re-emulsification once cured.

Ardex WPM 001 is flexible, safe to use, low in odour, and is fully compatible with polymer modified tile adhesives. Ardex WPM 001 is one of the fastest drying one part acrylic membranes on the market – normally ready to tile in 48 hours @ 23°C.

Ardex WPM 001 meets the Green Building Council of Australia Green Star IEQ-13 requirements for Architectural Sealant when tested in accordance with SCAQMD Method 304-91 Determination of Volatile Organic Compounds (VOC) in Various Materials as referenced by South Coast Air Quality Management Division (SCAQMD) Rule 1168.

FEATURES/BENEFITS

- Fast drying Ardex WPM 001 can be tiled over in 48 hours in non critical areas*
- Liquid reinforced: Excellent strength, eliminates need for reinforcing mat
- Flexible: Accommodates normal building movement class 3 membrane as per AS/NZ 4858: 2004 Wet Area Membranes
- Advanced acrylic: Will not re-emulsify once cured
- Designed for tiling - Fully compatible with Ardex tile adhesive systems
- Water based, safe to use, low odour & easy cleaning
- CSIRO Appraisal #91 for undertile waterproofing in shower recesses
- Conforms to the requirements of AS/NZ 4858: 2004 Wet Area Membranes. (Ref: CSIRO Report 3779)

*Critical areas include areas where the membrane is applied at greater than 0.5mm or over impermeable substances such as over bond breakers or incorporating other reinforcement. Longer drying times are necessary in these areas.

APPLICATION RANGE

Performance Levels
Commercial and residential

Location
Internal wet areas, balconies, decks, and other areas that will be tiled or otherwise protected from regular foot traffic.

Surfaces
Walls & floors

Substrates

Concrete	Cured for min. 28 days or sealed when set with one coat of Ardex WPM 300 (HydrEpoxy 300) at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. External wet concrete should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Renders and screeds	Cured for min. 7 days or sealed when set with one coat of Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight. Wet render should be allowed to dry thoroughly or sealed with one coat of Ardex WPM 300 as above.
Fibre cement	Suitable for wet area grade fibre cement.
Plasterboard	Wet area grade only.
Plywood	Structural plywood (PAA branded), marine grade or other wet area grade only.
Particleboard	Wet area grade, internal use only (special preparation is required – contact Ardex).
Permanent Immersion	In conditions of permanent immersion, it is recommended that Ardex WPM 002 (Superflex Two Part) is used. Must be covered with tiles for full immersion.

Contact Ardex for use over existing membranes, covering materials, and any other substrates not listed.

SPECIFICATION CLAUSE

ARDEX WPM 001 (Superflex Premixed)
The waterproofing membrane shall be Ardex WPM 001: a one part acrylic modified fibre reinforced membrane formulated to provide a tough, long lasting water barrier under tiling systems.

PACKAGING

Single component: 20kg (approx 15 litres) or 6.5kg (approx 5 litres).

TABLE 1

	Thickness per Coat		Total Dry Film Thickness (2 coats)	Theoretical Coverage		Per Unit
	Dry Film	Wet Film		Per coat	For 2 coats	
FLOORS	0.5mm	1.0mm	1.0mm	15m²	7.5m²	20kg(15L) unit
WALLS	0.25mm	0.5mm	0.5mm	30m²	15m²	20kg(15L) unit

SHELF LIFE

12 months when stored in the original unopened packaging, in a dry place at 23°C. Do not store in direct sunlight. Replace lid tightly after use. Use remaining contents from part used containers within 3 months.

COVERAGE

Two coats are recommended for an effective waterproof membrane.

Coverage will vary depending on the porosity of the surface.

One 20kg (15 litre) unit will cover approximately 7.5-15m² (based on two coats) depending on area requirements between wall and floor surfaces to be treated. Refer Table I.

DRYING TIMES

Recoat time

1-2 hours at (23°C/50% RH) between first and second coats. Alternatively, if a polyester mat is used between coats then the second coat can be applied whilst the first coat is still wet.

Dry through

The slowest drying areas are those where the membrane has been applied over a silicone bond breaker, eg. wall and floor junctions. The membrane cannot be tiled over until these critical areas are completely dry. Ardex WPM 001 is totally dry in 48 hours at 23°C/50% RH, but can take up to 72 hours at 10°C/50% RH in corners or for thick films.

Fully cured

The shower should not be used until the membrane has reached its full strength. Ardex WPM 001 membrane is fully cured after 3 days at 23°C, or after 5 days at 10°C.

Drying times will vary depending on humidity, surface temperature and surface porosity.

Do not apply on substrates where the surface temperature is below 10°C or above 35°C.

CLEANING

Wash hands, brushes, rollers, etc, with water while the membrane is still fresh. Remove cured material with mineral turpentine.

SAFETY PRECAUTIONS

Do not use the product in the following situations:

- Areas subject to negative hydrostatic pressure or rising damp, unless treated with Ardex WPM 300.
- Where the substrate is wet – wet surfaces can be sealed with one coat of Ardex WPM 300 at a coverage rate of 3.0 square metres per litre and allowed to cure overnight.
- Where rain is imminent.
- Where the membrane will be left exposed and subjected to regular foot traffic.
- On glazed, glass or other totally impervious surfaces (eg. areas pre-treated with water repellants).
- Where the surface temperature is below 10°C or greater than 35°C.
- All floor areas must have adequate falls either built into the substrate or achieved with a sand/cement screed prior to application of the Ardex WPM 001.

For substrates or situations other than those listed contact Ardex.

SAFETY DATA

Ardex WPM 001 is non-hazardous and non dangerous. It may produce discomfort of the eyes, respiratory tract and skin. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin. Wear eye/face protection. In case of contact with eyes, rinse with plenty of water and seek medical advice.

ADDITIONAL INFORMATION IS LISTED IN THE MATERIAL SAFETY DATA SHEET.

QUALITY PRODUCT

Ardex WPM 001 is manufactured and tested to Ardex procedures which are maintained in accordance with Quality System Standard ISO 9001.

ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part Undertile Waterproofing Membrane

USER NOTES

The technical details and recommendations contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is the responsibility of the user to ensure that the product is used in accordance with Ardex instructions and in applications for which they are intended.

APPLICATION

Apply Ardex WPM 001 by brush or roller. A medium nap (12-15mm pile) paint roller is recommended. New rollers should be dampened with water before being used for the first time.

For best results with a paint brush use a good quality, 50mm long bristle variety.

To achieve the required dry film thickness per coat, application must consist of laying the product onto the surface and light finish the surface. Do not try to apply in the same manner as a building paint. A conventional building paint is normally applied at 25-40 micrometers wet film thickness while Ardex WPM 001 needs to be applied at between 0.5 and 1.0 mm per coat depending on product and application (Refer Table 1).

Critical Areas:

INTERNAL WET AREAS

1. Construction should be in accordance with Australian 3740 - 2004 Waterproofing of wet areas within residential buildings.
2. All render and tile bed requirements should be completed before application of the membrane and tiles or other floor coverings should be direct bonded to the membrane.
3. Ensure wall & floor sheets are installed as per sheet manufacturer's recommendations.
4. Ensure suitable brick/concrete hobs are used (do not use timber).
5. Ensure that falls to the waste are min 1:60 (ie. approx. 30mm in 2mtr)) before waterproofing. Ensure
   outlet pipes are fixed securely and that the waste or drainage flanges are recessed into the floor.
6. Avoid sheet joints in shower recess floor. Ensure that sheets are securely fixed to the wall at the bottom edge, and sheet joints are sealed with a neutral cure silicone sealant spread approximately 6mm on either side of the joint.
7. Treat nail and screw holes with neutral cure silicone sealant.
8. Seal the perimeters of taps, shower outlets and waste outlets with neutral cure silicone sealant.
9. Apply a bead of neutral cure silicone sealant to all horizontal and vertical corners.
10. Apply a bead of neutral cure silicone sealant to the junction of the hob or angle and walls. Spreading the sealant to 6mm on either side of the joint.
11. Waste outlets shall incorporate a puddle flange or similar in accordance with AS3740 & the top surface shall be set flush with the surface to which the membrane is to be applied. A bead of neutral cure silicone shall be applied across the intersection of the puddle flange and the screed/ floor.
12. Apply the membrane to the entire shower recess floor and down into waste or drainage flange. Apply the membrane over the hob and at least 150mm beyond the outside edge of the hob (ideally to entire wet area floor).
13. Apply the membrane 1800mm up the walls or to the height of the shower rose within the shower recess.
14. Install the shower screen to inside edge of the hob.

Fig.1 – Shower Recess – Critical Areas

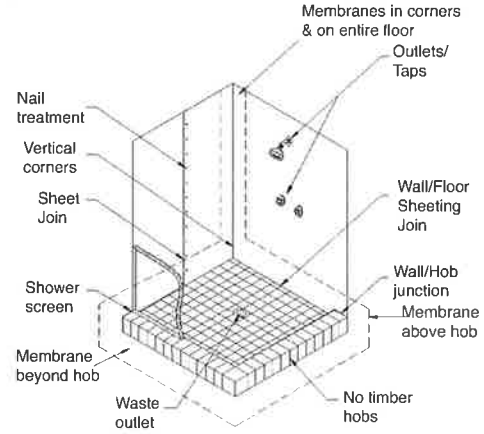
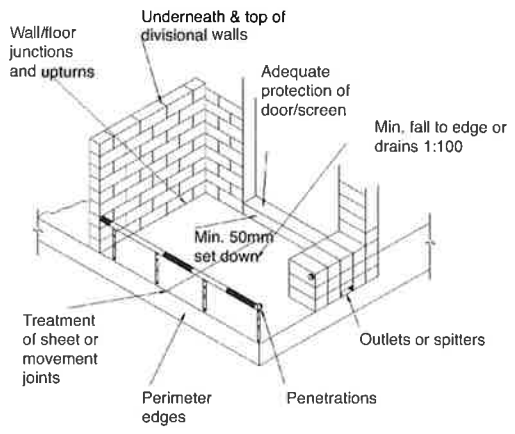


Fig.2 – Balcony – Critical Areas



BALCONIES AND DECKS

1. Ensure that the deck is constructed with falls to edge/drains of min 1:100 (ie. 20mm in 2m) or else achieve the fall with a sand/cement screed.
2. Ensure a min set down (step down) of 50mm to the finished floor level (ie. top of tiles).
3. Ensure suitable flashing is installed, ideally prior to the installation of the balcony screen/ sliding door.
4. Treat any sheet joints with a neutral cure silicone prior to waterproofing.
5. Prepare and seal all wall/floor junctions with a bead of neutral cure silicone.
6. Apply the membrane up the step down and as far up underneath the screen door flashing as possible (ideally waterproof prior to installing door).
7. Where possible, apply the membrane prior to building divisional walls, or other items such as planter boxes.
8. Apply the membrane to the entire balcony floor and at least 50mm up the wall above the top surface of the finished tiles and finished below the wall drainage vents.
9. Apply the membrane to the top of the parapets and divisional walls, or else install suitable metal capping.
10. Apply the membrane down over the front edge of the balcony onto the drip rail.
11. Carefully seal any gaps around balcony penetrations prior to applying the membrane.
12. Apply the membrane down into outlets and drains, ensuring excess material is removed.
13. Ensure all weep holes are above the membrane application area.

APPLICATION NOTES

Surface preparation

- Ensure all surfaces are structurally sound and totally dry. The pores of concrete surfaces should be open (absorbent surface). All sheet substrates must be securely fixed in accordance with the manufacturers instructions.
- Falls to outlets of at least 1:60 or approx. 30mm in 2mtr (wet areas) or 1:100 externally, must be achieved prior to tiling.
- The surface to be coated should be free from dust, oil, paint, curing compounds and any other contaminating materials.
- Damaged concrete should be repaired (leveled) and surface defects including all cracks and sharp protrusions should be treated prior to the application of the membrane.
- Remove laitance on concrete or screeds by mechanical means.
- Highly dense (>40MPa) or steel trowelled concrete should be roughened by suitable mechanical means (shot blasting, grinding, etc).

Priming

The primer is a critical part of the waterproofing system. Apply one coat of Ardex WPM 265 (Sheltercoat/ Superflex Water Based Primer) by brush or roller to all areas to be waterproofed including the floor waste. Allow the primer to completely dry prior to the application of the Ardex WPM 001 membrane. This will take around 20-30 minutes depending upon weather conditions and porosity of the substrate. Coverage is approximately 6m^2 per litre. Plastic (eg. PVC) pipes should be primed with a solvent based plumbers pink primer. Prime metal surfaces with a suitable metal primer such as epoxy polyamide primer.

GENERAL APPLICATION

Crack preparation

Cracks <2mm:

Clean and remove any loose particles in the crack. Prime the crack and adjacent area carefully with Ardex WPM 265 and allow to dry before applying two coats of Ardex WPM 001 membrane in a band at least 200mm wide equidistantly across the crack, along the length of the crack.

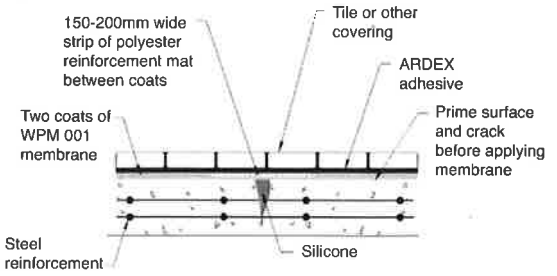
Cracks 2-6mm:

(Refer Fig. 3) Prepare and prime the crack as above. Apply a bead of neutral cure silicone into the crack and extend it 6mm either side. Apply a 300mm wide band of Ardex WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the cloth preferably using a fluted roller, and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Cracks >6mm:

Contact your local Ardex representative.

Fig.3 Crack Treatments



ARDEX WPM 001

Superflex Bathroom & Balcony Premixed - 1 Part Undertile Waterproofing Membrane

Movement/construction joints

Movement joints (<6mm)

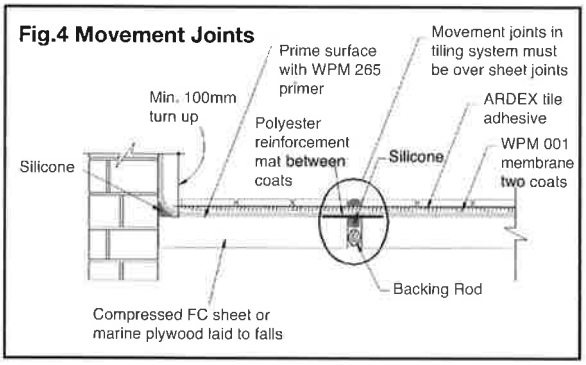
Use same procedure as in crack preparation.

Clean and prime the joint before filling it with a bead of neutral cure silicone and extending it 6mm each side of joint. Apply a 300mm wide band of Ardex WPM 001 equidistantly across the crack along the entire length of the crack. Place a 190mm wide band of Ardex "Deckweb" polyester woven cloth reinforcement over the applied membrane. Thoroughly wet out the mat and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat.

Construction joints (>6mm)

Use the same procedure as above, but replace the reinforcing mat with 120mm of Ardex Coving Bandage. Note: if tiling, movement joints should be taken to the surface of the tiles. Fill the joints between the tiles immediately above the movement joints with an appropriate joint sealant. (Refer Fig.4)

Fig.4 Movement Joints



Corners & coving areas

After priming with Ardex WPM 265 and allowing to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates in coving areas and corners.Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry.

Apply a first coat of Ardex WPM 001 to the area and allow the membrane to dry.

Apply a second coat ensuring that excess product is removed from the junction (the final dry film thickness should be minimum of 1.0mm). Alternatively, if a polyester reinforcement mat is used between coats then the second coat can be applied as soon as the mat is fully bedded into the first coat.

WALL/FLOOR JUNCTION

After priming with Ardex WPM 265 and allowing to dry, apply a generous bead (12mm) of neutral cure silicone sealant to seal all junctions between two substrates. Smooth over the silicone so that it extends 6mm up the wall and 6mm over the floor and allow to touch dry. Place a 190mm wide band of Ardex "Deckweb" polyester woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. The Ardex WPM 001 should be applied to at least 100 mm up the wall surfaces as per the recommendations for the application of Ardex WPM 001 to floors.

Walls

Two coats of Ardex WPM 001 are required to achieve a minimum total dry film thickness of 0.5mm.

After priming with Ardex WPM 265 and allowing to dry, apply two coats of Ardex WPM 001 (to achieve a minimum dry film thickness of 0.5mm) in two opposite directions. Wall sheet joints should be treated with a neutral cure silicone, PVC duct tape or base jointing compound. In balcony situations take the membrane up underneath any existing cover flashing or install appropriate flashing. Allow the first coat to dry before applying the second coat.

Floors

Two coats of Ardex WPM 001 are required to achieve a minimum total dry film thickness of 1.0mm. The flooring recommendations should be extended at least 150 mm up all perimeter walls.

Prime the surface with Ardex WPM 265 and allow to dry.

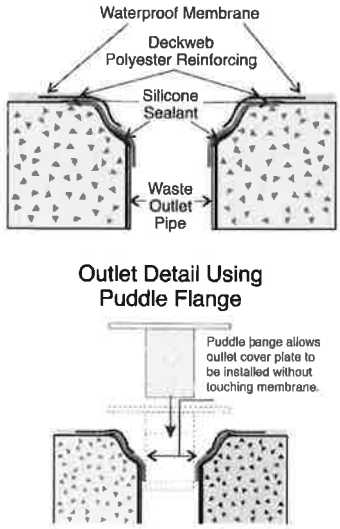
Apply the first coat over the primed surface and allow it to dry (1-2 hours at 23°C, 50%RH) before applying a second coat in an opposite direction. In shower recesses a drainage flange must be installed on all timber/sheeted floors, and are strongly recommended on all other substrates. Where possible rebate the flange into the floor. Seal the perimeter of the flange with neutral cure silicone treatment. If a flange is not installed the membrane must be applied down into the pipe. (Refer Fig.5) Allow the membrane to dry completely before tiling. Refer drying times above.

Waste Outlet

Prime the surface with Ardex WPM 265 and allow to dry. Surfaces of the outlet flange must be primed with an appropriate primer.

Apply Ardex WPM 001 over the adjacent floor surface extending down into the waste outlet flange overlapping the edge of flange by at least 30mm. Place Ardex "Deckweb" polyester woven mat reinforcement over the applied membrane. Thoroughly wet out the cloth and remove all creases in, or air pockets under the mat. Immediately apply a second coat to completely fill the mat. (Refer Fig. 5)

Fig.5 – Waste outlet



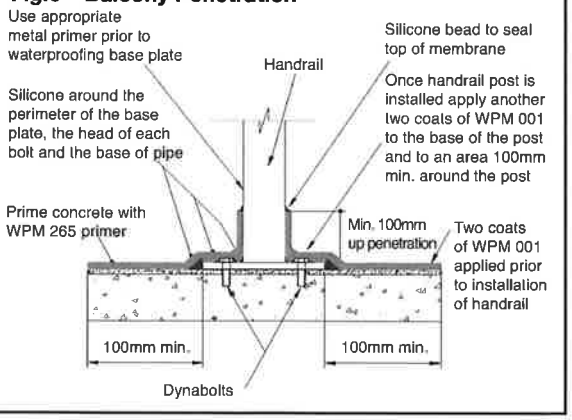
Balcony penetrations (Refer Fig.6)

All upstands are to be mechanically fixed through the membrane, which must be fabricated with a base plate flange.

Prime the metal with an appropriate metal primer such as an epoxy polyamide primer and allow to dry. Apply a 10mm bead of neutral cure silicone around the perimeter of the penetration. Apply the first coat of Ardex WPM 001 on the substrate and the flanged metal.

Allow first coat to dry before applying a second coat ensuring a finished dry film thickness of no less than 1.0mm is achieved. Place a suitable flashing collar around the penetration sealing it with a suitable sealant.

Fig.6 – Balcony Penetration



Tiling systems

It is advisable to conduct a flood test of the shower once the membrane has cured (normally after 72 hours), and before the tiling commences. A broad range of Ardex tile adhesives can be used over Ardex membranes. Contact Ardex or your nearest Ardex stockist for advice on the most suitable system.

TECHNICAL DATA

Ardex WPM 001 (Superflex Premixed) Characteristics of liquid

Form & Colour	Blue viscous paste
Type	Single part
Specific Gravity	Approx. 1.34kg/litre
pH of Liquid	8.5
Viscosity of Liquid (RVT Brookfield, spindle 7 speed 10)	52,000cps
Non Volatile Matter (volume) AS1321.10	50.3%±1
Tensile Strength 7 days dry AS1145	1.04 MPa
Full Cure	1.92 MPa
Elongation at Break 7 days dry AS1145	780%

Conforms to requirements of class 3 membrane of AS/NZ 4858: 2004 Wet Area Membranes.

NOTE: Most of the tests have been carried out in the Ardex laboratory under standard conditions (23±2°C, 50±5% R.H)

City Certifying Consultants Ltd

Ph 09 411 7515
Email: admin@citycertifiers.co.nz

2nd July 2015

Allan Gowan
Gowans Walters & Associates Ltd
P.O. Box 3608
Richmond

Re: Building Consent Application – 130 Ridgeview Road

Consent Number 150582

Dear Allan,

City Certifying Consultants Ltd an accredited Building Consent Authority has been engaged by Tasman District Council to assist in processing Building Consent Applications. Your application has been forwarded to us and we have noted that some additional information is required.

Please respond to this request **within 20 working days** and provide a covering letter answering points listed below and if providing additional or revised drawings please ensure that they are appropriately referenced and to the same scale and sheet size as the originals.

To submit the requested documentation:

Please provide all documents in pdf format and email to citycertifiers@xtra.co.nz

Please do not lock or password-protect PDF's, as they have to be merged into final consent documents.

B1 Structure - Building

1. Sheet 04 – As requested - Please revise top cover note to concrete slab reinforcing in accordance with the Engineers specified cover of 40mm . Refer S1-4

See sheet 04A

If you wish to discuss this request you can contact the writer at citycertifiers@xtra.co.nz

Regards

Jan Maguire

c.c. allan@gowanswalters.co.nz

5	Site Inspection Sheet

12 Brick veneer: Mid wall height to check brick ties, wall cavity, flashings and veneer construction.
LBP details required prior to inspection

15 Retaining wall drainage: Back-of-wall drains, drainage materials, basement moisture barrier required before covering in.

_____

_____

16 Wet area membrane (showers): Proprietary wet area shower/wall membrane installation before covering up.

_____

_____

17 Drainage/Sewer/Stormwater: All in-round sewer & storm-water pipes, connections etc before covering up.

_____

_____

21 Exterior drained land surface areas: sumps, subsurface stormwater drains, driveway/path falls and levels is required before placing concrete.

_____

_____

26 Final Inspection: Fire Free-standing When Free-standing fire has been completely installed & smoke alarms fitted

_____

_____

29 Final Inspection: Interior/Exterior/Certs CCC New Residential dwelling when construction has been completed & CCC application received with required final documentation

_____

_____

Inspection Details:

_____

_____

_____

_____

6	Site Inspection Sheet

Tasman District Council
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

Richmond
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

Murchison
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

Motueka
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

Takaka
14 Junction Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

Building Consent 150582

Form 5: Section 51, Building Act 2004

The building

Street address of building:	130 Ridgeview Road, Appleby
Legal description of land where building is located:	Lot 42 DP 480593
Valuation number:	1938078225
Building name:	Level/unit number:
Location of building within site block no:	

The owner

Name of owner:		J & J Dick
Contact person:		Jack & Jeff Dick
Mailing address:		18 Harcourt Place, Wakefield 7025
Street address/registered office:		
Phone number:	Landline:	Mobile: 021344099
	Daytime:	After hours:
Facsimile number:		Email address: jackie.jeff@xtra.co.nz
Website:		

First point of contact for communications with the council/building consent authority:
Full Name: Gowans Walters & Associates Limited
Mailing Address: PO Box 3608, Richmond
Phones:: 035449499
Email: allan@gowanswalters.co.nz

Building work

The following building work is authorised by this building consent:
Construct new dwelling with I/A garage & woodburner: Intended Use: Housing - detached

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

Building Consent Conditions

The building inspector is to be notified at least one working day prior to the following inspections:

This building consent is issued subject to the following conditions:

The owner or person undertaking the building work shall advise of completion of work by returning the "Application for Code Compliance Certificate" form which accompanied the consent.

A copy of this consent is to remain on site at all times and you should ensure that a copy is given to any tradesmen e.g. your builder, plumber and drainlayer.

A building consent lapses and is of no effect if the building work to which it relates does not commence within 12 months after the date of issue of the building consent or any further period that the building consent authority may allow.

Compliance schedule

A compliance schedule is not required for the building.

Attachments

Copies of the following documents are attached to this building consent:

Site Inspection Sheet

Application for Code Compliance Certificate

Signature

Position

TASMAN DISTRICT
Issued by
ADMINISTRATION OFFICER
pursuant to delegated
authority under the
Building Act
on behalf of
14/07/2015
COUNCIL

On behalf of: Tasman District Council Date: 14/07/15

Additional Information to Building Consent

The owner	
Name of owner:	J & J Dick
Contact person:	Jack & Jeff Dick

Building work

The following building work is authorised by this building consent:

Construct new dwelling with I/A garage & woodburner: Intended Use: Housing - detached

The following information accompanies Building Consent 150582 and should be read in conjunction with inspection conditions.

The Building Inspector is to be given 24 hours' notice before carrying out inspections:

It is Council policy to apply a standard charge; however it reserves the right to assess individual cases as required. Additional charges may be requested if costs or inspections incurred exceed the standard.

If this project contains Restricted Building Work (RBW), the details of the site Licensed Building Practitioner (LBP) will be required prior to the first inspection taking place.

At the completion of RBW, and in conjunction with the 'application for code compliance certificate' a Record of Works (RoW) will be required from any site LBP's that have been involved in the project.

The owner or person undertaking the building work shall advise of completion of work by returning the "Application for Code Compliance Certificate" form which accompanied the consent.

A copy of this consent is to remain on site at all times and you should ensure that a copy is given to any tradesmen e.g. your builder, plumber and drainlayer.

A building consent lapses and is of no effect if the building work to which it relates does not commence within 12 months after the date of issue of the building consent or any further period that the building consent authority may allow.

A Producer Statement review from a chartered professional engineer is required confirming all site inspections as specified in the engineer`s schedule have been completed.

The owner and the builder are to locate and identify all boundary survey pegs prior to work commencing.

Producer statement required for waterproofing membrane

All energy works (ie. Prescribed electrical work) requires a Certificate of Compliance (CoC), and Electrical Safety Certificate (ESC) [required after connection, or part installation, to the

electrical supply], to be supplied to Council, prior to CCC, upon completion of the energy work.

A gas Certificate of Compliance (CoC), and Gas Safety Certificate (GSC) [required after commissioning and connection of any installation, or part installation, to a gas supply], to be supplied to Council, prior to CCC, upon completion of the gas installation.

The building consent which has been granted has elements of building work that are deemed to be Restricted Building Work (RBW). These building works must be carried out, or supervised, by a Licensed Building Practitioner(s) who has the appropriate (current) registration and licence class applicable to the specific element of RBW concerned.

The licensed Building Practitioner(s) undertaking any element of Restricted Building Work (RBW) is to provide the appropriate, and completed, Memoranda (Record of Building Work) to the Applicant/Agent and Territorial Authority upon completion of the RBW. All relevant Memoranda (Record of Building Work) are to be submitted by the owner when applying for a CCC.

Before Restricted Building Work (RBW) commences under a building consent, the owner must give the Building Consent Authority a written notice of every Licensed Building Practitioner who is engaged to carry out, or supervise, the RBW under the building consent and was not stated in the original building consent application.

After any Restricted Building Work (RBW) commences under a building consent, the owner must give the Building Consent Authority a written notice if a Licensed Building Practitioner (LBP) ceases to be engaged to carry out, or supervised the RBW. The written notice must state the

Under Section 86 of the Building Act 2004 it is an offence to engage another person to carry out or supervise Restricted Building Work (RBW) if that person is not a Licensed Building Practitioner (LBP).

If any design AMENDMENTS are to be submitted in respect of the building consent that relate specifically to Restricted Building Work, then an updated/new memorandum (Certificate of Design Work) is required from the relevant Design Licensed Building Practitioner concerned.

On the completion of all drainage work, an as-built plan to scale is to be submitted to the Tasman District Council.

INSPECTION REPORT

Name:	**Signature Homes Limited**	Consent No: **BC150582**
Address:	**130 Ridgeview Road, Appleby**	Inspected by: Kevan Vickers

On **25/02/2016** at **12:39 p.m.** this site was inspected pursuant to the Building Act 2004 (section 222/230) and the Local Government Act 2004 (Section 174). The purpose of the inspection was:

29 FINAL INSPECTION: INTERIOR/EXTERIOR/CERTS CCC NEW RESIDENTIAL DWELLING WHEN CONSTRUCTION HAS BEEN COMPLETED & CCC APPLICATION RECEIVED WITH REQUIRED FINAL DOCUMENTATION

Notes Summary: Final inspection. Please issue CCC.

Next Inspection:

☒ **Failed Inspection Points**









BC«ConsentNo»
«INSPECTIONTYPE»



BC«ConsentNo»
«INSPECTIONTYPE»



NZ BRICK & BLOCKLAYERS ASSOCIATION

Memorandum from licensed building practitioner:
Record of building work
Section 88, Building Act 2004 Form 6A

BBFNZ

THINK BRICK NEWZEALAND

JOB No. INVOICE No. 077(

The Building

Street address of building: 130 Ridgeview Road Appleby

The project

Building consent number: 150582

The owner

Name: Dick, Jeff & Jackie

Address: Signature Homes

Telephone:

En :

Record of work that is restricted building work

Work that is restricted building work		Description	Carried out/ supervised
Primary structure		10inch concrete Blocks	
Foundations and subfloor framing	( )	4x1 Brand - (SLF)	(✓) Carried out ( ) Superv
Walls	( )		( ) Carried out ( ) Supervi
Columns and beams	( )	To by 70 Series	( ) Carried out ( ) Supervi
Other	( )	290 x 145 x 70 sarpshoe	( ) Carried out ( ) Supervi
External moisture management systems			
Damp proofing & Penetrations	( )	4x1 Brand with Slice	( ) Carried out ( ) Supervi
Wall cladding or wall system	(✓)	Sand/white cement + Acrylic	( ) Carried out ( ) Supervi
Oth	( )	& White oxide per Brand	( ) Carried out ( ) Supervi

Issued by

Name: Steelhead Has. with Flush Joi

LBP number: Class(es) licensed in

Mailing address:

Street address or registered office:

Telephone: Landline: Mobile:

Daytime: After hours:

Facsimile: Email:

Precision Bricklaying LTD
Glen Ewing
LBP 119627 B1 + B2
PO Box 9023 Annesbrook
pb@Hotmail.co.nz
027 212 8981

Declaration

Glen Ewing (name of practitioner)

carried out or supervised the restricted building work recorded on this form.

Signature: Date: 20/10/15

RECEIVED
25 FEB 2016
BC No 150582
TASMAN DISTRICT COUNCIL
Signed

WHITE COPY - TA BLUE COPY - HOMEOWNER GREEN COPY - TRADESMAN

Memorandum from Licensed Building Practitioner:
Record of building work
Section 88, Building Act 2004

THE BUILDING

Street address: 130 RIDGEVIEW ROAD
Suburb: APPLEBY
Town/City: NELSON | Postcode:

THE PROJECT

Building consent number: BC 150582

THE OWNER(S)

Name(s): JEFF AND JACKIE DICK
Mailing address: 130 RIDGEVIEW ROAD
Suburb: APPLEBY | PO Box/Private Bag:
Town/City: NELSON | Postcode:
Phone number: 021 344 099 | Email address:

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

PRIMARY STRUCTURE

Work that is restricted building work Tick	✓	Description of restricted building work If necessary, describe the restricted building work	Carried out (Tick ✓ whether out the RBW or someone else.)
Foundations and subfloor framing	✓	- FLOOR ENGINEERED - STEEL IN PILES AND FOOTINGS - DPM, MESH AND STEEL IN SLAB (HARDFILL AND BLOCK WORK BY OTHER CONTRACTORS)	○ (✓ S
Walls	✓	- FRAMING - STRUCTURAL FIXINGS - BUILDING WRAP	○ (✓ S
Roof	✓	- ROOF TRUSSES AND FRAMING - STRUCTURAL FIXINGS - BRACING	○ (✓ S
Columns and beams	✓	- POST ON NORTH END OF HOUSE CONCRETED IN AND ATTACHED TO BEAMS AS PER PLAN	○ (✓ S
Bracing	✓	- GIB BRACING TO HOUSE - PLY BRACING IN GARAGE AREA	○ (✓ S

RECORD OF WORK THAT IS RESTRICTED BUILDING WORK

EXTERNAL MOISTURE MANAGEMENT SYSTEMS

Damp proofing	- FLOOR DPM	✓
Roof cladding or roof cladding system	ROOF CLADDING BY OTHER CONTRACTOR (CONTOUR ROOFING)	
Ventilation system (for example, subfloor or cavity)	- LINEA ON 20mm CAVITY	✓
Wall cladding or wall cladding system	- small sections of linea on entrance and north side gable and chimney	✓
Waterproofing		
Other		

RECEIVED
25 FEB 2013
BC No 130582
TASMAN DISTRICT COUNCIL
Signed

ISSUED BY

Name and contact details of the licensed building practitioner who is licensed to carry out or supervise restricted build

Name: NICHOLAS BRYAN SKEGGS	LBP number: BP121643
Class(es) licensed in: CARPENTRY	
Plumbers, Gasfitters and Drainlayers registration number (if applicable): —	
Mailing address (if different from below): PO Box 551, NELSON, 7011	
~~Street address~~/Registered office: 8 TOKOMARU PLACE	
Suburb: STOKE	Town/City: NELSON
PO Box/Private Bag:	Postcode: 7011
Phone number: 03 5464682	Mobile: 027 337 4201
After hours: —	Fax: —

RN 50775 - Dick

Memorandum from licensed building practitioner: Record of building work

Section 88, Building Act 2004

The Building

Street address of building: '130 Ridgeview Road

Appleby

Tasman

The Project

Building consent number:

The Owner

Name: JEFF & JACKIE DICK

Address: Lot 42, 130 Ridgeview Rd, Appleby

Telephone number: 021 344 099

Email address:

Record of work that is restricted building work

Work that is restricted building work	Description	Carried out/ supervised
[Tick]	[If necessary, describe the restricted building work]	[Specify whether you carried out the restricted building work or supervised someone else carrying out the restricted building work]
Primary structure		
Foundations and subfloor framing		( ) Carried out ( ) Supervised
Walls		( ) Carried out ( ) Supervised

Roof		(r) Carried out (bfSupervised
Columns and beams		Carried out Supervised
Bracing		Carried out Supervised
Other		Carried out Supervised

External moisture management systems

Damp proofing		( ) Carried out ( ) Supervised
Roof cladding or roof cladding system (X)	Installed profiled metal tiles and associated flashings to make weather tight	(x Carried out Supervised
Ventilation system (for example, subfloor or cavity)		Carried out Supervised
Wall cladding or wall cladding system		Carried out Supervised
Waterproofing		Carried out Supervised
Other		Carried out Supervised

Signature:

Date: 4-2-16

Note: continue on another page if necessary.

Issued by

Name: Lee Rutherford

I-BP number: BPI 07677

Class(es) licensed in: R2, R3 Mailing address: 9 Giblin Street, Richmond Street address or registered office: 41 Venice Place, Stoke, Nelson (Contour Roofing Ltd)

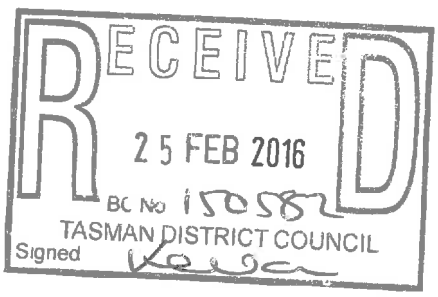
Phone number: Landline: 03 538 0824 Mobile: 021 171 7118

Email address: sales@contourroofing.co.nz

Declaration

I Lee Rutherford [name of practitioner]

Carried out or supervised the restricted building work recorded on this form.



J W Tiling

RECEIVED
25 FEB 2016
Scanned
TASMAN DISTRICT COUNCIL

12 Wilkinson Place
Richmond

Mobile: 022 699 0983
Email.: johnwilkie66@gmail.com

Applicator's Producer Statement

I

n Wilkie

W Tiling, 12 Wilkinson Place, Richmond

eing an applicator for..... Applicators No

onfirm that I have applied.....

At.....

On.....

For.....

In accordance with the manufacturer's written application instructions, and clause B2 of the NZ Building Code.

I am satisfied that the substrated over which the system has been applied has been prepared and that the materials have been properly installed.

This work has been certified

by.....

Tasman District Council

DRAINLAYING FIRM Matt Davis Drainlaying

BUILDING CONSENT No. 150501

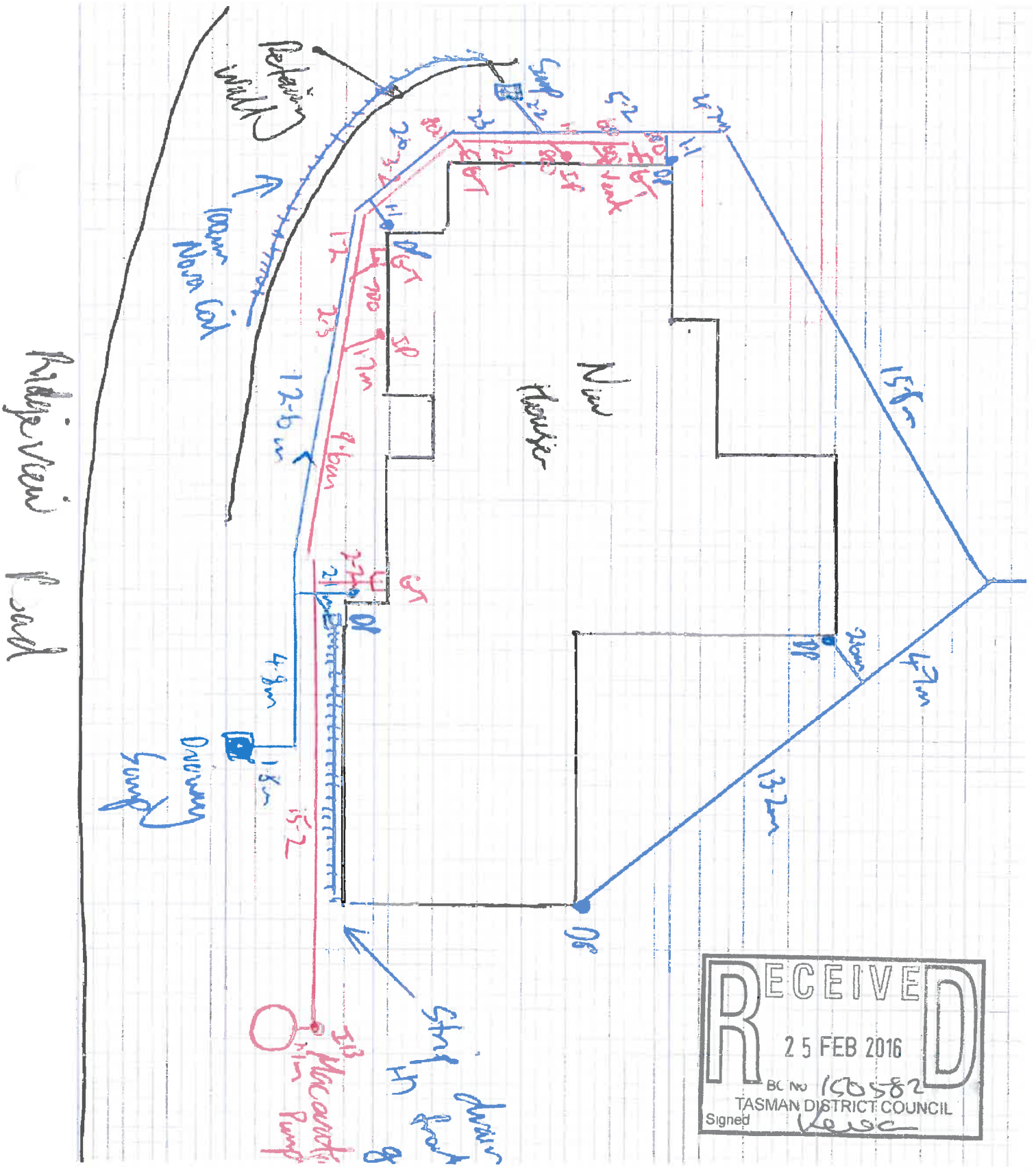
PROPERTY OWNER J & J Pirie

LOCATION/STREET Applet

DATE 14/1/16

TOWNSHIP 130 Ridgeview

DRAINAGE PLAN



RECEIVED
25 FEB 2016
BC No 150582
TASMAN DISTRICT COUNCIL
Signed

Pressure Test Certificate
Piped Services at Pre-line

FORM NUMBER: BC44 **DATE REVISED: 19 Ju**

Issued by: *(print name)* Dean Lusty Registration Number: 035

To: Tasman District Council

In respect to the following:

Piped services installed in accordance with G12/AS1 or NZS/AUS3500.1 and 3 *(dele one)* as shown on the approved plans or as per the attached amendment plan.

Installed at: *(property address)* 130 Ridgeview Rd Appleby

Building consent number: BC 150582.

Pipe brand used: Bette

Type of test: as Per Bette

Duration: 30Min + 12 hour

As a craftsman plumber, currently holding an annual practising licence, I certify that I, personnel under my control, have carried out the installation of the above system and believe on reasonable grounds that the installation complies with the New Zealand Building Code.

Signature of Client/Builder **Signature of Plumber**

For Council Use Only

Register checked: ☐ Date:

RECEIVED
25 FEB 2016
BC No 150582
TASMAN DISTRICT COUNCIL
Signed

Combined Certificate of Compliance & Electrical Safety Certificate

MAS ELECT Electrical Contractors A

Customer Name: Jeff & Jackie Dick

Location of Installation: 130 Ridgeview Heights Rd

Richwood Valley Tasman CE 76086

Description of work (or see attached): New Home.

38 Power Points, 47 light Fittings, Electric HWC Electric Oven & Hob, Septic system, Water Pu

Re

This work has been carried out in accordance with a Certified Design ☑ Certified Design Attached ☐

Name of Issuer of Certified Design: IC 53

Supplier Declaration of Conformity Attached: ☐ (please attach or list Certificate serial numbers or web address belov

Manufacturers Instructions used or relied on in this work: ☑ (please attach or list web address below)

All parts of this electrical installation are to be supplied from (please detail which part are not to be connected):

☑

RECEIVED
25 FEB 2016
BC No 150582
TASMAN DISTRICT COUNCIL
Signed

This work is:
- Low Risk (Certificate of Compliance not required) ☐
- General ☐
- High Risk (Record of Inspection required) ☑

This work has been undertaken in accordance with:
- Part 2 of AS/NZS 3000 ☑
- Part 1 of AS/NZS 3000 ☐

Supply system this work is suitable for:
- 230/400V MEN system ☑
- Other (Please specify) ☐

Other Standards this work complies with:

Record of Inspection (if Required):

The aspects of the work which make it high risk are:

Name of Inspector: John Shalders

JRShalders 28.1.20

- ☑ Work on Mains
- ☑ Work on Main Earthing System
- ☐ Electromedical
- ☐ Hazardous Area
- ☐ Mains Parallel Generation
- ☐ Mines
- ☐ Photovoltaic
- ☐ Animal Stunning
- ☐ Work to Part 1 of AS/
- ☐ High Voltage *

* Certified Design Required

Dates on which building work was undertaken: Oct 15 - Feb 16

I confirm that I am satisfied that the work detailed in this Certificate of Compliance has been done lawfully and safely, and that the information contained in this certificate is correct and accurate.

This certificate is issued by: TYRONE CALLAGHAN Registration No: E 10486

Signature: Callaghan Date: 28.01.16

Name and Registration Numbers of Workers Under Supervision Attached ☑ Andrew Watson ETC 10

Electrical Safety Certificate: To be completed once all work on the CoC above is completed.

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on page 2)

ISSUED BY: ..... Tasman Consulting Engineers Limited ..... [File Referenc
(Construction Review Firm)

TO: ..... J & J Dick - Signature Homes .....
(Owner/Developer)

TO BE SUPPLIED TO: ..... Tasman District Council .....
(Building Consent Authority)

IN RESPECT OF: ..... Proposed new house foundations and retaining wall .....
(Description of Building Work)

AT: ..... 130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....
(Address)

LOT ..... 142 ..... **DP** ..... 480593 ..... **SO** .....

Tasman Consulting Engineers Limited .....has been engaged by..... J & J Dick - Signature Homes ....
(Construction Review Firm)

To provide☐CM1☐CM2☐CM3☐CM4☐CM5*(Engineering Categories)* or ☐ observation as per agreement with owner/devel

or ☒other ..... observation of the items listed in the attached schedule .....
(Extent of Engagement)

in respect of clause(s) .....B1.....of the Building Code for the building work described ir

documents relating to Building Consent No ..... 150582 ..... and those

Building Consent Amendment(s) Nos. .... issued

course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions / variations(s) No .... (copies

or by the attached Schedule ☒ have been issued during the course of the works.

On by the basis of ☐this ☒these review(s) and information supplied by the contractor during the course of and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐ only of the building works have been completed in accordance with the relevant requirements of the Buildin and Building Consent Amendments identified above, with respect to Clause(s) .....B1..... of the Build

I also believe on reasonable grounds that the persons who have undertaken this construction review have the n competency to do so.

I, ...David King..... am: ☒CPEng No. .....145511 .
(Name of Construction Review Professional)

Reg/Arch No .....

I am a Member of : ☒IPENZ ☐NZIA and hold the following qualifications: ..... ME(Civil) .....

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity insurance than $200,000*.

The Construction Review Firm is a member of ACENZ : ☐

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25 FEB 2016
BC No 150582
TASMAN DISTRICT COUNCIL
Signed

SIGNED BY .....David King..... **ON BEHALF OF** .....Tasman Consulting Engineers Limit

Date:..... 7 December 2015 ..... Signature: ..... David King .....

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrue: Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to t Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum c $200,000.*

PO Box 3631
Richmond 7050
NELSON
t: +64 3 544 6404
w: www.tcel.co.nz

TAS CONS ENGI CIVIL & S

PRODUCER STATEMENT – PS4 – ATTACHMENTS

(To be read in conjunction with Page 1)

ISSUED BY: .....Tasman Consulting Engineers Limited .....[File Referenc

TO: .....J & J Dick - Signature Homes .....[Issue Date: 7/

TO BE SUPPLIED TO: .....Tasman District Council.....

IN RESPECT OF: .....Proposed new house foundations and retaining wall .....

AT: .....130 Ridgeview Rd, Appleby Hills, Redwood Valley, NELSON .....

Items covered by this Producer Statement:

1	Foundations including piled foundations outside the approved 3604 area. NOTE: over-height found wall not required or built
2	Timber pole retaining walls supporting cut soil
3	SED truss hold down connections (x 3) including post connections
4	
5	
6	
7	
8	

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Bc No 150882
TASMAN DISTRICT COUNCIL
Signed

The following significant changes were authorised to the design during the course of works:

None ☒ or as shown on the attached sheets numbered..... .....

INSPECTION RECORDS

The following is a record of inspections and observations carried out during construction.

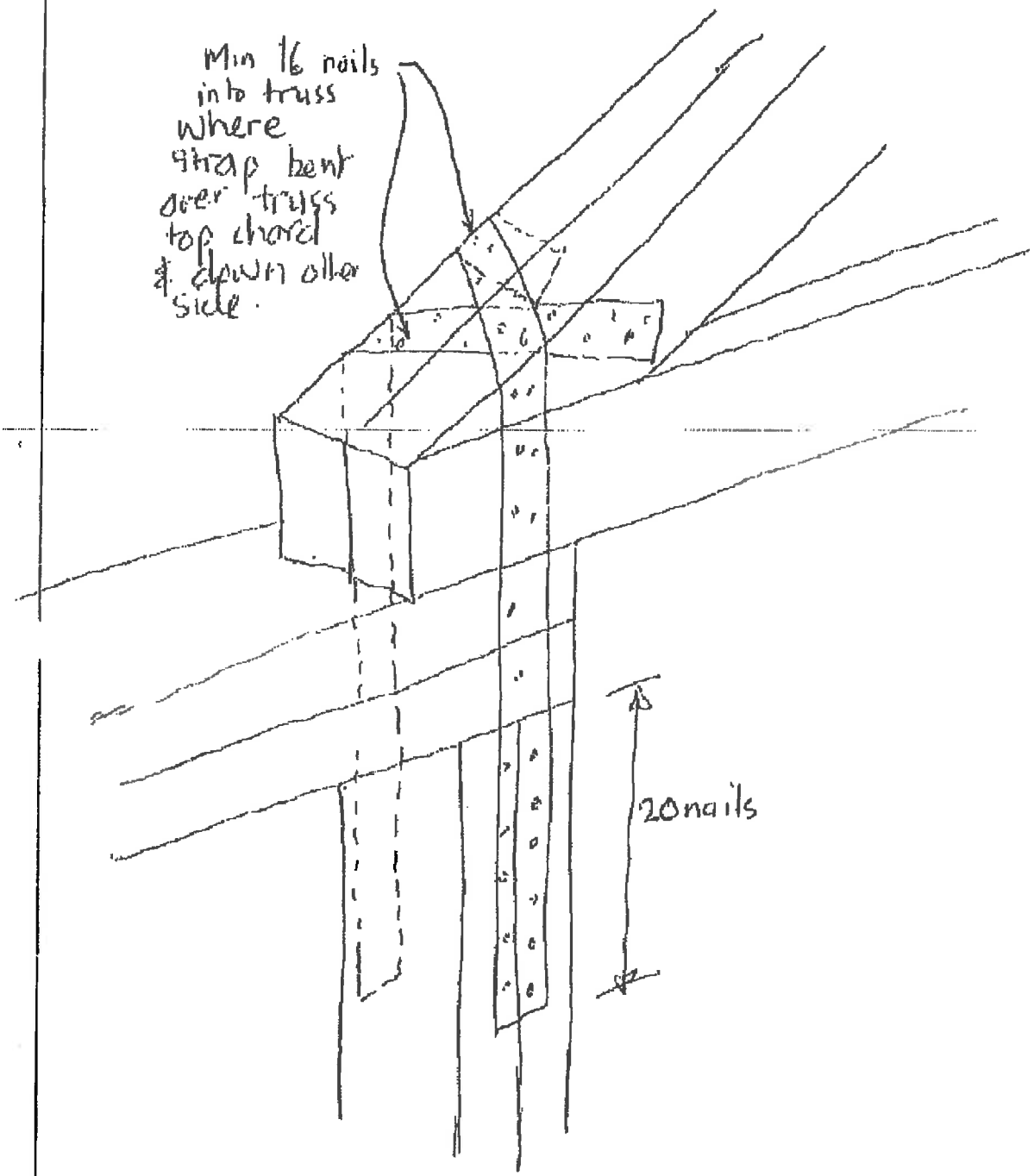
Item	Comments
1	Inspect site excavations and old sub-soil removal and approve. (22-07-15 and 27-07-15)
2	Inspect foundation excavations, pile holes and soil strength and approve. (05-08-15, 07-08-15, and 11-08-15)
3	Inspect foundation reinforcing and approve. (17-08-15 and 18-08-15)
4	Inspect foundation upper reinforcing and approve. (20-08-15)
5	Inspect stripping to floor slab area and approve. (24-08-15)
6	Inspect hardfill compaction and floor slab reinforcing and approve. (28-08-15 and 01-09-15)
7	Inspect retaining wall pole holes and approve. (07-09-15)
8	Inspect retaining wall drainage and cloth and approve. (09-09-15)
9	Inspect structural fixings, advise on remedial work, review photos showing repairs and approve. 15 & 26-11-15)
10	

150582

Tasman District Co
APPROVED 09/07/

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

Project: Dick	Page No: 1
	Date: 30-
File Ref: 15165	By: R



POST to TRUSS CONNECTION

mtrs.

For (1) & (2)

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Tasman District Cou
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195a Queen St
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Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

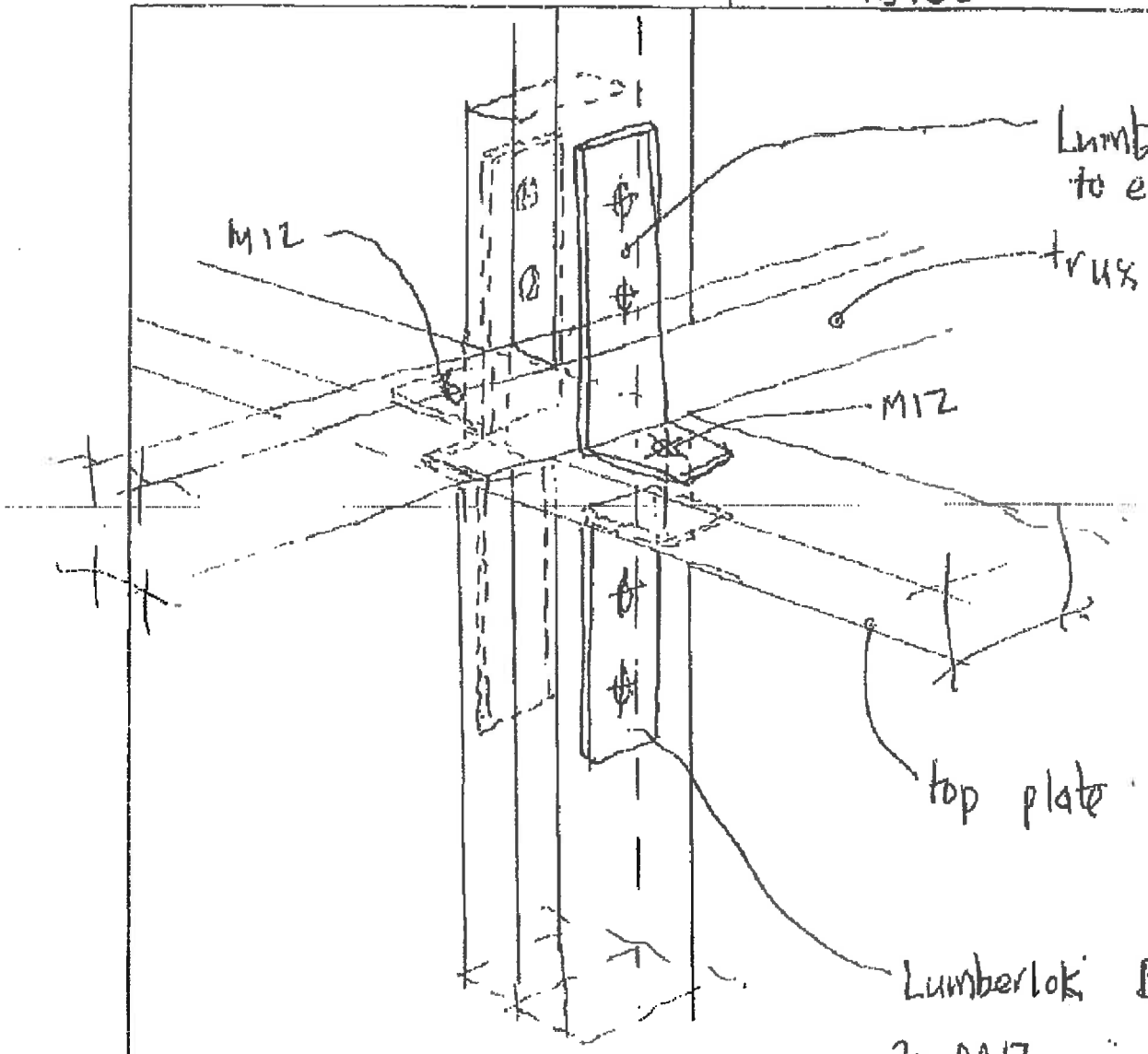
Project: Dick

File Ref: 15165

Page No:

Date: 30

By: R



TRUSS TO POST CONNECTION

FOR (3)

Tasman District Co
APPROVED 09/07.

TASMAN CONSULTING ENGINEERS
195a Queen St
PO Box 3631
Richmond NELSON
t: (03) 544 6404
w: www.tcel.co.nz

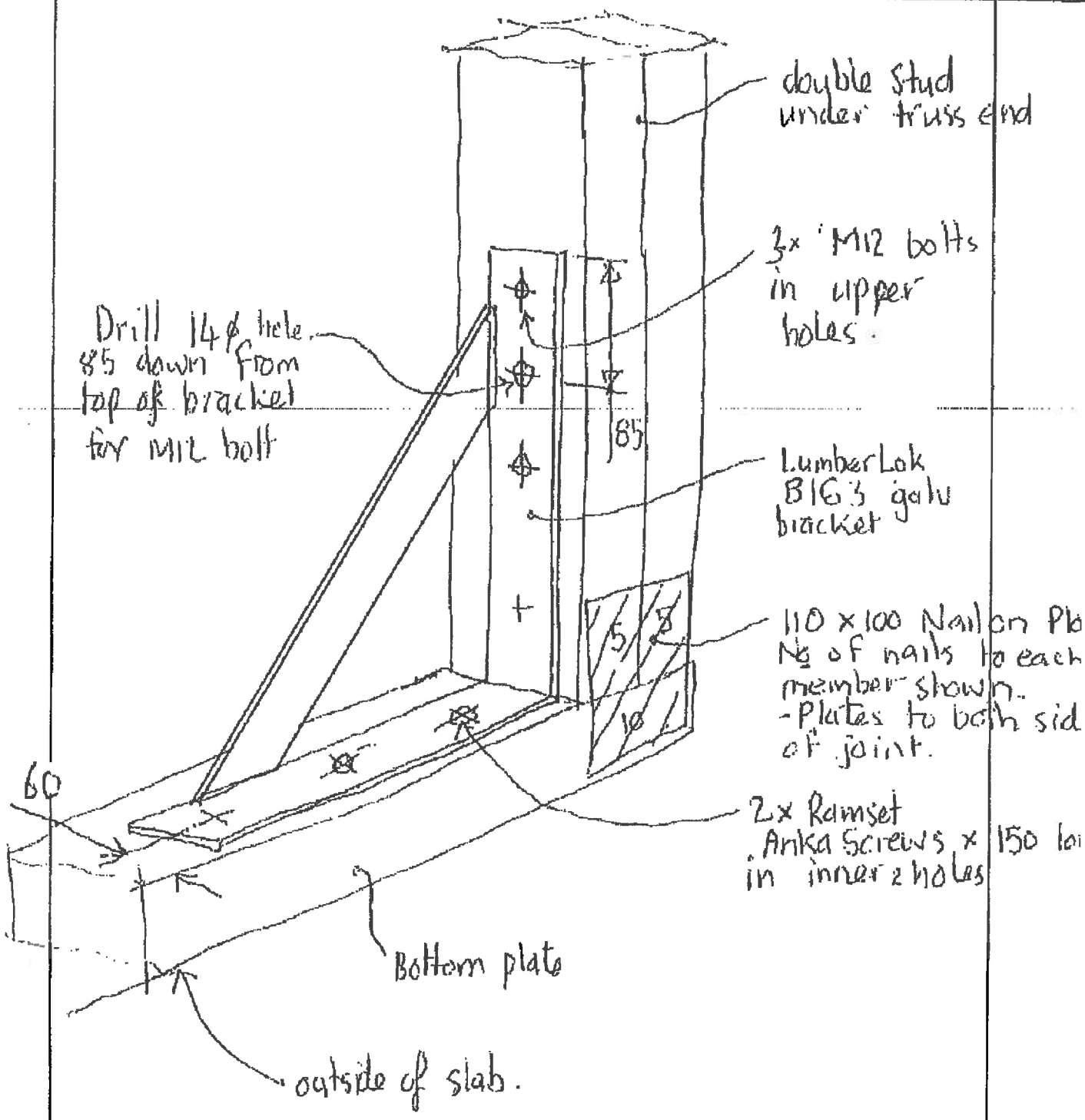
Project: Dick

File Ref: 5165

Page No:

Date: 3

By: K



POST BASE FIXING

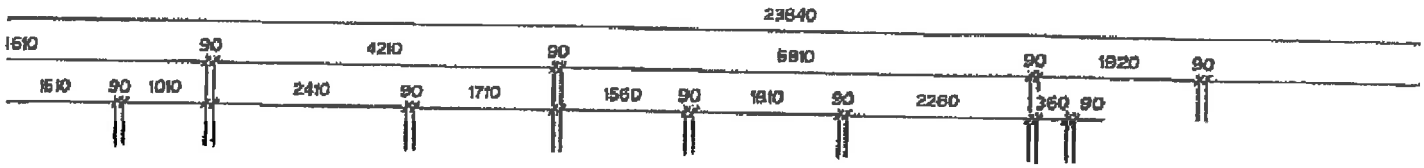
nts

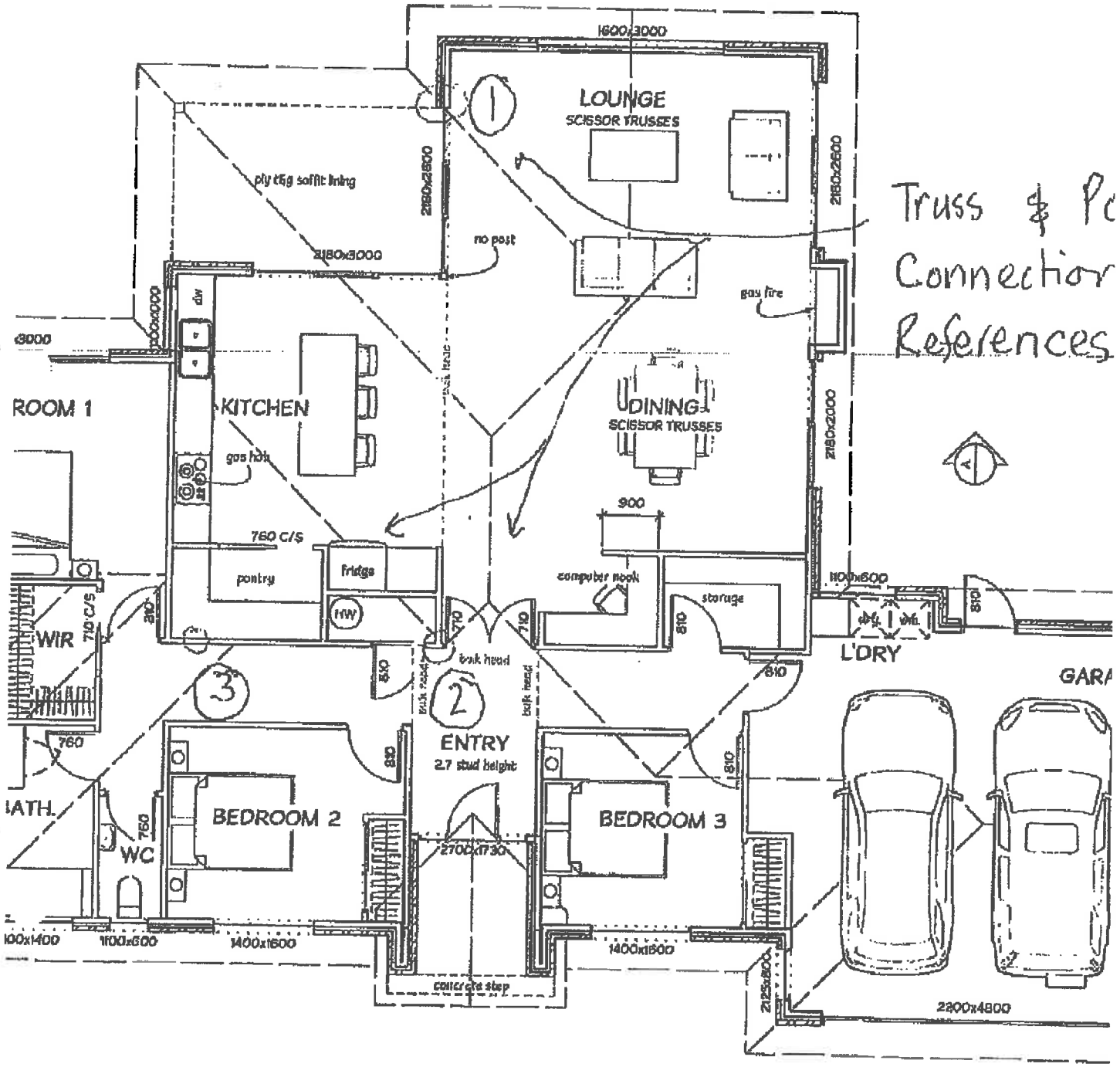
for ① & ② & ③

150582

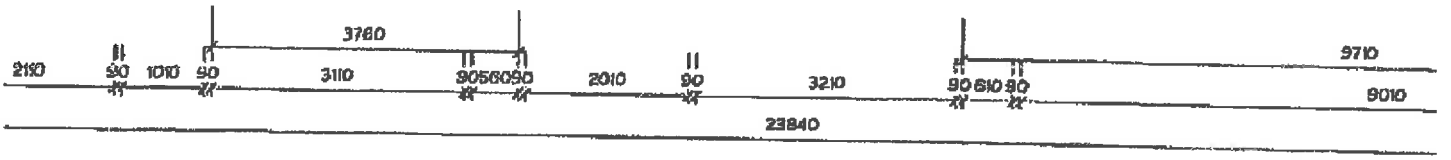
Tasman District C
APPROVED 09/07

Dick 15'65.





Truss & Pc
Connection
References



UND FLOOR PLAN 1:100

REA OVER FRAMING 220m²

REA OVER 70 SERIES BRICK 229.44m²

Dick Jason

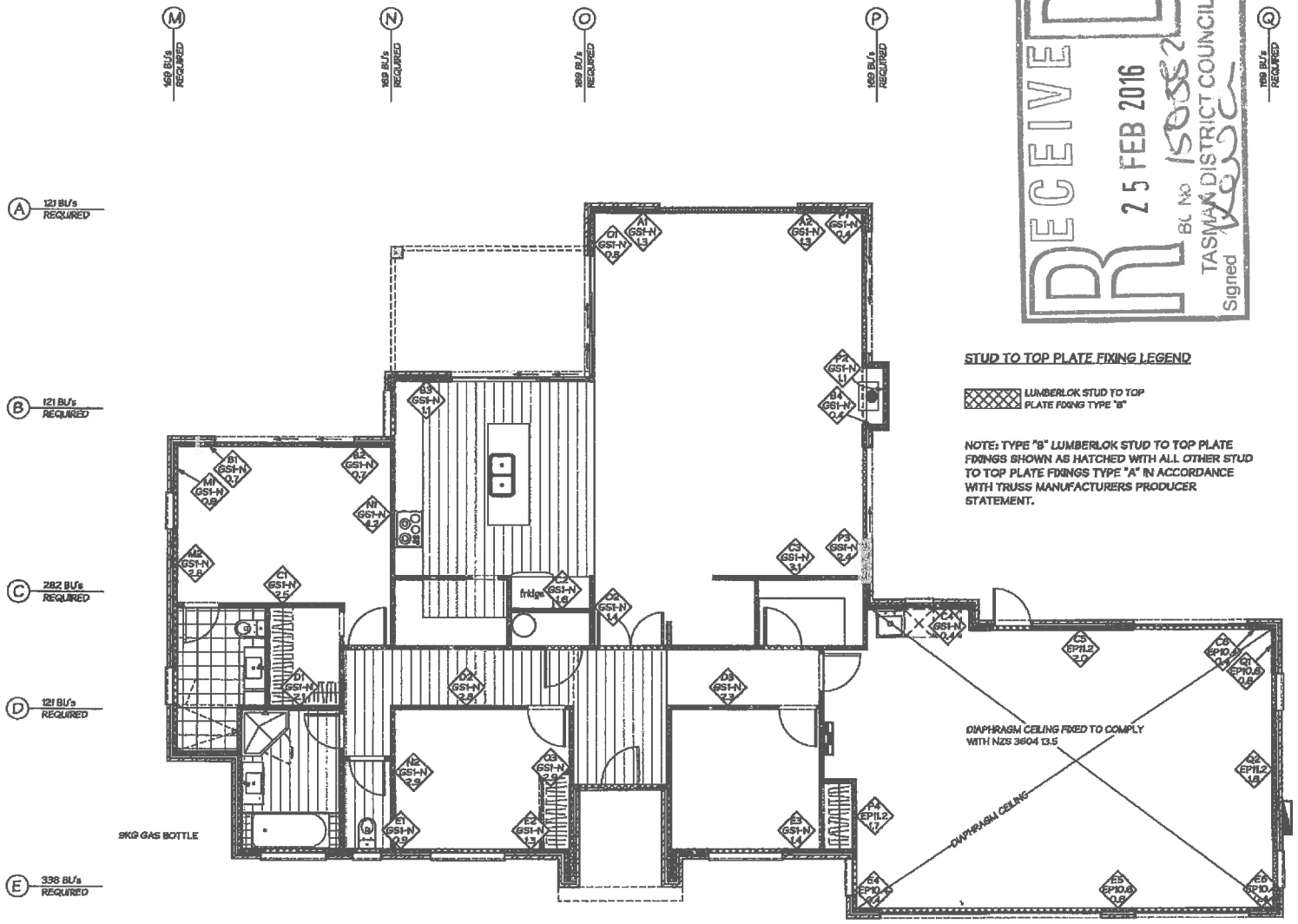
GIB EzyBrace® 2011 Software

SINGLE OR UPPER STOREY WALLS ALONG

V08/11

Lines		Bracing Elements							
1	2	3	4	5	6	7	8	9	10
Line Total Check	Line Label	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	Bracing Units Achieved	
								W	E
156	A	1	1.3		2.4	GS1-N	GIB®	90	78
		2	1.3		2.4	GS1-N	GIB®	90	78
171	B	1	0.7		2.4	GS1-N	GIB®	41	41
		2	0.7		2.4	GS1-N	GIB®	41	41
		3	1.1		2.4	GS1-N	GIB®	74	66
		4	0.4		2.4	GS1-N	GIB®	21	23
763	C	1	2.5		2.4	GS1-N	GIB®	173	150
		2	1.6		2.4	GS1-N	GIB®	110	96
		3	3.1		2.4	GS1-N	GIB®	214	186
		4	0.4		2.4	GS1-N	GIB®	21	23
		5	2		2.4	EP1 1.2	Ecoply®	240	270
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38
432	D	1	2.1		2.4	GS1-N	GIB®	145	126
		2	2.8		2.4	GS1-N	GIB®	193	168
		3	2.3		2.4	GS1-N	GIB®	159	138
354	E	1	0.9		2.4	GS1-N	GIB®	57	53
		2	1.3		2.4	GS1-N	GIB®	90	78
		3	1.4		2.4	GS1-N	GIB®	97	84
		4	0.4		2.4	EP1 0.4	Ecoply®	32	38
		5	0.6		2.4	EP1 0.6	Ecoply®	57	63
		6	0.4		2.4	EP1 0.4	Ecoply®	32	38

					Wind	Earthq.
Totals Achieved	W	207%	EQ	155%	2008	1877
Concrete Slab					OK	OK
Totals Required (from Demand)					972	1208



STUD TO TOP PLATE FIXING LEGEND

LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B"

NOTE: TYPE "B" LUMBERLOK STUD TO TOP PLATE FIXINGS SHOWN AS HATCHED WITH ALL OTHER STUD TO TOP PLATE FIXINGS TYPE "A" IN ACCORDANCE WITH TRUSS MANUFACTURERS PRODUCER STATEMENT.

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NOTES

BRACING NOTES

A1 GS1A 2.4 — BRACING No. / BRACE TYPE / BRACE LENGTH (m)

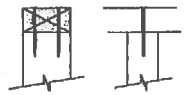
BRACED PANELS SHALL BE CONSTRUCTED TO COMPLY WITH RELEVANT "BRANZ" APPRAISAL CERTIFICATES.

REFER TO THE BRACING CALCULATIONS AND DETAILS FOR FURTHER BRACING INFORMATION.

DIMENSIONS

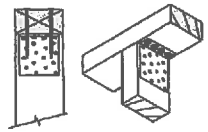
ALL DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE STATED.

TYPE A 0.7kN — 2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD.

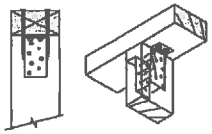


TYPE B 4.7kN — CHOOSE ANY OF THE 3 OPTIONS BELOW

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS ONE LUMBERLOK 6NN STUD ANCHOR (CPC80).

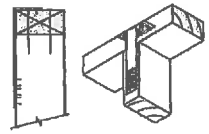


2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS TWO LUMBERLOK CPC40.



RECOMMENDED FOR INTERNAL WALL OPTIONS TO AVOID LINING ISSUES

2/90x3.15mm DIA. PLAIN STEEL WIRE NAILS DRIVEN VERTICALLY INTO STUD PLUS LUMBERLOK STUD STRAP (ONE FACE ONLY).



LUMBERLOK STUD TO TOP PLATE FIXING TYPE "B" - 1.7kN

2 LUMBERLOK STUD TO TOP PLATE FIXINGS
1:10

Signature HOMES — YOUR HOME. YOUR WAY.	SJB Construction Limited T/A Signature Homes Nelson. 308 Queen Street, Richmond, P.O. Box 3549, Richmond Ph (03)541 0317 Fax (09) 415 2467 www.signaturehomes.co.nz	These drawings are limited to and by the extent of the detail covered in the drawings to meet the current New Zealand Building Code (NZBC). Where detail is required for construction and to demonstrate compliance with the current NZBC, a specific request should be made for the required detail to be supplied. No liability will be accepted for any detail or construction not covered in these drawings and/or carried out by persons other than the designer producing these documents.	3 BEDROOM RESIDENCE JACKIE & JEFF DICK 130 RIDGEVIEW ROAD, APPLEBY

BRACING PLAN

Scale: 1:100 | Drawn: JA | Date: 5-08-2015

REV	DATE	AMENDMENT
A	16/6/15	BRACING

TSW NO: 15155

DWG NO. 06 B — REV B

CERTIFICATION
THAT NEW BUILDING WORK HAS BEEN SET-OUT PRIOR TO CONSTRUCTION IN THE POSITION SHOWN IN THE APPROVED BUILDING PLANS

ISSUED BY: **Simon Evans Jones** .....
(Suitably qualified professional)

TO: **Signature Homes , owner** .....
(Building Owner)

TO BE SUPPLIED TO: **Tasman District Council**.....
(Territorial Authority)

IN RESPECT OF: **New dwelling (Lot 42 DP 480593)**
(Description of building work)

AT: **130 Ridgeview Road, Appleby (Lot 42 DP 480593)**.....

.....
(Address)

Jones & Stanger Ltd..... has been engaged by Signature Homes Ltd .....
(Survey Firm) *(Building Owner)*

to provide survey, calculation and certification that new building has been set-out the position shown in the approved building plans.

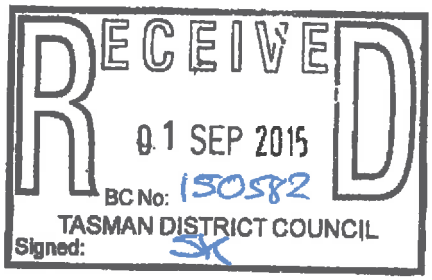
As an independent professional, I or personnel under my control have carried out survey work appropriate to the engagement and based on the information supplied to me , **I BELIEVE ON REASONABLE GROUNDS** that the building set-out positions given were correct within reasonable tolerances.



..... Date 29th July 2015
(Signature suitably qualified Professional)

Bachelor of Surveying (Otago)..... Member;CSNZ- **No** NZIS- **yes**
(Professional Qualifications)

104 Collingwood Street, Nelson..... Registered Professional Surveyor -**yes**
(Address)



Application for Code Compliance Certificate

Form 6: Section 92, Building Act 2004

The building consent

Building consent number: 150582

Issued by: Tasman District Council

The owner

Name of owner: J & J Dick

Contact person: Jack & Jeff Dick

Mailing address: 18 Harcourt Place, Wakefield 7025

Street address/registered office:

Phone number: Landline: Mobile: 021344099

Daytime: After hours:

Facsimile number:

Email address: jackie.jeff@xtra.co.nz Website:

The following evidence of ownership is attached to this application:

☐ Copy of certificate of title

☐ Lease, agreement for sale and purchase

☐ Or other document showing full name of legal owner(s) of the building

First point of contact for communications with the council/building consent authority:
Full Name: Gowans Walters & Associates Limited

Mailing Address: PO Box 3608, Richmond

Phones:: 035449499

Email: allan@gowanswalters.co.nz

Application

All building work to be carried out under the above building consent was completed on 5-2-16

The personnel who carried out the building work are as follows:

Contractors:

Drainage & Construction, Nick Steggs,

Contour Roofing, Matt Davies drain layer

TMBay Plumbing, Active Electrical

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.

The code compliance certificate should be sent to:

Email: Joreillye@Snature.co.NZ

or Postal Address

Signature of

Simon Kneebone
Contact Person for final inspection

Simon Kneebone
Name of person signing

0275 340 488
Contact Phone Number

Date: 5-2-16

Attachments

The following documents are attached to this application:

- ☐ Certificates from the personnel who carried out the work
- ☐ Certificates that relate to the energy work
- ☐ Evidence that specified systems are capable of performing to the performance standards set out in the building consent

Tasman District Council
Email info@tasman.govt.nz
Website www.tasman.govt.nz
24 hour assistance

Richmond
189 Queen Street
Private Bag 4
Richmond 7050
New Zealand
Phone 03 543 8400
Fax 03 543 9524

Murchison
92 Fairfax Street
Murchison 7007
New Zealand
Phone 03 523 1013
Fax 03 523 1012

Motueka
7 Hickmott Place
PO Box 123
Motueka 7143
New Zealand
Phone 03 528 2022
Fax 03 528 9751

Takaka
14 Junction Street
PO Box 74
Takaka 7142
New Zealand
Phone 03 525 0020
Fax 03 525 9972

Code Compliance Certificate BC150582

Form 7: Section 95, Building Act 2004

The building

Street address of building: 130 Ridgeview Road, Appleby

Legal description of land where building is located: Lot 42 DP 480593

Valuation number: 1938078225

Building name:

Location of building within site/block number: Level/unit number:

Current, lawfully established, use: Dwelling/garage

Year first constructed: 2016

The owner

Name of owner: Dick Jeffrey Ronald & Dick Jacqueline Marie

Contact person: Jack & Jeff Dick

Mailing address: PO Box 857, Nelson 7040

Street address/registered office:

Phone number: Landline: Mobile: 021344099

Daytime: After hours:

Facsimile number: Email address: jackie.jeff@xtra.co.nz Website:

First point of contact for communications with the council/building consent authority:
Full Name: Gowans Walters & Associates Limited

Mailing Address: PO Box 3608, Richmond Phones:: 035449499

Email: allan@gowanswalters.co.nz

Building work

Building consent number: 150582 Issued by: Tasman District Council

Construct new dwelling with I/A garage & woodburner: Intended Use: Housing - detached

Code compliance

The building consent authority named below is satisfied, on reasonable grounds, that —

(a) the building work complies with the building consent.

TASMAN DISTRICT
Issued by
ADMINISTRATION OFFICER
pursuant to delegated
11/03/2016
COUNCIL

Signature Position Date: 11/03/16
On behalf of: Tasman District Council