QP5-3/12

ISP CONSULTING ENGINEERS LTD

Civil & Structural
Seismic Risk Analysis
Building Compliance

Lower Hutt Office
Tel: 04 566 8004
Fax: 04 566 8037
Level 1, 14 Laings Rd
Hutt City Dental Centre
P.O. Box 30 535
Lower Hutt 5040

Paraparaumu Office
Tel: 04 902 5750
P.O. Box 537
Coastlands Parade
Paraparaumu 5254

Email:email@isp.co.nz
Web: www.isp.co.nz

Structural Calculations

For

Foundation Strengthening – Block O
St. Mary's School, Blenheim

These calculations are in accordance with:

AS/NZS 1170:2004 Structural Design Actions
NZS 3604:2011 Timber Framed Buildings

Engineer:	**Initials:**
Hugh Falkner	HAF
Geert van de Vorstenbosch	GV

Preamble:

The sub-floor bracing capacity of the lightweight timber framed school Block O has been assessed as being 20% NBS (refer ISP Consulting Engineers Ltd's report dated 29 October 2012). This is due to presence of a mix of braced and shallow cantilever piles (both in accordance with NZS 3604:1990).

Proposed strengthening involves replacing 30 of the existing piles to the perimeter of the building with 30 Anchor piles in accordance with NZS 3604: 2011.

30 Anchor piles provides 30 x 120BU's/anchor pile = 3,600BU's > 3,583BU's required in each direction at subfloor level.

ISO 9001

Date:
19 March 2013

Job No.
25078

F14-06/02

Date	Eng.	Job No.	Sheet No.
19 MAR 2013	GV	25078	1

Project: St. Mary's, Blenheim - Block O Foundation Strengthening

ISP CALCULATIONS

From ISP (J 24759) report, Block O Sub-Floor has 20% NBS due to presence of shallow cantilevered piles.
Strengthening proposed is to replace exterior piles with anchor piles (sub-floor too low for braced piles).

Reqd bracing @ subfloor = 3583 BU's in each direction.
currently have 808 ALONG & 678 ACROSS

∴ require a further 2775 ALONG & 2905 ACROSS
≡ 24 Anchor piles ≡ 25 Anchor piles

If replace all exterior piles with anchor piles, lose 9 braced piles + 5 shallow cantilever piles ALONG = 258 BU's, and 13 braced piles + 5 shallow cantilever piles ACROSS = 346 BU's

∴ require 2775 + 258 = 3033 BU's ≡ 26 Anchor piles ALONG
and 2905 + 346 = 3251 BU's ≡ 28 Anchor piles ACROSS

Supply min 28 Anchor Piles to exterior

BC161010

APPROVED DOCUMENTS
Date Approved: 12/10/2016
MARLBOROUGH DISTRICT COUNCIL

IPENZ ENGINEERS NEW ZEALAND   ACENZ

Building Code Clause(s) **B1**

J25078

PRODUCER STATEMENT - PS1 - DESIGN

(Guidance notes on the use of this form are printed on the reverse side*)

ISSUED: ISP Consulting Engineers Ltd

TO: Catholic Schools Board Ltd – Wellington Archdiocese
(Owner / Developer)

TO BE SUPPLIED TO: Marlborough District Council
(Building Consent Authority)

IN RESPECT OF: **Foundation strengthening - Block O**
(Description of Building Work)

AT: **St. Mary's Catholic School, 3 Stephenson Street, Blenheim**
(Address)

Lots 602-604 Deeds 15, Pt Lots 406-410 Deeds 15, Pt Lot 10 DP 3

We have been engaged by the owner/developer referred to above to provide **structural design services and construction monitoring of specifically designed elements** in respect of the requirements of Clause B1 (B2 of specifically designed elements) of the building code for

☐ All   ☑ ***Part only as specified of building work:***
- Foundation seismic strengthening

The design carried out by us has been prepared in accordance with Compliance Documents issued by Department of Building & Housing B1, VM1

The proposed building work covered by this producer statement is decribed on the drawings titled **Foundation Strengthening – Block O, St. Mary's School, Blenheim** and numbered **SK1**.

On behalf of the Design Firm, and subject to:

(i) Site verification of the following design assumptions: Bearing capacity of excavated foundations to satisfy the requirements of NZS3604:2011.

(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 will comply with the relevant provisions of the Building Code and b), the persons who have undertaken this design work have the necessary competency to do so.

I, John O'Hagan am CPEng #179947

I am a member of: IPENZ and hold the following qualifications: BE(Hons), NZCE(Civil), MIPENZ, CPEng

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 John O'Hagan ON BEHALF OF ISP Consulting Engineers Ltd

Date 26 March 2013   (Signature)............ John O'Hagan ....

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 provide 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.

Marlborough District Council
Date Received: 13/9/2016

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1992. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional Engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suite of producer statements has been revised as at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design	Intended for the use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;
PS2 Design Review	Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;
PS3 Construction	Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:20031 ; or Schedules E1/E2 of NZIA's SCC 2007 2
PS4 Construction Review	Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate. This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence-based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ)or the New Zealand Institute of Architects (NZIA) provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

Professional Indemnity Insurance

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to $500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-5)3 (OL1-OL4)2. The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2003

2 NZIA Standard Conditions of Contract SCC 2007 (1st edition)

3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

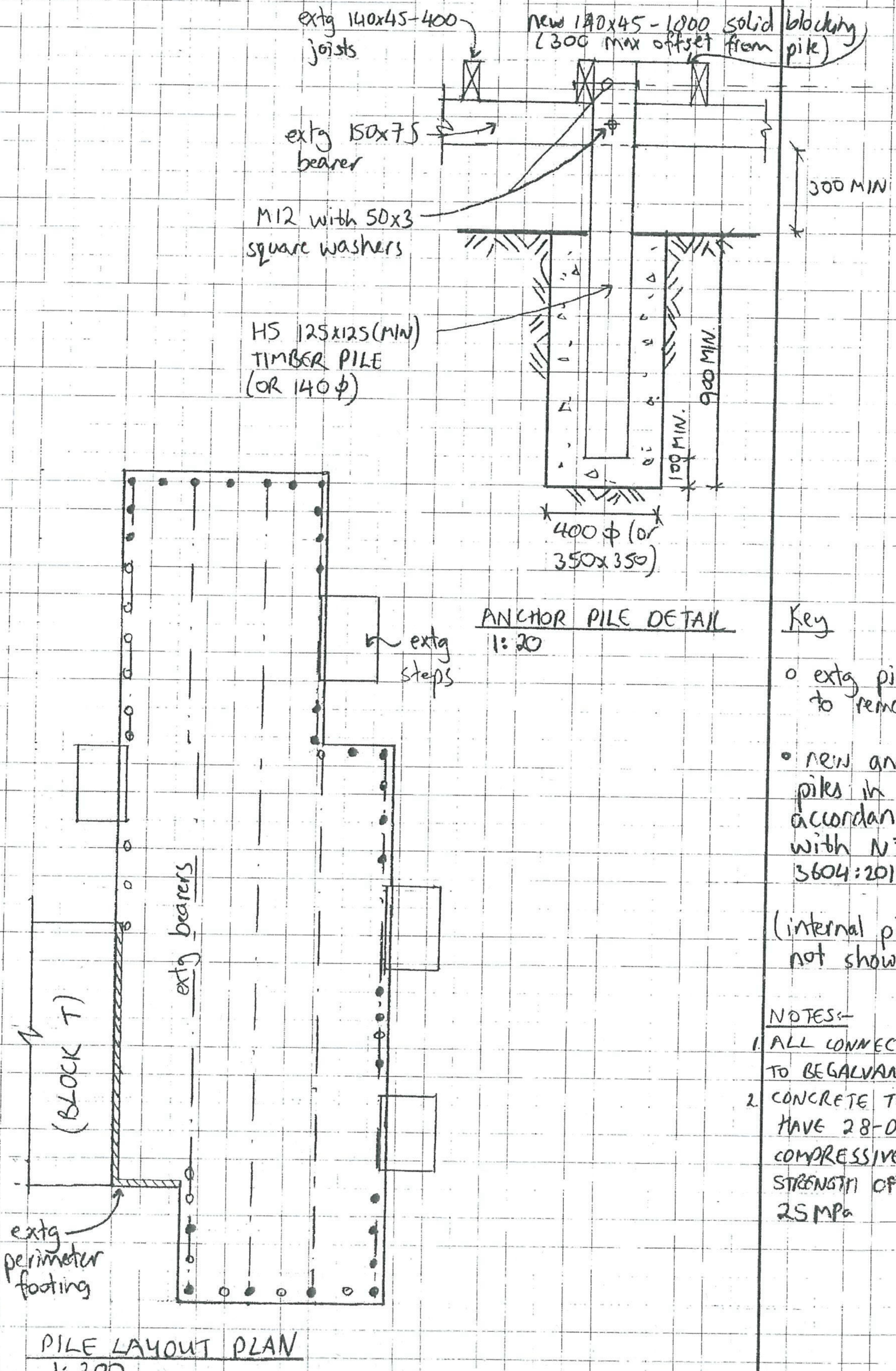
www.acenz.org.nz
www.ipenz.org.nz
www.nzia.co.nz

F14-06/02

Date 26-03-2013 | Eng. GU | Job No. 25078 | Sheet No. SK1

ISP CALCULATIONS

Project
FOUNDATION STRENGTHENING - BLOCK O
ST. MARY'S CATHOLIC SCHOOL, 3 STEPHENSON ST., BLENHEIM



Key
- o extg piles to remain
- • new anchor piles in accordance with NZS 3604:2011

(internal piles not shown)

NOTES:-
1. ALL CONNECTORS TO BE GALVANISED
2. CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 25 MPa

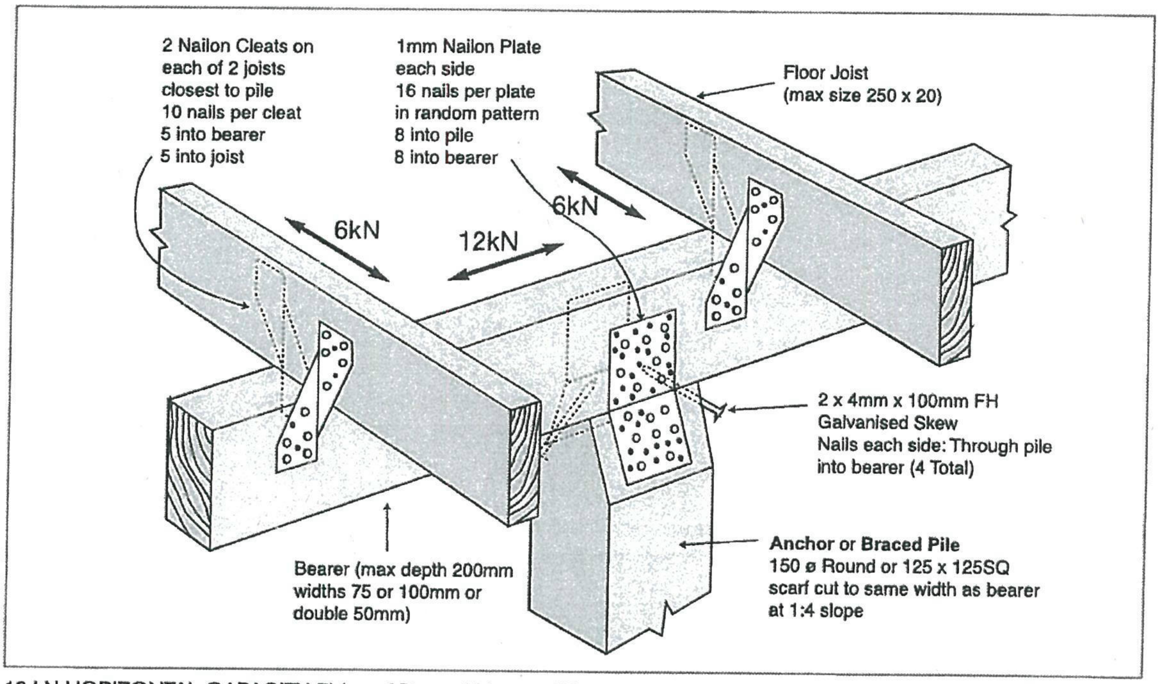
BC161010

APPROVED DOCUMENTS
Date Approved: 12/10/2016
MARLBOROUGH DISTRICT COUNCIL

pryda

12 kN Pile-Bearer Kit

12 kN Capacity Fixing of Anchor/Braced Pile to Bearer and Joists



12 kN HORIZONTAL CAPACITY Fixing of Bearer/Joists to ANCHOR PILE or BRACED PILE, in accordance with NZS 3604:1999 Clauses 6.8.5, 6.8.6 and 6.9.3.

Features

- Allows ANCHOR/BRACED Pile to be in line with and same height as other piles.
- Connection detail covers both Anchor and Braced Piles, with bearer sizes up to 200mm deep, joists up to 250mm deep.
- Design Capacity verified by extensive testing program carried out by Auckland Uniservices.
- All components supplied as one complete package.

Installation

As detail drawing above but subject to the following:-

1. On round pile bearer must be central. Bearer may be offset on square pile but must not overhang edge.
2. Nailon cleats fix to two joists closest to pile. At building corner where fixing to boundary joist is precluded fix cleats to next two closest joists along bearer.
3. At external wall where joists do not overhang bearer enough for cleats to be fixed on outside face, they may be fixed to inside face only of that bearer provided a similar detail is used on the other side of the floor system.
4. Joists must have lateral support (blocking or perimeter joist) within 300mm of bearer in accordance with NZS3604:1999 cl 7.1.2.1.
5. Braced Piles - connection is required at top of both piles to which each brace attaches.
6. All components must be protected after installation against wind-blown sea salt deposition by coating with 2mm thick grease, Selleys roof and gutter (silicone) sealant, or other approved coating.

Durability

Complies with NZ Building Code - Clause B2 for a structural component with 50 year durability.

PBK12: Standard Kit (Nailon plates/Nails Hot Dip Galvanised, Cleats G250 Z600 galvanised steel coil) - Not suitable for use in the sea spray or geothermal zones. Components must be minimum 600mm above ground and the sub-floor ventilations to be 7000 mm2/m2 or less in zones 1,2 & 3.

PBK12S: Severe Corrosion Kit (All Grade 304 Stainless Steel Components) - suitable for all sea spray zone conditions.

Specifications

Nailon Plates:

190 x 100 x 1 mm (2 off).

Cleats:

150 x 63 x 1mm diagonally folded (2 LH and 2 RH).

Nails:

45 x 3.15 Flat Head Square Twist (72 off)

100 x 4.0 Flat Head (4 off).

Marlborough District Council
Date Received: 13/9/2016

Structural Calculations

For

Proposed Alterations
at
Block S, St Mary's School, Blenheim

These calculations are in accordance with:

AS/NZS 1170:2004 Structural Design Actions
NZS 3404:1997 Steel Structures Standard
NZS 3604:2011 Timber Framed Buildings

Engineer:	**Initials:**
Stuart Preston	SRNP
Geert van de Vorstenbosch	GV

Preamble:

The project comprises proposed alterations to an existing timber framed single story school building. Alterations include removal of two internal partition walls. These calculations pertain to a check of the bracing for this building.

A Detailed Seismic Assessment (DSA) completed in 2012 by ISP Consulting Engineers Limited indicated that the building has equivalent seismic load resisting capacities of greater than 100%NBS in both orthogonal directions. The assessment was carried out for a Building Importance Level 3 structure in accordance with the Ministry of Education's policy (attached). A copy of the DSA is attached.

The ultimate limit state site wind speed has been determined as 37m/s (Medium) based on a site specific wind speed determination.

These calculations show that the bracing of the existing building following proposed removal of internal partition walls meets 100% of the loading requirements in accordance with AS/NZS 1170:2004.

Date:
6 July 2016

Job No.
40797

IPENZ ENGINEERS NEW ZEALAND

ACENZ

Building Code Clause(s) B1

J40797

PRODUCER STATEMENT - PS1 - DESIGN

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

ISSUED: CERTA Engineering Ltd

TO: **Archdiocese of Wellington**

(Owner / Developer)

TO BE SUPPLIED TO: Marlborough District Council

(Building Consent Authority)

IN RESPECT OF: **Proposed Alterations**

(Description of Building Work)

AT: **Block S, St. Mary's School, 3 Stephenson Street, Blenheim**

(Address)

LOT 603 **DEEDS** 15

We have been engaged by the owner/developer referred to above to provide **structural design services and construction monitoring of specifically designed elements** in respect of the requirements of Clause B1 (B2 of specifically designed elements) of the building code for

☐ All ☑ ***Part only as specified of building work:***
Bracing check for proposed removal of internal walls.

The design carried out by us has been prepared in accordance with Compliance Documents issued by the Ministry of Business, Innovation & Employment B1, VM1 & VM4 (foundations and retaining walls loads)

The proposed building work covered by this producer statement is decribed on the drawings titled **Bracing Plan** and numbered **SK1**.

On behalf of the Design Firm, and subject to:

(i) 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 will comply with the relevant provisions of the Building Code and b), the persons who have undertaken this design work have the necessary competency to do so. I also recommend the following level of construction monitoring:

☐CM1 ☐CM2 ☒CM3 ☐CM4 ☐CM5 observation services.
(Engineering Categories)

I, Stuart Preston am CPEng # 138744

I am a member of: IPENZ and hold the following qualifications: BE(Civil), MIPENZ, CPEng

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 Stuart Preston ON BEHALF OF CERTA Engineering Ltd

Date 7 July 2016 (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 provide 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.

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Professional Indemnity Insurance

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The PI insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to $500,000.

Professional Services during Construction Phase

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Requirement to provide Producer Statement PS4

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Attached Particulars

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Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2003

2 NZIA Standard Conditions of Contract SCC 2007 (1st edition)

3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

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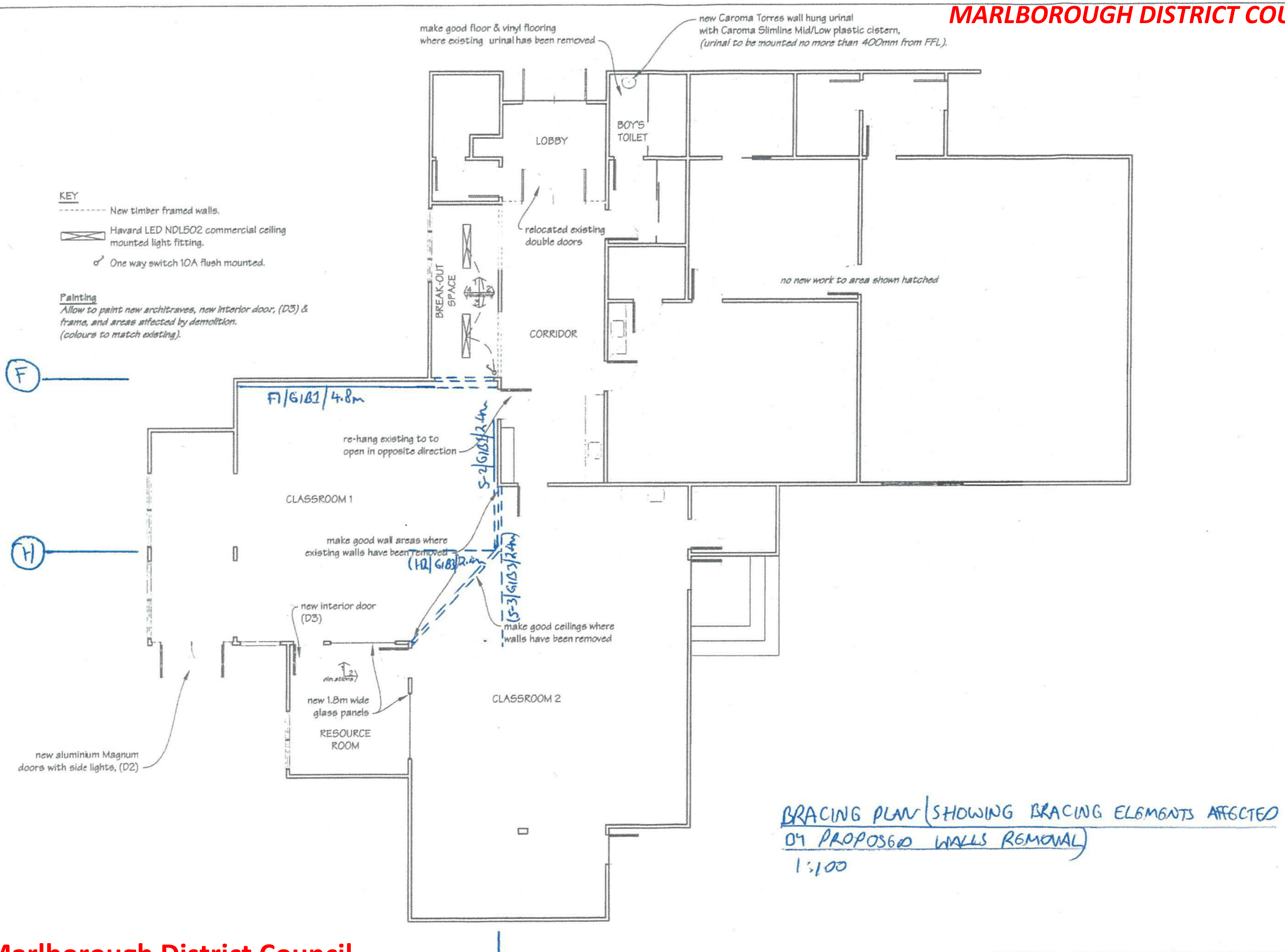
BC161010

6 JUL 2016

APPROVED DOCUMENTS
Date Approved: 12/10/2016
MARLBOROUGH DISTRICT COUNCIL

SK1



Marlborough District Council
Date Received: 13/9/2016

I R Group Ltd Design - Project Management - Planning	Phone Office 04 ... Mobile- Ian 021-427.347 Mobile- Stephen 021-3355866 Email- ...co.nz steve@irgroup.co.nz Web- www.irgroup.co.nz	St. Mary's School 3 Stephenson Street Blenheim	PROJECT T & O Blocks Structural Upgrade	DRAWING TITLE Block S Proposed Floor Plan	REVISIONS No Date Description

Scale	1:100	Preliminary Drawings
Date	00/00/16	
Original sheet size	A3	
Drawn	S. T.	Do not scale from drawings. Check all dimensions on site.
Sheet No	1	
Dwg Ref	1	

F14-06/02

Date 6 JUL 2016	Eng. GW	Job No. 40797	Sheet No. 1

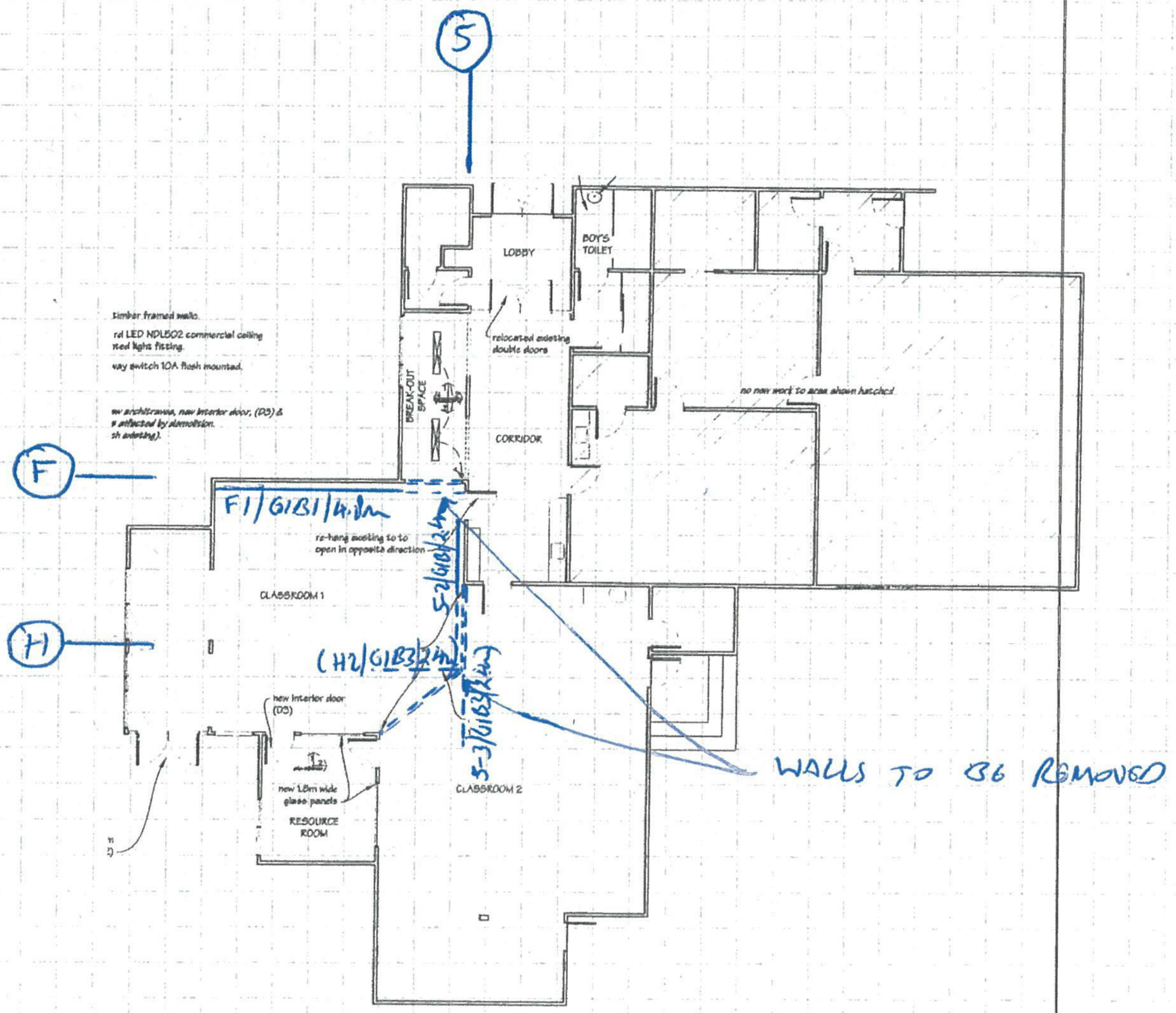
Project

BLOCK S, ST. MARY'S SCHOOL, BLENHEIM

CALCULATIONS

SCOPE: CHECK EXISTING BRACING FOR REMOVAL OF INTERNAL PARTITION WALL OF A SINGLE STOREY SCHOOL BUILDING.

GEOMETRY: REFER BRACING PLAN BELOW:



BRACING PLAN SHOWING AFFECTED BRACING ELEMENTS
1:200

(2)

Job Name: Block S - St. Mary's School, Blenheim **Job Number:** 40797
Engineer: GV **Date:** 6-Jul-16

CALCULATIONS

AS/NZS1170 Design

Horizontal Wind Pressures

(For $\alpha < 60$)

Governing Wind Along	$V_{(z)}$ =	37 m/s	(worst in 45 deg. either side of normal)
Governing Wind Across	$V_{(z)}$ =	37 m/s	(worst in 45 deg. either side of normal)

Basic Wind Pressure

$q_{(z)} = 0.6V_{(z)}^2 x10^{-3} =$ 0.821 kPa along

$q_{(z)} = 0.6V_{(z)}^2 x10^{-3} =$ 0.821 kPa across

Net Pressures

Pz = Pe - Pi but Pi acts in both directions so ignore Now Pz = Pe

Walls Direction Along (θ=90)

Ka = 1 Kl = 1
Kc = 0.8 Kp = 1

d= 24.0 m
b= 20.4 m
d/b 1.18

Cpe(windward)= 0.7
Cpe(leeward)= -0.5
Total Cpe= 1.2

P(z) = Cpe x Ka x Kc x Kl x Kp x q(z)

P(z) = 1.20 x 1.00 x 0.80 x 1.00 x 1.00 x 0.821 = **0.789 kPa** **Along**

Walls Direction Across (θ=0)

d= 20.4 m
b= 24.0 m
d/b 0.85

Cpe(windward)= 0.7
Cpe(leeward)= -0.5
Total Cpe= 1.2

P(z) = Cpe x Ka x Kc x Kl x Kp x q(z)

P(z) = 1.20 x 1.00 x 0.80 x 1.00 x 1.00 x 0.821 = **0.789 kPa** **Across**

Roof Both Directions

Roof Angle α= 10 degrees (Max. 59)

h= 4.0 m
d= 20.4 m
h/d 0.20

Cpe(upwind)= -0.9
Cpe(downwind)= 0.2

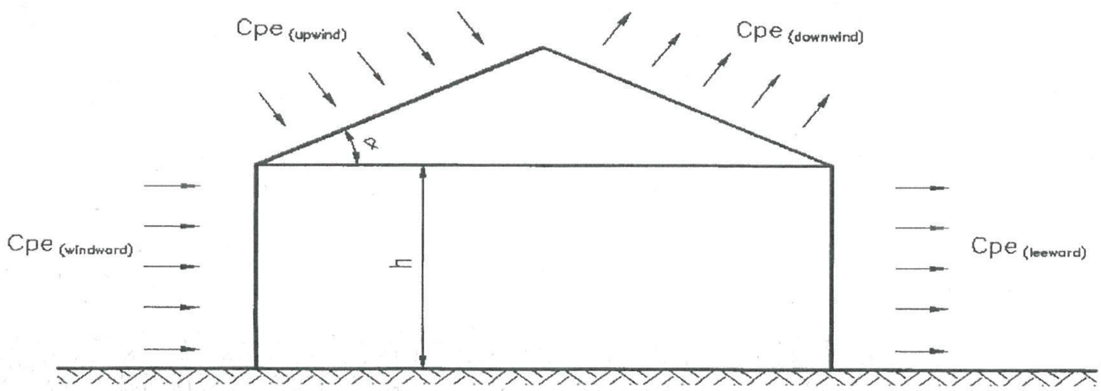
Cpe Horizontal Components

Cpe(windward)=	-0.90 x sin 10	=	-0.16	
Cpe(leeward)=	0.20 x sin 10	=	0.03	
	Total Cpe	=	-0.19	

Ka = 1 Kl = 1
Kc = 0.8 Kp = 1

P(z) = Cpe x Ka x Kc x Kl x Kp x q(z)

P(z) = -0.19 x 1.00 x 0.80 x 1.00 x 1.00 x 0.82 = **-0.126 kPa** **Roof**



BC161010

APPROVED DOCUMENTS
Date Approved: 12/10/2016 3
MARLBOROUGH DISTRICT COUNCIL

Job Name:	Block S - St. Mary's School, Blenheim	**Job Number:**	40797
Engineer:	GV	**Date:**	6/07/2016
		Part:	1

CALCULATIONS

Horizontal Wind Forces

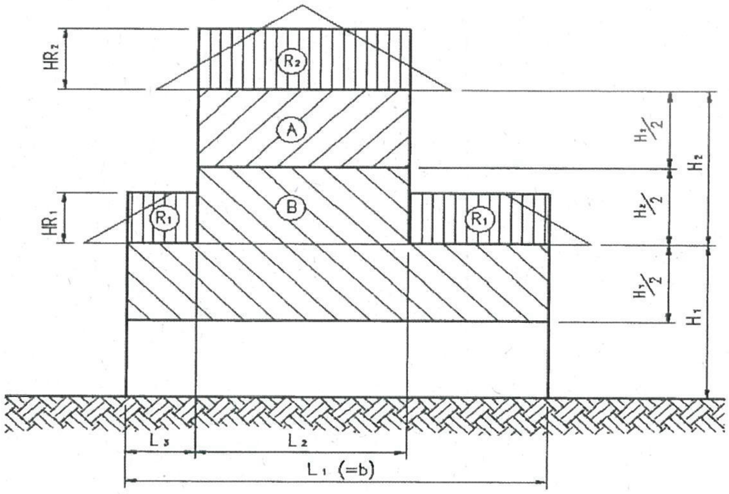
(For α < 60)

Forces Along

H_1 3.00 m
H_2 0.00 m
HR_1 1.00 m
HR_2 0.00 m

Gives
$H_1/2$ 1.50 m
$H_2/2$ 0.00 m

L_1 20.40 m
L_2 20.40 m
L_3



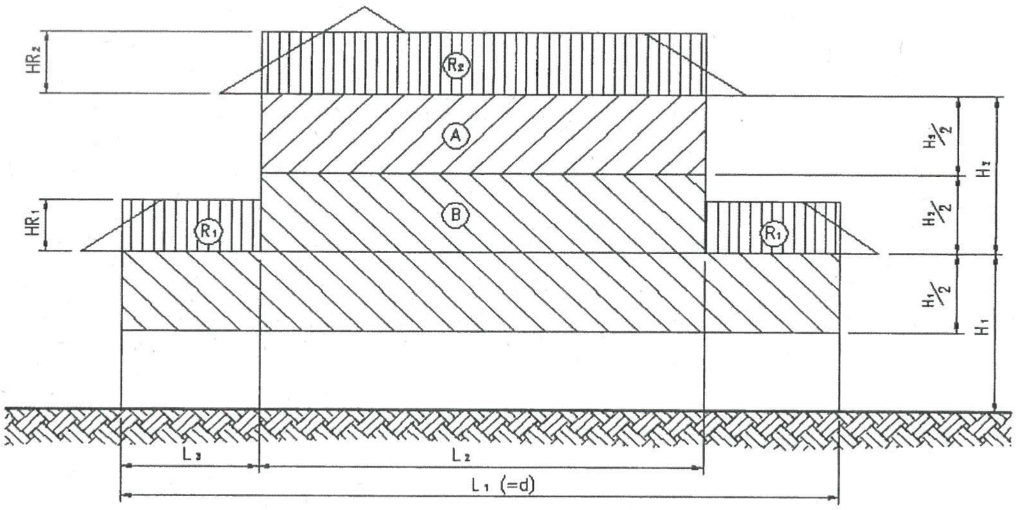
Part		Area (m2)	x	Pressure (Kpa)	=	Force (kN)	x	20	=	BU's
R2	0.00 x 20.40 =	0.00	x	-0.126	=	0.00	x	20	=	0
A	0.00 x 20.40 =	0.00	x	0.789	=	0.00	x	20	=	0
								Upper Level Along		**0**
R1	1.00 x 0.00 =	0.00	x	-0.126	=	0.00	x	20	=	0
B	0.00 x 20.40 + 1.50 x 20.40 =	30.60	x	0.789	=	24.13	x	20	=	483
								Lower Level Along		**483**

Forces Across

H_1 3.00 m
H_2 0.00 m
HR_1 1.00 m
HR_2 0.00 m

Gives
$H_1/2$ 1.50 m
$H_2/2$ 0.00 m

L_1 24.00 m
L_2 24.00 m
L_3



Part		Area (m2)	x	Pressure (Kpa)	=	Force (kN)	x	20	=	BU's
R2	0.00 x 24.00 =	0.00	x	-0.126	=	0.00	x	20	=	0
A	0.00 x 24.00 =	0.00	x	0.789	=	0.00	x	20	=	0
								Upper Level Across		**0**
R1	1.00 x 0.00 =	0.00	x	-0.126	=	0.00	x	20	=	0
B	0.00 x 24.00 + 1.50 x 24.00 =	36.00	x	0.789	=	28.39	x	20	=	568
								Lower Level Across		**568**

Marlborough District Council
Date Received: 13/9/2016

BC161010

APPROVED DOCUMENTS
Date Approved: 12/10/2016
MARLBOROUGH DISTRICT COUNCIL

Date:	6-Jul-16	Eng:	GV	Job Number	40797	Sheet No	4
Project:	Block S - St. Mary's School, Blenheim						

CALCULATIONS

Site Wind Speed

Region = A7, Cat 3 bldg

Direction = Non Directional

V_r = 46 m/s

M_d = 1.00

M_s = 0.85

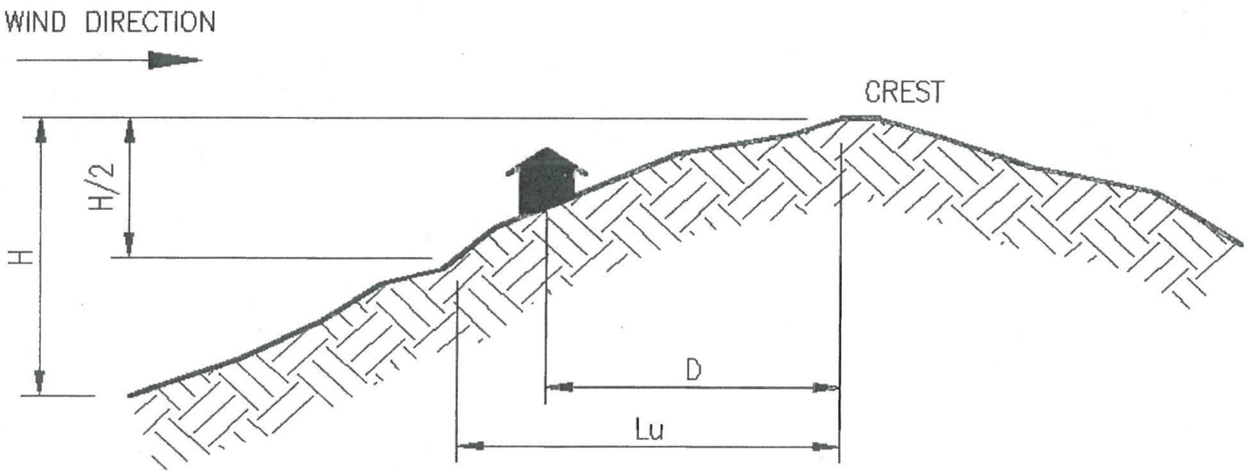
Terrain Factor = 3. Obstructions 3-5m

Building Height= 4m

Gives $M_{(zcat)}$ = 0.83

M_s=0.85 for buildings in normal built-up areas.
Refer to AS1170.2 Clause 4.3.1

Hill Shape Multiplier M_h



If $(H/2)/L_u < 0.05$ — $M_h = 1$ *formula in use*

If $0.05 < (H/2)/L_u < 0.45$ — $M_h = 1+(H/(3.5(z+L_1))x(1-D/L_2)$

If $(H/2)/L_u > 0.45$ — $M_h = 1+0.71(1-D/L_2)$

H = 0 m (Rise height)

Lu = 1 m (distance from mid rise to crest)

D = m (building distance from crest)

z = 4 m (building height)

M_{lee} = 1

Elevation = 5 m

Slope $[(H/2)/L_u]$ = 0.00

L_1 = 0.36 m

L_2 = 1.44 m

M_h = 1.00

M_{lee} = 1.00

M_e = greater of 1 or (Elevation - 500) x 0.00015 = 1.00

$M_t = M_h \times M_{lee} \times M_e$ = 1.00

$V_{(z)} = V_r \times M_d \times (M_{(zcat)} \times M_s \times M_t)$ = 46.00 x 1.00 x 0.83 x 1.00 x 0.85 = **32.5 m/s**

NZS 3604:2011 Wind Speed Zone: **Medium Wind Speed**

Ultimate Limit State wind pressure (ULS) = 0.63 kPa

Serviceability Limit State wind pressure (SLS) = 0.45 kPa

Marlborough District Council
Date Received: 13/9/2016

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Date Approved: 12/10/2016
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St. Mary's - Blenheim, Block S GV J40797

GIB EzyBrace® 2011 Software

GIB

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
240	A	1	2.4		2.2	GIB1-1984	GIB®	120	120
		2	2.4		2.2	GIB1-1984	GIB®	120	120
363	C	1	2.4		3.67	GIB1-1984	GIB®	78	78
		2	2.4		2.49	GIB1-1984	GIB®	116	116
		3	2.1		2.49	GIB3-1984	GIB®	101	101
		4	1.4		2.49	GIB3-1984	GIB®	67	67
236	D	1	2.4		2.49	GIB3-1984	GIB®	116	116
		2	2.4		2.4	GIB1-1984	GIB®	120	120
295	E	1	1.05		3.88	GS1-N	GIB®	43	39
		2	7.2		2.2	200PFC	Steel Porta	256	256
	(ELEMENT F1 REDUCED)								
364	F	1	4.8		2.62	GIB1-1984	GIB®	220	220
		2	2.4		2.2	GS1-N	GIB®	166	144
332	G	1	2.4		3.04	GIB1-1984	GIB®	95	95
		2	2.4		3.04	GIB1-1984	GIB®	95	95
		3	2.4		3.04	GIB1-1984	GIB®	95	95
		4	1.2		3.04	GIB3-1984	GIB®	47	47
120	H	1	2.4		2.2	GIB3-1984	GIB®	120	120
	(ELEMENT H2 REMOVED)				3.67	GIB3-1984	GIB®		
-45	J	1	1.4		3.88	Extg. 2	Extg.2	26	26
		2	1.55		3.88	Extg. 2	Extg.2	29	29
-20	K	1	2		2.37	GIB1-1984	GIB®	80	80
102	L	1	2.4		2.83	GIB1-1984	GIB®	102	102

						Wind	Earthq.
Totals Achieved	W	#DIV/0!	EQ	#DIV/0!		2211	2185
Timber Floor, design limit of 120 BU/m			*accepted*			*OK*	*OK*
Totals Required (from Demand)						483	1608

FROM DSA

I:\CERTA\JOBFILES\40700\40797\Design\40797 Block S Bracing Schedule.xls

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St. Mary's - Blenheim, Block S GV J40797

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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
-28	**1**	1	1.2		2.2	GS1-N	GIB®	83	72
161	**2**	1	2.4		2.83	GIB1-1984	GIB®	81	81
		2	2		2.2	GIB1-1984	GIB®	80	80
238	**4**	1	2.4		2.2	GIB1-1984	GIB®	120	120
		2	2.4		2.44	GIB3-1984	GIB®	118	118
		(ELEMENT 5-2 REDUCED)							
167	**5**	1	1.8		2.3	GIB1-1984	GIB®	72	72
		2	2.4		3.04	GIB1-1984	GIB®	95	95
	(ELEMENT 5-3 DELETED)				3.67	GIB3-1984	GIB®		
						Extg. Wall	Extg.		
471	**6**	1	3.5		2.4	GIB1-1984	GIB®	175	175
		2	1.7		2.49	GIB3-1984	GIB®	82	82
		3	1.4		3.3	GIB3-1984	GIB®	51	51
		4	2.4		3.15	GIB3-1984	GIB®	91	91
		5	1.2		2.2	GS1-N	GIB®	83	72
510	**7**	1	1.1		2.44	Extg. 2	Extg.2	32	32
		2	4.3		2.44	GIB3-1984	GIB®	211	211
		3	5.8		2.62	GIB1-1984	GIB®	266	266
270	**8**	1	2.4		2.3	GIB3-1984	GIB®	120	120
		2	3		2.2	GIB1-1984	GIB®	150	150
282	**9**	1	2.4		2.49	GIB3-1984	GIB®	116	116
		2	4.8		3.46	GIB3-1984	GIB®	166	166
-15	**10**	1	1.44		2.44	GS1-N	GIB®	98	85
216	**12**	1	1.1		3.04	Extg. 2	Extg.2	26	26
		2	4.8		3.04	GIB1-1984	GIB®	189	189

					Wind	Earthq.
Totals Achieved	W	#DIV/0!	EQ	#DIV/0!	2506	2472
Timber Floor, design limit of 120 BU/m			***accepted***		*OK*	*OK*
Totals Required (from Demand)					568	1608

FROM DSA

I:\CERTA\JOBFILES\40700\40797\Design\40797 Block S Bracing Schedule.xls

Marlborough District Council
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SOIL BEARING TEST REPORT

Client:	St Marys School	Date:	24 November 2015
Project:	New Toilet block adjacent Block Q	Investigator:	Graham Kerrigan
Site:	3 Stephenson Street, Blenheim	Job No:	3783

Note: Past Test carried out to NZS4402

Introduction

Penetrometer tests were carried out at St Marys School -3 Stephenson Street, Blenheim on 24 November 2015. Penetrometer probes were carried out by Kerrigan Engineers Ltd. The tests were necessary to satisfy Building Code requirements about verification of the site soil bearing strength with respect to the proposed timber framed single storey toilet block to be constructed adjacent Class Block Q.

Investigation

This report is based on these limited soil tests only and the results do not preclude the possibility of differing soil properties and/or other relevant physical features being present between the test locations.
Investigation

Investigation

This report is based on these limited soil tests only and the results do not preclude the possibility of differing soil properties and/or other relevant physical features being present between the test locations.

Results

Refer attached spreadsheet

Conclusion

The results indicate consistent bearing capacity throughout the building envelope and indicate very firm ground that meets with the requirements of NZS 3604:2011.

Limitation

This report has been prepared solely for the benefit for St Marys School with respect to our understanding of the request. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties' sole risk.

This report is based on our interpretation of our visual examination and limited soil tests only and does not preclude the possibility of differing soil properties and/or other relevant physical features being present between the test locations or hidden from view.

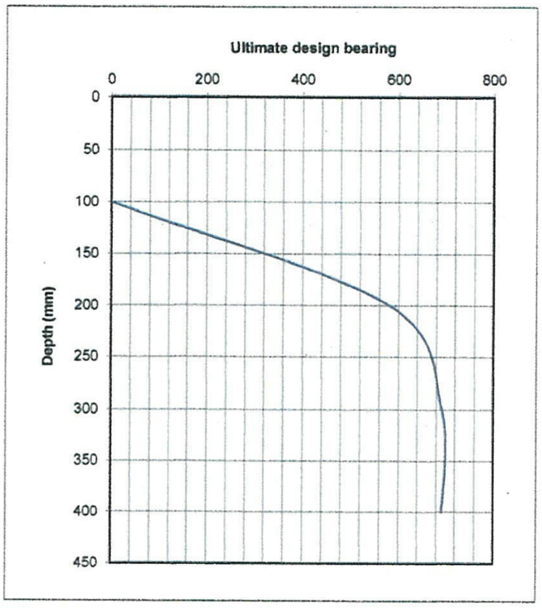
Graham Kerrigan
MIPENZ(Civil & Structural)CPEng IntPE(NZ)

PENETROMETER TEST RESULTS PLOTS

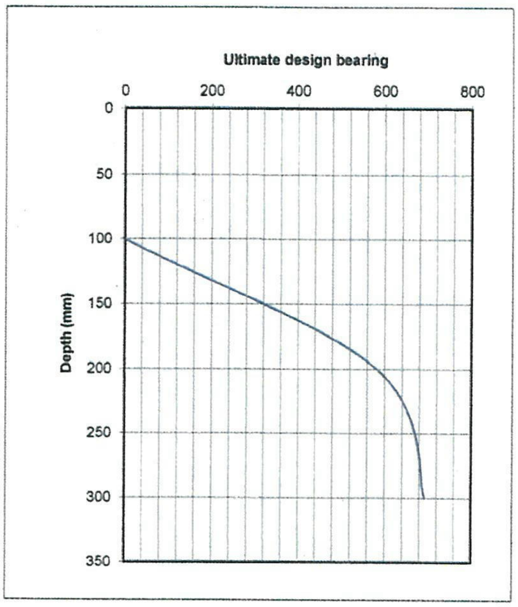
Client:	St Marys School	**Date:**	24.11.15
Project:	New Toilet Block adjacent existing Block Q	**Investigator:**	Graham Kerrigan
Site:	208 Taylor Pass Road	**Job No:**	3783

Notes:
Tests carried out to NZS4402
Test 1 - at south side of proposed building
Test 2 - at north side of proposed building
Test 3 - at centre of proposed building

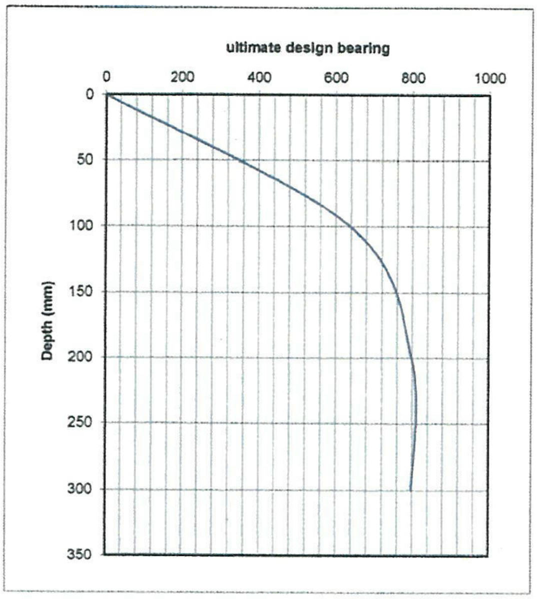
Test 1



Test 2



Test 3



Conclusion The results are consistent and indicate very firm ground that meets with the requirements of NZS 3604:2011.

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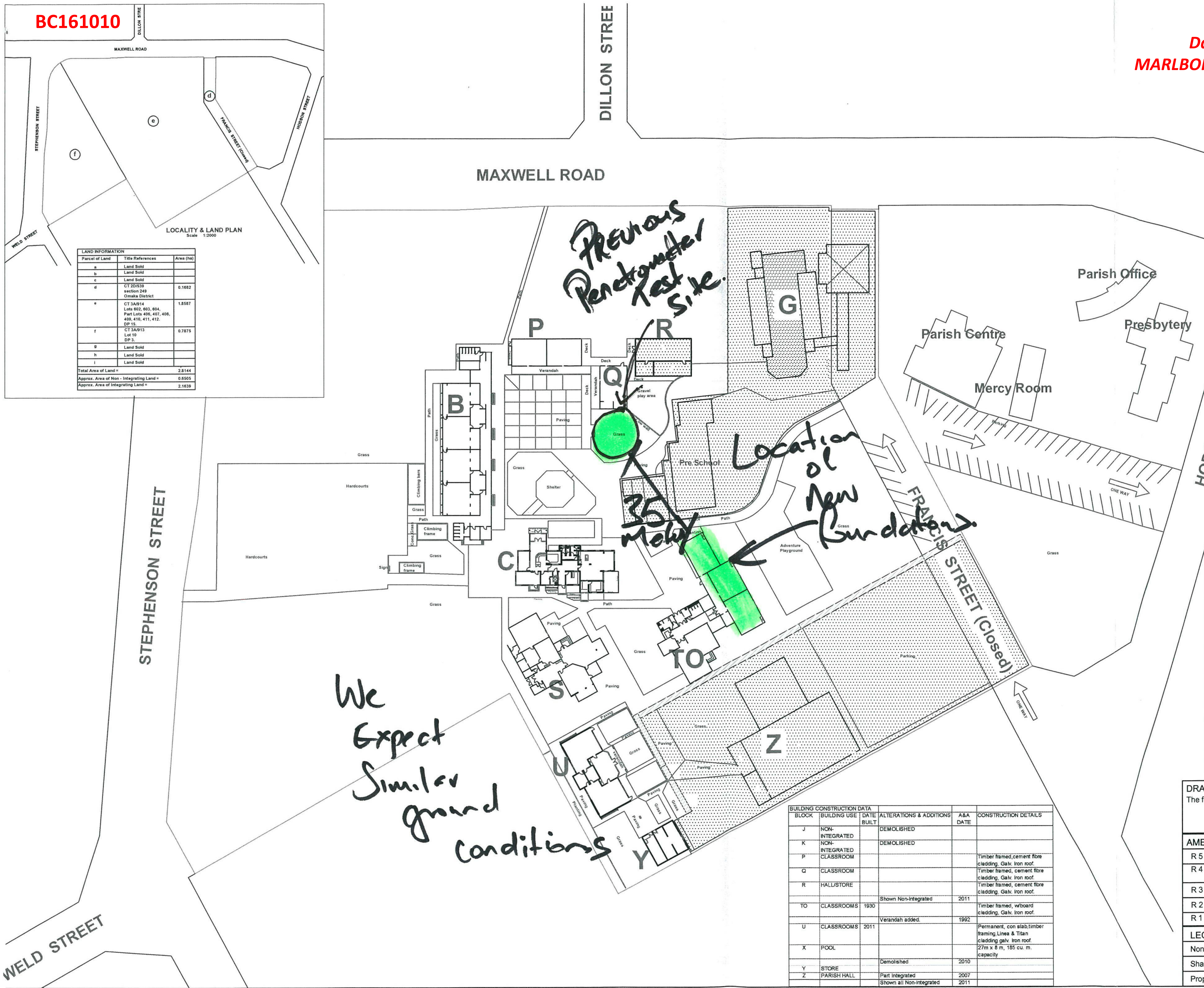


LAND INFORMATION		
Parcel of Land	Title References	Area (ha)
a	Land Sold	
b	Land Sold	
c	Land Sold	
d	CT 2D/539 section 249 Omaka District	0.1682
e	CT 3A/914 Lots 602, 603, 604, Part Lots 406, 407, 408, 409, 410, 411, 412. DP 15.	1.8587
f	CT 3A/913 Lot 10 DP 3.	0.7875
g	Land Sold	
h	Land Sold	
i	Land Sold	
Total Area of Land =		2.8144
Approx. Area of Non - Integrating Land =		0.6505
Approx. Area of Integrating Land =		2.1639

BUILDING CONSTRUCTION DATA

BLOCK	BUILDING USE	DATE BUILT	ALTERATIONS & ADDITIONS	A&A DATE	CONSTRUCTION DETAILS
A	DEMOLISHED				
B	CLASSROOMS	1970			R/Concrete foundations & slab, conc. block walls, timber roof trusses, galv. Iron roof.
B1	BIKE SHED	1970	DEMOLISHED 2005		
C	ADMINISTRATI ON	1970			R/conc Founds & slab, conc.block walls, membrane roof.
			ALTERATIONS & ADDITIONS	2006	Addition timber framed on concrete slab,galv. Iron roof.
D	ANCILARY	1960			R/conc. Founds, timber framing, w/board cladding, galv. Iron roof.
			Removed to make way for new Classroom Blk U	2011	
D/Y	CLASSROOMS (& Changing rooms)	1955			R/conc. Founds, timber framing, w/board cladding, galv. Iron roof.
			Staffroom added	1968	
			Block Y,Changing rooms added.		
			Classroom part(Block D of DY) Demolished for new Block U, Block Y part retained.	2011	
G	NON-INTEGRATED		Church		

DRAWING ACCURACY

The following aspects of this drawing have not been verified on site.

Site Boundaries

Interior room dimensions of all blocks

BUILDING CONSTRUCTION DATA

BLOCK	BUILDING USE	DATE BUILT	ALTERATIONS & ADDITIONS	A&A DATE	CONSTRUCTION DETAILS
J	NON-INTEGRATED		DEMOLISHED		
K	NON-INTEGRATED		DEMOLISHED		
P	CLASSROOM				Timber framed,cement fibre cladding, Galv. Iron roof.
Q	CLASSROOM				Timber framed, cement fibre cladding, Galv. Iron roof.
R	HALL/STORE				Timber framed, cement fibre cladding, Galv. Iron roof.
			Shown Non-Integrated	2011	
TO	CLASSROOMS	1930			Timber framed, w/board cladding, Galv. Iron roof.
			Verandah added.	1992	
U	CLASSROOMS	2011			Permanent, con slab,timber framing,Linea & Titan cladding galv. Iron roof.
X	POOL				27m x 8 m, 185 cu. m. capacity
			Demolished	2010	
Y	STORE				
Z	PARISH HALL		Part Integrated	2007	
			Shown all Non-Integrated	2011	

AMENDMENTS

R 5	Blocks R & Z shown Non-Integrated.	BSM 9/11
R 4	Part D of Block DY demolished, Part Y retained, Block D (Anc) & Pool demolishsd, New Block U added.	BSM 7/11
R 3	Block Z part Integrated.	BSM 8/07
R 2	Block C redrawn to include additions & alterations.	BSM 5/06
R 1	Redrawn in CAD to CSBL format.	BSM 3/05

LEGEND

Non-Integrated Land and Buildings

Shared Land

Proprietors Land

CATHOLIC SCHOOLS BOARD LIMITED
ARCHDIOCESE OF WELLINGTON AND DIOCESE OF PALMERSTON NORTH
22-28 Hill Street, Wellington PO Box 12 341 Thorndon, Wellington
Telephone 04 499 0724 Facsimile 04 499 4804 E-mail office@catholicschools.co.nz

Marlborough District Council
Date Received: 13/9/2016

CSBL ASSET PLAN MANAGERS
BSM Group Architects
33 Ridgway St WANGANUI
Phone (06) 345 8112, Fax (06) 345 3851.
E-mail admin@bsmgroup.co.nz

SITE PLAN

ASSET REGISTER PLAN

ST.MARY'S SCHOOL,BLENHEIM.

MOE SCHOOL PROFILE No: 3012

CSBL SCHOOL No: 36

Scale = 1:500 @ A1

Original Dwg Created 3/06

Last revision Date 9/11

SHEET 1 of 2 sheets

REVISION R5

SITE SPECIFIC HEALTH AND SAFETY PLAN

ON SITE SAFETY SUPERVISORS RESPONSIBILITY

CONTRACT: ***St Mary's TO & S***

NAME OF PERSON RESPONSIBLE:

POSITION: ***Site Manager***
(To be completed for each Contract or in the case of smaller contracts and sundry work is to be the Foreman or person in charge of the work place)

DUTIES:

- Understand the legislative requirements for health and safety in the work place.
- Ensure that a Site Safety plan including emergency procedures and a safety check programme is established and maintained at the place of work.
- Provide a site Hazard Board in a prominent position to allow site staff to note hazards and the method of control.
- Carry out daily Hazard Management inspections.
- Make sure employees and Subcontractors have the opportunity to comment on health and safety issues by conducting toolbox meetings.
- Prepare, distribute and file all records, inspection reports and accident reports.
- Ensure that all Subcontractors have:

  1. Read this Site Specific Safety plan and have familiarised themselves with the site through the Site Safety Induction
  2. Nominated their Safety Supervisor
  3. Identified what hazards they will be introducing to the site
  4. Advised how they will manage those hazards

- Make sure that the person assigned to a task has the appropriate skill/training to carry out that task or is properly supervised by a person who has the appropriate skill and experience.

- Make sure that staff have access to, and use, the safety equipment and protective clothing for the task.

- Make sure that all products/substances which have potential health hazards, are clearly labelled and correctly stored.

- Make sure that there is sufficient information, i.e. Material Safety Data Sheets (MSDS), on site in respect to every hazardous product/substance used or stored that covers:
  - How to use it safely
  - What are the hazards
  - What protective clothing, equipment or safety practice is required when handling the substance.

- **Make sure all staff who handle or use any hazardous product/substance are aware of its hazards and the precautions that are to be taken.**

- **Where such requirements would not endanger health and safety adhere to all the requirements specified by the client in any particular work place.**

SITE SPECIFIC HEALTH AND SAFETY PLAN

CONTRACT: ***St Mary's TO &S***

DATE: 10 July 2016

For All Construction Personnel

1. All employees involved in the construction must be made fully aware of this Site Specific Health and Safety policy. A copy of this health and Safety policy will be on site at all times for anyone to view.

2. Notify any specific "hazards" by entering these on the "Hazard Board" by the site container

3. The person nominated as Safety Supervisor is responsible for informing other employees of the listed hazards.

4. Any new employees brought onto site must be taken through the safety induction process.

5. Any hazardous chemicals/substances to be used and/or brought onto site are to be notified and material safety data sheets for these are to be handed in.

6. Every employer must ensure their employees wear the appropriate safety equipment for the job in hand.

7. Any task to be carried out that involves the use of lifting equipment or is of an unusual or dangerous nature must first be planned by:

   - All persons involved in the task are to meet on site to discuss and plan so it is performed in a safe manner.
   - Arrange timing to suit other activities in the area.
   - Obtain any special safety equipment.
   - Notify anyone who is likely to be affected by the task.

8. Any on site injuries whether minor or serious are to be noted on the Accident Register in the First Aid Cabinet, which is located in the Site Office.

9. Consideration must be given to adjoining property owners and access-ways to avoid any disruption and/or damage.

10. Hard hats must be worn when any risk exists from overhead or from adjacent excavation faces over 2 metres high. This will be defined at the weekly safety meetings. Hard Hats need not be worn when working in single level areas that have overhead protection and no risk from falling objects. Not withstanding the foregoing, any personnel moving from a protected area to an unprotected area must wear a hard hat.

11. No existing services are to be disconnected or connected into without prior approval of the Project Site Manager.

12. Subcontractors wishing to use our plant or equipment must ensure:

    - That they obtain permission to do so from the Project Site Manager.
    - That they satisfy themselves that the plant/equipment is safe to use immediately prior to use.
    - That the person who is to use/operate the plant/equipment has had adequate and appropriate training in the use of the particular item of plant/equipment.

13. Housekeeping

    - No food is to be consumed on the site outside of designated areas. Generally this means that all food shall be consumed in smoko sheds and any left over food is to be disposed of in approved rubbish disposal areas.
    - All employees and subcontractors are to ensure that all sheds are to be maintained in a clean condition.
    - We will supply toilet and washing facilities. All staff and subcontractors are responsible for the proper use and care of the facilities provided.
    - Waste materials from the construction process are to be cleared up and removed from site on a daily basis, each subcontractor being responsible for their own waste.

14. Public

    - A safe access path to the Site Office, free of debris and falling objects, shall be maintained throughout the project.
    - There shall be four hard hats kept in the site office for visitors to the site. Visitors to the site will be advised of hazards on site and any necessary safety precautions to be taken.

15. Excavation assembly point is as per the accompanying drawing.

SITE SAFETY INDUCTION

CONTRACT: ***St Mary's TO & S***

I HAVE BEEN INDUCTED TO THE SITE AND HAVE READ AND UNDERSTOOD THE SITE SAFETY PLAN

NAME	COMPANY	DATE	SIGNATURE

ACCIDENT/INCIDENT INVESTIGATION

If serious harm has occurred, don't complete this form – use the OSH notification form for serious harm. The purpose of this investigation is to prevent recurrence of accidents or incidents. It is not the attention to attribute blame to an individual. Please record as much detail as possible to assist in the prevention of incidents.

DATE OF ACCIDENT/INCIDENT:........................ TIME:.................

INJURED PERSON:.......................

DETAILS OF INJURY/DAMAGE:

....

....

WHAT HAPPENED:...

....

....

AND HOW ....

....

....

WAS IT AVOIDABLE:...

....

....

WHAT ACTION HAS BEEN TAKEN TO PREVENT A FURTHER OCCURRENCE:

....

....

....

....

Signed: ....

Date: ....

ACCIDENT REGISTER FOR ALL ON SITE INJURIES

Contract: ***St Mary's TO & S***
MUST be completed by all Site personnel and subcontractors

DATE	FIRM	INJURED EMPLOYEE'S NAME	INJURY	TREATED BY	TIME OFF WORK

TO BE KEPT IN THE FIRST AID CABINET

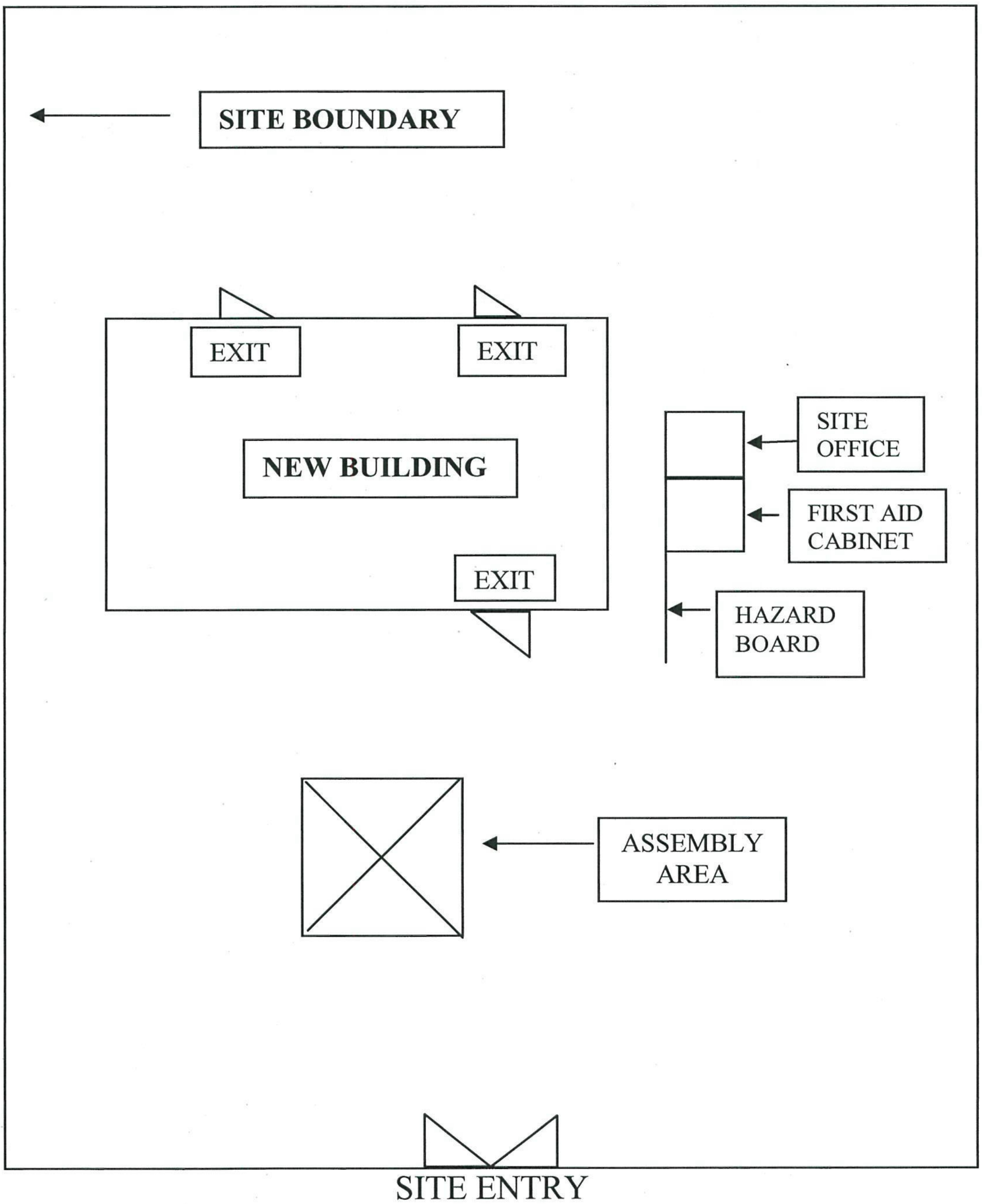
SITE SAFETY REVIEW CHECKLIST

DATE: / / SITE: St Marys School SIGNED

	Safe Y	Safe N	Action to be taken	By date	Action Completed Signature	Date Actually Completed
General:						
Warning signs displayed						
Site fencing						
Guarding of water hazards						
Guardrails to excavations						
Guardrails to stairs and floor openings						
Guardrails to perimeter (upper floors)						
Lighting (incl. lights in stairways)						
Fire Extinguishers – condition						
First Aid box available & stocked						
Cleanliness of sheds/office/toilets						
Excavations:						
Notifiable?						
Access						
Machinery						
Shoring						
Material 600mm from edge						
Scaffolding:						
Notifiable?						
Register?						
Access						
Working platforms						
Guardrails, ties, Bracing						
Proximity to power lines						
Ladders:						
Quality						
Security						
Electrical:						
Transformers/RCD's being used						
Leads						
3 monthly check by electrician						
Housekeeping:						
Access / Egress clear						
Stacking of Materials						
Floor areas						
Workplaces						
Site tidy						
Site secure						
Equipment set up						

SAMPLE EVACUATION PLAN

Contract:………………… Date:………………



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EMERGENCY PROCEDURE PROJECT: *St Mary's TO & S*

EMERGENCY SITE PROCEDURE

DIAL 111 FOR: **FIRE**
AMBULANCE
POLICE

1. **Tell the operator what service you require.**
2. **Wait until the service answers.**
3. **Give them details on this**
   - (a) **Type of emergency (accident, fire, explosion)**
   - (b) **Address of the building site and area of emergency)**

SITE: *St Patricks School*

   - (c) **Advise them that someone will wait out on the road.**
4. **Make sure someone waits and give correct direction.**
5. **Notify Management, (name the telephone number below):**

EMERGENCY CONTACT

Safety Supervisor for this Site:

First Aid Cabinets are in the:
Site Office

Fire Extinguishers are in/at/on the:
Site Office
Demolition ,Structural Steel ,Plumbing To have own

Medical Treatment Only Address:

Phone Numbers:
Local Power Authority – 0800 27 27 27
Chemical Spill – FIRE SERVICES –111
Local Gas Authority – 0800 734 567
High Pressure Gas Authority –
Department of Labour
O S & H Inspector 04 385-7771--

EMERGENCY EVACUATION

If an emergency requires evacuation of the site, the following warning will sound:

ONE CONTINUOUS BLAST OF AN AEROSOL HOOTER

All personnel on site are to proceed immediately by the safest route and assemble at:

Assembly Point:
Contractors Carpark

Remain there so people can be accounted for. DO NOT return to the building until clearance has been given by:

Project/Site Manager/Foreman

Politely refuse access or information to news media and/or public; to be referred to Project Site Manager

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HAZARD IDENTIFICATION FORM

Contract: ***St Mary's TO & S***

Steps	1)	Identify Significant Hazard
Then	2)	Eliminate It
If Not Practicable	3)	Isolate It
If Not Practicable	4)	Minimise Risk

Hazard	Practical To Eliminate		Practical To Isolate		Action to Eliminate, Isolate, Minimise	Person Responsible	Action Confirmed	Date
	Yes	No	Yes	No				

Marlborough District Council
Date Received: 13/9/2016

HAZARD IDENTIFICATION

The following list of day to day hazards is to be used to assist in identifying hazards and control procedures.

HAZARD	HARM	OCCURRENCE	CONTROL
<u>SITE SECURITY</u>	Injury employees Public	Trip/fall Overhead objects Unauthorised access	– Site kept tidy – Overhead protection – Perimeter fencing, caution tape, locked gates, adequate lighting, warning signs – Maintain signs during construction i.e., correct places – No person under 16 years old allowed on any construction site
<u>SITE FACILITIES AND GENERAL</u> Smoko sheds and Toilet shed	Personal injury/illness Cross infection	Poor Food handling Food Poisoning Unclean Vermin/disease	– Facilities to suit size of contact – Waterproof sheds, adequate ventilation – Washing facilities – Suitable rubbish disposal – Adequate supply of cleaner, disinfectant, toilet paper, hand cleaner dispenser
Store Sheds	Personal injury Loss of equipment	Objects falling Equipment stolen	– Store material/gear safely – Keep tidy and secure
First Aid/Emergency	Cross infection Evacuation	Procedure not in place/followed Loss of life Personal injury Lack of facilities Lack of stock, training Lack of protective clothing Equipment	– Training (CPR) – Exit evacuation procedures set up and known – First Aid Kit, sufficient stock to keep kit full – regular checks – OSH forms – Disposal gloves, dust masks – Ensure employees, subcontractors know procedures and follow them – Personnel on site to know emergency procedure and contact phone number

HAZARD IDENTIFICATION

HAZARD	HARM	OCCURENCE	CONTROL
SITE FACILITIES AND GENERAL (Contd.) Protective Clothing/Equipment	Personal injury	Lack of training Lack of protective clothing/equipment	– Training – Ensure correct protective gear for job, safety shoes, harness, ear muffs, goggles, reflective safety vest – Hard hats must be worn if risk of injury from falling objects
Fire protection	Personal injury Death	Fire when welding, gas cutting, soldering Electrical fire	– Keep fire extinguishers close by – Regular checks – Hot work permits
Site Tidiness	Personal injury	Trip/fall Stand on nail	– Rubbish container, keep site clean on regular basis – Denail timber immediately – Stack properly on level ground
PLANT AND EQUIPMENT General	Personal injury	Lack of training Lack of guards/maintenance Unsafe electrically Unprotected from weather	– Training – Regular checks/service – Ensure blade kept sharp – Protect from weather (proper cover) – Ramset WOF up to date – Respect gear – Don’t use unless instructed in safe use

HAZARD IDENTIFICATION

HAZARD	HARM	OCCURRENCE	CONTROL
PLANT AND EQUIPMENT (Contd.) Trucks/Trailers	Crush/injury Laceration Unsecured Loads Death Death	Incorrect use Inexperience Mechanically unsafe Unsecured Loads Poor visibility Poor visibility	– Training – Mechanically safe – Regular checks – Experienced drivers – Certificate of fitness – Secure loads, safety chains – Load restriction – Speed restriction – No private vehicles on site – Horn lights, brakes, trailer plugs
Forklift	Personal injury	Inadequate training Falling loads	– Trained personnel to use only – Don't overload – Stack properly – Signs indicating use
Ladders	Personal injury	Incorrect use	– Training – Ladders safe and in good repair – Set at correct angle (1.4) – Securely fixed – Extend 1m above landing
Electrical Equipment Leakage	Personal injury Death	Poor repair Incorrect use	– Training – Keep leads off ground – Transformers or earth devices – Regular checks/maintenance
Craneage	Personal injury Injury to public Death	Wrong directions Incorrect hooking up of Loads Worn strops/slings Over weight	– Training – Skilled Dogman – Correct signals – Hard hats

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MARLBOROUGH DISTRICT COUNCIL

HAZARD IDENTIFICATION

HAZARD	HARM	OCCURRENCE	CONTROL
SCAFFOLDING	Personal injury Injury to public Death	Lack of training Not notified Fall Lack of protective gear Falling objects Insecure base Loose nut	– Training – Comply with code of practice, retain copy on site – Notify where applicable – Harnesses where risk fall over 3 metres – Maintain scaffold – If not safe to work on remove all planks – Ensure braces secure – Firm level base – Hard Hats – Scaffold over 5m to be erected under direct supervision of a ticketed scaffolder
MATERIAL/HANDLING	Personal injury	Dust/lung infection Dermatitis Back injury Trip/fall	– Correct lifting procedure – Gloves for certain material handling – Know your product (data sheet) – Only list what capable of – Adequate ventilation when using solvents – Warning signs
EXCAVATION	Personal injury Drowning Suffocation Electrocution Explosion Slewing arms/off loading Machinery on public roads and footpaths Hazard to all workers and public Hidden power/gas/phone/water etc.	Fall/trip in trench No barriers/signs Cave in Insecure base Traffic accidents Lack of attention	– Signs – Safety barriers/tape walkways – Support sides trench – Check with authorities for underground hazards – Traffic control/cones/direct traffic – Fluorescent markings on profiles/string lines

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Date Received: 13/9/2016

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Date Approved: 12/10/2016
MARLBOROUGH DISTRICT COUNCIL

HAZARD IDENTIFICATION

HAZARD	HARM	OCCURRENCE	CONTROL
FOUNDATIONS REINFORCING STEEL Reinforcing & Mesh	Personal injury Crushing/impaling	Off loading Protruding edges Cuts/scratches	– Care in off loading – Stack on bearers – Protect edges against tripping – Fluorescent marking on starter ends or bend over, or fix to timber rail.
Boxing	Personal injury	Trip/fall Incorrect lifting technique Too heavy	– Walkway over foundation on main access route – Denail immediately – Correct lifting – Get assistance
Concrete	Personal injury Public injury Electrocution Concrete falling on workers	Incorrect position pump/conc. truck Overhead lines Distraction of operator Excess concrete in pipe	– Correct position pump/concrete truck – Traffic control – Barriers/cones – Hard hats when under pump – Keep clear of overhead power lines (4 meters away) – Ensure workers aware of risks
FRAMING	Personal injury	Fall, dwangs giving way under weight Frames inadequately braced Swinging trusses when craning Lack of guard-rails	– Ensure dwangs nailed properly – Care when climbing – Secure frames – Hard hats when craning materials – Care in swinging into position – Protection from fall over 3m (Harness)

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Date Received: 13/9/2016

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CES

Report Number 165691
05-Jul-16

Ian Rattray
I R Group Ltd
PO Box 40 651
Upper Hutt

IDENTIFICATION OF ASBESTOS IN A BULK SAMPLE

Samples received on 29/06/2016 from St Marys school - Blenhiem. Sampled by Ian Rattray, on 22/06/2016.

Results

Sample #	Sample details	Analytical results
165691	Block T	No Asbestos Found

This report may not be reproduced, except in full. Results pertain to sample "as received".

Method: Based on Australian Standard: AS 4964-2004, Method for the identification of asbestos in bulk samples.
Asbestos types: Amosite or Brown asbestos; Crocidolite or Blue asbestos, and Chrysotile or White asbestos.
* Interpretations and opinions expressed in this report are outside the terms of this Laboratory's Accreditation.

* Asbestos is a hazard. Provided it is incorporated into a stable matrix and no airborne dust is produced it presents minimal health risk. The Asbestos identified follows the definition of "asbestos" (even as a contaminant) in The Health and Safety at Work (Asbestos) Regulations 2016.

BASEBOARDS TO REMOVE FOR PILING

R. Lloyd

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Reported By
Rebecca Lloyd
Analyst

Capital Environmental Services (2005) Ltd
P.O. Box 10 526
Wellington Mail Centre 5045

2-4 Bell Road South Gracefield Lower Hutt
Telephone 04-566 3311 Fax 04-566 3312
Email enquiries@fibres.co.nz www.fibres.co.nz

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Date Received: 13/9/2016

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Date Approved: 12/10/2016
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ISP CONSULTING ENGINEERS LTD

Civil & Structural
Seismic Risk Analysis
Building Compliance

Lower Hutt Office
Tel: 04 566 8004
Fax: 04 566 8037
Level 1, ISP Centre
14 Laings Road
P.O. Box 30 535
Lower Hutt 5010

Paraparaumu Office
Tel: 04 902 5750
P.O. Box 537
Paraparaumu 5254

Email:email@isp.co.nz
Web: www.isp.co.nz

Seismic Evaluation of Blocks B, C, P, Q, R, S, TO, U, & Y
St. Mary's School
3 Stephenson Street
Blenheim

ISO 9001

29 October 2012 J24759

Marlborough District Council
Date Received: 13/9/2016

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MARLBOROUGH DISTRICT COUNCIL

Seismic Evaluation of Blocks B, C, P, Q, R, S, TO, U & Y St. Mary's School 3 Stephenson Street Blenheim

1. Summary

An evaluation has been carried out to assess the likely seismic performance of Blocks B, C, P, Q, R, S, TO, U and Y at St. Mary's School, 3 Stephenson Street, Blenheim. This included a site visit to confirm the present as-built condition of these buildings. Copies of drawings were obtained from the Marlborough District Council website.

The seismic performance of the buildings is presented in terms of a percentage of the design level of seismic loading the building is required to withstand under the Current Loadings Standard, AS/NZS 1170.5:2004, or New Building Standard (% NBS).

Our analysis indicates that the following equivalent seismic load resistances:

Block ID	%NBS	
B	59	
C	47-94*	
P	94	
Q	94	
R	100	
S	100	
TO	100	(20% for sub floor of Block O)**
U	100	
Y	79	

* Dependent on roof beam to wall connections not detailed or visible on site.
** The subfloor bracing of Block O consists of a mix of shallow cantilevered piles and anchor piles. NZS3604:1990 specifies very a low value for shallow cantilevered piles. However, given the possible failure of timber piles under a lightweight timber structure is unlikely to cause a life safety issue we believe these do not govern the outcome for this building.

These results mean that Block B does and Block C may fall below the requirements set by the Ministry of Education (see Section 2 below) and seismic upgrading is recommended.

1.1. Block B seismic upgrading

- Removal of the unreinforced concrete block masonry veneer of the North and South end walls of Block B; and
- Installation of steel angles at the tops of both sides of some of the walls.

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Date Received: 13/9/2016

1.2. Block C seismic upgrading

Pending confirmation of the existing of the roof beam to wall connections, these connections may require seismic upgrading by bolting a steel angle to each side of the roof beam and into the supporting wall below.

2. Legal Requirements

The Building Act 2004 defines an earthquake prone building as one which will have its ultimate capacity exceeded in a moderate earthquake (as defined in the regulations); and would be likely to collapse causing injury or death to persons in the building or to persons on any other property; or damage to any other property.

The Ministry of Education have released "Technical Guidelines for Structural Mitigation Work" in which it states that the standard for light framed school buildings, over and above that required by the Building Act 2004 (see above), is two thirds of current code, i.e. 67% NBS.

3. Structure

3.1. Block B: Classrooms and Toilet Blocks

Block B dates from 1970. It consists of a four-room classroom block plus two standalone toilet blocks. All three blocks are constructed of reinforced concrete block walls supporting timber trussed roofs with lightweight cladding. The floors consist of concrete slab on grade.

3.2. Block C: Administration

This building, originally constructed in 1970, was extended in 1983 and again in 2006. The original building plus the first extension is a similar construction to Block B. The 2006 extension is constructed of timber framed walls, lightweight roof and concrete slab on grade.

3.3. Blocks P & Q: Classrooms

Blocks P and Q date from 1997 and 1995 respectively. These classrooms are lightweight prefabricated buildings consisting of a lightweight timber trussed roof on timber framed walls. The ground floor is a suspended timber floor supported on timber piles. Block P has a concrete perimeter foundation to the West wall while Block Q has a continuous concrete block perimeter footing.

3.4. Block R: Hall/Store (Non-Integrated)

Block R is a three-room timber framed structure with a light weight timber trussed roof and a suspended timber floor on timber piles.

3.5. Block S: Library

This building, originally constructed in 1983, has had minor alterations and additions carried out to it in 2009. The lightweight roof including clerestory windows and sloping ceilings is in parts supported by exposed timber beams, some of which are glue-laminated. The walls are all timber framed. In 2009 one internal wall was removed and replaced by a 200PFC moment resisting frame. The ground floor is a concrete slab cast on grade.

3.6. Block TO: Classrooms

This building was constructed in 1983. It consists of two structures integrally connected. Both blocks consist of timber framed walls

supporting a lightweight timber framed roof. Block T has a concrete slab on grade while Block O has a suspended timber floor supported on a mix of braced, shallow cantilever and ordinary timber piles.

3.7. Block U: Classrooms

This building was constructed in 2011. It consists of timber framed walls supporting a lightweight roof. Block U has a concrete slab on grade.

3.8. Block Y: Storerooms

The construction date of this building is unknown. It consists of timber framed walls supporting a lightweight timber framed roof. Block Y has a concrete slab on grade.

4. Subsoil Classification

The school, like most of Blenheim is situated on remains of swamp land, as part of the Wairau Plains. Given this flexible soil, we have assumed subsoil classification D.

5. Material Properties

The following material properties have been assumed in our analysis:

f'_c = 20MPa for concrete
f'_m = 12MPa for grout filled concrete block masonry
f'_b = 14MPa; f'_c = 18MPa; f'_t = 8MPa for timber
f_y = 240MPa (for structural steel and reinforcement)

Assumptions have been made about what reinforcement would likely exist in blockwork given its age of construction, where this is not provided for in the drawings available to us. For timber framed buildings, where unknown, assumptions have been made as to the bracing capacity of the internal linings.

6. Analysis

The following assumptions have been made about design parameters:

Ductility μ = 3.0 for timber framed construction; μ = 2.0 for concrete block masonry construction.
Soil class D
Period T $\leq$ 0.45 sec
Return period factor R = 1.3

Two methods of analysis have been utilised for the various buildings:

1. Where buildings are known to be constructed prior to 1992, an equivalent static model has been used to distribute the loads to the various lateral load resisting elements. Flexible roof diaphragms have been assumed where applicable.

2. For buildings constructed after 1992, a comparison has been made between the seismic coefficients generated by NZS 4203:1992 and AS/NZS 1170.5:2004. Both Standards are based on capacity design

principles and as such the response mechanism in these buildings should be the same.

The 2009 extension to Block C and the 2011 construction of Block U are assumed to conform to (or close to) 100% NBS. As such no further analysis to these has been carried out.

7. Results

7.1. Block B: Classrooms and Toilet Blocks

The roof trusses were analysed to check the capacity of load transfer from the roof to the walls and pier that support them. Analysis suggests the roof trusses and their connections to the walls and piers are adequate to transfer 100% of NBS loads. Furthermore, the pier themselves have sufficient capacity to transfer seismic inertial loads from the roof down to the foundations.

The internal block walls generally have more than adequate in-plane capacity but can achieve only 59% NBS in out-of-plane response. This is as a result of inadequate reinforcement in the concrete bond beam at the top of the wall.

The external block walls, which consist of a reinforced concrete block wall with concrete block veneer over a cavity, also have sufficient in-plane response. The additional weight of the veneer and reduced thickness of the wall (when compared to the thickness of the internal walls) results in increased demand and reduced flexural capacity. Analysis shows that the capacity of these walls is at least 80% NBS. When the veneer is discounted, the capacity of these walls increases to at least 100% NBS. However, by removing the veneer the bond beam is no longer adequately supported. Furthermore, removal of the veneer decreases the thermal performance of the end walls.

The toilet blocks have similar construction to Block B but the spans of the walls are shorter. These walls have at least 100% NBS seismic load resisting capacity.

7.2. Block C: Administration

The original construction and concrete block extensions have been considered. Analysis shows that an equivalent seismic capacity of at least 100% NBS is achieved for the walls. The key parameter governing performance is roof beam to wall connection. The connection is not provided on the drawings, nor is it visible on site. These connections need to be exposed to determine their seismic load transfer capacity. Pending confirmation these connections may require strengthening. A suggested seismic strengthening of the roof beam to wall connection is provided in Appendix D.

7.3. Blocks P & Q: Classrooms

Comparison of the seismic coefficients indicates a capacity of at least 94% NBS for both these buildings.

7.4. Block R: Hall/Store (Non-Integrated)

An Initial Evaluation Procedure analysis indicates a capacity of at least 100% NBS for this building.

7.5. Block S: Library

Bracing is provided for by gypsum lined timber framed bracing elements, plus one steel portal frame that replaced some timber framed walls that were removed in 2009. The bracing capacity of this building in both orthogonal directions is at least 100% NBS.

7.6. Block TO: Classrooms

Block T has a bracing capacity of 79% NBS in the Along direction and 100% in the Across direction. Block O has a bracing capacity of at least 100% NBS in both orthogonal directions. It is noted that the sub-floor bracing capacity in both directions is significantly lower than that of the superstructure, achieving just 20% and 22% NBS respectively. This is limited by the low bracing capacity of sub-floor bracing as set out in NZS 3604:1984.

7.7. Block U: Classrooms

This building was constructed in 2011 and is assumed to achieve close to or at least 100% NBS.

7.8. Block Y: Storerooms

Given the lack of documentation for this building, conservative assumptions have been made as to the bracing capacity of this building. The Risk factor, R, has been set at 1.0 (as opposed to 1.3 for the other buildings) for determination of the seismic coefficient. The analysis shows that in the Along direction, Block Y has a seismic capacity of 79% NBS and at least 100% in the Across direction.

8. Recommendations

8.1. Block B: Classrooms and Toilet Blocks

We recommend that steel angles be fixed to the tops of the East-West internal and end walls in Block B. This will provide additional flexural capacity to these critical areas. The ends of these angles are to be bolted into the adjacent piers or return walls, as appropriate.

The demand of the external walls can be reduced significantly by removal of the concrete block veneer. Furthermore, to increase the thermal performance of the end walls, we recommend that the outside faces of the remaining block work is strapped and lined and then finished with a plastered polystyrene cladding.

A suggested seismic strengthening layout is provided in Appendix D.

8.2. Block C: Administration

We recommend that the connection between the roof and the block walls be exposed to determine whether adequate load transfer can occur from the roof to the walls. Please refer to Appendix D for connections that may require strengthening should the existing connecting prove to be inadequate.

8.3. Block TO: Classrooms

We recommend that the sub-floor bracing be increased by retrofitting the existing shallow cantilevered piles with timber braces in accordance with NZS 3604:2011. Furthermore, the existing braced piles should be upgraded to conform to this Standard.

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APPENDICES

A. Site Plan
B. Photographs
C. Structural Calculations
D. Seismic Strengthening Layouts

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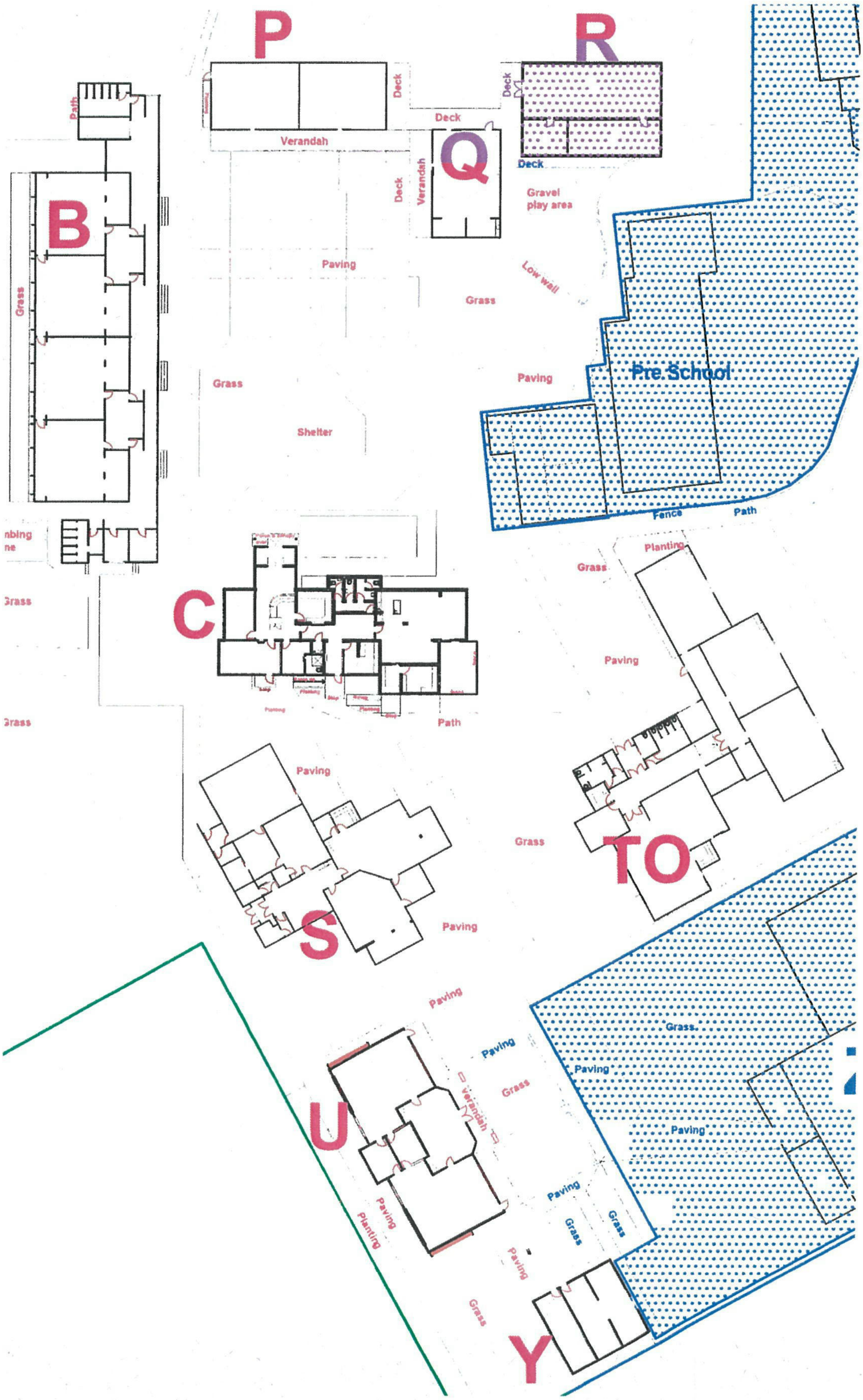
A. Site Plan



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B. Photographs

Figure 1 Block B – East elevation

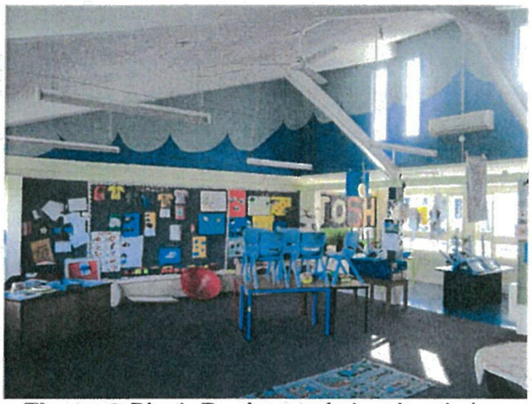

Figure 2 Block B – Internal showing timber trusses

Figure 3 Block B – Boys Toilet Block

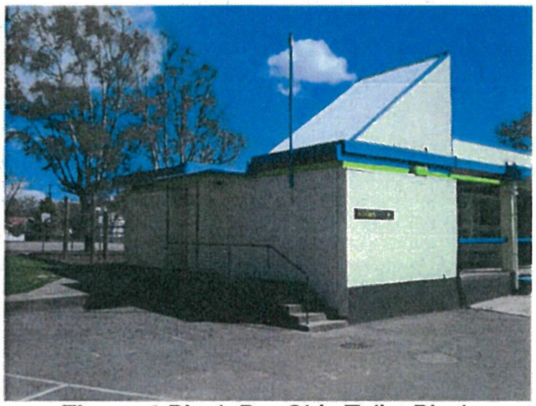

Figure 4 Block B – Girls Toilet Block

Figure 5 Block C – 1970 Original building with 1983 extension

Figure 6 Block C – 2006 Extension

Figure 7 Block P – South East elevation

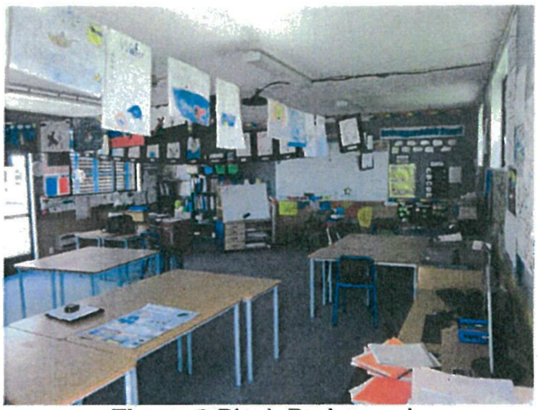

Figure 8 Block P - Internal

Figure 9 Block Q – South East elevation

Figure 10 Block Q - Internal

Figure 11 Block R – South West elevation

Figure 12 Block R – East elevation

Figure 13 Block S – East elevation

Figure 14 Block S – Internal showing exposed roof beams

Figure 15 Block S – Internal showing steel portal frame

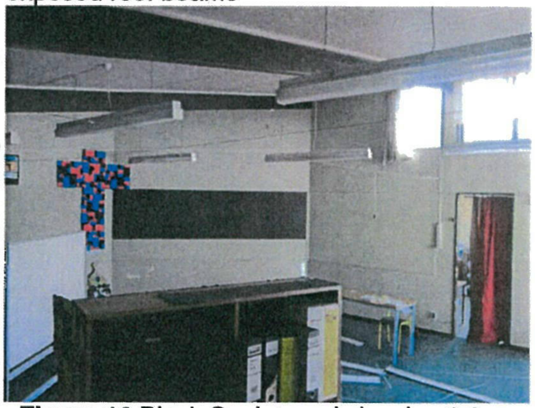

Figure 16 Block S – Internal showing 3.8m wall

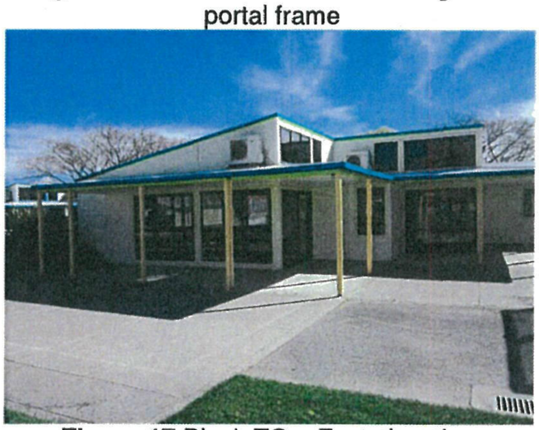

Figure 17 Block TO – East elevation

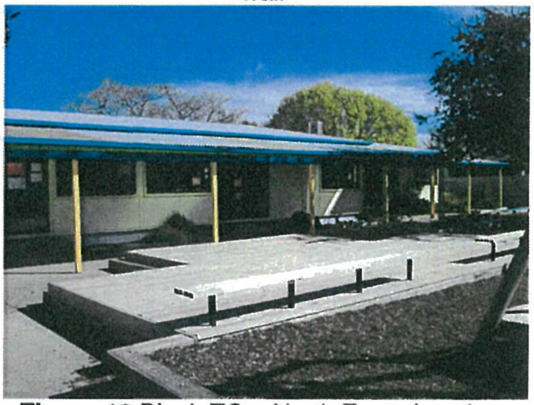

Figure 18 Block TO – North East elevation


Figure 19 Block TO – West elevation


Figure 20 Block TO – Typical classroom

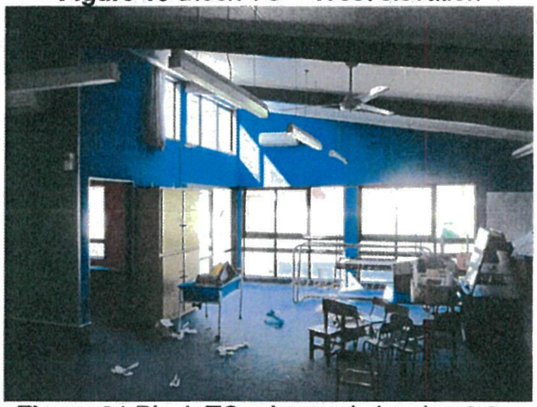
Figure 21 Block TO – Internal showing 3.8m high wall


Figure 22 Block U – North Elevation


Figure 23 Block U – Typical classroom showing clerestory windows


Figure 24 Block U – Foyer

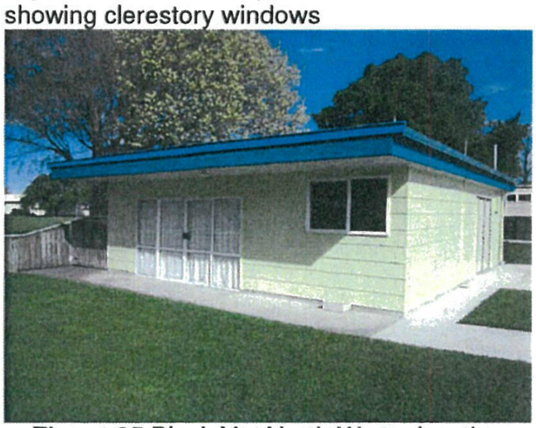
Figure 25 Block Y – North West elevation


Figure 26 Block Y – Internal

C. Calculations

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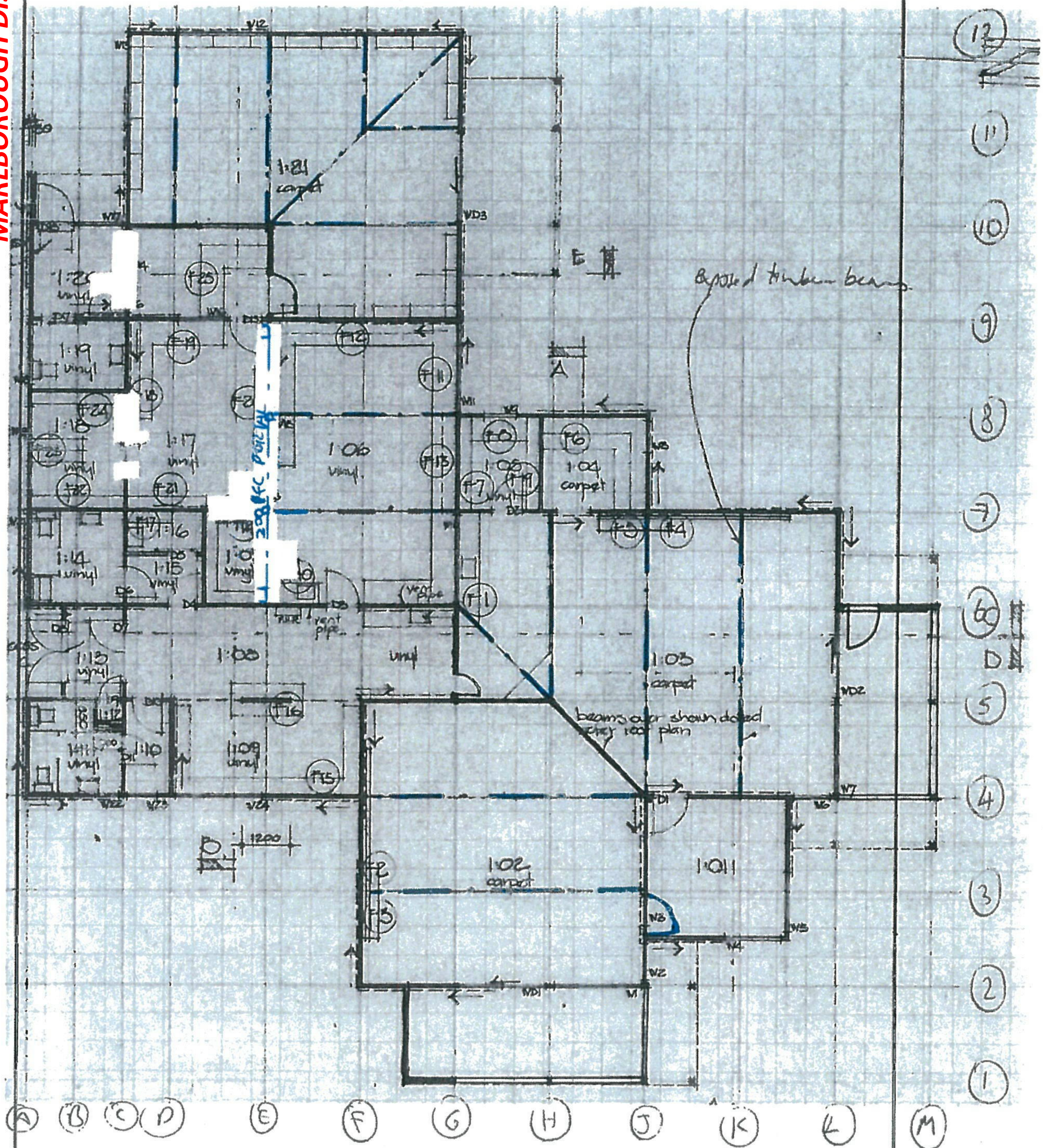
F14-06/02

Date 8/11/12	Eng. GV	Job No. 24759	Sheet No. 29	LSP CALCULATIONS

Project: St. MARY'S - BLENHEIM

BLOCK 5 - originally constructed 1983
- minor alterations in 2009



- timber framed on concrete slab on grade
- light roof
- 200PFC portal on Grid (C), between (6) & (9) / w/ 75 SHS props on (7) & (8))
analysis shows this portal to resist 12.5kN ≡ 256BU's. (refer sheet 30)

(cont'd sheet 31)

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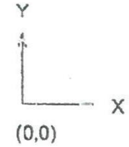
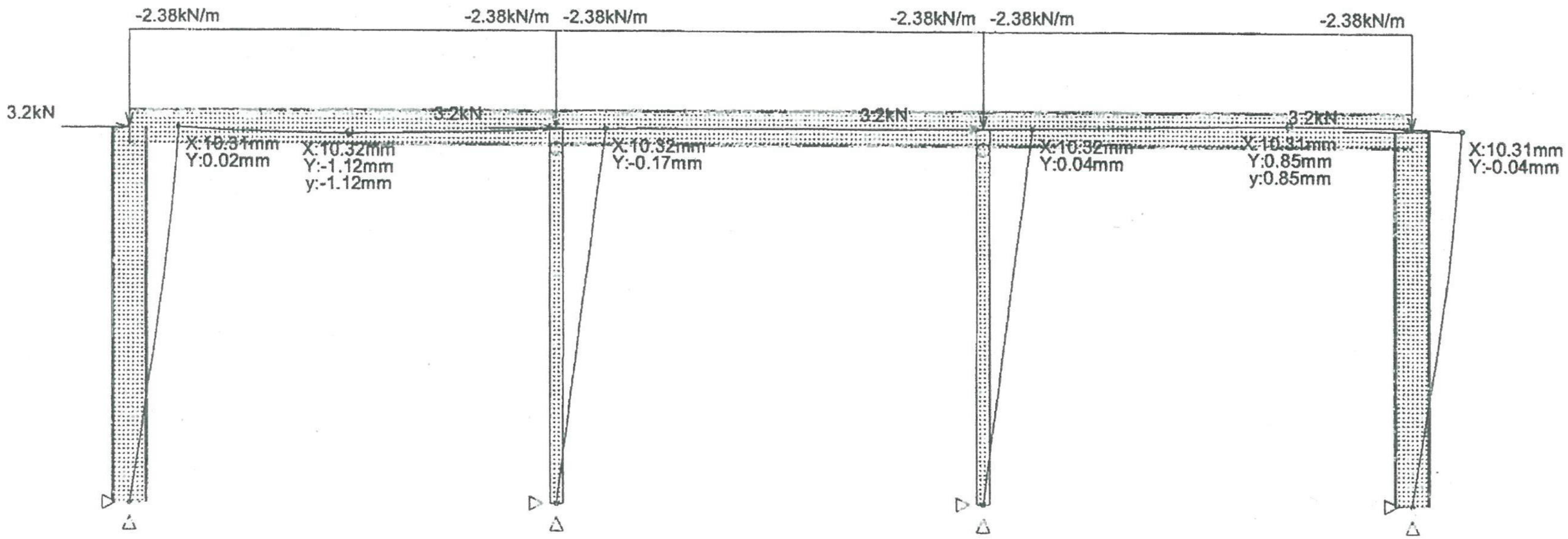
SPACE GASS 10.86c - ISP CONSULTING ENGINEERS LTD

8 Nov 2012, 12:51 pm

All load cases:
1 (SW) G+Eu





No general restraint

Materials:
1 STEEL

Sections:
1 200 PFC
2 75*4 SHS

Job: I:\JOBFILES\ISP\24700\24759\SpaceGass\24759 Block S 200PFC Portal Frame
Units Len: m, Sec: mm, Mat: MPa, Dens: T/m^3, Temp: Celsius, Force: kN, Mom: kNm, Mass: T, Acc: g's, Trans: mm, Stress: MPa
Scales Frame:1:85, Load:1:67.72, Disp: 27, Moment: None, Shear: None, Axial: None, Torsion: None

Marlborough District Council
Date Received: 13/9/2016

30

BC161010

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Date Approved: 12/10/2016
MARLBOROUGH DISTRICT COUNCIL

F14-06/02

Date 8/11/12	Eng. GV	Job No. 24759	Sheet No. 31
Project: St. MARY'S - BLENHEIM			

ISP CALCULATIONS

W_t = roof + $\frac{1}{2}$ walls

roof = 0.4 kPa (376 m²) = 150 kN

$$\tfrac{1}{2}\text{walls} = 0.5\Big[\tfrac{2.2}{2}(42.0)+\tfrac{2.57}{2}(2.4)+\tfrac{3.46}{2}(4.8)+\tfrac{3.04}{2}(18)+\tfrac{2.61}{2}(13.2)\Big]+0.2\Big[\tfrac{2.2}{2}(15.6)\Big]+0.3\Big[\tfrac{3.49}{2}(30.0)+\tfrac{3.3}{2}(16.8)+\tfrac{3.08}{2}(15.6)+\tfrac{3.25}{2}(14.4)+\tfrac{3.67}{2}(3.39)+\tfrac{3.04}{2}(7.2)+\tfrac{2.2}{2}(2.4)+\tfrac{3.46}{2}(4.8)+\tfrac{2.62}{2}(4.8)+\tfrac{2.83}{2}(2.4)\Big]^2$$

= 99 kN

Σ 249 kN

V_{en} = ~~0.42~~ 0.32 (249) = ~~104.5~~ 80.4 kN × 20 = ~~2090~~ 1608 blts ALONG/ACROSS

From sheets 31a, ALONG = ~~114~~ 148% NBS – OK

From sheet 31b, ACROSS = ~~127~~ 165% NBS – OK

(cont'd sheet 32)

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31a

St. Mary's - Blenheim, Block S GV J24759

GIB EzyBrace® 2011 Software

GIB

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
240	A	1	2.4		2.2	GIB1-1984	GIB®	120	120
		2	2.4		2.2	GIB1-1984	GIB®	120	120
363	C	1	2.4		3.67	GIB1-1984	GIB®	78	78
		2	2.4		2.49	GIB1-1984	GIB®	116	116
		3	2.1		2.49	GIB3-1984	GIB®	101	101
		4	1.4		2.49	GIB3-1984	GIB®	67	67
236	D	1	2.4		2.49	GIB3-1984	GIB®	116	116
		2	2.4		2.4	GIB1-1984	GIB®	120	120
295	E	1	1.05		3.88	GS1-N	GIB®	43	39
		2	7.2		2.2	200PFC	Steel Porta	256	256
474	F	1	7.2		2.62	GIB1-1984	GIB®	330	330
		2	2.4		2.2	GS1-N	GIB®	166	144
332	G	1	2.4		3.04	GIB1-1984	GIB®	95	95
		2	2.4		3.04	GIB1-1984	GIB®	95	95
		3	2.4		3.04	GIB1-1984	GIB®	95	95
		4	1.2		3.04	GIB3-1984	GIB®	47	47
198	H	1	2.4		2.2	GIB3-1984	GIB®	120	120
		2	2.4		3.67	GIB3-1984	GIB®	78	78
-45	J	1	1.4		3.88	Extg. 2	Extg.2	26	26
		2	1.55		3.88	Extg. 2	Extg.2	29	29
-20	K	1	2		2.37	GIB1-1984	GIB®	80	80
102	L	1	2.4		2.83	GIB1-1984	GIB®	102	102

						N/A Wind	Earthq.
Totals Achieved	W	#DIV/0!	EQ	#DIV/0!		2399	2374
Timber Floor, design limit of 120 BU/m			*accepted*			OK	OK
Totals Required (from Demand)							~~2090~~ 1608

= ~~114%~~ NBS
148% NBS

I:\JOBFILES\SP\24700\24759\24759 Block S Bracing Schedule.xls

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MARLBOROUGH DISTRICT COUNCIL

31b

St. Mary's - Blenheim, Block S

GV J24759

GIB EzyBrace® 2011 Software

GIB

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
-28	1	1	1.2		2.2	GS1-N	GIB®	83	72
161	2	1	2.4		2.83	GIB1-1984	GIB®	81	81
		2	2		2.2	GIB1-1984	GIB®	80	80
238	4	1	2.4		2.2	GIB1-1984	GIB®	120	120
		2	2.4		2.44	GIB3-1984	GIB®	118	118
340	5	1	1.8		2.3	GIB1-1984	GIB®	72	72
		2	4.8		3.04	GIB1-1984	GIB®	189	189
		3	2.4		3.67	GIB3-1984	GIB®	78	78
						Extg. Wall	Extg.		
471	6	1	3.5		2.4	GIB1-1984	GIB®	175	175
		2	1.7		2.49	GIB3-1984	GIB®	82	82
		3	1.4		3.3	GIB3-1984	GIB®	51	51
		4	2.4		3.15	GIB3-1984	GIB®	91	91
		5	1.2		2.2	GS1-N	GIB®	83	72
510	7	1	1.1		2.44	Extg. 2	Extg.2	32	32
		2	4.3		2.44	GIB3-1984	GIB®	211	211
		3	5.8		2.62	GIB1-1984	GIB®	266	266
270	8	1	2.4		2.3	GIB3-1984	GIB®	120	120
		2	3		2.2	GIB1-1984	GIB®	150	150
282	9	1	2.4		2.49	GIB3-1984	GIB®	116	116
		2	4.8		3.46	GIB3-1984	GIB®	166	166
-15	10	1	1.44		2.44	GS1-N	GIB®	98	85
216	12	1	1.1		3.04	Extg. 2	Extg.2	26	26
		2	4.8		3.04	GIB1-1984	GIB®	189	189

N/A

					Wind	Earthq.
Totals Achieved	W	#DIV/0!	EQ	#DIV/0!	2679	2645
Timber Floor, design limit of 120 BU/m		*accepted*			OK	OK
Totals Required (from Demand)						~~2090~~ 1608

~~127%~~ NBS
165%NBS

I:\JOBFILES\SP\24700\24759\24759 Block S Bracing Schedule.xls

Marlborough District Council
Date Received: 13/9/2016

MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga

"Kia ora, nau mai haere mai ki te Tāhuhu o te Mātauranga"

Ministry of Education

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Design Levels for Structural Assessment and Design of School Buildings

In response to the lessons learned from the Canterbury earthquakes, the Ministry has reviewed its policy on design levels (including Building Importance Levels) for assessing and strengthening existing buildings as well as designing new buildings.

The Ministry's new policy is better aligned with the Building Code requirements for assessing and strengthening existing buildings. This alignment of requirements reflects a consistent approach to risk (as indicated by Importance Levels) as intended by NZ building regulations.

For existing buildings that are two or more stories with heavy roof or suspended floor construction, the Ministry's standards are above Building Code requirements. The higher standards ensure that potentially higher-risk structures receive more specific risk consideration.

The Ministry's standards are above and beyond Building Code requirements for new buildings as well. The higher standards will provide additional resilience to new school buildings, usually at nominal additional cost.

The new policy is based on recommendations from the Ministry's Engineering Strategy Group, which comprises three highly experienced, independent engineers from the industry. The Ministry of Business, Innovation, and Employment (MBIE) and the Ministry of Civil Defence & Emergency Management (MCDEM) were consulted and support the Ministry's review.

The policy summarised
The Ministry's policy on design levels for structural assessment and design of buildings is summarised below:

IL = Importance Level

	Buildings of higher occupancy and/or heavy floor construction **Classroom buildings >250 people, Assembly Halls, Gymnasiums** **Buildings of two or more storeys with suspended concrete floors and/ or heavy roofs**	**Buildings of lower occupancy and not of heavy floor construction** **Classroom buildings <250 people, Administration Blocks, other buildings (see Note below)**
Assessment	IL3	IL2
	Current code	Current code
Strengthening	IL3	IL2
	67% current code	67% current code
New Design	IL3	IL3
	100% current code	100% current code

Note: Ancillary structures (irrespective of floor area) that are separate from other buildings and are not usually occupied (i.e. they are minor structures where failure is not likely to endanger human life), may usually be assumed to be IL1 for the purposes of assessment, strengthening and new design.

Further information

The lateral load levels to be used when assessing and strengthening school buildings of light floor and roof construction should be the same as defined in the NZ Loadings Standard (AS/NZS 1170 Part 0) and the NZ Building Code (clause A3). That is, IL2 should apply unless more than 250 people are likely to occupy the building at one time, in which case IL3 should apply.

The higher Importance Level of IL3 should be used when assessing and strengthening school buildings of two or more storeys with heavy suspended floor and roof construction. For buildings of lower occupancy this exceeds the IL2 requirements of the NZ Building Code. This additional requirement is to ensure that such structures receive more specific risk consideration in view of the consequence of failure.

For new design, a higher Importance Level of IL3 should be used for all new school buildings. For buildings of lower occupancy this exceeds the IL2 requirements of the NZ Building Code. This additional requirement is to provide additional resilience to new school building stock, usually at nominal additional cost.

A building is the overall structure – either an individual classroom, a classroom block, an administration block or other building such as assembly hall or gymnasium. Larger buildings such as assembly halls or gymnasia or blocks of more than seven or eight classrooms are IL3 due to the numbers that could occupy these buildings at a given point in time.

When assessing individual school buildings, the weaknesses of other adjacent structures or buildings should be considered in order to eliminate any risk to buildings and their egress e.g. from falling chimneys.

The Ministry of Business, Innovation, and Employment's consultation document on earthquake-prone building policy review (released on 7 December 2012) recommends the threshold of earthquake-prone buildings be set at 34% New Building Standard (NBS) across the country. The Ministry of Education's short-term goal is to ensure that all school buildings are at or above 34% NBS, and the medium-term goal is to ensure all buildings are at or above 67% NBS.

Replacing heavy tile roofs with lighter materials is an important risk mitigation measure. The benefits of this approach have been clearly illustrated in the Canterbury earthquakes, and emphasis is being placed on using light roof materials in the Canterbury residential rebuild. Most heavy roofs have been identified as part of the 1998 national structural survey of schools, with either replacement or specific structural strengthening having been undertaken since. As well as reducing life safety risk in major earthquakes, the level of damage likely in moderate earthquakes is reduced.

If you have any questions or require any further information please contact Property.Help@Minedu.govt.nz.

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Building Consultant

St MARY'S SCHOOL

Blocks T & O Structural Upgrade

Prepared for:
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I R Group Ltd
Design - Project Management - Planning

Tender Form

Tender For :

St Mary's School

T & O Blocks Structural Upgrade

I / we the undersigned do hereby tender and offer to construct, finish and maintain the above mentioned works in accordance with the Drawings, Specifications, and Conditions of Contract relating thereto for the sum of:

Tender price	$......................................
Contingency	$.............5,000.00...............
GST	$..
Total Contract Price	$..
	=======================

Tender Information

Tenderer:

Address:

Phone: **Mobile:** **Fax:**

Date:

Signature:

Tenderers Remarks:

St MARY'S SCHOOL
Blocks T & O Structural Upgrade

Scope of Work

This contract is for the structural upgrade of Blocks T & O; and Blocks S classroom interior upgrade and associated work at St' Mary's School, 3 Stephenson Street, Blenheim, as described below.

Construction to be as detailed in the attached drawings.

Drawings and Scope of Work to be read in conjunction the attached ISP Consulting Engineer's structural report & details; and the Vishnu Fire Safety design report.

All work is to be carried out to the best of trade practise and in accordance with all relevant standards, manufacturers instructions and the NZ Building Code.

Construction to be as detailed in the attached drawings.

Please check all dimensions on site.

Allow to complete the following items of work:

Demolition:

Block T

- Remove sub-floor exterior cladding to allow access to sub-floor area.
- Remove vegetation at garden area to allow contractor access to sub-floor area.
- Remove existing sliding entry doors at locations shown in drawings.

Block S

- Remove existing urinal in boy's toilet.
- Remove double entry doors at location shown in drawings, keep doors for relocation.
- Remove fixtures & coat rails in cloak bay area.
- Remove sliding entry door in classroom 1 as indicated in drawings.
- Remove interior walls at locations shown in drawings.
- Remove sections of walls in resource room to allow for new glazed panels.
- Uplift floor coverings in cloak bay, boy's toilet, entry, resource rooms 1, 2 & 3, and classrooms 1 & 2.
- Temporarily disconnect services to allow for demolition work.
- Remove all demolition material and debris from site.

NEW WORK

Block S

Carpentry:

- Provide temporary hoardings at locations shown in drawings.
- Supply & install a new Caroma Torres wall hung urinal with Caroma Slimline Mid/low plastic cistern in boy's toilet, at location shown in drawings. Connect waste & water supply to existing services.
- Relocate double entry doors at location shown on drawings.
- Supply and install new double entry door, (D2), and interior door, (D3), at locations shown on drawings.
- Allow rehang door between classroom & corridor as indicted in drawings.
- Provide single glazed panels in resource room as detailed in drawings.
- Construct new interior walls using 90x45 H1.2 framing at 400mm crs. at location in break-out space as shown. Fit additional dwangs as required for upstands, light fittings, hardware, and the like. New wall lings to be 13mm Gib Board, stopped to F4 & painted. Allow to fit new timber trim to match existing.
- Allow to make good ceiling and walls affected with demolition.
- Sully & install new non-illuminated exit signs at location indicted.

Electrical

- Supply & install new Havard LED HDL502 light fittings, with new light switch, in break-out space, as indicted in drawings.
- Run any new wiring in wall cavities/ceilings before new linings are fitted.

Floor Finishes

- Supply and install new Jacobsen Shaw carpet tiles to areas shown in drawings.
- Supply and install new Tarkett Optima vinyl flooring to areas shown in drawings.
    - Floor covering colours to be advised.

Painting

- Interior
    - Allow to paint new architraves, skirtings, door D3 & frame, and areas affected by demolition work.

Block T & O

Carpentry:

- Remove existing sliding entry doors, and supply & install new double aluminium entry doors, (D1 & D2), at locations shown in drawings. Allow to provide new timber architraves as necessary.
- Provide new H5 timber anchor piles, at locations shown, to sub-floor at block T as indicted in drawings and as detailed in the attached ISP Consulting Engineer's report and details.
- Allow to reinstate vegetation upon completion of work.

- Provide new 90x19 H3.2 timber base boards to exterior of sub-floor. Allow to paint new base boards to match existing colour scheme.

All rubbish and debris to be removed from site upon completion of work.

Door Hardware

a)	Door Hinges	Hang exterior doors on 100 mm broad butts with fixed pins; 3 butts to each door. Hang internal doors on 100 mm LP bronzed steel butts, 3 butts per door.
b)	Locks	Fit on all external aluminium doors, Lockwood 3582XT Vestibule Set, and on all timber doors Lockwood 3572WT, (L or R to suit handing), mortise locks with handles 1m from floor. Provide extended striker plates to all outward opening doors to master door facings. Provide 3 keys for each lock.
c)	Door closers	Fit on new external doors to new exterior door, a Schlage LCN M4040 heavy duty door closer with Steel Grey finish. Fit in accordance with manufacturers instructions.
d)	Hold-Back Hooks	Fix to each external door Guardsman G81S satin chrome latchbacks. Fix to each internal door fitted with a door closer a cp hook and eye.
e)	Door Stops	Fix behind each internal door D & W 1404 spring loaded door stops to prevent doors or hardware striking walls.
f)	Furniture	All door furniture shall be Legge Pacific Alpha 500 with scp finish.

Preliminary and General

1) **Extent of Work**
Refer to the attached page(s).

2) **General**

The following documents shall form part of the Contract:

a) The attached Conditions of Contract for small projects.

b) The accompanying Tender Forms.

c) The accompanying Specification.

d) The accompanying Drawings with any subsequent Drawings.

e) Any written correspondence, instructions and variations issued subsequent to the signing of the contract.

f) The letter of acceptance.

g) Any written notice to tenderers recording adjustments to drawings and or specification prior to the signing of the contract.

3) **Examine the Site**

Tenderers shall examine the site and building before tendering. The submitting of a tender will be taken as an indication that the tenderer has visited the site and made himself familiar with any matters that might affect the fulfilment of his part of the contract and has made due allowance in his tender for these. No consideration shall be granted for any misunderstandings as to the work to be performed or the materials used.

4) **Temporary Services**

Water
The contractor may draw water from the employers existing reticulation.

Latrine
The contractor may use an existing toilet at the discretion of the employer, and must keep it in a clean and tidy condition.

Electric Power
The contractor may use the existing power supply during the course of the contract, unless special loadings are required, in which case the contractor shall make the necessary arrangements and pay all costs.

5) **Work Programme**

The successful contractor is to arrange with the school and supervisor, approved dates and times within the specified time when work can be actioned.

6) **Insurances**

As per the conditions of contract, the Contractor is to carry a General Public Liability Insurance policy with a minimum cover of $2,000,000.00.

The contractor shall insure separately the Contractors Plant and Equipment.

7) **Noise**

No radio or other noise not strictly associated with the works shall be audible in any room outside the contractors working and storage area.

8) **Scaffolding and Hoarding**

The contractor shall provide for the erection of all necessary gantries, cranes, staging, ladders, moving sections, chutes and any other scaffolding to permit the proper and efficient erection of the work.

9) **Dimensions and Setting Out**

Check and confirm all building dimensions on site. The contractor shall accept full responsibility for the final dimensions. All work shall be set out accurately and in accordance with the plans. Any errors shall be made good at the contractors expense.

10) **Existing Services**

Any damage incurred to existing services shall be made good to the supervisors approval and at no cost to the employer.

11) **Care of the Site**

The contractor shall regularly remove all debris, rubbish, and surplus materials, including that of subcontractors as they accumulate. The site shall be as tidy as possible at all times.

Upon completion of the contract works, the contractor shall take down and remove all plant, gear, temporary work, rubbish, debris and surplus materials from the site, and make good.

At the conclusion of the contract, the contractor shall leave the site in such a condition, as new, and to the supervisors approval.

12) **Workmanship**

Workmanship shall be consistent with good trade practice to produce sound and well finished work, and to the requirements and standards demanded by the supervisor.

13) **New Zealand Standards**

It is the sole responsibility of the main contractor to ensure that the complete contract works are executed according to the relevant New Zealand standards, and local and national regulations.

14) **Protection**

The contractor shall be held responsible for the protection of persons or property in the immediate vicinity of, or liable to be affected by his operations. To that end, he shall provide a suitable temporary fence around the entire construction zone, at a minimum orange plastic safety mesh supported on tensioned wire over waratah stays and all necessary coverings, guards and the like, and display suitable and sufficient warning notices. The fences and signs shall be maintained throughout the contract.

15) **Bylaws and Regulations**

The whole of the operations shall be carried out in compliance with regulations of all public bodies having jurisdiction in the matter, and the contractor shall pay all and any fees which may be payable in respect thereof.

16) **Labour and Materials**

The contractor is to supply all labour, plant and sundry items as later detailed which are the best of their respective kinds.

Only first class tradesman are to be employed on this contract and any defective or improper workmanship shall be reinstated by the contractor in an approved manner at the contractors expense.

17) **Damage**

The Contractor shall be responsible for the loss or damage which may be caused to the property of the employer in his carrying out of this contract and the contractor shall make good such loss or damage at his own expense, to the satisfaction of the employer.

18) **Behaviour Generally**

Any behaviour by workers on the site that could be considered sexist, racist, obscene or beyond the limits of normal, acceptable behaviour will not be tolerated.

The supervisor reserves the right to exclude any such offending persons from the site area.

Wherever possible, contact between workers and school children should be kept to an absolute minimum. If the contractor finds that the school children are being a nuisance within the building site area, he is to notify the supervisor and the principal immediately in order that steps be taken to remedy the situation.

Under no circumstances whatsoever is the contractor and or employees thereof, permitted to have physical contact with, admonish or discipline any children that may from time to time enter the site area and or act in a manner that is a nuisance to the contractor and his staff. Report any such incidence to the principal immediately.

19) **Smoking**

Smoking is not permitted on any school site unless in a designated area as indicated by each individual school.

20) **Foreman**

The contractor shall provide at all times an efficient foreman who shall have the power to receive and carry out the instructions of the supervisor or his agent.

21) Compliance Certificate

The contractor shall complete the enclosed compliance certificate, stating that the all work carried out in the execution of the contract works by all contractors involved in such work, has been carried out in accordance with the contract documentation. This certificate shall be delivered to the employer or his agent before the issuing of the completion certificate.

22) Health & Safety In Employment Act

The contractor shall confirm in writing to the employer or his agent that all practical steps have been taken to ensure the requirements of the Health & Safety in Employment Act are complied with, in particular the contractor is required to:

a) Provide and maintain a safe working environment.
b) Provide and maintain facilities for the safety and health of employees at work.
c) Ensure that machinery and equipment in the work place is designed, made, set up, and maintained to be safe.
d) Ensure that employees are not exposed to hazards in the course of performing their work.
e) Develop procedures for dealing with emergencies that may arise while employees are at work.

A copy of the Contractors Health and Safety Policy shall be kept on site in a prominent position at all times.

The Contractor is required to seek a copy of the owners health and safety policy and make himself aware of any hazards that may be present on the site.

23) Defects Liability Period

The defects liability period is 90 days.

Complete all defects liability and remedial work identified by the supervisor within the time period stated.

A Maintenance retention of 5% of the contract sum may be held by the employer to cover the work required over this period. The retention will be released upon final completion at the end of the maintenance period.

24) Building Consent Fees

The building consent shall be uplifted and paid for by the employer prior to the awarding of this contract. **Tenderers do not need to allow for building consent fees in their tender price.**

25) Liaison with the Territorial Authority During the Contract

It shall be the responsibility of the main contractor to liaise fully with the local Territorial Authority (TA) on all matters that require the involvement of the TA during the execution of this contract. This shall include for example, notifying the TA when the following work is ready for inspection:

- Foundations
- Pre-lining
- Plumbing and drainage
- Completions.

The main contactor is also to inform the TA any variations that may have arisen during the contact. The main contractor is to inform the supervisor when the TA inspections are to be carried out.

It shall be the responsibility of the main contractor to secure a Code Compliance Certificate from the TA upon completion of the work.

26) Asbestos

The contractor is required to immediately notify the supervisor, if the presence of asbestos is suspected or detected during construction.

27) Contractors Animals

Due to a number of problems having been experienced in the past in relation to contractors pets, particularly dogs, on site during the course of the project, The Catholic Schools Board Ltd requests that all contractors and related persons refrain from bringing animals on to the school site at all times during the contract.

28) Police Vetting

As a result of an amendment to The Education Act 1989, Boards of Trustees are now required to obtain a police vet from the NZ Teachers Council on all persons working on a school site that are not registered teachers.

This requirement applies to all contractors and their employees who will be on site regularly, as well as your subcontractors and their employees.

You will be required to furnish a list of all workers that will be on site throughout the execution of the work, and distribute Police vet forms to these persons and return the forms to the school to enable the vetting process to be completed.

Any person who turns up on site to work and is not on the list will not be allowed on site.

All information received by the school will be treated in the strictest confidence and will be held in a secure file by the school.

Carpentry

1) **References**

Refer to the general conditions of contract and the preliminary and general sections of the contract documents which are equally binding on this trade section.

Read this trade section of the specification with all other contract documents.

2) **Scope of Work**

Refer to the extent of work section of this specification.

3) **General**

1) Supply all gear and materials necessary to carry out the Works.
2) Use all new materials the best of their respective kinds. Make no substitutions for materials specified with out the supervisors approval.
3) Set out the Works symmetrically unless stated otherwise.

4) **Workmanship**

Use workmanship and materials in accordance with the best trade practice by competent tradesman conforming with the relevant New Zealand Standards. Carry out all work in accordance with The New Zealand Building Code, Acceptable Solutions E2/AS1 & E3/AS1, and any relevant manufacturers instructions.

5) **Timber Grading**

1) Timber to grades in accordance with NZS 3604: 2011 and NZS 3631:1988

2) Use dry timber with the following equilibrium moisture content:

a)	External	Sawn Timber	20% average max 22% at 17.5 deg c.
		Machine gauged	19% average max 22% at 17.5 deg c.
b)	Internal	Sawn	18% average max 20% at 17.5 deg c.
		Dressed	12% average

max 15% at 17.5 deg c.

6) Timber framing

1) Unless otherwise detailed, timber framing to comply with NZS 3604:2011. Generally all framing to be H1.2 SG8 grade Pinus Radiata. Studs for walls up to 2.4 m high: 90 x 45 studs @ 600 centres.

2) Dpc to be fitted between all concrete and timber.

3) Dwangs to be provided @ 800 crs max to all timber framed walls. Fit additional dwangs as required for upstands, joinery units, light fittings, hardware, and the like.

4) Provide all lintels, trimmers and blocking in accordance with NZS 3604:3011

7) Exterior Timber

1) Use H3.2 SG8 grade framing grade pinus radiata for all exposed exterior timber.

2) Use H5 SG8 grade framing grade pinus radiata for all timber in contact with the ground.

8) Exterior Finishing Timber

Use finger jointed or clear H3.1 SG8 grade pinus radiata for all exterior finishing timbers. Profiles to match existing where necessary.

9) Interior Finishing Timber

1) Finishing timber to match existing except where noted otherwise.

2) Use selected or Dressing A Rimu for all clear finished interior trim unless noted otherwise.

3) Use selected, clear or finger jointed pinus radiata or MDF for all painted interior trim.

10) Fixings

1) Nail fix timber work in accordance with NZS 3604:2011.

2) Punch all finishing nail fixings and leave ready for stopping.

3) Use non ferrous or galvanised fixings for exposed external timber work.

4) All hardware is to fixed with appropriate fixings of matching finish to the item being fixed. Use non ferrous screws in external situations.

5) Use galvanised fixings where fitting into concrete.

11) Priming

Preprime all surfaces of exterior painted timberwork prior to fixing. Prime all cuts and joints as necessary.

12) Building paper

Fix fire resistant breather type building paper complying with NZS 2295:2006 over exterior framed surfaces in accordance with NZS 3604:2011

13) Exterior Cladding

As per extent of work or to match existing as required, supply, store and fix in accordance with the manufacturers instructions.

14) Interior Linings

As per extent of work or to match existing as required, supply, store and fix in accordance with manufacturers instructions.

Electrical

1) References

Refer to the general conditions of contract and the preliminary and general sections of the contract documents which are equally binding on this trade section.

Read this trade section of the specification with all other contract documents.

2) Scope of Work

Refer to the extent of work section of the specification.

3) General

1) Supply all gear and materials necessary to carry out the Works.
2) Use all new materials the best of their respective kinds. Make no substitutions for materials specified with out the supervisors approval.

4) Existing Services

The existing services are poorly recorded. Exercise extreme care during excavations and work to existing buildings . Any underground or internal services broken or damaged during excavation and or other work shall be rectified at this subcontractors expense.

5) Earthing

Earth continuity conductors shall be installed with the wiring to all outlets.

6) Workmanship and Regulations

a) The electrician shall visit the site in order to understand the nature and scope of the work. No claims will be allowed on the grounds of insufficient knowledge of existing conditions.

b) The electrical installation shall be carried out in strict accordance with the New Zealand Electrical Regulations and Codes of Practice 1993, and interpretations and amendments thereto, the rules of the Fire Underwriters Association, notwithstanding any omissions herein, and to the complete satisfaction of the local power board's inspector and the supervisor.

c) All wiring shall be concealed, unless otherwise stated, and only new, first class materials and workmanship will be allowed.

d) The electrician shall obtain all necessary permits for the work and allow to pat all associated charges.

e) The electrician shall visit the site and accurately assess the size of the existing main, submains, and all other cables required to complete the wiring in accordance with this specification and to comply with the local body and national regulations.

f) The complete electrical system shall be checked by the local authority power supplier on completion of the contract. Any wiring not accepted and passed shall be replaced by the electrician at no extra cost.

g) The electrician shall carry out all necessary cutting away, drilling etc. When cutting into timber only sufficient to permit the bare entry of the wiring is to be removed. No joists are to be cut away for cables **more than 100mm out from a support,** except with the approval of the supervisor.

h) All stainless steel bench tops are to be earthed.

7) Wiring

Wiring of sub-circuits shall be TPS insulated cables. All cables shall be concealed in wall , ceiling and floor cavities.

Wire to plug sockets	- 3x 2.5mm2 and earthed.
Wire to lights	- 3x 1.5mm2 and earthed.
Wire to electric heaters	- 3x 2,5mm2 and earthed.

8) School Class Change / Evacuation System

Allow to reticulate the existing school class change / evacuation bell system to the new reloc classrooms. Allow to fit two external bells on site where directed.

Standard Specification

Floor Finishes

1. **General**
   All floor finishes specified in the extent of work shall be applied only by flooring contractors skilled in the particular Finish concerned. Allow to apply these finishes to the areas shown in the drawings or as scheduled below.

   Prior to commencing flooring work ensure that all surfaces to which floor coverings or finishes are being applied are made smooth, clean and suitable prepared to receive the floor finish.

   Carry out all associated sanding, stopping and filling as necessary

2. **Protection and Damage**
   Protect the finished floors against damage due to any of the contract work operations and protect against all floor traffic. Any damage to the finished floor surface shall be made good to the supervisor's satisfaction at the contractor's expense.

3. **Guarantees**
   The contractor shall furnish to the client a written guarantee for each type of floor finish covering workmanship and materials. Material guarantees shall be a minimum of five (5) years from the date of completion. The workmanship guarantee shall be for a minimum period of three years from the date of completion.

4. **Floor Sanding**
   Machine sand floors to a smooth even surface.

5. **Adhesive**
   The adhesives shall be only those as recommended by the Flooring Manufacturer.

6. **Coving**
   Provide a PVC cove bead for vinyl flooring, any carpet coving may be cut and a separate piece used for wall upstands.

7. **Clean Up**
   Clean up all floor surfaces on completion of the contract. Remove all adhesive marks off adjacent surfaces, such as walls, skirtings, fittings etc. Where sanding has taken place thoroughly vacuum all surfaces in the room to remove any dust caused by the sanding process.

8. PVC Flooring

PVC flooring shall be as detailed in the extent of work. Lay in accordance with the manufacturer instructions. Vinyl in the same area should be from the same batch. Check vinyl rolls before installation. Seam weld all joints with a hot air gun and matching welding rod. On completion clean down and machine scour, spray with a light water / detergent mixture then buff to a high polish.

9. Carpet Flooring

Carpets shall be direct stuck & laid in accordance with manufacturers instructions, using approved adhesive.

Carpet in a room must be from the same dye batch and roll. Lay carpet with pile in continuous direction following arrows printed on the underside of the carpet. Overlay each seam by 40mm and cut through both layers of carpet to ensure perfect seaming. Roll with a hand roller to ensure bonding of adhesive.

All work shall be free of bulges, lifting edges, staining, damage and other defects.

Finish junctions with other flooring with naplock pinless binder bars. Thoroughly vacuum after laying is completed.

10. Removal of Existing Floor Coverings and Floor Preparation

The contractor is responsible for the removal of all existing floor coverings where applicable and disposal of said covering off site.

Where new coverings are going over old T&G flooring the contractor is to ensure that all existing floors are sound and free from loose, springy or squeaky boards. Generally inspect all flooring and punch, screw, stop and sand any surface irregularities and prepare to receive new flooring.

For vinyl flooring laid over T&G flooring provide 4.75 standard hardboard underlay stapled with 25mm plated staples at 100mm to the edge of the sheets and 150mm centres elsewhere. Stapes should be at least 12mm from sheet edges. Allow a 2mm gap between sheets and 3mm gap around at room perimeter. Sand all joints level.

PAINTING

1) General

Refer to all the general and specific conditions, the tender drawings and preliminaries section of this specification, all of which shall apply to this section of the works.

2) Extent of works

Refer to the extent of work section of the specification.

3) Colours

Colours will be selected during the contract, generally to match the existing colour scheme.

4) Workmanship and materials

All painting shall be in accordance with good sound trade practice, in accordance with NZS 2239, and only premium grade paint systems are permitted. The only paint products approved for this contract are for paints manufactured by **Resene** and **ICI Dulux.** Unless prior dispensation is given for an alternative manufacturers product, all tenderers must price this work using paints supplied be either Resene or Dulux.

Only first class premium paints may be used on these contract works and all paint brought on to the site must be in the original manufacturers tins and must be available for inspection by the supervisor at all times during the contract. The supervisor reserves the right to take samples for testing. Any materials which do not conform to the manufacturer's formulae or the requirements of this specification will be rejected.

Unless specified otherwise all paint materials shall be lead free. An exception may be for galvanised steel priming, unless specified lead free for roof water collection areas.

All paint materials in thermal areas shall be of a suitable formula.

a) <u>Paint systems</u>

It is intended that, unless specified otherwise a "paint system" is used on all works involved in this contract. That is, only the same manufacturer's primer, undercoat and finishing coats are to be used in any given situation. Use the correct type of each as recommended by the manufacturer for the materials to be

painted and their situation. The painting for this contract shall require the application of a complete "paint system"

b) Cutting In

Only first class cutting in work will be accepted on this contract.The requirement for, and the importance of, a top class cutting in job cannot be stressed enough. It is therefore brought to the attention of all tenderer in this specific clause and reiterated that any poor cutting in work will be completely rejected by the supervisor and the work will be required to be completely redone.

c) Protection of work

Take adequate precautions during and after painting operations to protect your own work, and the work of other trades and adjacent existing surfaces, from damage or disfigurement, The Contractor must ensure adequate protection for all grassed, concrete or sealed areas during preparation, mixing and application, including cleaning and washing of brushes and applicators.

The contractor must ensure that all brick veneer work is adequately protected from the possibility of paint damage.

Provide pans or trays in which to keep materials and carry out all necessary floor and wall protection, for both new and existing areas.

External work shall not be done during frosty or inclement weather and in the likelihood of frost, work in shaded positions shall cease at least four hours before sunset.

Protect factory finishes from paint disfiguration.

Protect floor finishes from paint spillage or disfiguration. Any paint damaged by frost, rain, and dust or through inadequate protection shall be rubbed down and recoated at the painter's expense.

Any damage done to persons or property by the painting contractor or his workmen during the progress of the contract is to be made good at the expense of this contractor.

d) Conditions when paint is not to be applied

Paint is not to be applied when any one of the following conditions exist:

- The surface is less than 5 degrees Celsius above dew point.
- The ambient air temperature is below 5 degrees Celsius, or 10 degrees Celsius in the case of water based paints.
- The relative humidity exceeds 85%.
- There is moisture or ice on the substrate.
- If any of the above are likely to occur before the paint dries.
- Any condition stipulated by the paint manufacturer more restrictive than above.

5) Colours

The colour scheme will be chosen before the contract starts and forwarded to all tenderers.

Tenderers are to note that all work to be painted **white**, will require:

- **three** finishing coats over the undercoat.

6) Preparation of surfaces

It shall be the responsibility of the painter to ensure that all surfaces, including surfaces of each successive coat, are in a suitable condition to produce a first class job. Apply "Moss & Mould Killer" to areas where required, wash down and apply such sealers, neutralisers, etc., as are necessary and in accordance with sound trade practice, Similarly wash or brush down prepared surfaces immediately before painting to effectively remove dust, deposits or loose material. Such preparatory work being deemed to from part of this contract.

No paint shall be applied to damp surfaces. All timbers exposed to view or contact by the hand shall be smooth finished and the painter shall not apply to such surfaces if still rough.

It shall be the responsibility of this sub-contractor to make good, to the supervisor's satisfaction, any paint failures or blemishes caused by insufficient or incorrect preparation of surfaces to be painted.

Where appropriate all existing wallpaper shall be stripped off in preparation for the new wallpaper. Prepare the existing wall surface to recommended trade practice.

7) Cleaning down of existing surfaces

Where existing surfaces require re-painting in this contract, the following conditions shall also apply:

a) Generally

Rigid attention must be paid to the "PREPARATION OF SURFACES" clause as above. Existing surfaces shall be repaired as called for and the painter must allow for filling as required.

Remove sufficient to provide a good key for new paint. Prime any existing bare timber or steel shown up by old paint removal.

b) Removal of moss and mould infestation

This must be applied to any porous surface, the contractor must ensure that all moss and mould is removed prior to the application of any paint system.

Treat all infested areas with Resene, or equal approved, Moss and Mould Killer, at a rate or 100 grams to 1 litre of clean water, or as required by the alternative manufacturer. Leave for 48 hours to achieve a full kill, than wash down the affected surfaces.

c) Sanding

The use of disk sanding equipment is not permitted on this contract.

8) Priming

a) Generally

Prime all faces, edges backs, joints and abutting surfaces of all exterior finishing timbers.

b) Galvanised steel

Thoroughly degrease all surfaces before priming. Apply "Galvo One" or equal approved, steel primer.

c) Other priming

Shall be as recommended by the manufacturer of the finishing paint.

9) Undercoats

Undercoats shall be the same brand as the finishing coats and shall be as recommended by the manufacturer of the finishing paints for use with his paint in the situations specified. **Tint the undercoats to closely match the colour of the finishing coats to give additional covering power to paint.** Undercoats on exterior, exposed more than 8 weeks to weather, shall be sanded down and recoated without extra charge. The minimum number of paint coats required in each particular case is specified in later clauses, but not withstanding this, undercoats shall be sufficient to provide a full bodied, even colouration to the finished job.

10) Application of paint

a) Exterior Painting

Shall be applied by BRUSH ONLY. Airless spraying is **NOT** permitted.

b) Interior Painting

The undercoat shall be applied by BRUSH ONLY. The finishing coat may be applied by brush or roller.

11) Painting schedule

a) Timber Doors

NOTE: Both the tops and bottoms of all doors are to be painted.

Prime (if new):	One coat of pigmented sealer
Undercoat:	One coat of alkyd undercoat
Paint:	Two coats of satin enamel

b) Door and Window Frames and/or Liners

Prime:	One coat of pigmented sealer
Undercoat:	One coat of alkyd undercoat
Paint:	Three coats of gloss enamel (white)

c) Exterior Sheathing and Concrete Blocks and C P Plaster Finishes

Prime:	One coat of exterior acrylic primer
Paint:	Two coats of exterior acrylic "Lumbersider"

d) Existing Galvanised Steel Roofs, Flashings, Spouting, Downpipes & Metalwork

Refer to previous clauses for the preparation of existing surfaces. Ensure all rust, blisters and loose or perished paint has been removed. Recoat in zinc rich paint any ungalvanised metal exposed during preparation.

Prime:	One coat of galvanised steel primer
Paint:	Two coats of exterior full gloss acrylic or enamel

e) Painted Metalwork

Prime:	One coat of galvanised steel primer
Paint:	Two coats of exterior full gloss enamel (3 coats if white)

f) Exterior Trim, Facings etc.

Prime:	One coat of exterior acrylic primer
Undercoat:	One coat of exterior acrylic undercoat
Paint:	Two coats of exterior acrylic paint

g) Gibralter Board

Sealer:	One coat of Gib Sealer
Undercoat:	One coat of acrylic undercoat
Paint:	Two coats of acrylic (satin) Three coats for white ceilings (matt)

h) Particle Board Linings

Undercoat:	One coat of sealer
Paint:	Three coats of clear polyurethane

k) All Interior Finishing Trim and Hardboard Linings

Prime:	One coat of acrylic primer (satin)
Paint:	Two coats of acrylic (satin)

12) Left over paint

All cans of partially used paint left over at the completion of the contract shall become the property of the employer. The contractor shall clearly label each can with the paint colour and the block on which the paint was used.

Hand all left over paint to the employer at the completion of the contract. This paint shall be available for use by the contractor at the conclusion of the maintenance period if it is required.

13) Completion

Clean all glass, flooring, fittings etc. of any paint spots and leave the site in a clean and tidy condition.