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Norman Kirk Courts

Quantitative Engineering Evaluation

Functional Location ID: PRO 1137

Address: 183 Strickland Street, Addington

Reference: 232539

Prepared for:

Christchurch City Council

Revision: 2

Date: 30 July 2013

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Current Revision		**2**				

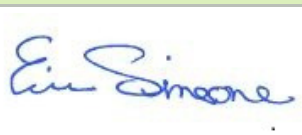
Approval			
Author Signature		Approver Signature	
Name	Thomas Bolton	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Contents

Appendices

Executive Summary- Block A

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block A building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Block A			
Building Location ID	PRO 1137 B001			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	10
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	320	**Storeys above ground**	3	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Quantitative L5 Report Results Summary					
Building Occupied	Y	The Norman Kirk Courts Block A is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block A is suitable for continued occupation.			
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.			
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.			
Levels Survey Results	Y	Floor levels are acceptable.			
Building %NBS From Analysis	50%	Based on an analysis of bracing capacity and demand.			
Approval					
Author Signature			**Approver Signature**		
Name	Thomas Bolton		**Name**	Eric Simeone	
Title	Structural Engineer		**Title**	Structural Engineer	

Executive Summary- Block B

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block B building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Block B			
Building Location ID	PRO 1137 B002			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	2
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	124	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Quantitative L5 Report Results Summary					
Building Occupied	Y	The Norman Kirk Courts Block B is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block B building is suitable for continued occupancy.			
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.			
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.			
Levels Survey Results	Y	Floor levels are acceptable.			
Building %NBS From Analysis	40%	Based on an analysis of capacity and demand.			
Approval					

Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block C

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block C building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Block C			
Building Location ID	PRO 1137 B003			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	5
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	135	**Storeys above ground**	3	**Storeys below ground**	0
Type of Construction	Combination of timber framing, lightly reinforced concrete blockwork walls, concrete precast floor slabs and strip foundations.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Block C is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block C is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	41%	Based on an analysis of capacity and demand and limited by the shear connection between the concrete floor diaphragm and the blockwork walls.

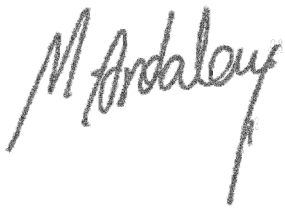
Approval			
Author Signature		**Approver Signature**	
Name	Callum Lillywhite	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Block D

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block D building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

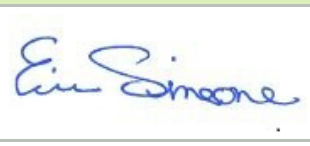
Building Details	**Name**	Norman Kirk Courts Block D			
Building Location ID	PRO 1137 B004			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	5
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	241	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Block D is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block D building is suitable for continued occupancy.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	43%	Based on an analysis of capacity and demand.

Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block E

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block E building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

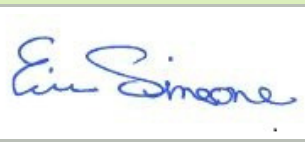
Building Details	**Name**	Norman Kirk Courts Block E			
Building Location ID	PRO 1137 B005			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	8
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	240	**Storeys above ground**	3	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Qualitative L5 Report Results Summary					
Building Occupied	Y	Norman Kirk Courts Block E is currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block E is suitable for continued occupation.			
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.			
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.			
Levels Survey Results	Y	Floor levels are acceptable.			
Building %NBS From Analysis	43%	Based on an analysis of bracing capacity and demand.			
Approval					
Author Signature		**Approver Signature**			
Name	Thomas Bolton	**Name**	Eric Simeone		
Title	Structural Engineer	**Title**	Structural Engineer		

Executive Summary- Block F

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block F building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Block F			
Building Location ID	PRO 1137 B006			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	7
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	220	**Storeys above ground**	3	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Block F is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block F is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	51%	Based on an analysis of bracing capacity and demand.

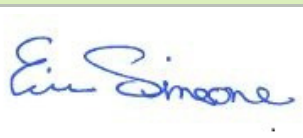
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Block G

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block G building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Block G			
Building Location ID	PRO 1137 B007			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	3
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	95	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Block G is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block G is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	51%	Based on an analysis of bracing capacity and demand.

Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Block H

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block H building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Block H			
Building Location ID	PRO 1137 B008			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	5
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	135	**Storeys above ground**	3	**Storeys below ground**	0
Type of Construction	Combination of timber framing, lightly reinforced concrete blockwork walls, concrete precast floor slabs and strip foundations.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Block H is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block H is suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	41%	Based on an analysis of capacity and demand and limited by the shear connection between the concrete floor diaphragm and the blockwork walls.

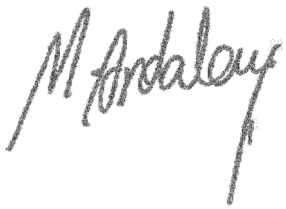
Approval			
Author Signature		**Approver Signature**	
Name	Callumn Lilly white	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary-Block I

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block I building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts- Block I			
Building Location ID	PRO 1137 B009			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	10
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	360	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Block I is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block I building is suitable for continued occupancy.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	41%	Based on an analysis of capacity and demand and limited by the shear connection between the concrete floor diaphragm and the blockwork walls.

Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Block J

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Block J building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts- Block J			
Building Location ID	PRO 1137 B010			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	5
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	420	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Block J is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Block J building is suitable for continued occupancy.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

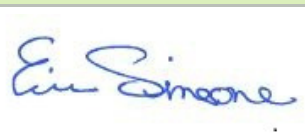
Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 3-4

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 3-4 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 3-4			
Building Location ID	PRO 1137 B011			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Garages 3-4 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 3-4 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

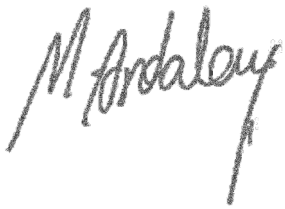
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Garage 5

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 5 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts- Garage 5			
Building Location ID	PRO 1137 B012			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	17	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Garage 5 is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 5 building is suitable for continued use.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	N	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

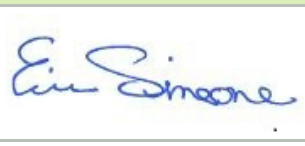
Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 6-7

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 6-7 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 6-7			
Building Location ID	PRO 1137 B013			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Garages 6-7 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 6-7 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

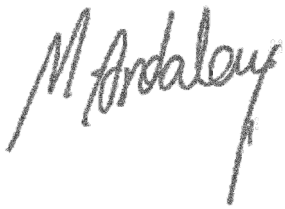
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary Garages 10-13

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 10-13 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 10-13			
Building Location ID	PRO 1137 B014			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	68	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Garages 10-13 is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 10-13 building is suitable for continued use.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	N	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

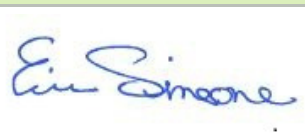
Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 14-15

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 14-15 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 14-15			
Building Location ID	PRO 1137 B015			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Garages 14-15 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 14-15 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

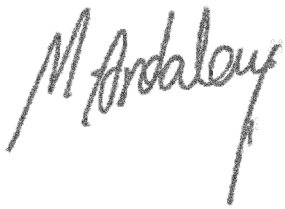
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Garage 18

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 18 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts- Garage 18			
Building Location ID	PRO 1137 B016			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	17	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Garage 18 is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 18 building is suitable for continued use.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	N	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

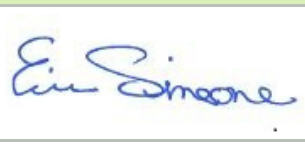
Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 24-25

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 24-25 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 24-25			
Building Location ID	PRO 1137 B017			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Garages 24-25 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 24-25 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

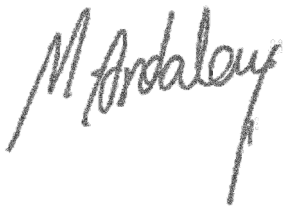
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Garage 2

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 2 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

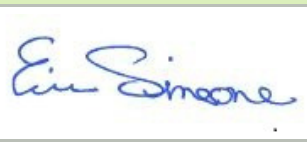
Building Details	**Name**	Norman Kirk Courts- Garage 2			
Building Location ID	PRO 1137 B018			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	17	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Garage 2 is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 2 is suitable for continued use.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	N	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

Executive Summary- Garages 8-9

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 8-9 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

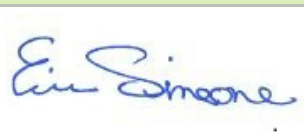
Building Details	**Name**	Norman Kirk Courts Garages 8-9			
Building Location ID	PRO 1137 B019			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				
Qualitative L5 Report Results Summary					
Building Occupied	Y	Norman Kirk Courts Garages 8-9 are currently in use.			
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 8-9 are suitable for continued occupation.			
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.			
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.			
Levels Survey Results	Y	Floor levels are acceptable.			
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.			
Approval					
Author Signature			**Approver Signature**		
Name	Thomas Bolton		**Name**	Eric Simeone	
Title	Structural Engineer		**Title**	Structural Engineer	

Executive Summary- Garages 16-17

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 16-17 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 16-17			
Building Location ID	PRO 1137 B020			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	0
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Garages 16-17 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 16-17 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	47%	Based on an analysis of bracing capacity and demand.

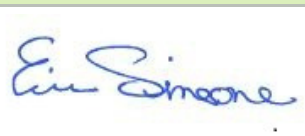
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Garages 19-21

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garages 19-21 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts Garages 19-21			
Building Location ID	PRO 1137 B021			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	11
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	33	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Qualitative L5 Report Results Summary		
Building Occupied	Y	Norman Kirk Courts Garages 19-21 are currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garages 19-21 are suitable for continued occupation.
Key Damage Summary	Y	Refer to summary of building damage section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	Y	Floor levels are acceptable.
Building %NBS From Analysis	44%	Based on an analysis of bracing capacity and demand.

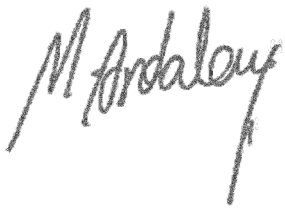
Approval			
Author Signature		**Approver Signature**	
Name	Thomas Bolton	**Name**	Eric Simeone
Title	Structural Engineer	**Title**	Structural Engineer

Executive Summary- Garage 26

This is a summary of the Quantitative Engineering Evaluation for the Norman Kirk Courts Garage 26 building and is based on the Detailed Engineering Evaluation Procedure document issued by the Engineering Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

Building Details	**Name**	Norman Kirk Courts- Garage 26			
Building Location ID	PRO 1137 B022			**Multiple Building Site**	Y
Building Address	183 Strickland Street, Addington			**No. of residential units**	-
Soil Technical Category	N/A	**Importance Level**	2	**Approximate Year Built**	1974
Foot Print (m²)	17	**Storeys above ground**	1	**Storeys below ground**	0
Type of Construction	Light roof, concrete masonry walls, concrete strip footings, slab on grade floor.				

Quantitative L5 Report Results Summary		
Building Occupied	Y	The Norman Kirk Courts Garage 26 is currently in use.
Suitable for Continued Occupancy	Y	The Norman Kirk Courts Garage 26 is suitable for continued use.
Key Damage Summary	Y	Refer to summary of building damage Section 3.1 report body.
Critical Structural Weaknesses (CSW)	N	There were no critical structural weaknesses found.
Levels Survey Results	N	Access to the garage was not possible.
Building %NBS From Analysis	44%	Based on an analysis of capacity and demand.

Approval			
Author Signature		Approver Signature	
Name	Manoochehr Ardalany	Name	Eric Simeone
Title	Structural Engineer	Title	Structural Engineer

1 Introduction

1.1 General

On 4 June 2013 Aurecon engineers visited the Norman Kirk Courts to carry out a quantitive building damage assessment on behalf of Christchurch City Council. Detailed visual inspections were carried out to assess the damage caused by the earthquakes on 4 September 2010, 22 February 2011, 13 June 2011, 23 December and related aftershocks.

The scope of work included:

- Assessment of the nature and extent of the building damage
- Visual assessment of the building strength particularly with respect to safety of occupants if the building is currently occupied
- Assessment of requirements for detailed engineering evaluation including geotechnical investigation, level survey and any areas where linings and floor coverings need removal to expose structural damage.

This report outlines the results of our Qualitative Assessment of damage to Norman Kirk Courts and is based on the Detailed Engineering Evaluation Procedure document issued by the Structural Advisory Group on 19 July 2011, visual inspections, available structural documentation and summary calculations as appropriate.

2 Description of the Building

2.1 Building Age and Configuration

Built in 1974 the Norman Kirk Courts housing development contains multiple buildings with a combination of single and three storey building sections. The site also contains garages in different layout combinations.

2.1.1 Single Storey

The single storey sections have a high pitched roof, where light steel tray roofing is supported by timber purlins and rafters. The roof is supported by blockwork walls, the exterior blockwork walls have a reinforced inner layer, and an unreinforced veneer cladding. The internal blockwork walls are reinforced. Some internal blockwork walls support blockwork firewalls extending into the roof space. The single storey section also has some timber framed partition walls. Blockwork walls are supported by reinforced concrete strip footing and the ground floor is concrete slab on grade.

2.1.2 Three Storey

The three storey section roof has timber rafters and beams supporting the lightweight galvanised PVC coated trough section roofing. The ply sarking is supported by the timber purlins. The gable side of the roof has an asbestos cement flat sheet external cladding.

The second level of the building is of timber framed construction. The internal timber framed walls are lined with plasterboard and support the timber roof. The ground and the first level of the building have single-skin reinforced concrete block internal walls. The load bearing internal walls are all 15 series block. Some of these walls are completely core filled and some only have the blockwork cells

containing reinforcement filled with concrete. Internal non-load bearing walls are 10 series block and are lightly reinforced and partially filled. The first and second level floors consist of precast concrete rib slab panels spanning onto concrete bond beams and load bearing walls. A 64mm thick reinforced topping slab is installed over the precast panels. The load bearing walls also provide support for the in-situ concrete stairs and balconies.

The external load bearing walls are constructed from double-skin concrete blockwork walls. The inner 15 series block skin and 10 series outer block skin are both reinforced. All blockwork cells containing reinforcement are filled with concrete. These load bearing walls support the concrete bond beams. Refer to the Levels Survey in Appendix A for plans and locations of the different wall types.

The concrete ground floor slab on grade and the walls around the building are supported by the reinforced concrete strip foundations.

2.1.3 Garages

The garages are arranged in several combinations; single, double, triple and quad. The construction type is the same for all of these, while the walls have a slightly different layout.

The roofs are of high pitched sawtooth design. The steel tray roofing is supported by timber trusses, which are connected to timber top plates and bolted into a concrete bond beam at the top of the supporting walls. Partially reinforced, fully filled blockwork form the structural sections of the walls. Timber infill panels form the remaining walls. The floor is concrete slab on grade with strip footings under the walls. The concrete floor has a built in slope, with the rear of the garage designed to be 50mm higher than the front.

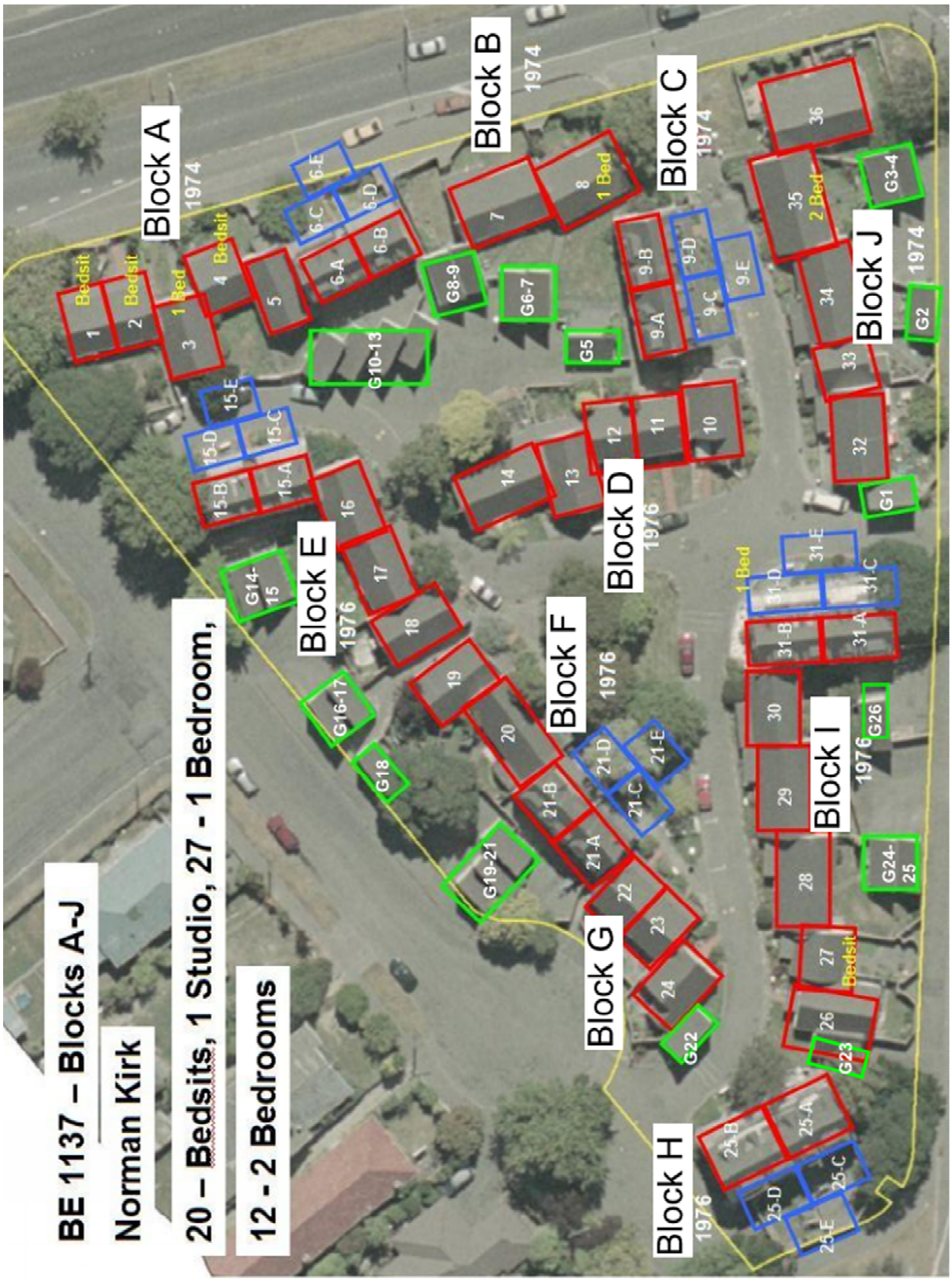
2.2 Building Designations

Table 1: General information about buildings

Label	Units	Type
Block A	1-6E	Combination Single and Triple storey
Block B	7-8	Single Storey Residential
Block C	9A-9E	Triple Storey Residential
Block D	10-14	Single Storey Residential
Block E	15A-18	Combination Single and Triple storey
Block F	19-21E	Combination Single and Triple storey
Block G	22-24	Single Storey Residential
Block H	25A-25E	Triple Storey Residential
Block I	26-31E	Combination Single and Triple storey
Block J	32-36	Single Storey Residential
Single Garage	1,2,5,18,22,23,26	Garage
Double Garage	3-4,6-7,8-9,14-15, 16-17,24-25	Garage
Triple Garage	19-21	Garage
Quad Garage	10-13	Garage

Locations of buildings found in Figure 1 on the following page.

Figure 2: General information about buildings



2.3 Building Structural Systems Vertical and Horizontal

2.3.1 Single Storey

The single storey section of Norman Kirk Courts is a simple, regular structure. Its lightweight steel roof is supported on timber trusses that transfer loads to the external and internal blockwork walls. The walls which provide the lateral support for the structure are supported on concrete strip footings.

2.3.2 Three Storey

The load path for the Norman Kirk Courts three storey buildings to the concrete strip footings is well defined for both vertical and horizontal loads.

The vertical loads that originate from the timber roof are distributed to the Level 2 floor slab, via the timber framed walls and columns and their connections. The concrete slab systems at both levels transfer the vertical loads to the external and internal load bearing reinforced and partially reinforced blockwork walls. These blockwork walls then carry the loads to the foundations.

The lateral load carrying system is similar for both the Along direction (North-South) and the Across direction (East-West) of the building. The lateral loads generated at roof level are distributed to the timber framed walls through the ceiling diaphragm. In both directions the timber framed walls of the top storey carry the loads in-plane to the Level 2 slab. The Level 1 and 2 slabs are rigid diaphragms to transfer the lateral loads generated to the reinforced and partially reinforced concrete blockwalls. These blockwalls carry the lateral loads in-plane to the foundations.

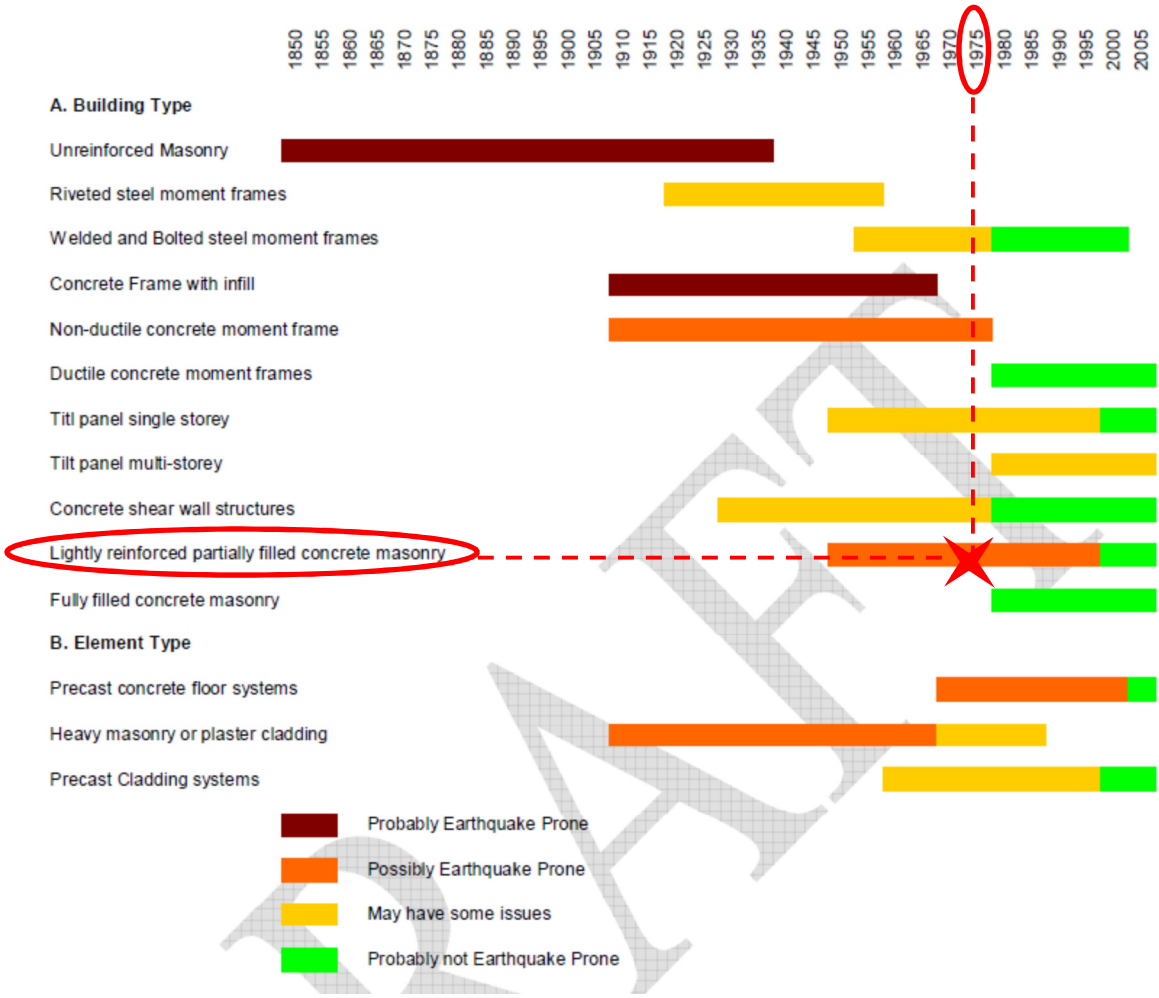
2.3.3 Garages

The vertical loads in the garages have a simple load path whereby they transfer directly to blockwork walls, there is a lintel above the garage door to transfer loads to blockwork walls either side of this.

The lateral loads are transferred through the timber trusses to the bond beams. The blockwork walls take the lateral loads out of planes around the opening for the garage door. At the rear of the building, return walls will take the lateral load in-plane.

2.4 Reference Building Type

The Norman Kirk Courts is a basic structure with well reinforced blockwork for its age and style. This type of building has typically performed well under seismic loading.



2.5 Building Foundation System and Soil Conditions

The Norman Kirk Courts foundations, as discussed above consist of concrete strip footings concrete slab on grade ground floor. Although Norman Kirk Courts is classified as urban non-residential, the land that surrounds of Norman Kirk Courts has been zoned as TC2 which means minor to moderate damage from liquefaction is possible in future significant earthquakes. There were no signs in the vicinity of Norman Kirk Courts of liquefaction bulges and boils at the inspection date. However aerial photos taken soon after the 13 June earthquake shows minor liquefaction in the vicinity of the building.

2.6 Available Structural Documentation and Inspection Priorities

Structural and architectural drawings were available for Norman Kirk Courts. The structure was measured and intrusively investigated to confirm the building structure. The generic building type for

the Norman Kirk Courts is a lightly reinforced partially filled concrete masonry building constructed in the 1970s. This type of structure has performed well during the Canterbury Earthquakes.

2.7 Available Survey Information

A floor level survey was undertaken to establish the level of unevenness across the floors. The results of the survey are presented in Appendix A. All of the levels were taken on top of the existing floor coverings which may have introduced some margin of error.

The Ministry of Business, Innovation and Employment (MBIE) published the guideline “Repairing and rebuilding houses affected by the Canterbury earthquakes” in 2012, which recommends some form of re-levelling or rebuilding of the floor

1. If the slope is greater than 0.5% for any two points more than 2 m apart, or
2. If the variation in level over the floor plan is greater than 50 mm, or
3. If there is significant cracking of the floor.

It is important to note that these figures are recommendations and are only intended to be applied to residential buildings.

Code requirements covering acceptability criteria for the floors of buildings are written for new buildings and are not appropriate for older buildings which will have settled with time.

The floor levels for the Norman Kirk Courts were mostly found to be within acceptable levels. The units with floor levels outside of the acceptable levels were typically level within individual rooms, and variations were between rooms and with different floor coverings. Variations in floor level that were recorded were likely pre-existing. Consequently, the floor levels for the Norman Kirk Courts are considered to be adequate, no foundation re-levelling or rebuilding is recommended and no geotechnical investigation is required.

3 Structural Investigation

3.1 Summary of Building Damage

The Norman Kirk Courts are currently in use and were occupied at the time the damage assessment was carried out.

A damage assessment was performed on 4 June 2013 at the Norman Kirk Courts and the following damage was observed.

Table 2: Damage Summary

Building	Damage
Block A	Single Storey section: • Cracking in the plasterboard wall and ceiling linings. These cracks are mostly located at the joints between different plasterboard panels; • Hairline cracks to blockwork veneer mortar; • Hairline cracks to foundation walls; and • Cracking to exterior concrete pathways. Three Storey Section: • Cracking in the plasterboard wall and ceiling linings in top storey. These cracks are mostly located at the joints between different plasterboard panels; • Minor step cracking in the mortar of the external blockwall on the Eastern side; and • Evidence of movement between the blockwalls and internal finishes. • Racking of window timber joinery in top storey.
Block B	• Minor crack around door frame. • Minor cracks in the blockwork walls. • Minor cracks in plasterboard walls and ceiling.
Block C	• Cracking in the plasterboard wall and ceiling linings for the top storey. These cracks are mostly located at the joints between different plasterboard panels. • Minor step cracking in the mortar of the external blockwall on the Eastern side. • Concrete spalling of the balcony on Level 2. • Evidence of movement between the blockwalls and internal finishes.
Block D	• Minor cracks in the blockwork walls. • Minor cracks in plasterboard walls and ceiling.
Block E	Similar to Block A
Block F	Similar to Block A
Block G	• Minor cracks in the blockwork walls • Minor cracks in plasterboard walls and ceiling • Racking of timber joinery
Block H	Similar to Block C
Block I	• Crack in the walkway around building • Minor cracks in the blockwork walls • Minor cracks in plasterboard walls and ceiling • Cracking between three-storey and one storey buildings

Block J	• Minor crack to blockwork walls • Cracks in the roof ceiling
Single Garage	-
Double Garage	-
Triple Garage	-
Quad Garage	Garage 10 was found to be out of level, and had the roof was leaking.

3.2 Record of Intrusive Investigation

Concrete blockwalls were scanned using a reinforcement scanner and this confirmed the reinforcement shown on the drawings. An intrusive investigation was undertaken on 6 June 2013 to establish the connection between the reinforced blockwork inner leaf and veneer outer leaf in the walls of the single storey area. The investigation found that ties were present at 400mm centres both horizontally and vertically. No significant damage was noted so further intrusive investigations were neither warranted nor undertaken for Norman Kirk Courts.

3.3 Damage Discussion

There was minimal observed damage to the Norman Kirk Courts. This is expected due to its regular shape and density of walls in the building. The main damage noted was minor cracking in the plasterboard walls and ceilings and blockwork mortar.

4 Building Review Summary

4.1 Building Review Statement

The finishes of the Norman Kirk Courts obstructed the viewing in some parts of the structure. Nevertheless, a damage assessment was undertaken assuming that the damage to the finishes of the building would indicate a commensurate level of displacement damage on the building's structure.

As no original calculations were available, assumptions had to be made in order to complete calculations using current NZ standards and NZSEE guidelines as referenced in Appendix B.

4.2 Critical Structural Weaknesses

In the three storey blocks the shear connectors between the floor diaphragms and the walls can be considered a brittle failure mechanism and therefore a critical structural weakness. This has been

taken into consideration in the calculations and factors have been applied appropriately with the minimum strength calculated at 41% NBS as detailed in the next section. As this is above 33% NBS it is therefore not considered a critical structural weakness.

5 Building Strength (Refer to Appendix C for background information)

5.1 General

The Norman Kirk Courts buildings, consisting of a lightweight timber roof on reinforced concrete blockwork masonry walls, are intrinsically robust and have stood up well in the recent seismic events. This is evidenced by the low level of displacement damage described in section 3.1 above.

5.2 Existing Building Strength

We consider that the damage to the building has not resulted in any measurable reduction in the strength of the building and so our strength assessment is based on the pre-earthquake condition of the building.

Selected assessment seismic parameters are tabulated in the Table below.

Table 3: Parameters used in the Seismic Assessment

Seismic Parameter	Quantity	Comment/Reference
Site Soil Class	D	NZS 1170.5:2004, Clause 3.1.3, Deep or Soft Soil
Site Hazard Factor, Z	0.30	DBH Info Sheet on Seismicity Changes (Effective 19 May 2011)
Return period Factor, R_u	1.0	NZS 1170.5:2004, Table 3.5
Ductility Factor, μ	1.25	Blockwork walls
Ductility Factor μ	2.00	Timber framed walls lined with plasterboard

5.2.1 Single Storey Sections

5.2.1.1 Blockwork Walls

Double skinned blockwork walls form the exterior walls, with the inner skin reinforced and partially filled. The outer skin is an unfilled, unreinforced, veneer – which is tied to the inner skin with steel ties. These walls were typically found to be limited to the out of plane behaviour, either cantilevering from the base, or by the flexural capacity of the bond beam.

5.2.1.2 Blockwork Fire Walls

Blockwork fire walls rise above a bond beam over double skinned reinforced blockwork, these are of different heights depending on the structure. The firewall is assumed to cantilever above the ceiling level as the roof tray decking is unlikely to be able to support it as a diaphragm.

5.2.1.3 Plywood Walls

A plywood wall is present in some units to provide out of plane support to the blockwork fire wall.

5.2.2 Three Storey Section

5.2.2.1 Blockwork Walls

Double skinned reinforced blockwork exterior walls and single skin reinforced blockwork internal walls. As all walls are reinforced, and connected to concrete floor above, out of plane behaviour does not generally govern for these buildings. In plane wall capacity is an issue in some configurations of the three storey buildings.

5.2.2.2 In-situ Concrete Floor

The precast concrete floor has a topping which is connected distributes lateral loads. The shear connectors for these floors were checked as possible critical structural weaknesses.

5.2.2.3 Timber Framed Top Storey

The timber framed walls on the top storey were checked using a higher ductility than the lower sections of the structure. Timber sarking distributed forces from the roof to the walls.

5.2.3 Garages

The garages have fully filled partially reinforced blockwork walls, these structures are limited by the out of plane behavior of these walls.

5.2.4 Summary

A summary of the strength of the various buildings is provided in Table below. Full summaries of building elements can be found in Appendix B.

Table 4: Building Strength Summary

Building	Direction	%NBS
Block A	Along	50
	Across	51
Block B	Along	77
	Across	40
Block C	Along	59
	Across	41
Block D	Along	43
	Across	54
Block E	Along	52
	Across	43
Block F	Along	51

Building	Direction	%NBS
	Across	100
Block G	Along	51
	Across	50
Block H	Along	59
	Across	41
Block I	Along	54
	Across	41
Block J	Along	44
	Across	44
Single Garage	Along	100
	Across	44
Double Garage	Along	100
	Across	44
Triple Garage	Along	100
	Across	44
Quad Garage	Along	100
	Across	44

5.3 Results Discussion

This quantitative analysis was undertaken using the assumed approximate bracing capacity of the blockwork and timber walls to the New Zealand Society of Earthquake Engineering (NZSEE) guidelines for the Assessment and Improvement of the Structural Performance of Buildings in Earthquakes and NZS 4230:2004, Design of Reinforced Concrete Masonry Structures.

The potential critical structural weakness of shear collectors was identified during the assessment, these collectors were found to be have a strength of 41%NBS, therefore the building does not have a CSW.

6 Conclusions and Recommendations

As noted within the report, only very low levels of visible damage was observed in the damage assessment and the levels survey has shown that the floor levels are generally within acceptable limits. This is further supported by the building strength analysis that was undertaken. It is therefore considered that the Norman Kirk Courts is **suitable for continued occupancy**.

We recommend all damage is repaired by a licensed building practitioner. Repair works should include:-

- Cracking to internal wall and ceiling fibrous plaster linings should be repaired similar to that used for GIB linings in accordance with GIB 'Guidelines for repairing GIB plasterboard linings in wind and earthquake damaged properties';
- Grout repair cracking to the masonry joints; and
- External slabs (pathways) will likely need to be replaced.

The building has performed well in the recent earthquake events. The building has several elements between 50-67%NBS. We recommend building be strengthened to a minimum of 67%NBS or 100%NBS if economically viable.

Possible strengthening required is as follows:

- Bracing in roof space of single storey section to restrain full height firewall;
- Strengthen out of plane bond beams with steel channels;
- Infill windows in blockwork wall at ground floor level to increase shear and moment capacity and;
- Install steel angles under floor slab in three storey building to connect diaphragm to walls.

7 Explanatory Statement

The inspections of the building discussed in this report have been undertaken to assess structural earthquake damage. No analysis has been undertaken to assess the strength of the building or to determine whether or not it complies with the relevant building codes, except to the extent that Aurecon expressly indicates otherwise in the report. Aurecon has not made any assessment of structural stability or building safety in connection with future aftershocks or earthquakes – which have the potential to damage the building and to jeopardise the safety of those either inside or adjacent to the building, except to the extent that Aurecon expressly indicates otherwise in the report.

This report is necessarily limited by the restricted ability to carry out inspections due to potential structural instabilities/safety considerations, and the time available to carry out such inspections. The report does not address defects that are not reasonably discoverable on visual inspection, including defects in inaccessible places and latent defects. Where site inspections were made, they were restricted to external inspections and, where practicable, limited internal visual inspections.

To carry out the structural review, existing building drawings were obtained from the Christchurch City Council records. We have assumed that the building has been constructed in accordance with the drawings.

While this report may assist the client in assessing whether the building should be strengthened, that decision is the sole responsibility of the client.

This review has been prepared by Aurecon at the request of its client and is exclusively for the client's use. It is not possible to make a proper assessment of this review without a clear understanding of the terms of engagement under which it has been prepared, including the scope of the instructions and directions given to and the assumptions made by Aurecon. The report will not address issues which would need to be considered for another party if that party's particular circumstances, requirements and experience were known and, further, may make assumptions about matters of which a third party is not aware. No responsibility or liability to any third party is accepted for any loss or damage whatsoever arising out of the use of or reliance on this report by any third party.

Without limiting any of the above, Aurecon's liability, whether under the law of contract, tort, statute, equity or otherwise, is limited as set out in the terms of the engagement with the client.

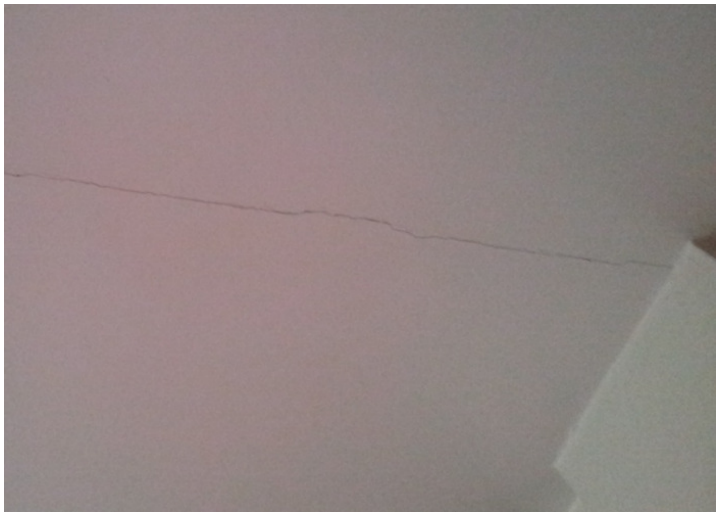
Appendices

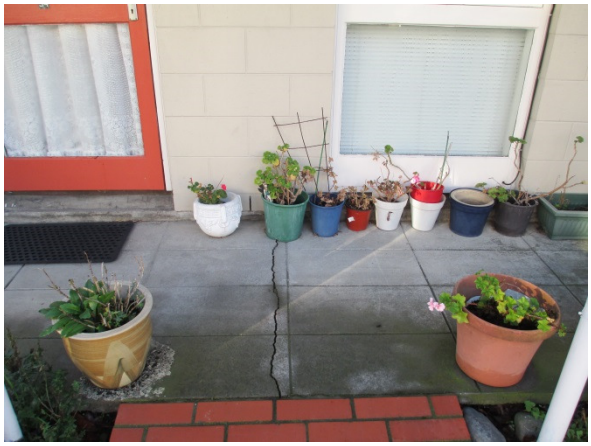
Appendix A
Photos and Levels Survey Results

Aerial photograph of Norman Kirk Courts – Showing along and across for buildings

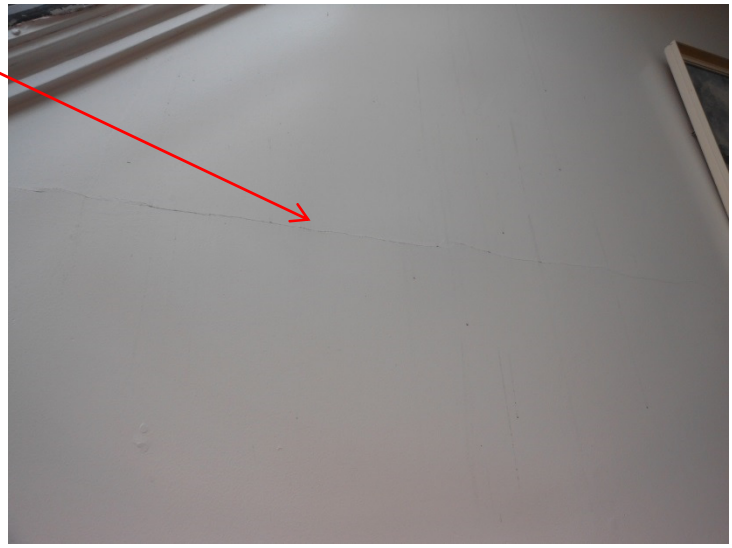
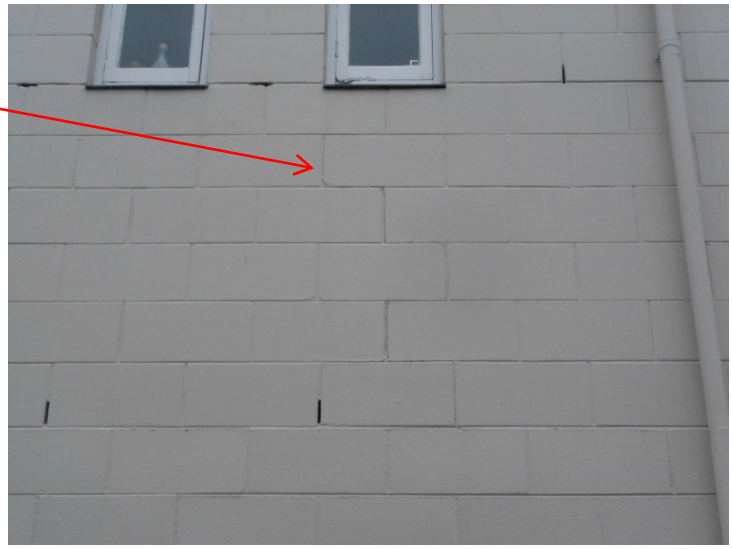
4 June 2013 – Norman Kirk Courts site photographs

Norman Kirk Courts – Single Storey Blocks	
1. Single Storey Elevation	
2. Full height firewall in single storey section.	

3. Hairline cracks to blockwork.	
4. Cracking to plasterboard ceiling.	
5. Minor cracks to foundation.	

6. Minor crack at plasterboard ceiling	
7. Cracking in plasterboard between units 32 and 33 (unit 32).	
8. Cracking to concrete pathway (unit 33)	
9. Cracking to concrete pathway (unit 34)	

Three Storey Section	
10. Three Storey northern elevation.	
11. Three storey southern elevation.	
12. View of timber framed ceiling with plywood sarking.	

13. Typical joint cracks in the plasterboard linings at Level 2.	
14. Minor cracking in the mortar joints on the Eastern wall.	
15. Minor spalling of the concrete balcony slab on the western side of the building.	

16. Signs of minor displacement of the walls at fixings.	

Intrusive Investiagtaion	
Int1. Intrusive investigation on block B (Unit 7)	
Int2. Photo of veneer tie approximately 4 mm diameter with hook at the end	

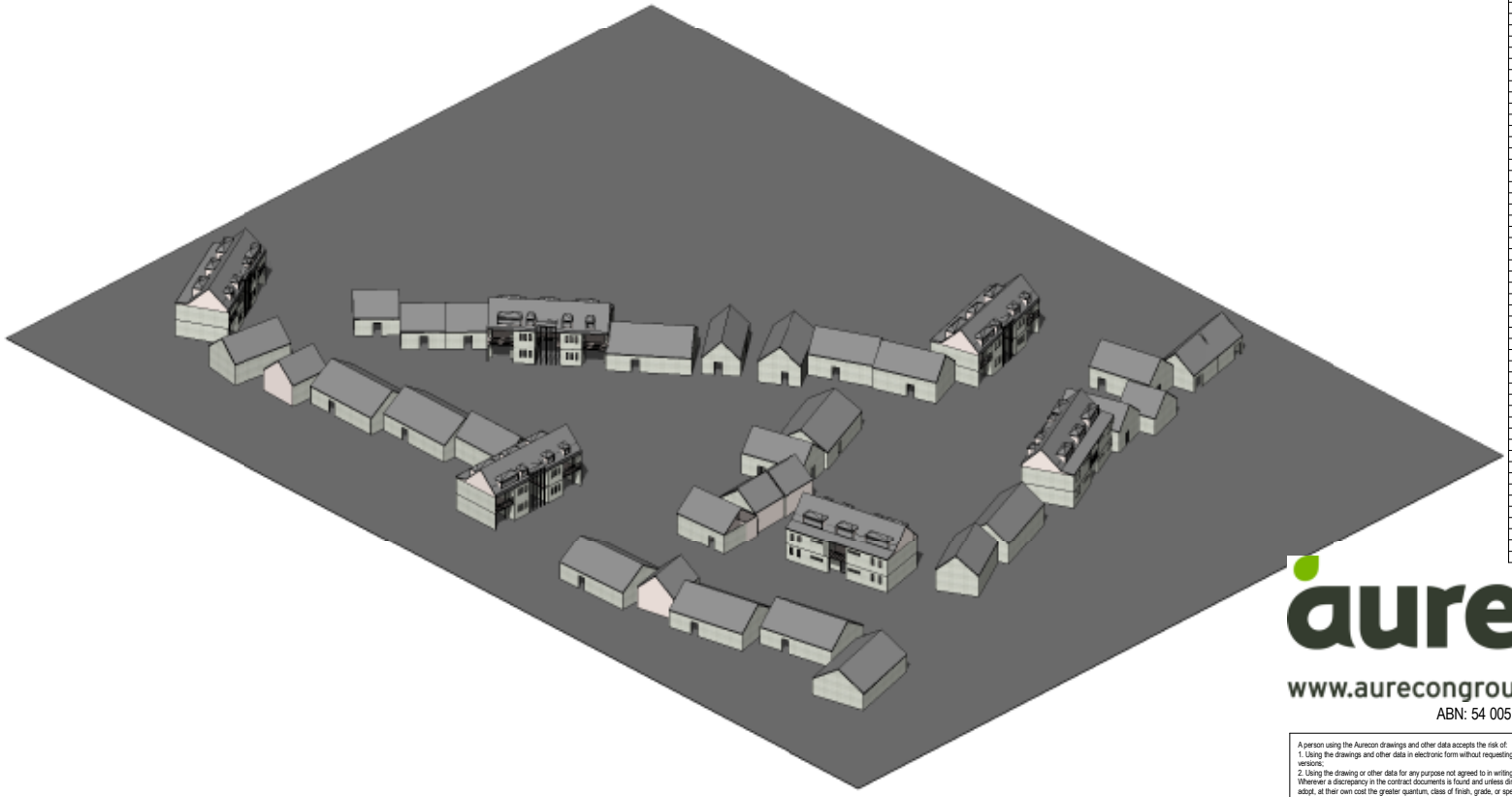
Int3. Photo of bars connecting the exterior unreinforced blockwork wall with interior reinforced blockwork wall	

Garages	
Gar1. View of typical double garage.	
Gar2. Top plate connection to blockwork walls	

Gar3. Timber roof trusses.	
Gar4. Water ponding in garage 10.	

NORMAN KIRK COURTS

183 STRICKLAND STREET



DRAWING LIST		
SHEET NO.	REV.	TITLE
S-00-00	B	COVER SHEET
SK-00-01	B	SITE MAP KEY
SK-A-01	B	UNIT 1
SK-A-02	B	UNIT 2
SK-A-03	B	UNIT 3
SK-A-04	B	UNIT4
SK-A-05	B	UNIT 5
SK-A-06	B	UNIT 6A AND 6B
SK-A-07	B	UNIT 6C AND 6D
SK-A-08	B	UNIT 6E
SK-B-01	B	UNIT 7
SK-B-02	B	UNIT 8
SK-C-01	C	UNIT 9A AND 9B
SK-C-02	C	UNIT 9C AND 9D
SK-C-03	C	UNIT 9E
SK-D-01	B	UNIT 10
SK-D-02	B	UNIT 11
SK-D-03	B	UNIT 12
SK-D-04	B	UNIT 13
SK-D-05	B	UNIT 14
SK-E-01	B	UNIT 15A AND 15B
SK-E-02	B	UNIT 15C AND 15D
SK-E-03	B	UNIT 15E
SK-E-04	B	UNIT 16
SK-E-05	B	UNIT 17
SK-E-06	B	UNIT 18
SK-F-01	B	UNIT 19
SK-F-02	B	UNIT 20
SK-F-03	B	UNIT 21A AND 21B
SK-F-04	B	UNIT 21C AND 21D
SK-F-05	B	UNIT 21E
SK-G-01	B	UNIT 22
SK-G-02	B	UNIT 23
SK-G-03	B	UNIT 24
SK-G-04	A	GARAGE 22
SK-H-01	B	UNIT 25A AND 25B
SK-H-02	B	UNIT 25C AND 25D
SK-H-03	B	UNIT 25E
SK-I-01	B	UNIT 26
SK-I-02	B	UNIT 27
SK-I-03	B	UNIT 28
SK-I-04	B	UNIT 29
SK-I-05	B	UNIT 30
SK-I-06	B	UNIT 31A AND 31B
SK-I-07	B	UNIT 31C AND 31D
SK-I-08	B	UNIT 31E
SK-J-01	B	UNIT 32
SK-J-02	B	UNIT 33
SK-J-03	B	UNIT 34
SK-J-04	B	UNIT 35
SK-J-05	B	UNIT 36
SK-J-06	A	GARAGE 1
SK-K-05	A	GARAGE 8 AND 9
SK-K-06	A	GARAGE 10,11,12 AND 13
SK-K-07	A	GARAGE 14 AND 15
SK-K-09	A	GARAGE 18
SK-K-12	A	GARAGE 24 AND 25

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ABN: 54 005 139 873

PRELIMINARY
NOT FOR CONSTRUCTION

SIZE	PROJECT No.	DATE	DRAWING No.	REV
A1	232539	31-01-2013	S-00-00	B

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CLIENT: Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer

CHECKED: L.Castillo

APPROVED: DATE L. Howard

PROJECT: 183 STRICKLAND STREET

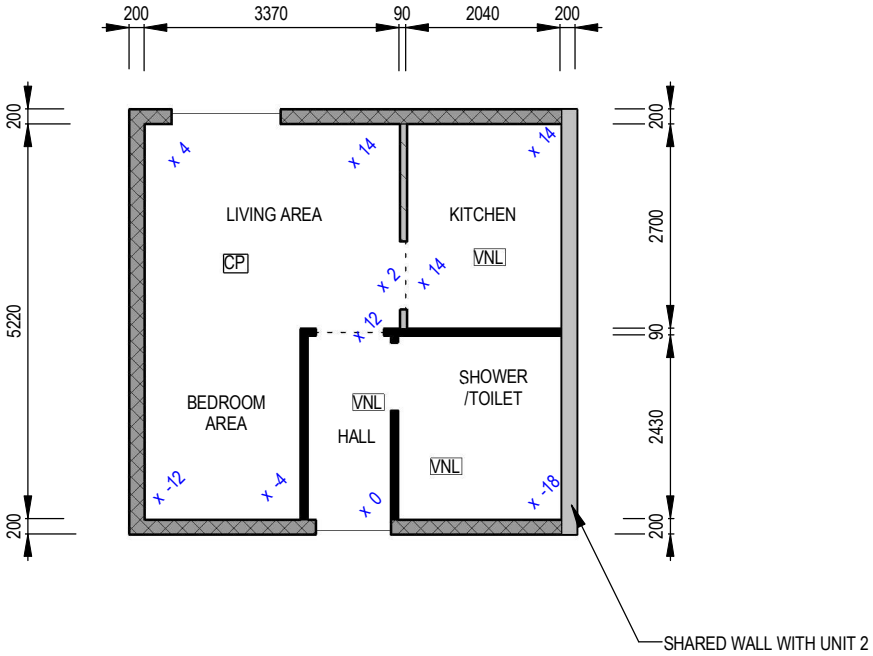
TITLE: SITE MAP KEY

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.: 232539

SCALE	SIZE
1 : 300	A1

DRAWING No.	REV
SK-00-01	B



BLOCK A
UNIT 1
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:17:58 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

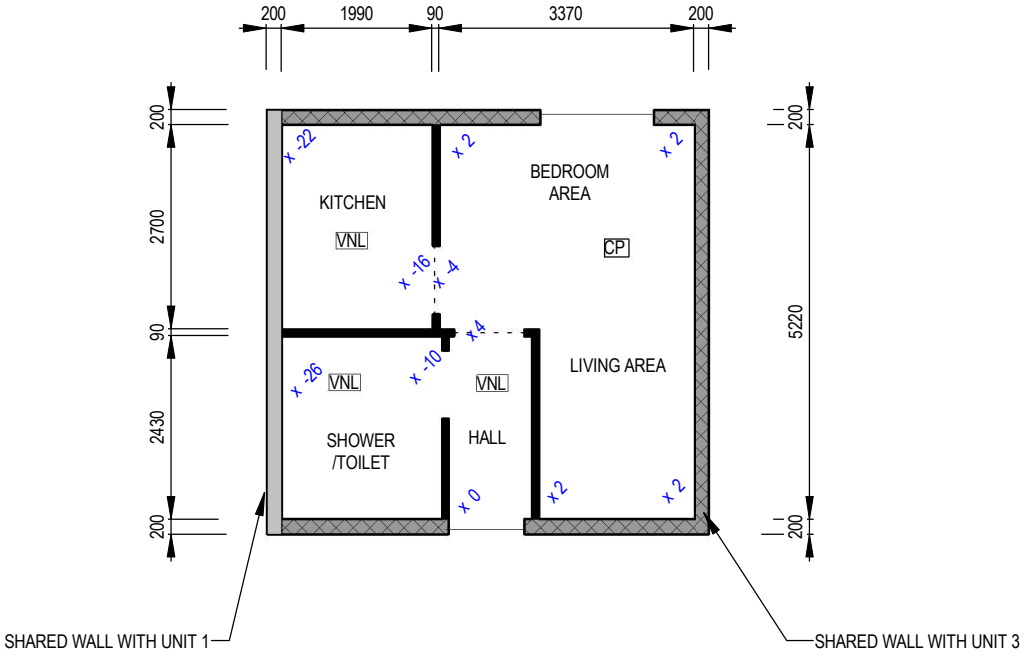
TITLE
LEVEL SURVEY
UNIT 1

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-A-01	B



BLOCK A
UNIT 2
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:00 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

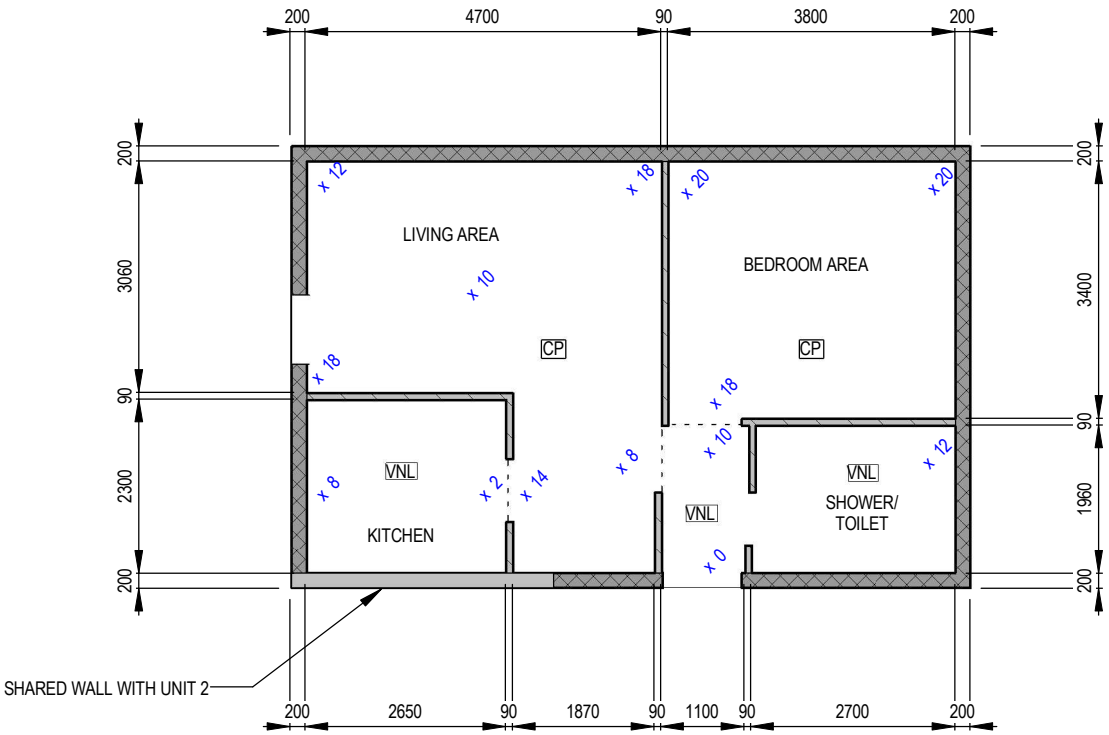
TITLE
LEVEL SURVEY
UNIT 2

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-A-02	B



BLOCK A
UNIT 3
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:03 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

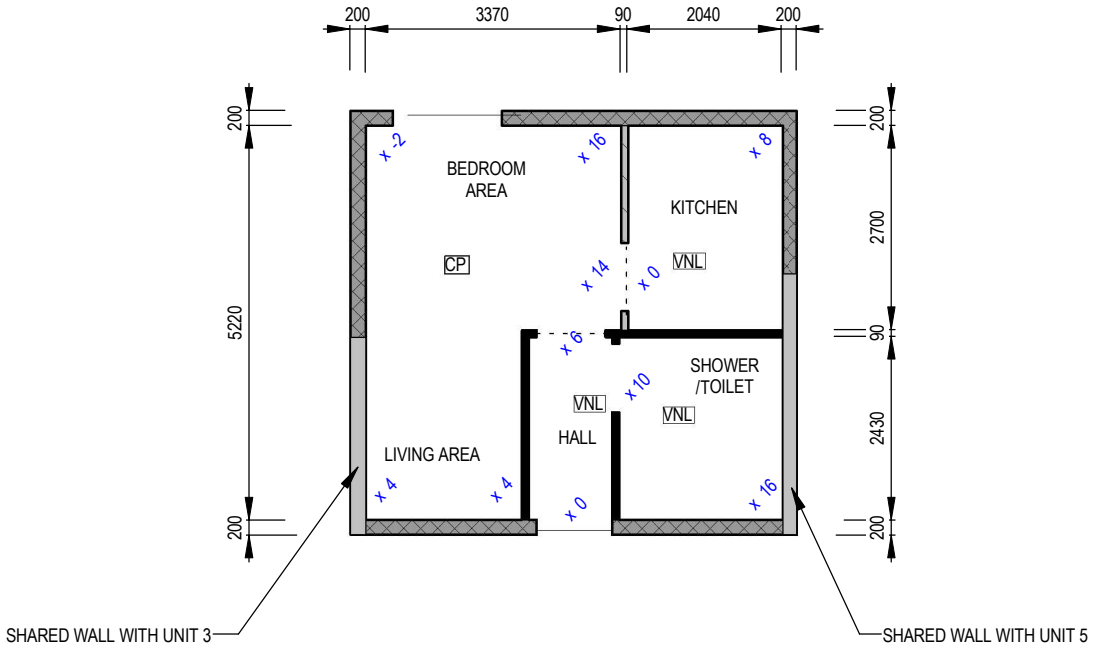
TITLE: LEVEL SURVEY
UNIT 3

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.: 232539

SCALE: 1 : 100 | SIZE: A4

DRAWING No.: SK-A-03 | REV: B



BLOCK A
UNIT 4
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:06 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

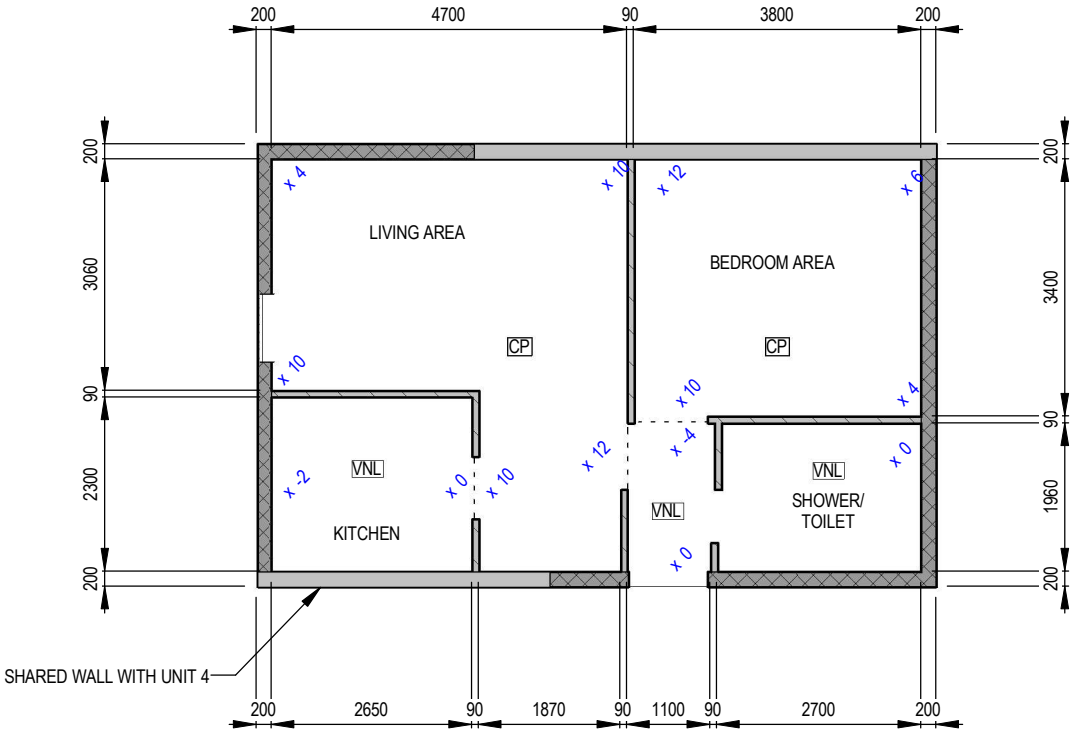
TITLE
LEVEL SURVEY
UNIT4

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-A-04	B



BLOCK A
UNIT 5
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:09 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

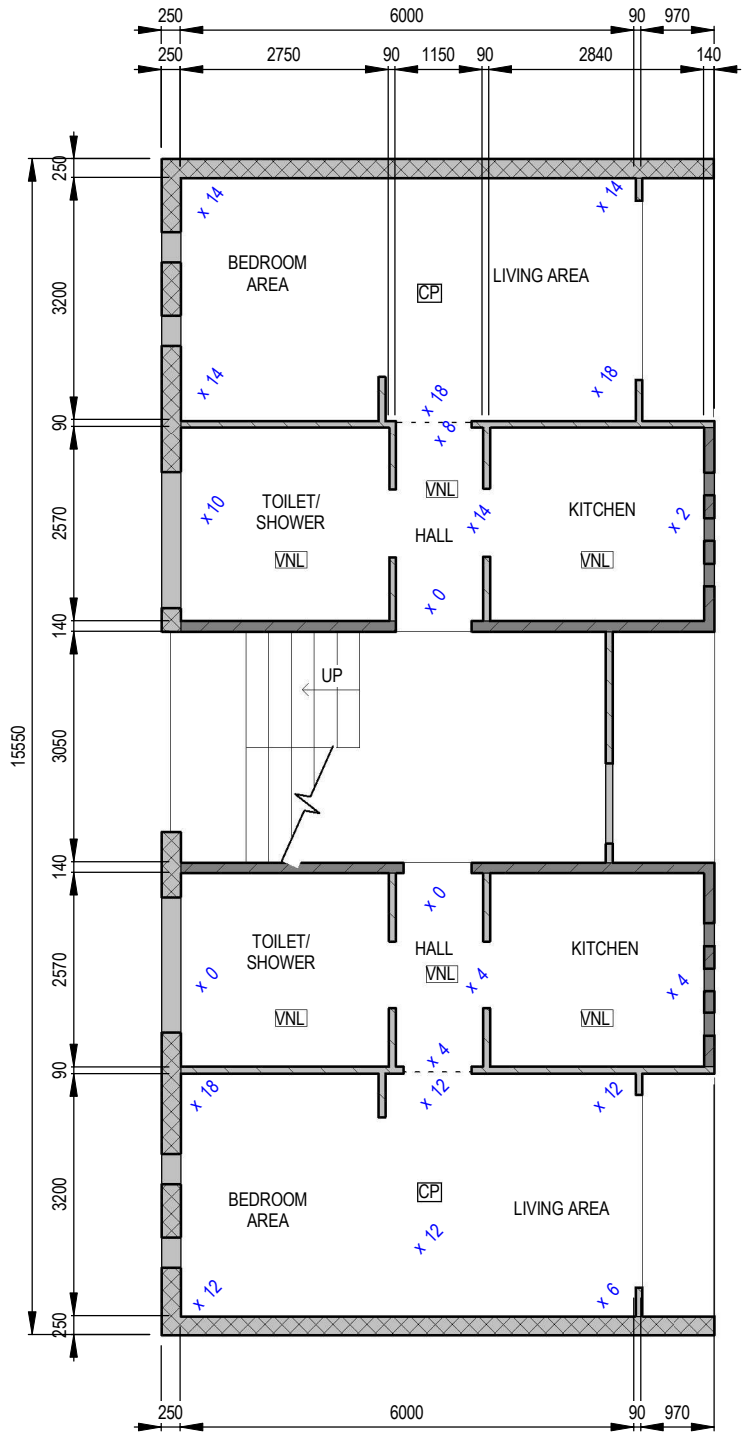
TITLE
LEVEL SURVEY
UNIT 5

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE 1 : 100
SIZE A4

DRAWING No. SK-A-05
REV B



BLOCK A
UNIT 6A AND 6B
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:09 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

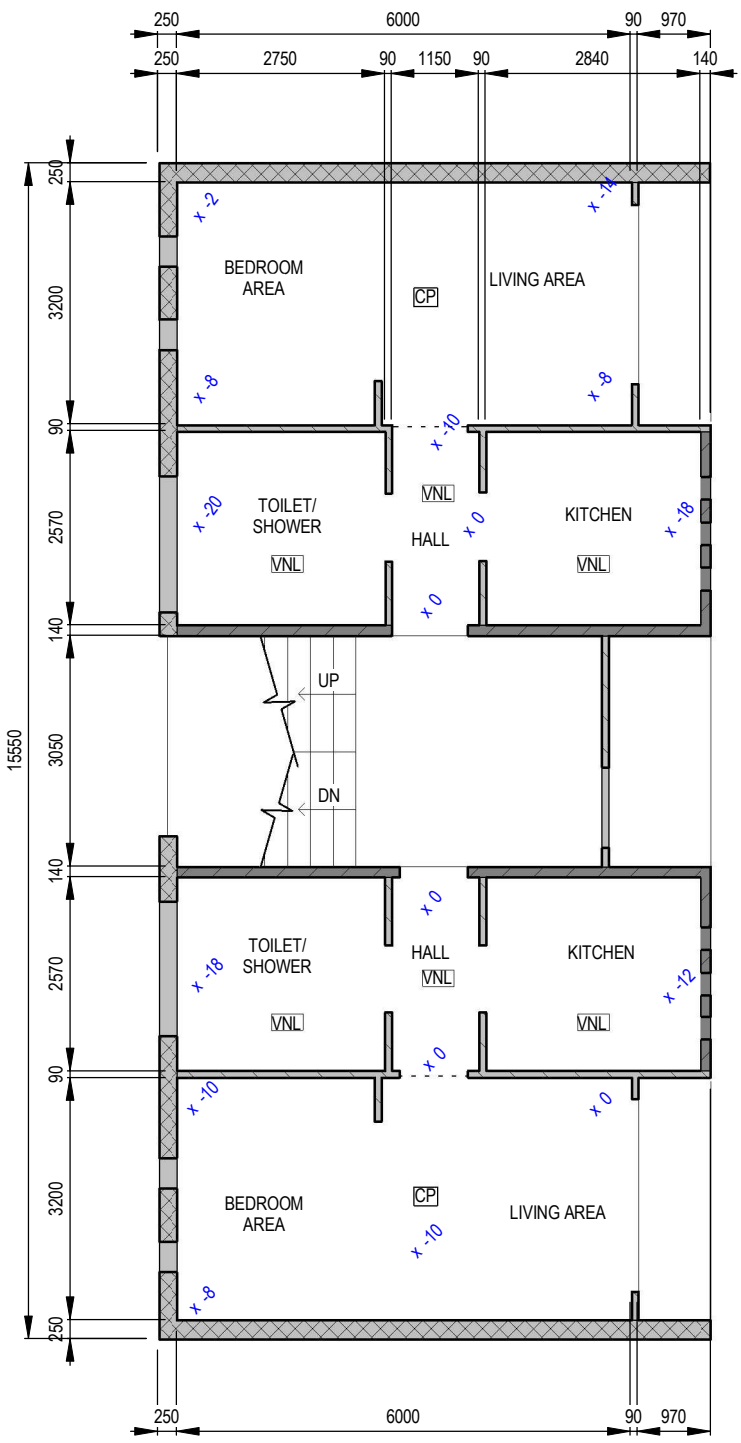
TITLE
LEVEL SURVEY
UNIT 6A AND 6B

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-A-06	B



BLOCK A
UNIT 6C AND 6D
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x -? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:11 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

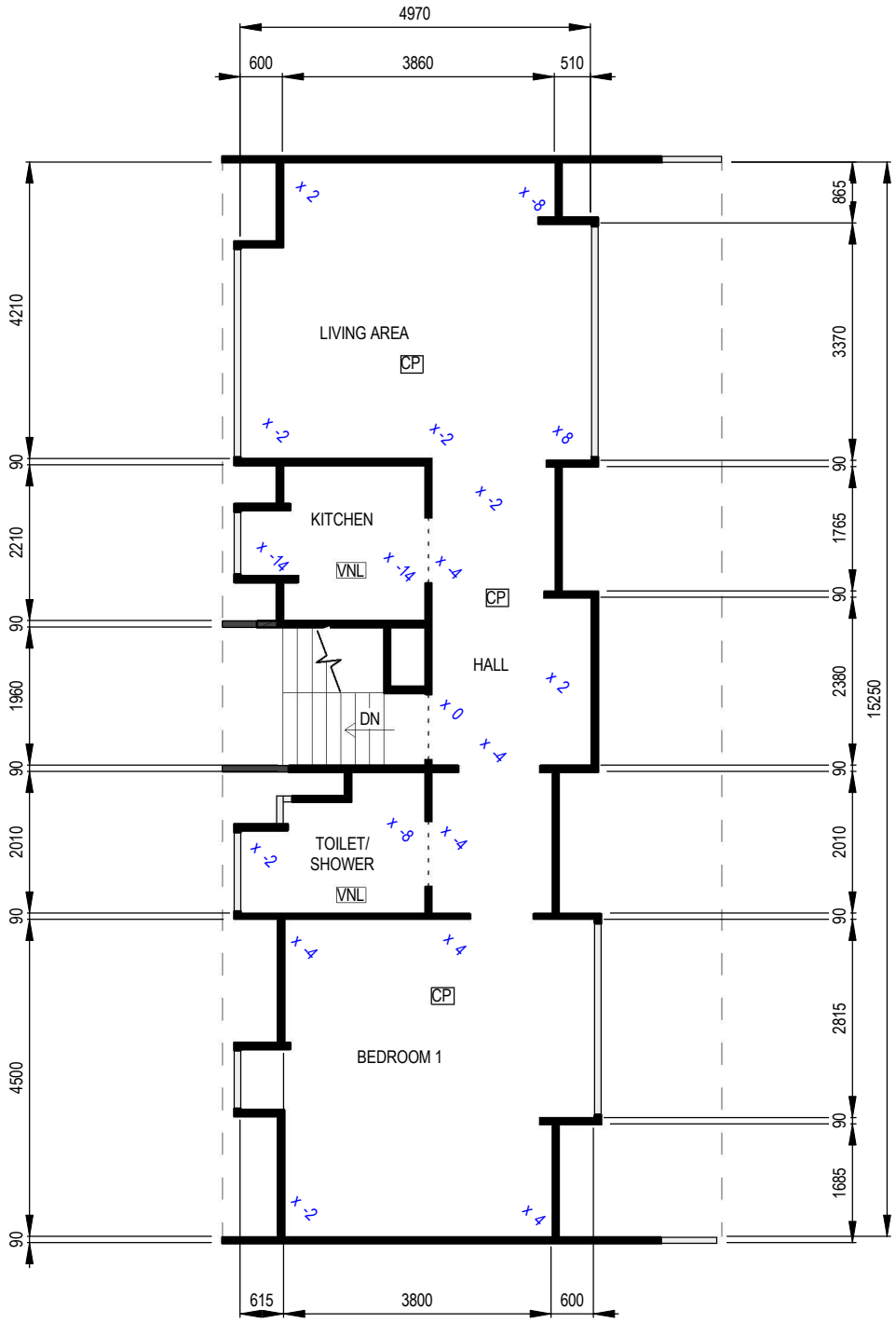
TITLE
LEVEL SURVEY
UNIT 6C AND 6D

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-A-07	B



BLOCK A
UNIT 6E
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:12 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

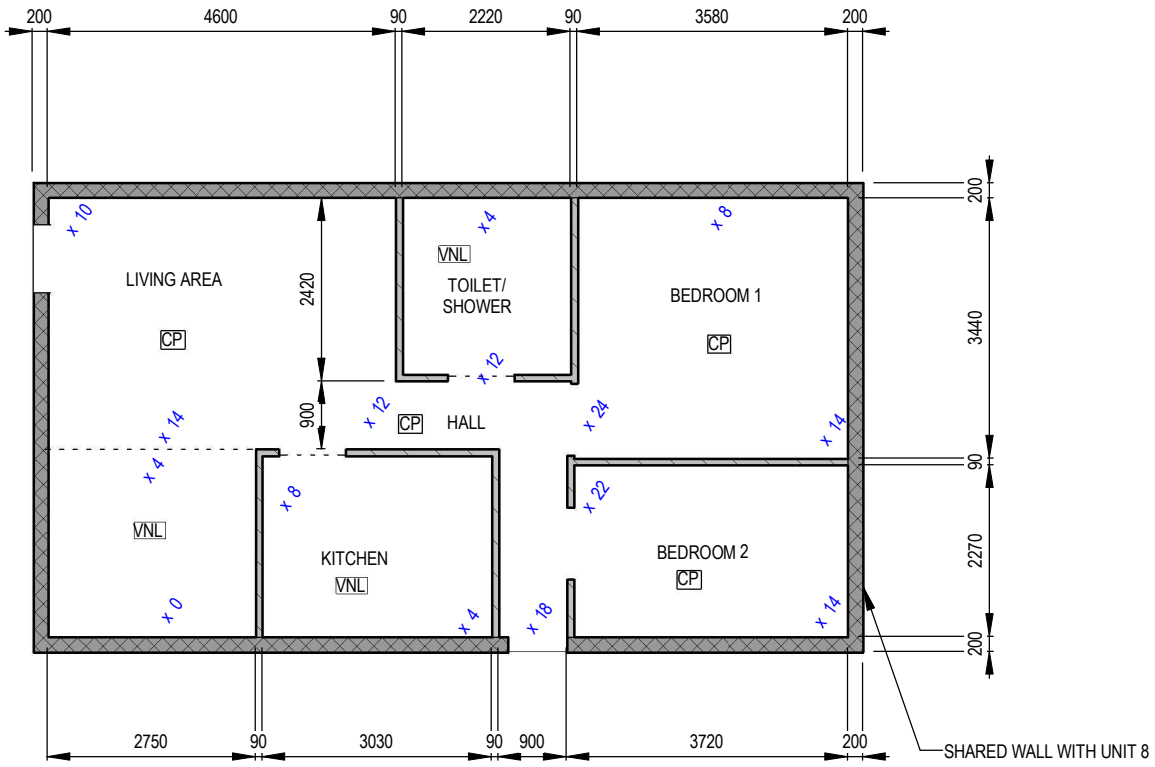
TITLE
LEVEL SURVEY
UNIT 6E

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-A-08	B



BLOCK B
UNIT 7
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:12 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

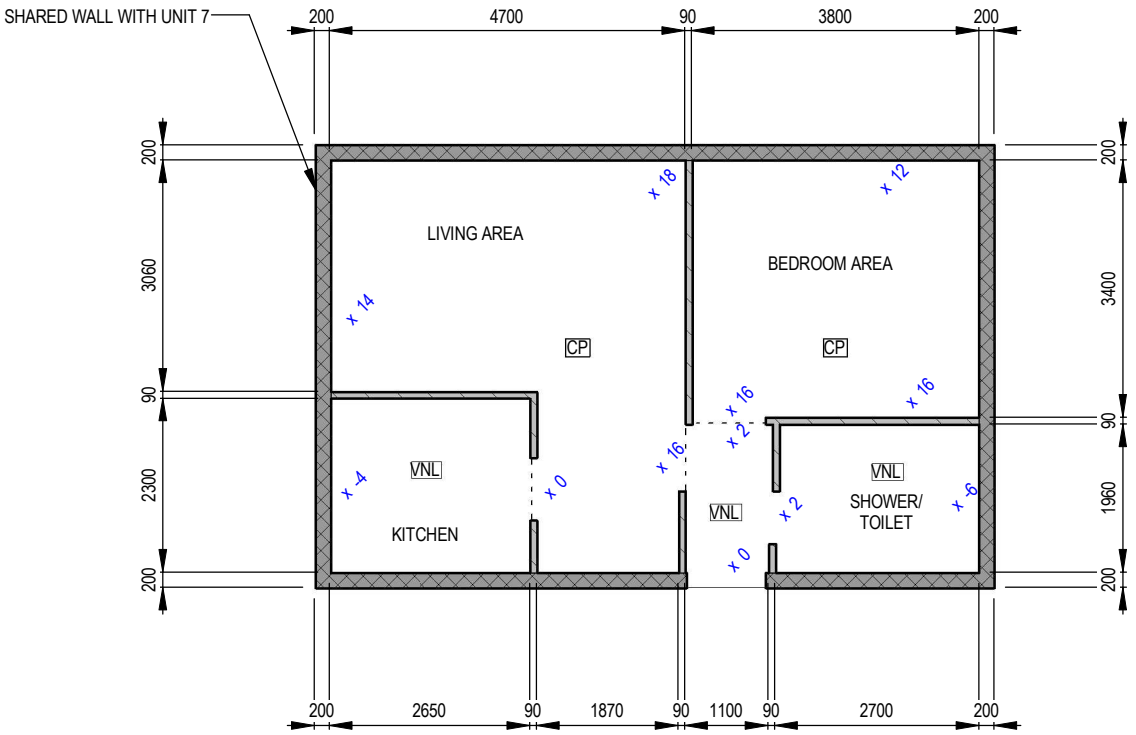
TITLE: LEVEL SURVEY
UNIT 7

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.: 232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-B-01	B



BLOCK B
UNIT 8
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:15 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

TITLE: LEVEL SURVEY
UNIT 8

PRELIMINARY
NOT FOR CONSTRUCTION

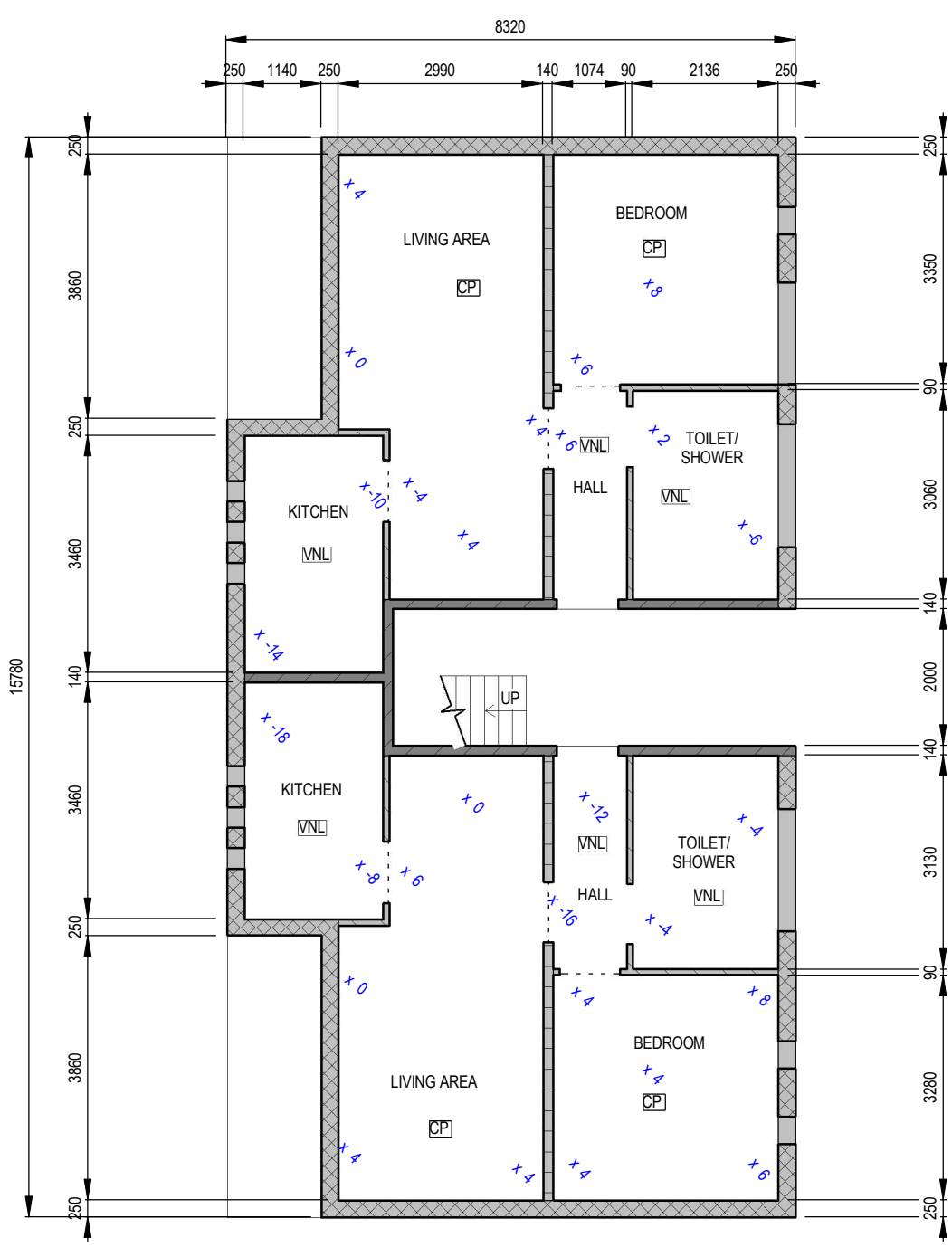
PROJECT No.: 232539

SCALE: 1 : 100

SIZE: A4

DRAWING No.: SK-B-02

REV: B



BLOCK C GROUND LEVEL
UNIT 9A AND 9B
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

NOTE:

FLOOR LEVEL SURVEY
CARRIED OUT ON 14/11/12

16/07/2013 2:18:16 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
C	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
B	06.06.13	LEVEL SURVEY	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

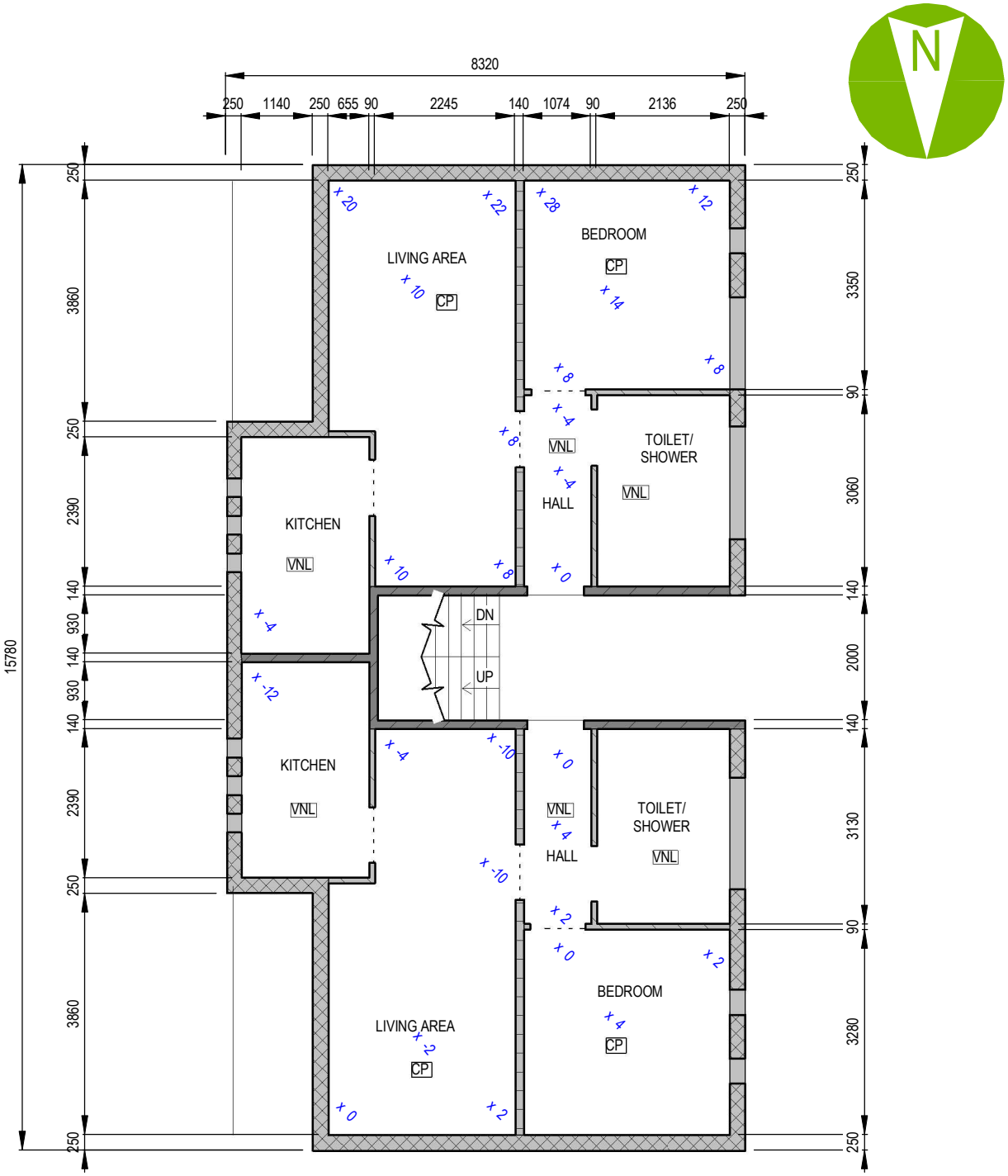
TITLE
LEVEL SURVEY
UNIT 9A AND 9B

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-C-01	C



BLOCK C LEVEL 1
UNIT 9C AND 9D
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

NOTE:

FLOOR LEVEL SURVEY
CARRIED OUT ON 14/11/12

16/07/2013 2:18:16 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
C	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
B	06.06.13	LEVEL SURVEY	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

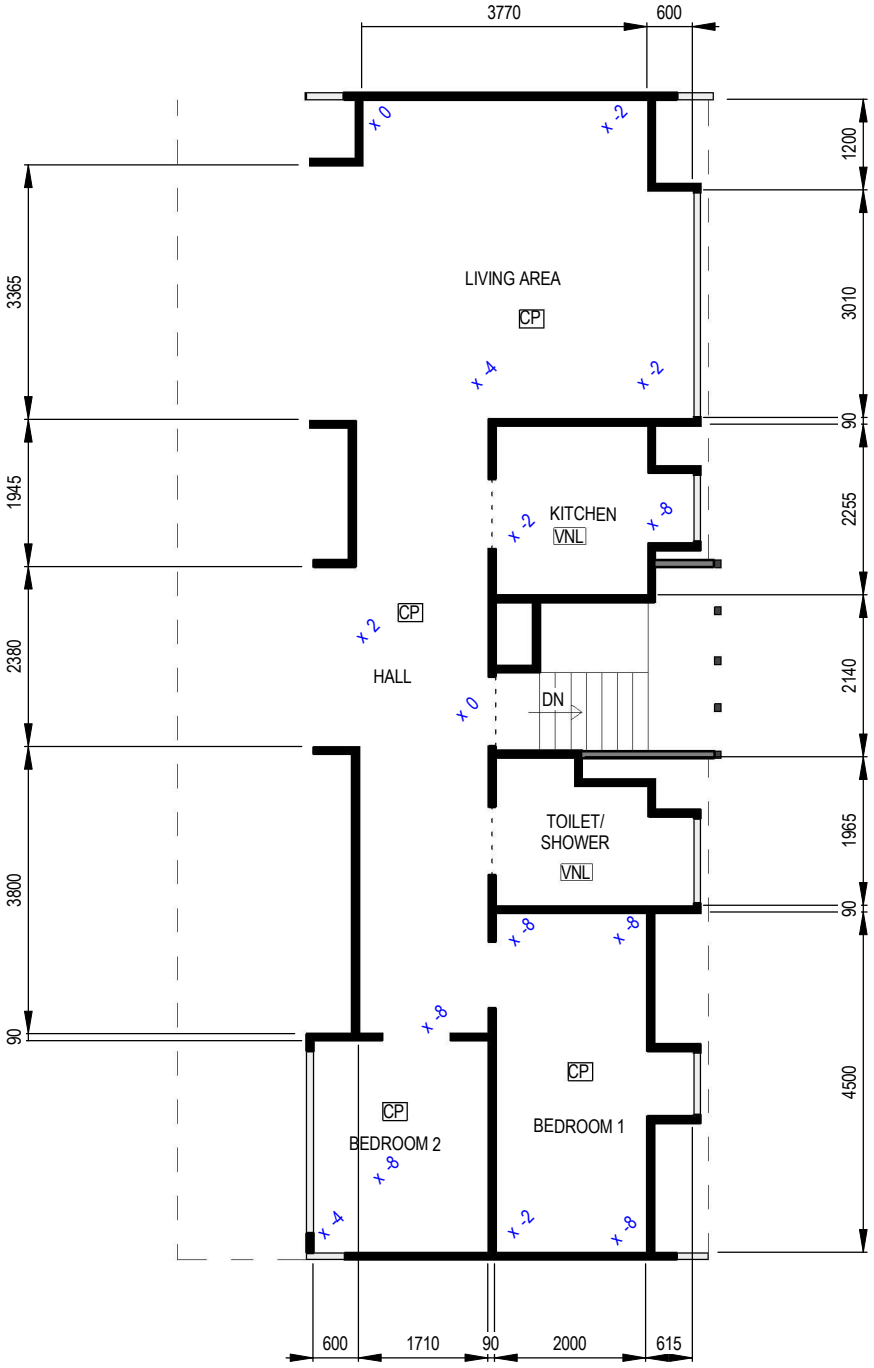
TITLE
LEVEL SURVEY
UNIT 9C AND 9D

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-C-02	C



BLOCK C LEVEL 2
UNIT 9E
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

NOTE:

FLOOR LEVEL SURVEY
CARRIED OUT ON 14/11/12

16/07/2013 2:18:17 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
C	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
B	06.06.13	LEVEL SURVEY	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

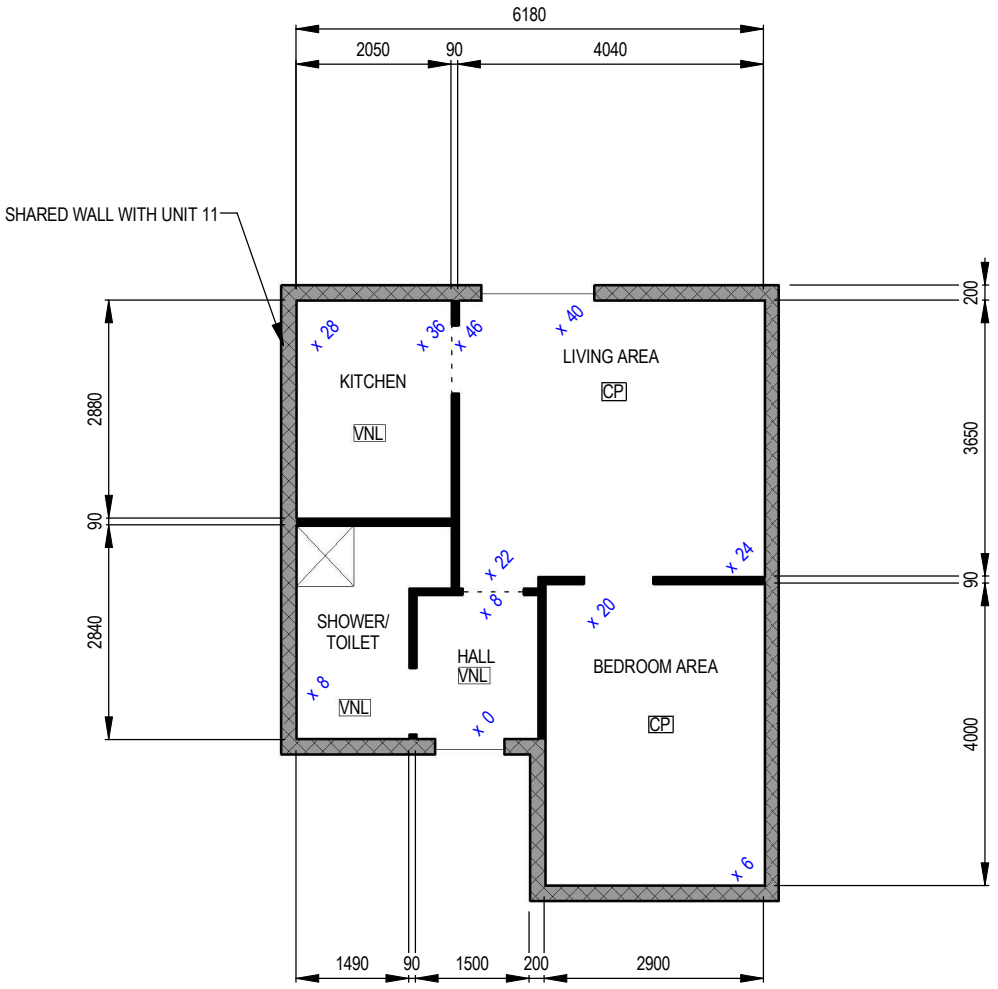
TITLE
LEVEL SURVEY
UNIT 9E

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-C-03	C



BLOCK D
UNIT 10
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:20 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

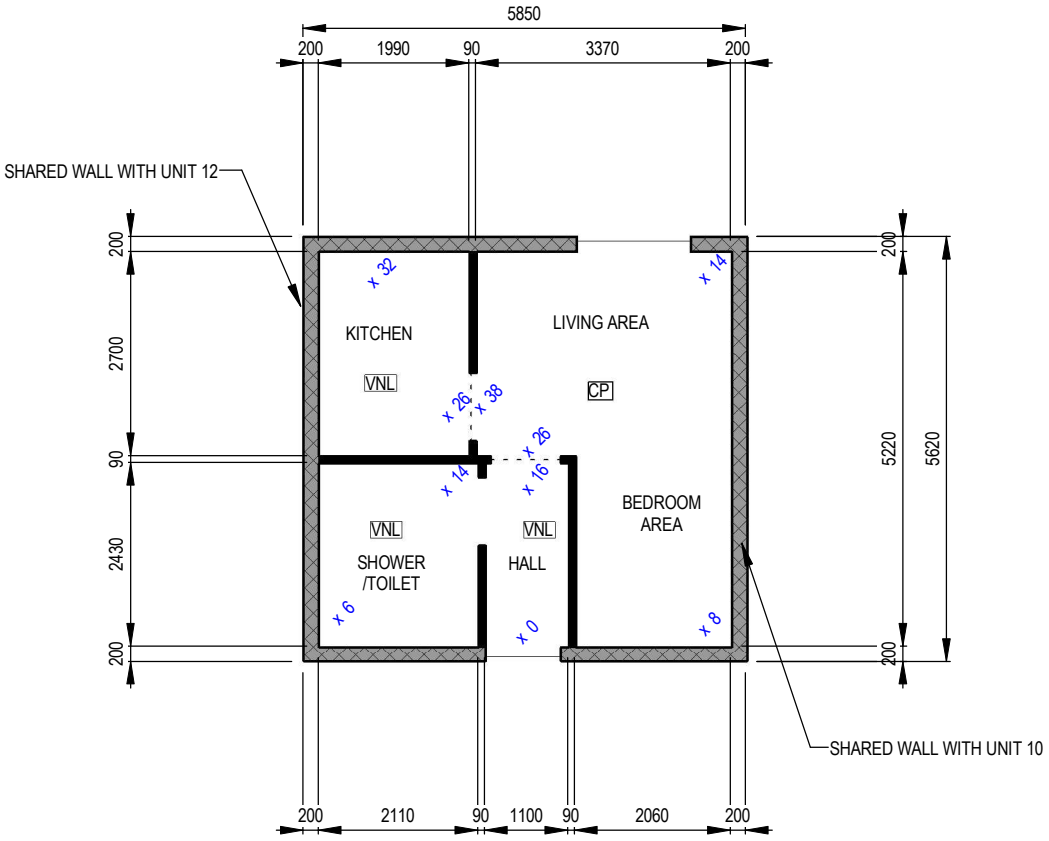
TITLE
LEVEL SURVEY
UNIT 10

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-D-01	B



BLOCK D
UNIT 11
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:23 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

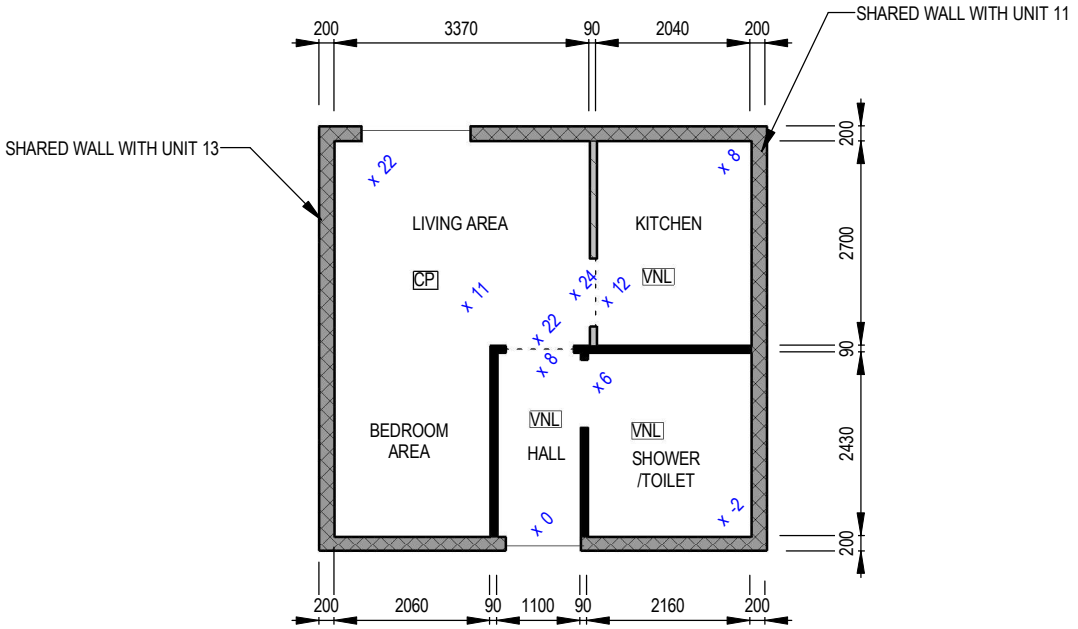
TITLE
LEVEL SURVEY
UNIT 11

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-D-02	B



BLOCK D
UNIT 12
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED
  BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK
  WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:26 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

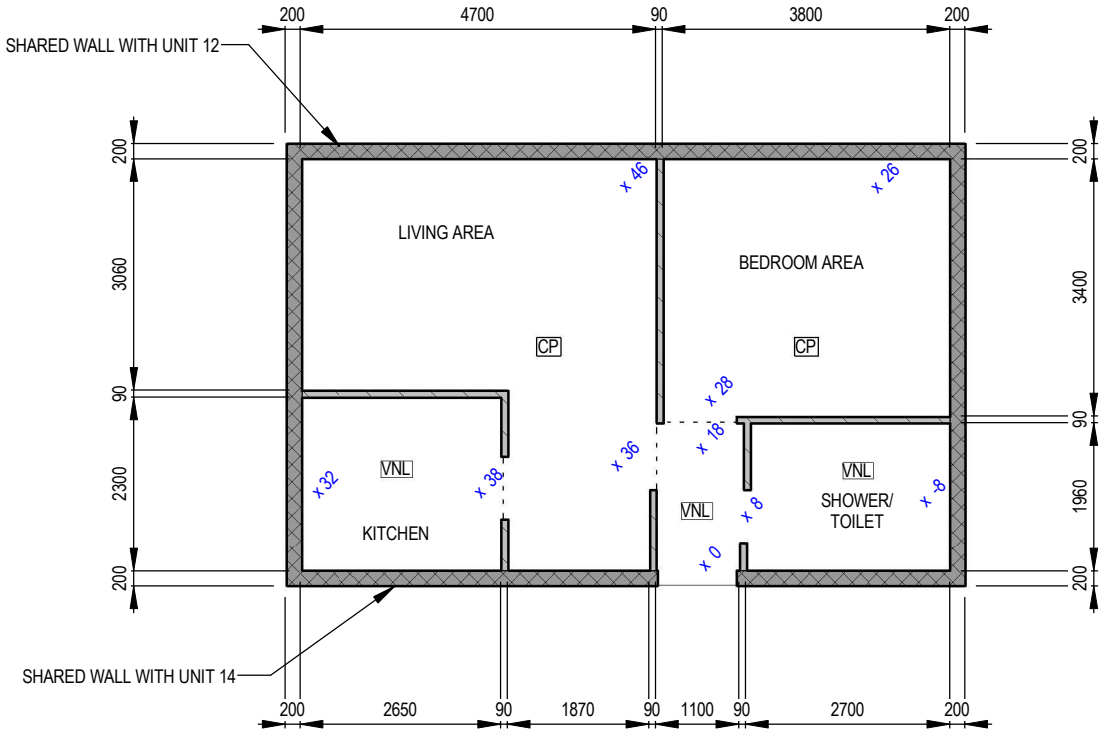
TITLE
LEVEL SURVEY
UNIT 12

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-D-03	B



BLOCK D
UNIT 13
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:29 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

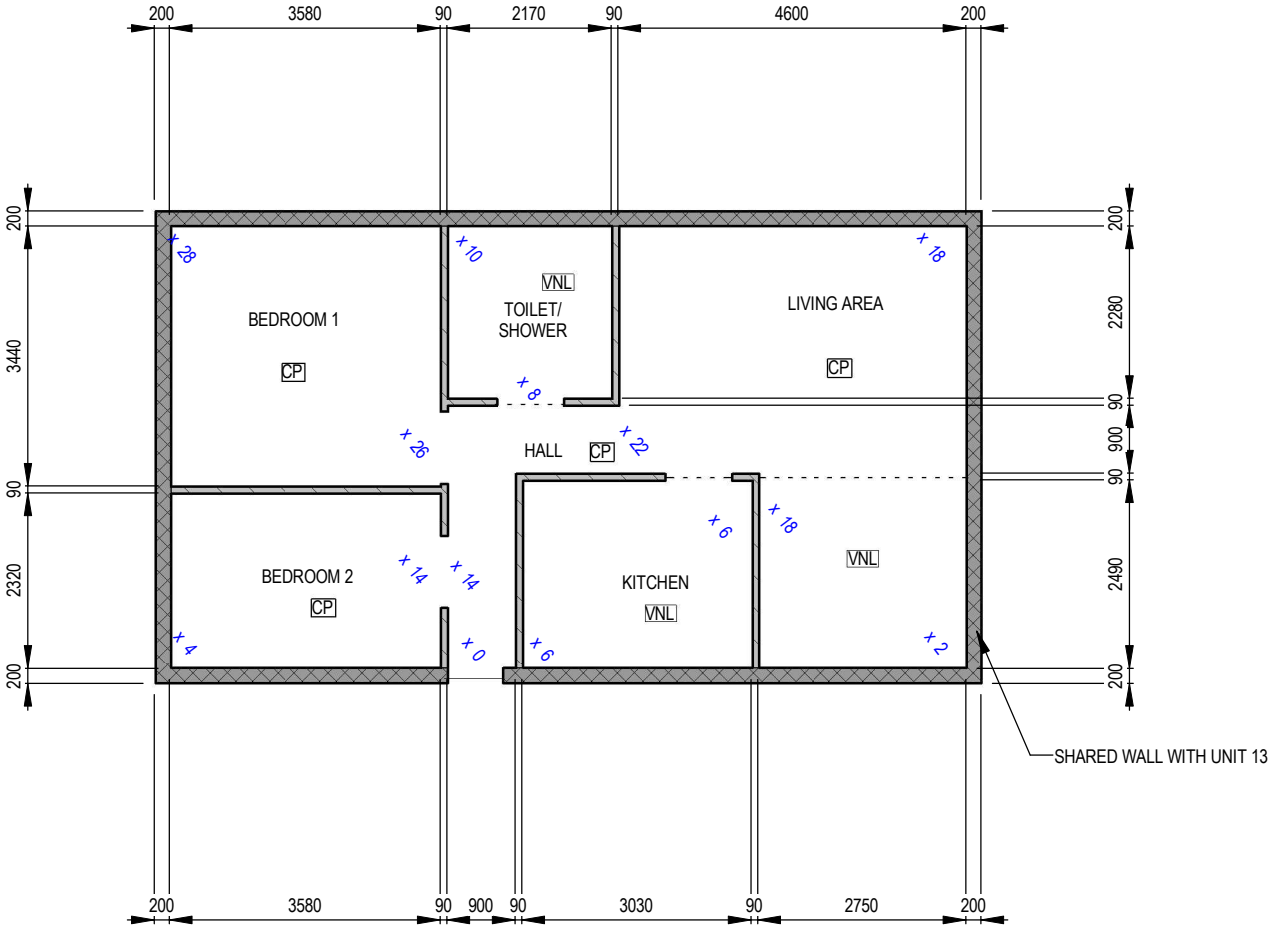
DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

TITLE: LEVEL SURVEY
UNIT 13

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.	
232539	
SCALE	SIZE
1 : 100	A4
DRAWING No.	REV
SK-D-04	B



BLOCK D
UNIT 14
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- +? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:32 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

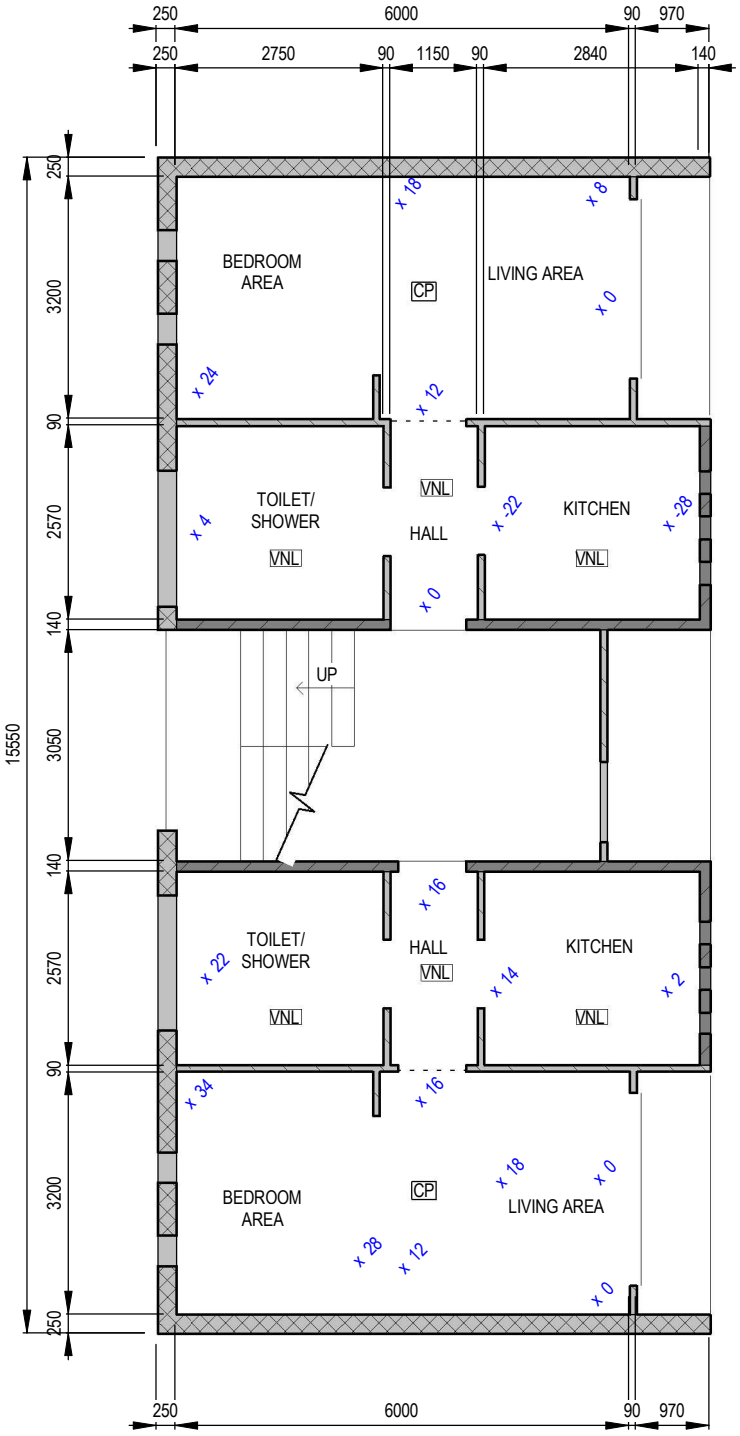
TITLE
LEVEL SURVEY
UNIT 14

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-D-05	B



BLOCK E
UNIT 15A AND 15B
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:33 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

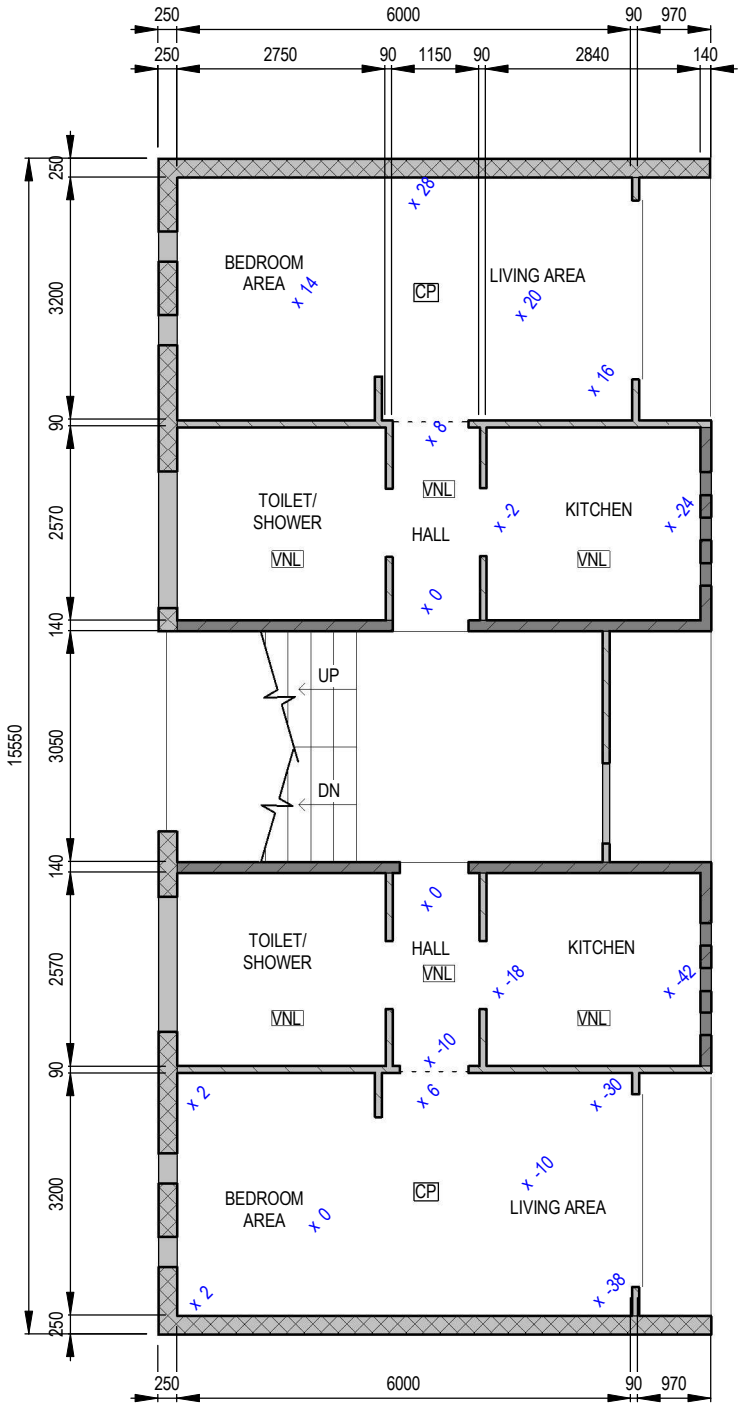
TITLE
LEVEL SURVEY
UNIT 15A AND 15B

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-E-01	B



BLOCK E
UNIT 15C AND 15D
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:35 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

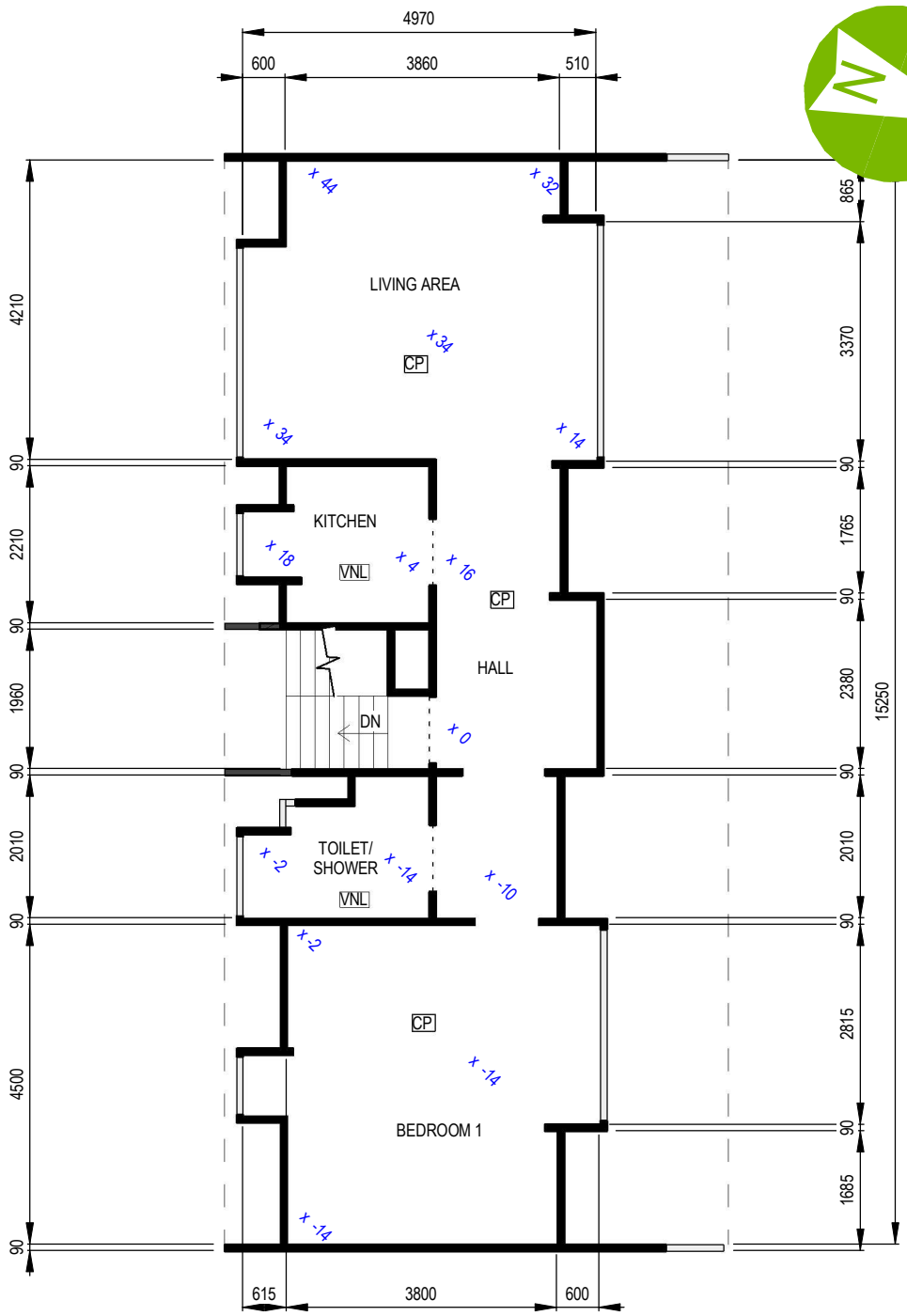
TITLE
LEVEL SURVEY
UNIT 15C AND 15D

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-E-02	B



BLOCK E
UNIT 15E
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ?. FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:36 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

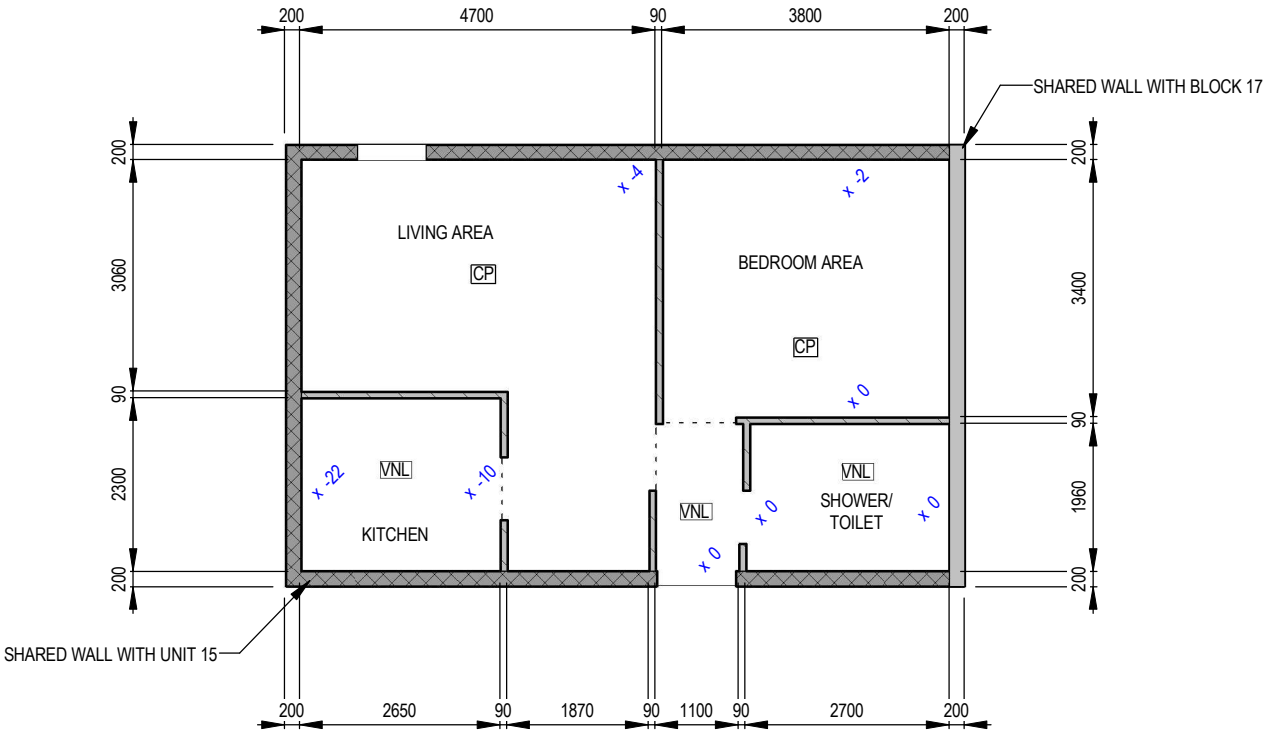
TITLE
LEVEL SURVEY
UNIT 15E

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-E-03	B



BLOCK E
UNIT 16
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:39 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

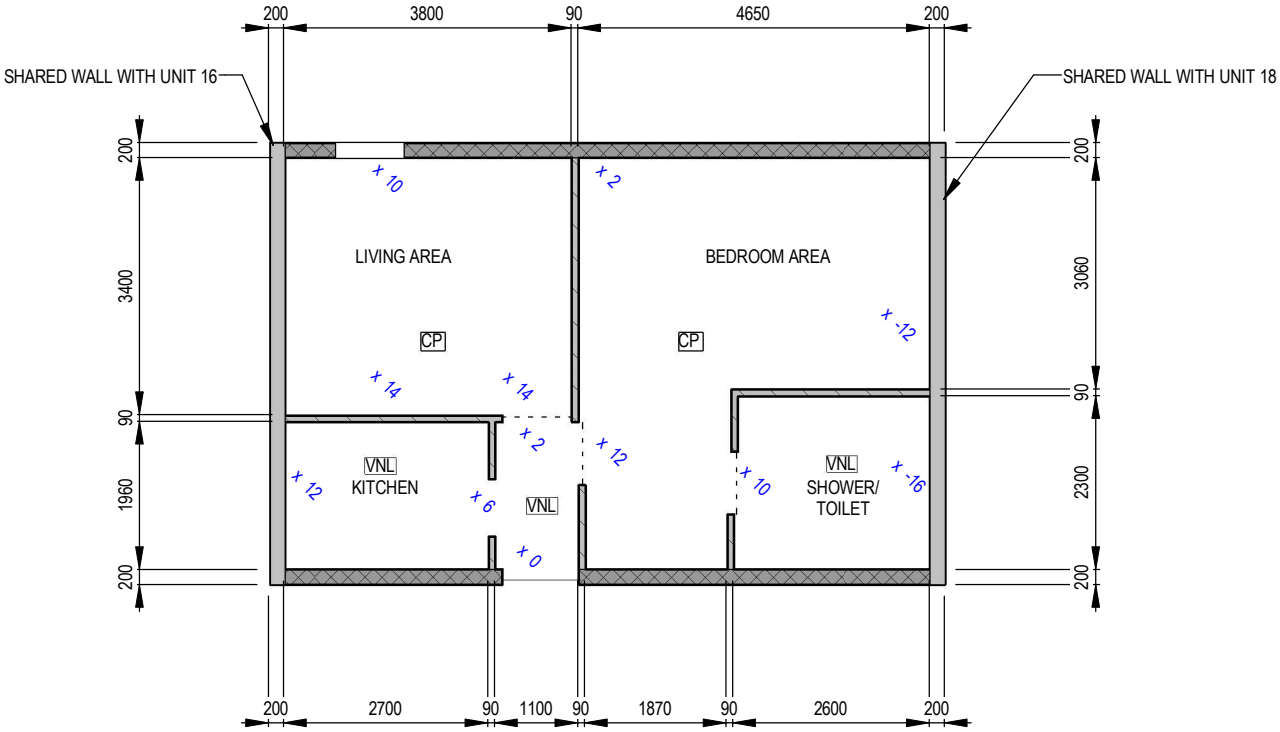
TITLE
LEVEL SURVEY
UNIT 16

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-E-04	B



BLOCK E
UNIT 17
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- +? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:42 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

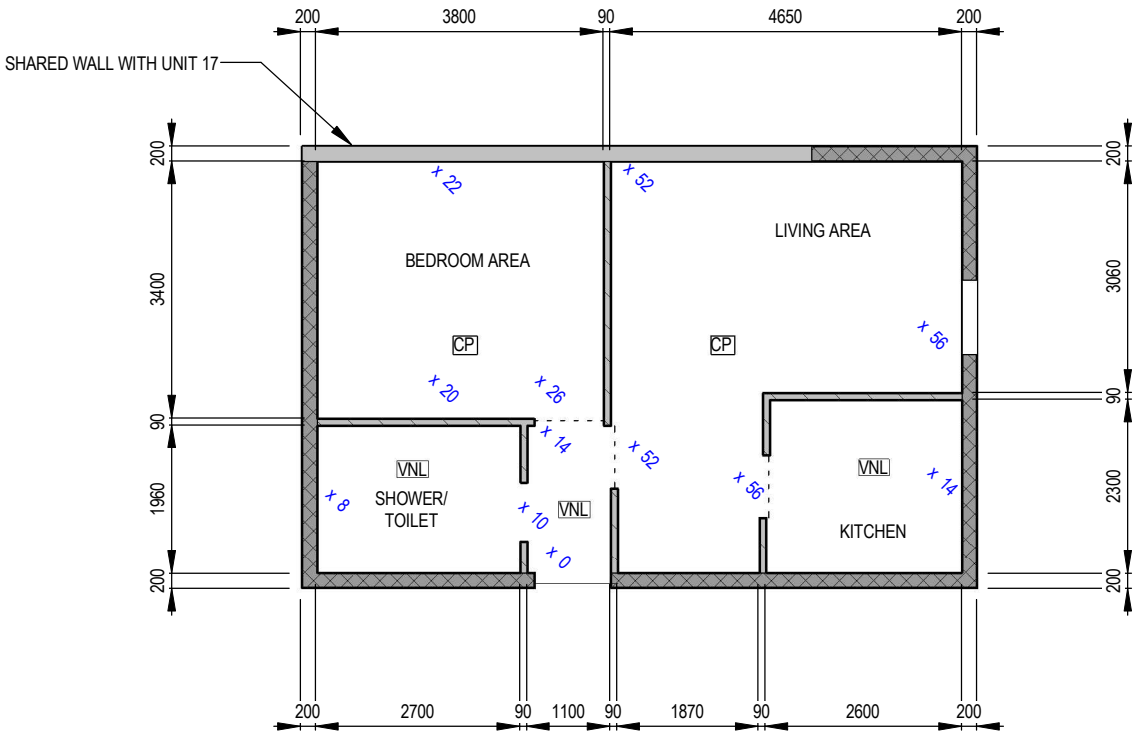
TITLE: LEVEL SURVEY
UNIT 17

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.: 232539

SCALE: 1 : 100
SIZE: A4

DRAWING No.: SK-E-05
REV: B



BLOCK E
UNIT 18
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:45 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

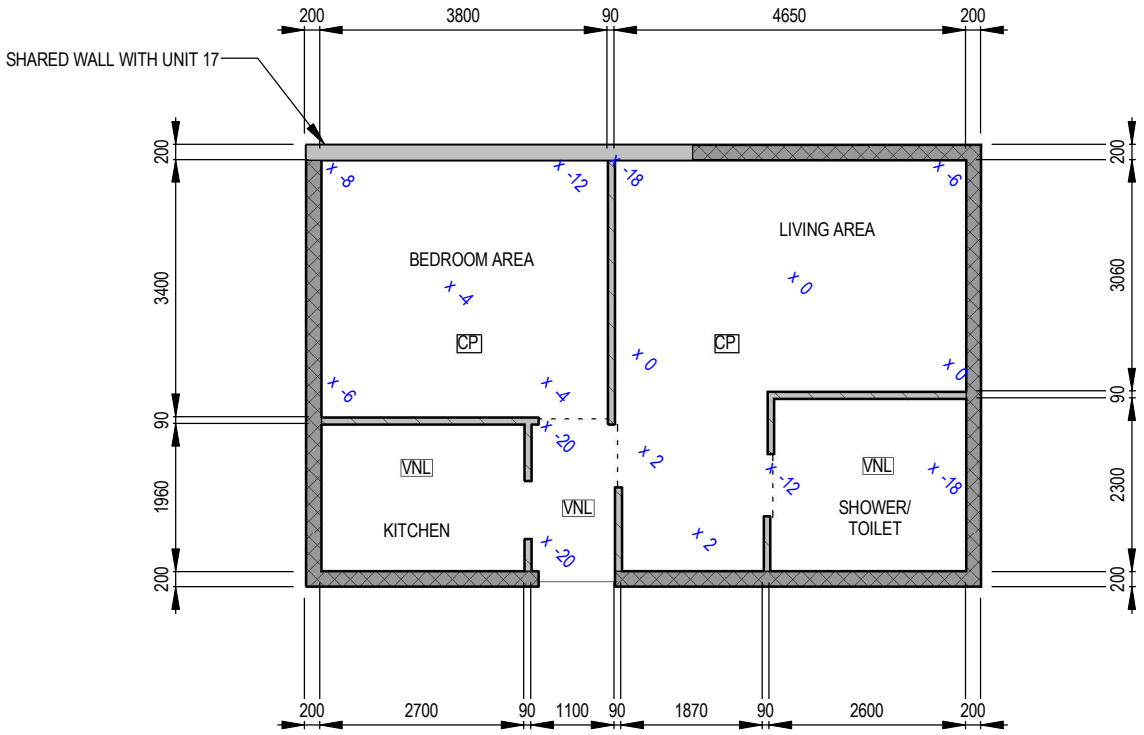
TITLE
LEVEL SURVEY
UNIT 18

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-E-06	B



BLOCK F
UNIT 19
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:48 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

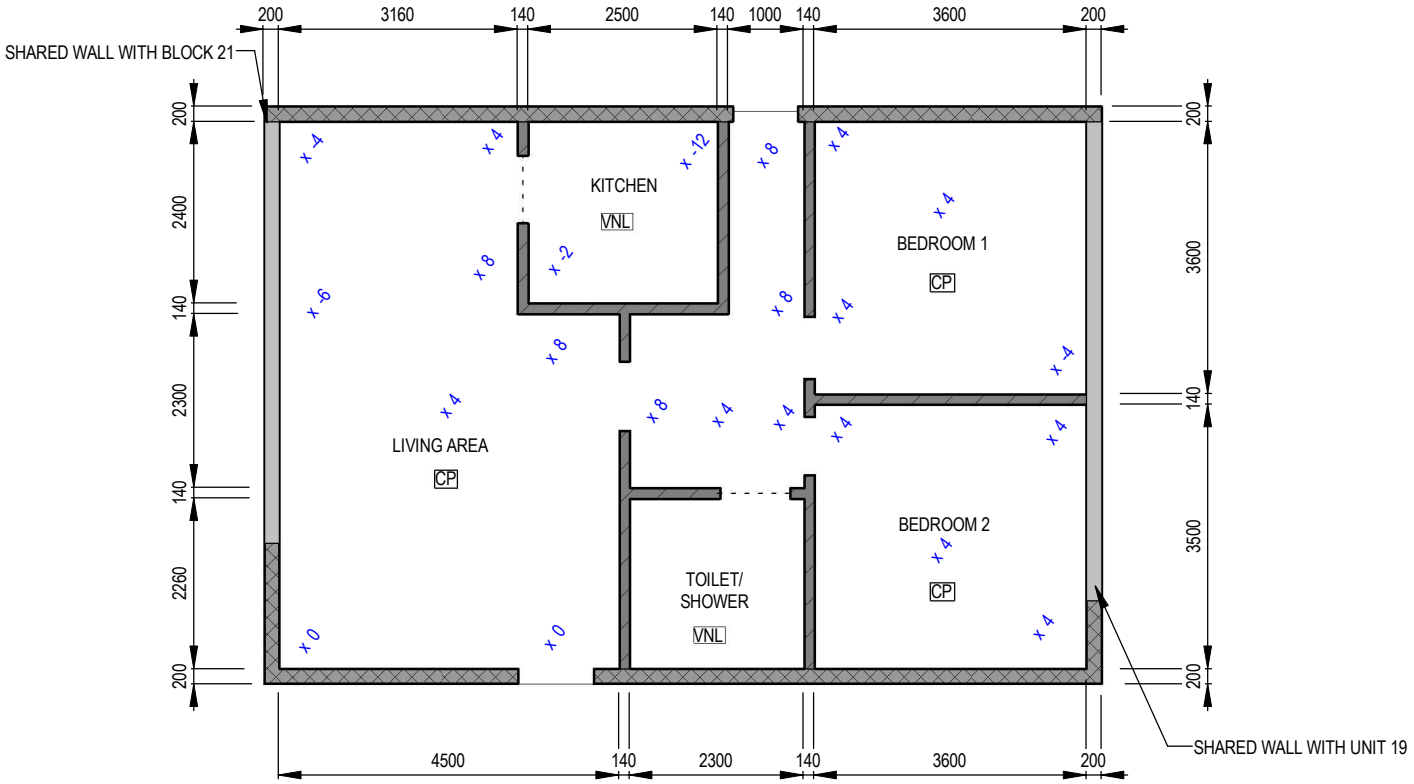
TITLE
LEVEL SURVEY
UNIT 19

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-F-01	B



BLOCK F
UNIT 20
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:51 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

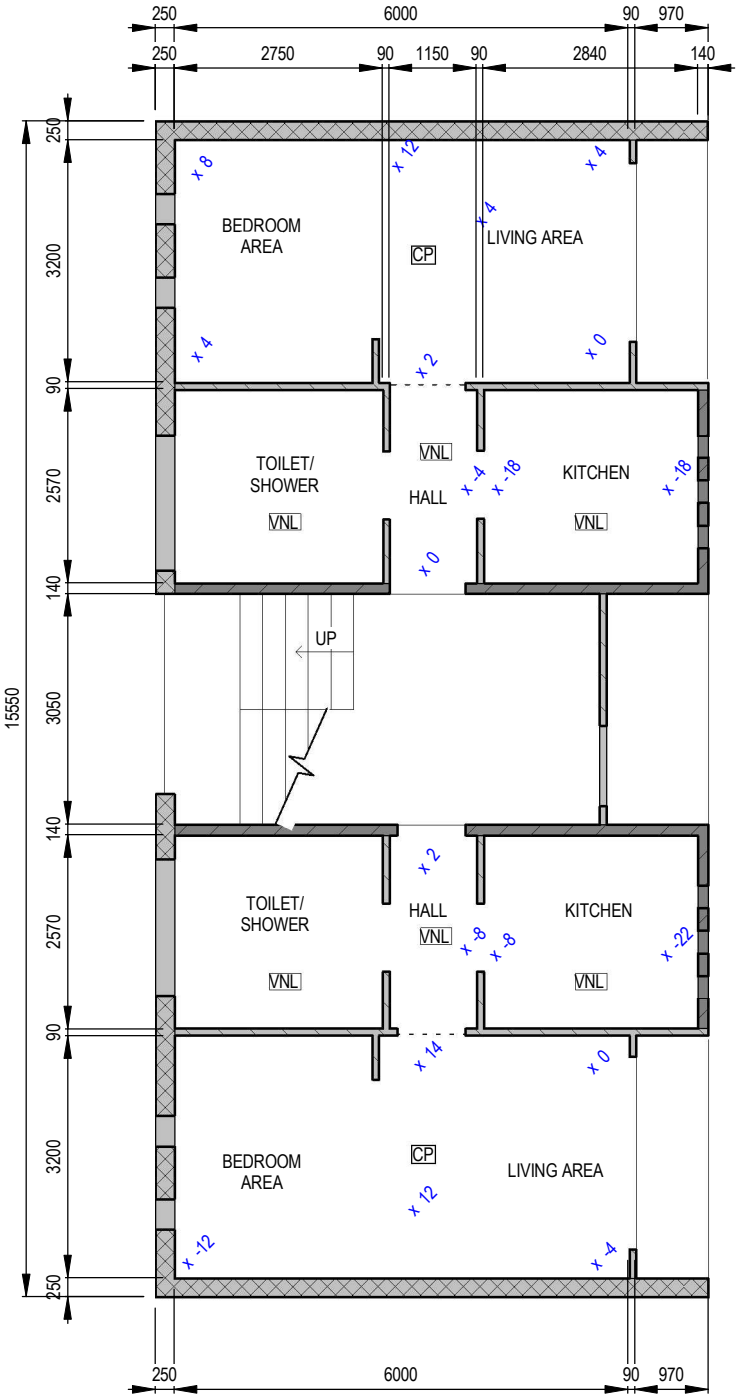
DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

TITLE: LEVEL SURVEY
UNIT 20

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.	
232539	
SCALE	SIZE
1 : 100	A4
DRAWING No.	REV
SK-F-02	B



BLOCK F
UNIT 21A AND 21B
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:52 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

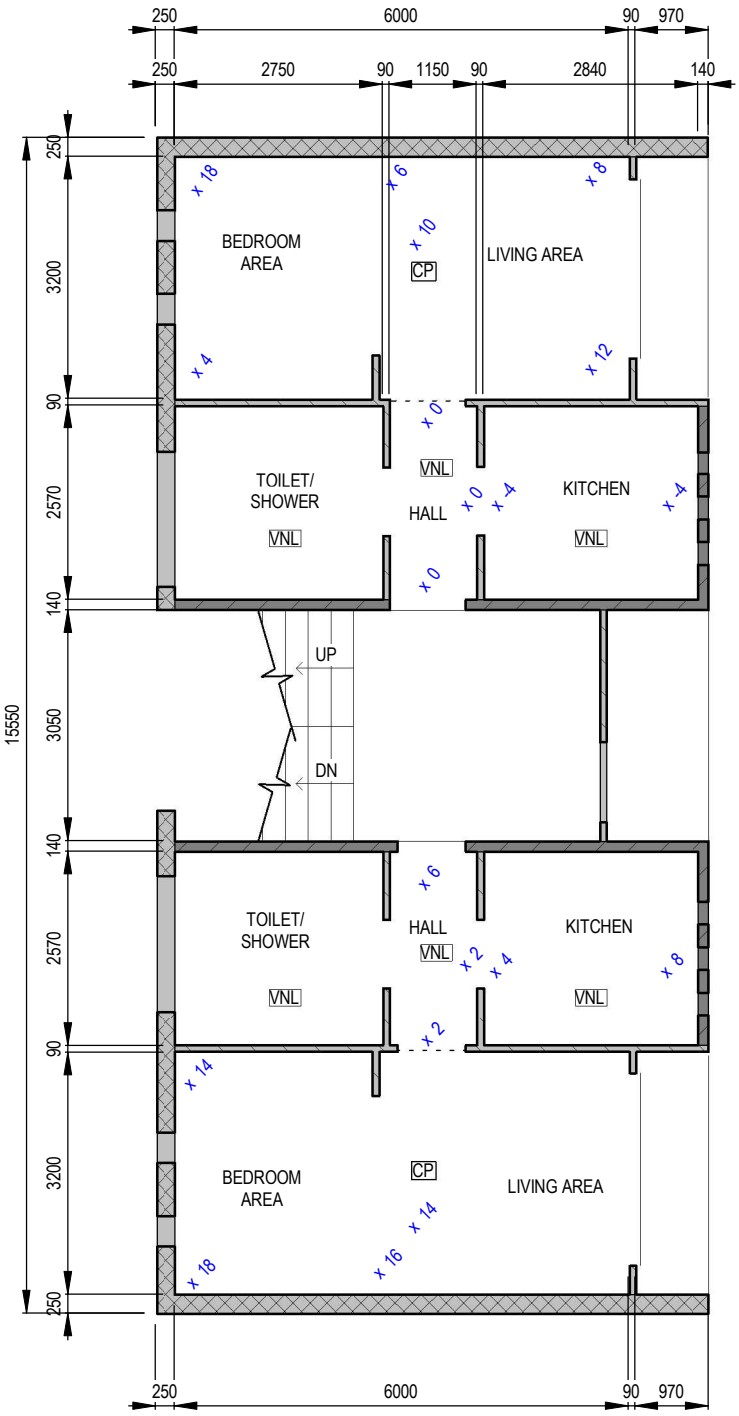
TITLE
LEVEL SURVEY
UNIT 21A AND 21B

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-F-03	B



BLOCK F
UNIT 21C AND 21D
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? — FLOOR LEVEL READING
- CP — CARPET
- VNL — VINYL

16/07/2013 2:18:54 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

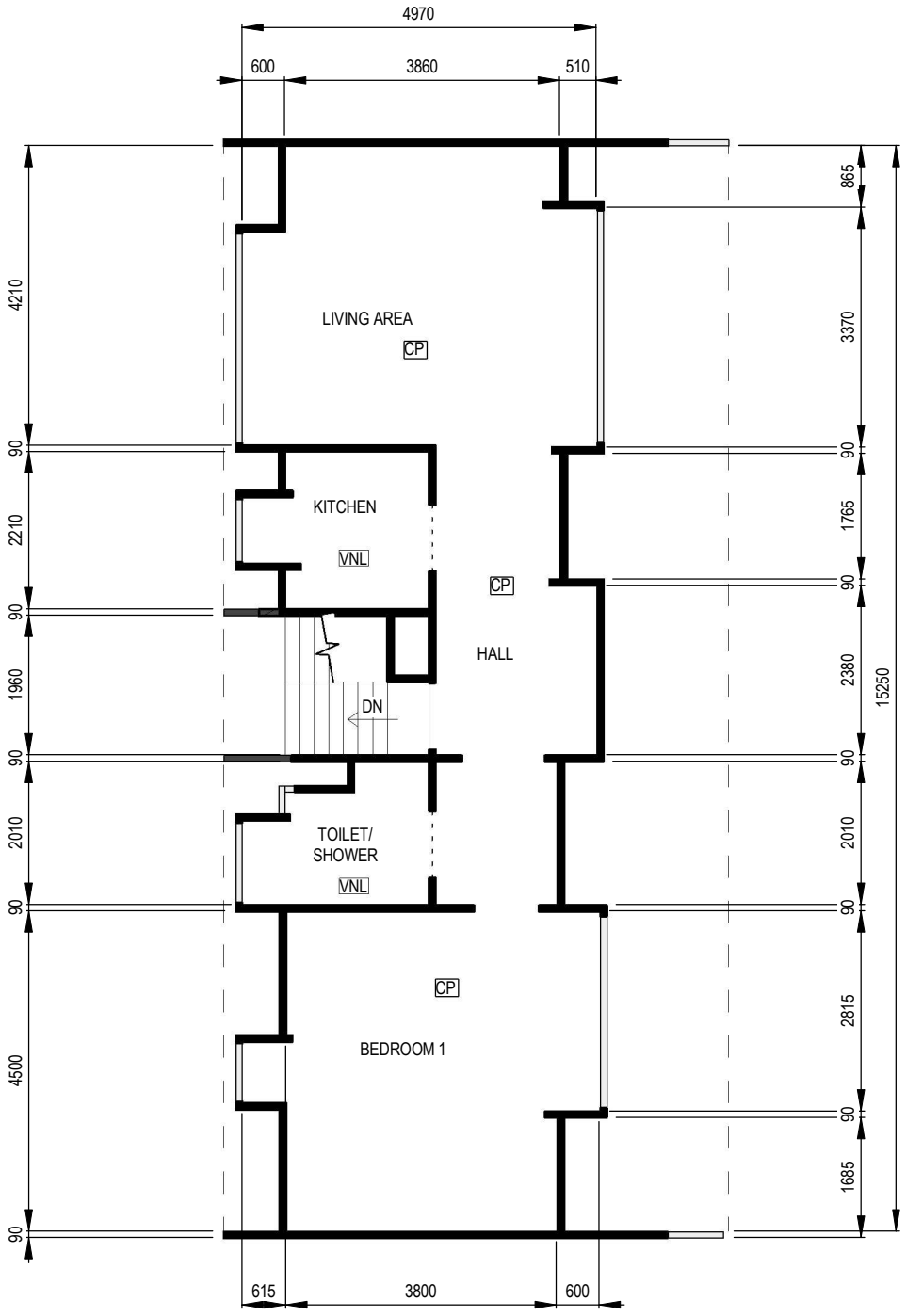
TITLE
LEVEL SURVEY
UNIT 21C AND 21D

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-F-04	B



BLOCK F
UNIT 21E
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:55 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

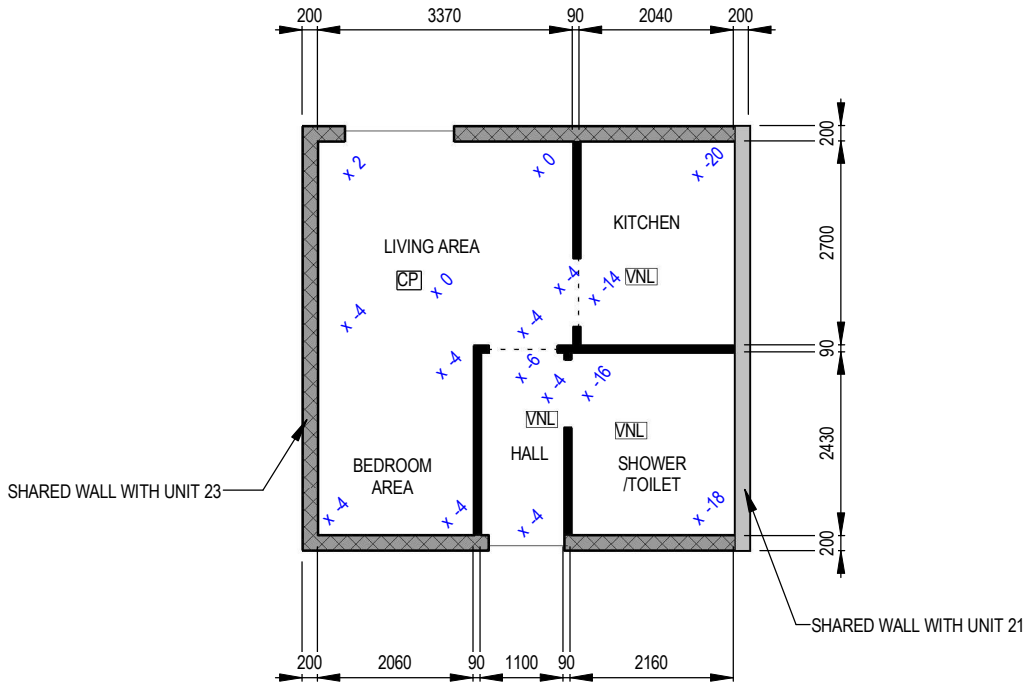
TITLE
LEVEL SURVEY
UNIT 21E

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-F-05	B



BLOCK G
UNIT 22
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:18:59 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

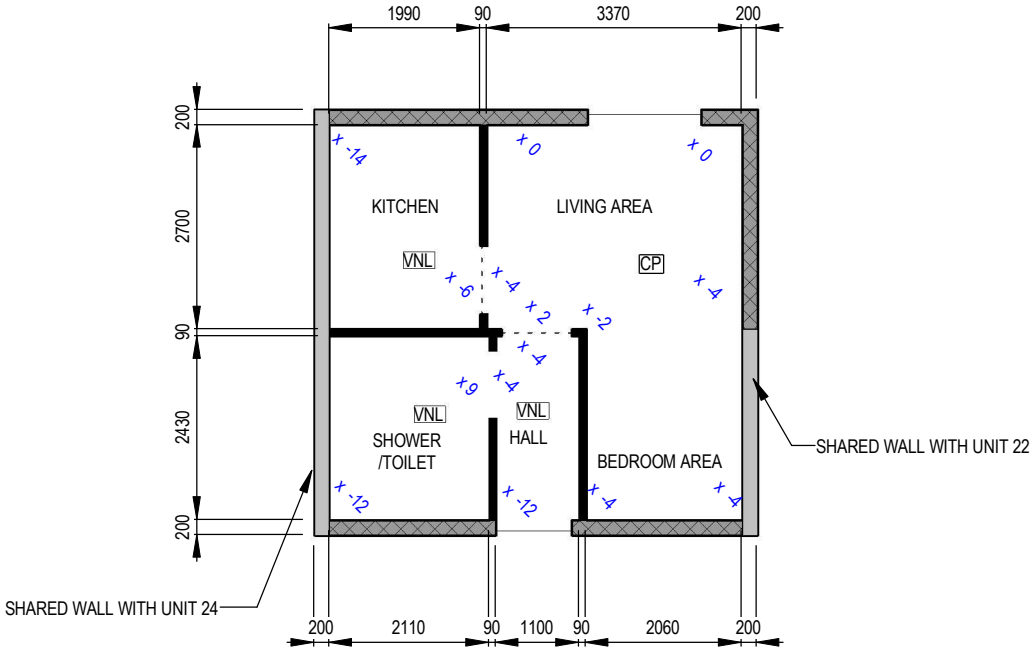
TITLE
LEVEL SURVEY
UNIT 22

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-G-01	B



BLOCK G
UNIT 23
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:01 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

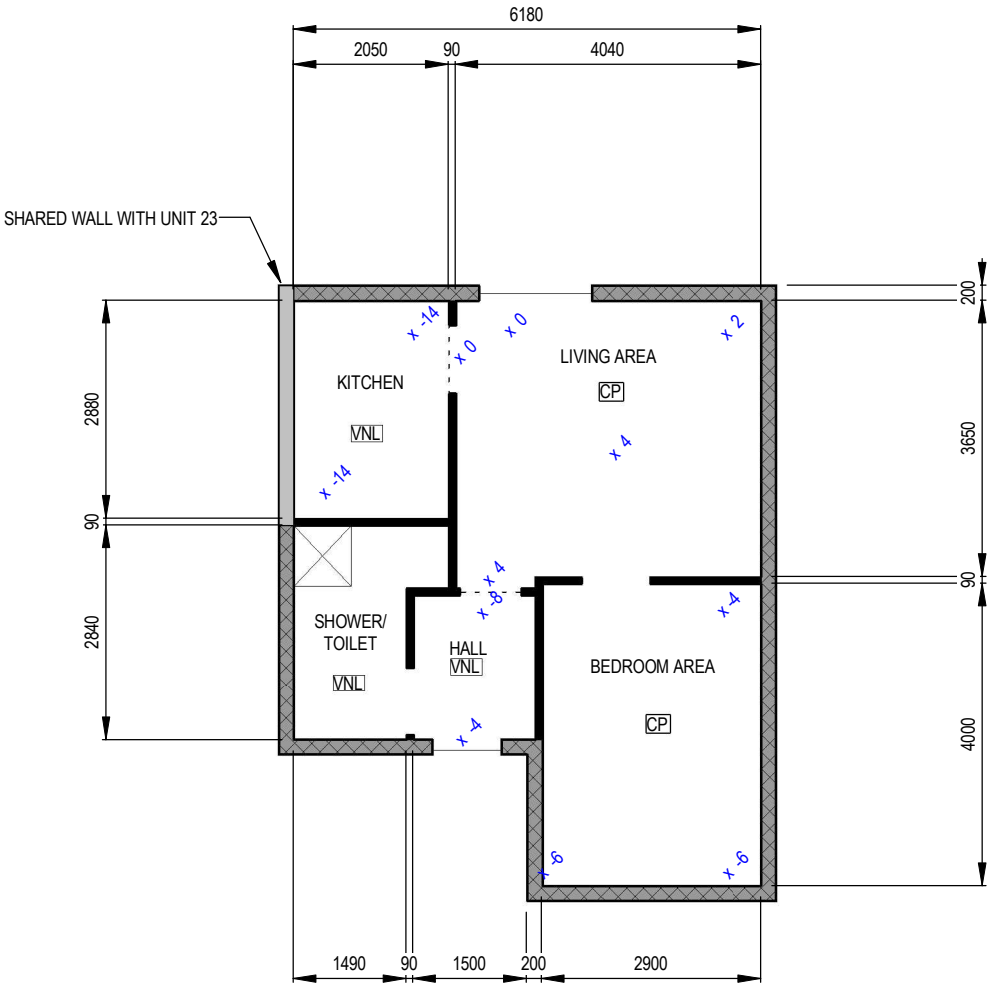
TITLE
LEVEL SURVEY
UNIT 23

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-G-02	B



BLOCK G
UNIT 24
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:04 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

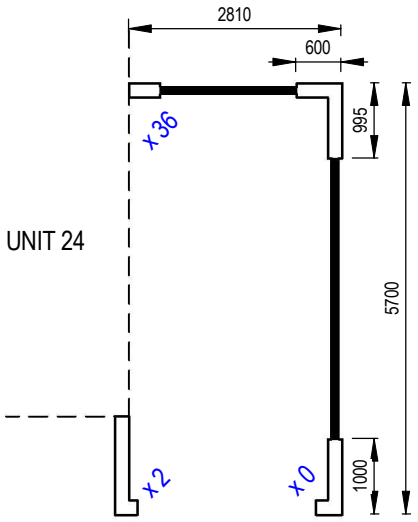
TITLE
LEVEL SURVEY
UNIT 24

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-G-03	B



BLOCK G
GARAGE 22
1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x? FLOOR LEVEL READING

CP CARPET

VNL VINYL

16/07/2013 2:19:06 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

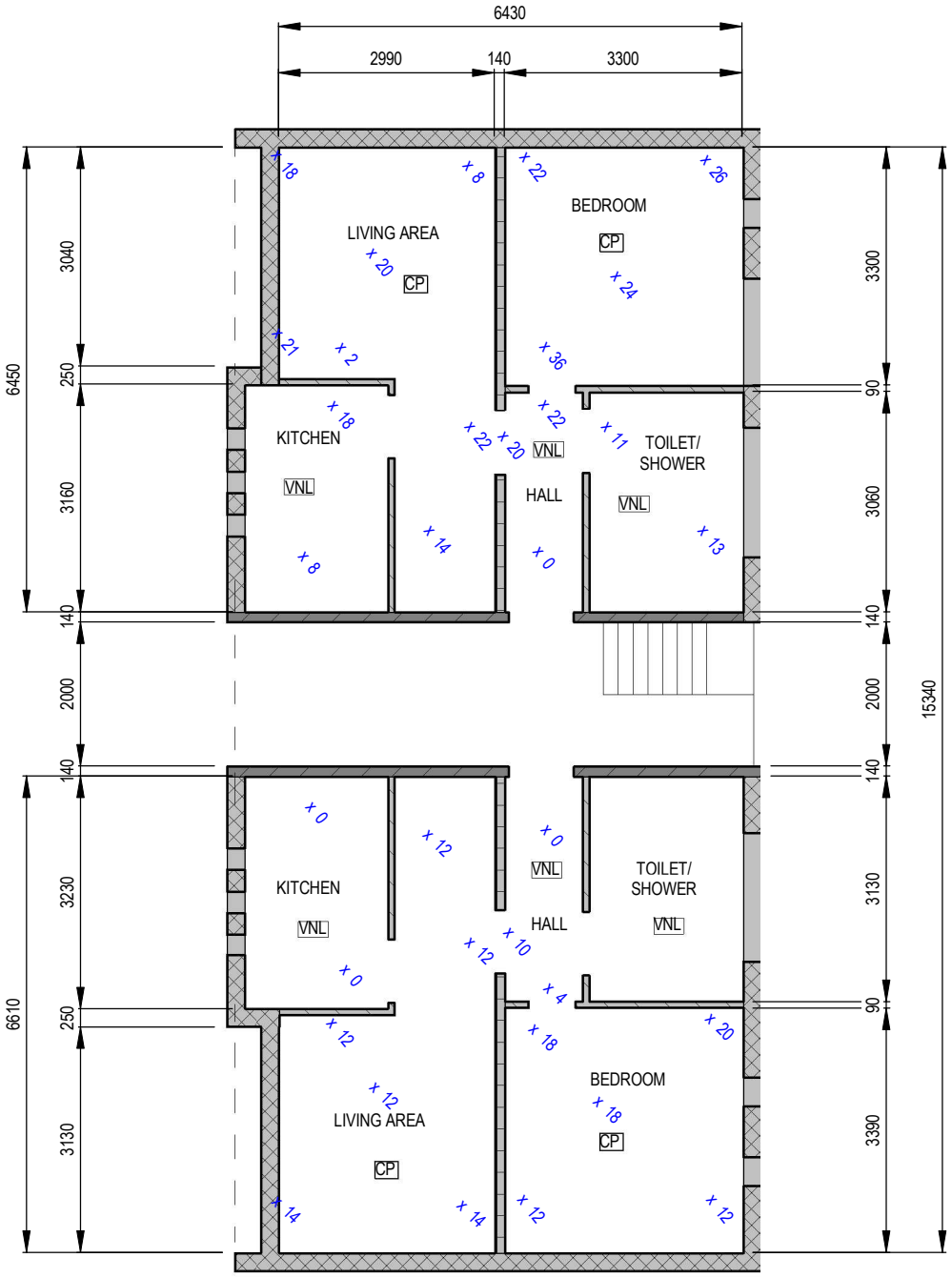
TITLE
LEVEL SURVEY
GARAGE 22

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-G-04	A



BLOCK H
UNIT 25A AND 25B
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:07 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

TITLE
LEVEL SURVEY
UNIT 25A AND 25B

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-H-01	B

BLOCK H
UNIT 25C AND 25D
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- +? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:09 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

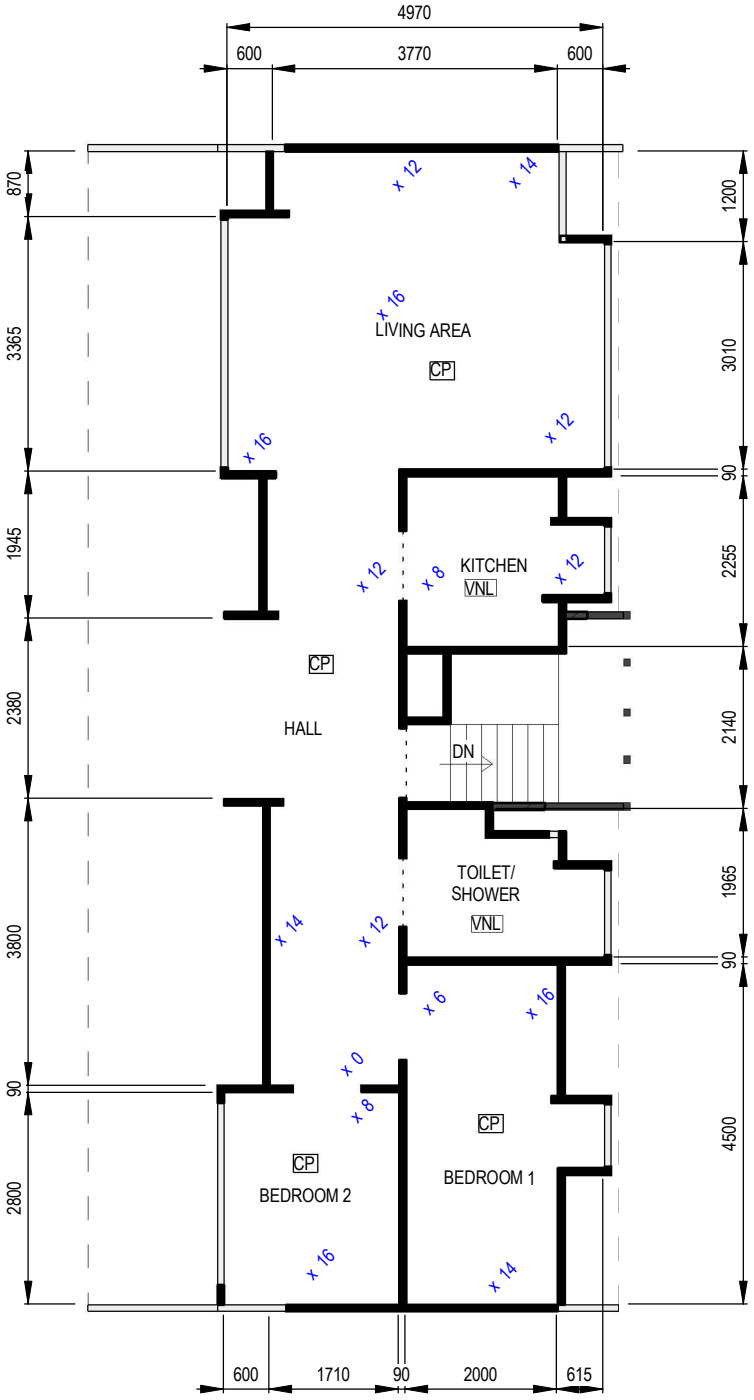
TITLE
LEVEL SURVEY
UNIT 25C AND 25D

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-H-02	B



BLOCK H
UNIT 25E
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:10 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

TITLE
LEVEL SURVEY
UNIT 25E

PRELIMINARY
NOT FOR CONSTRUCTION

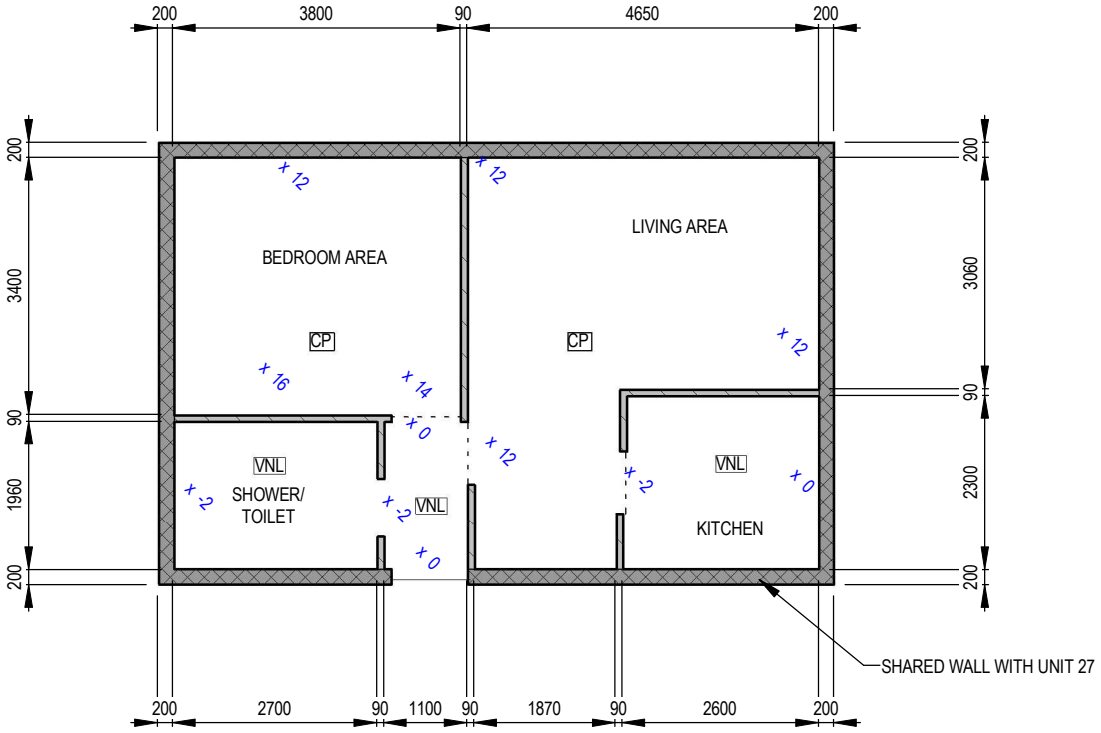
PROJECT No.
232539

SCALE
1 : 100

SIZE
A4

DRAWING No.
SK-H-03

REV
B



BLOCK I
UNIT 26
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:13 p.m.

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www.aurecongroup.com

CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

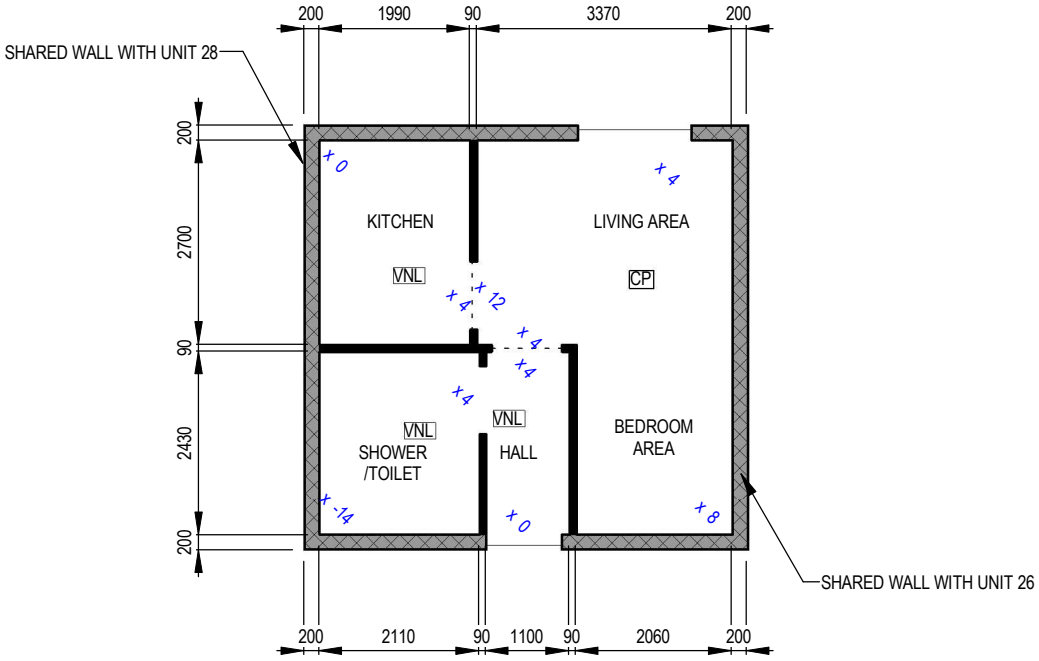
DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

TITLE
LEVEL SURVEY
UNIT 26

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.	
232539	
SCALE	SIZE
1 : 100	A4
DRAWING No.	REV
SK-I-01	B



BLOCK I
UNIT 27
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x.? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:16 p.m.

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www.aurecongroup.com

CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

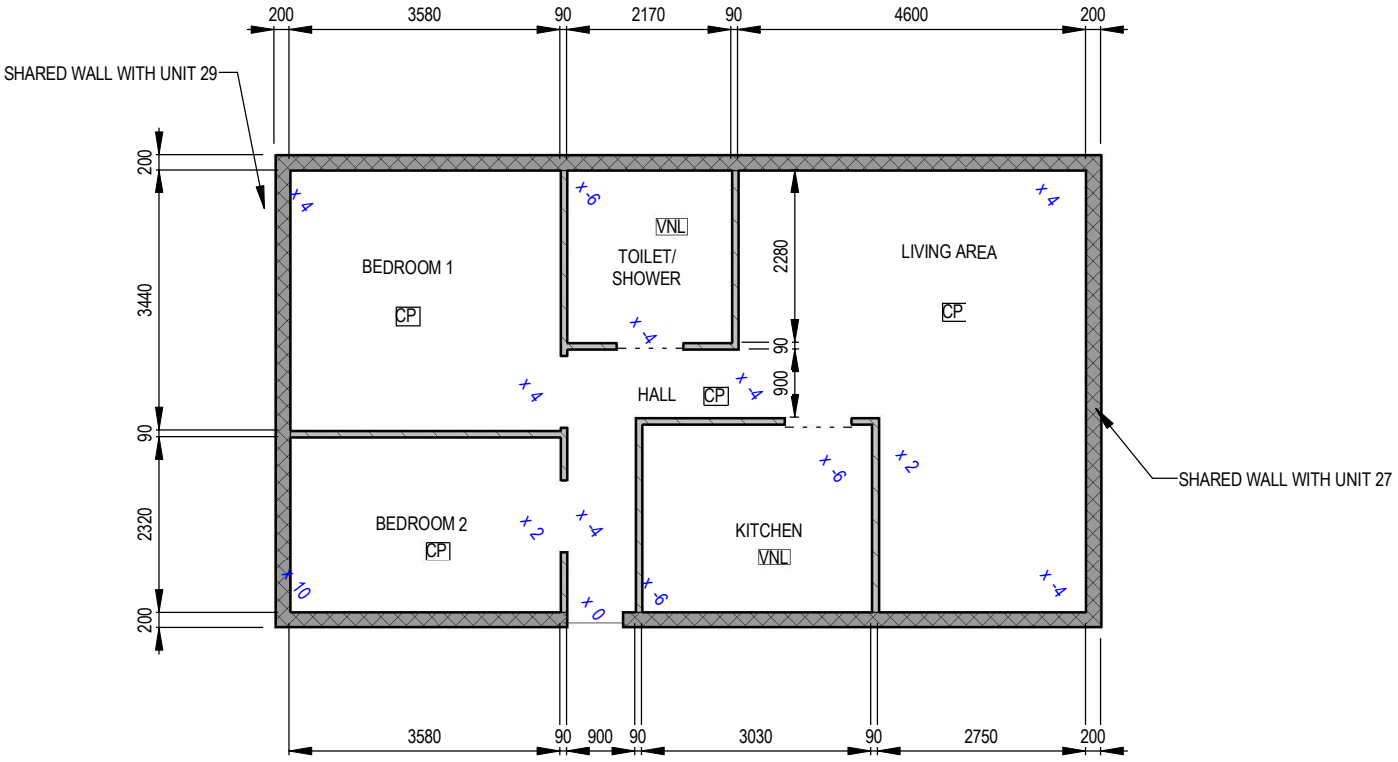
TITLE
LEVEL SURVEY
UNIT 27

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-I-02	B



BLOCK I
UNIT 28
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:19 p.m.

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www.aurecongroup.com

CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

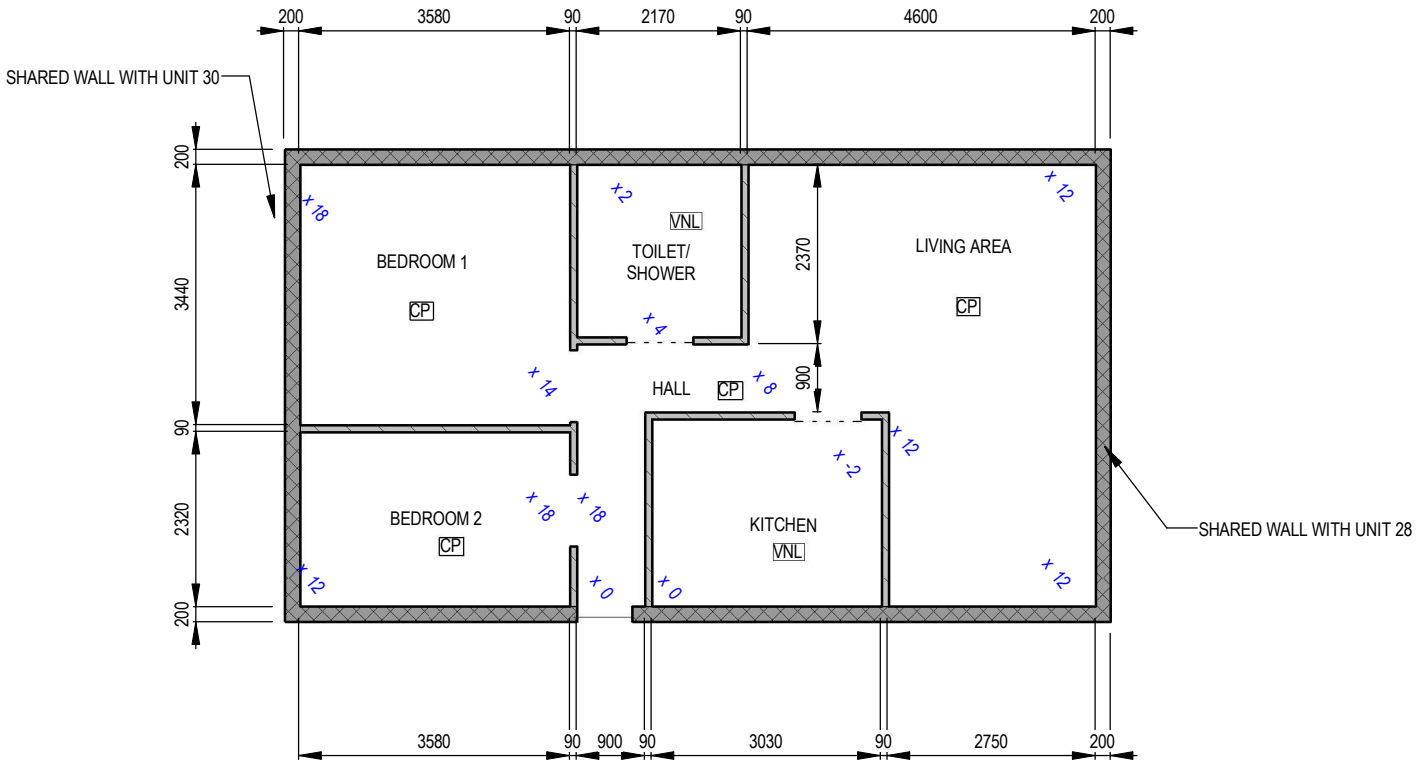
TITLE
LEVEL SURVEY
UNIT 28

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-I-03	B



BLOCK I
UNIT 29
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x.? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:22 p.m.

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www.aurecongroup.com

CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

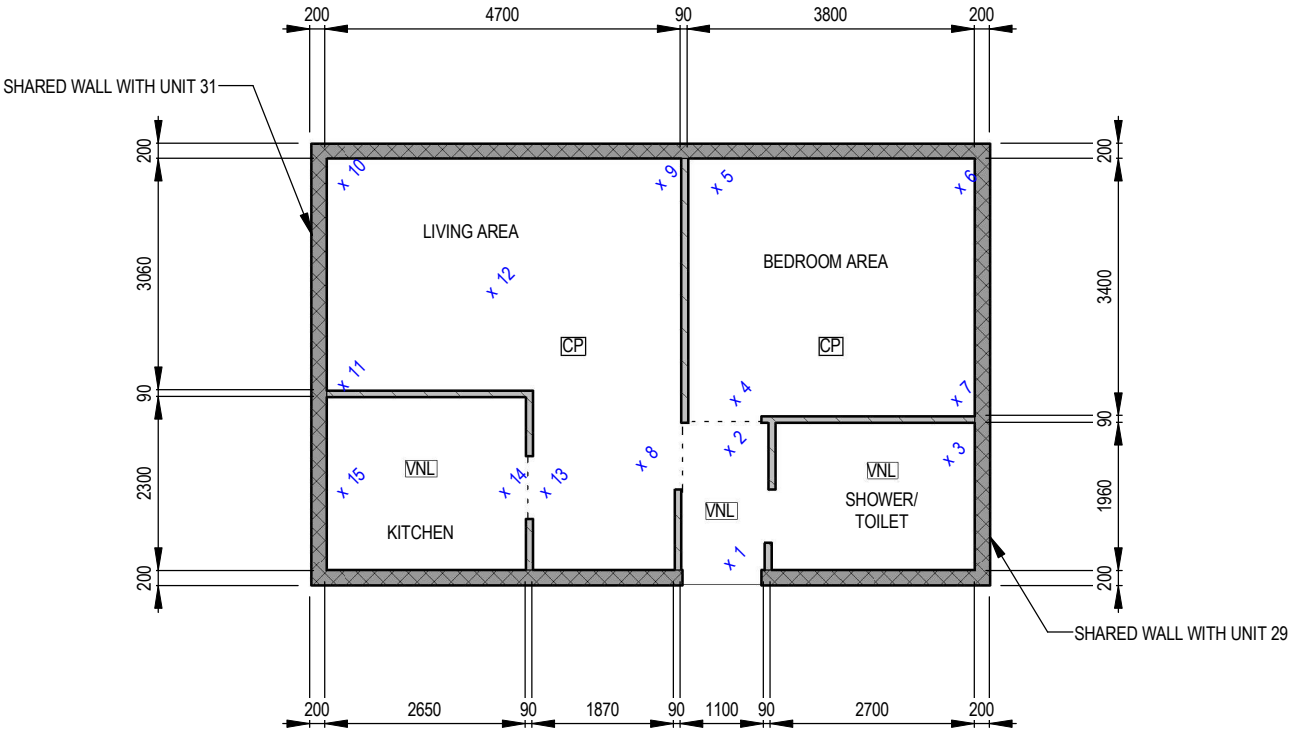
TITLE
LEVEL SURVEY
UNIT 29

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-I-04	B



BLOCK I
UNIT 30
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:26 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

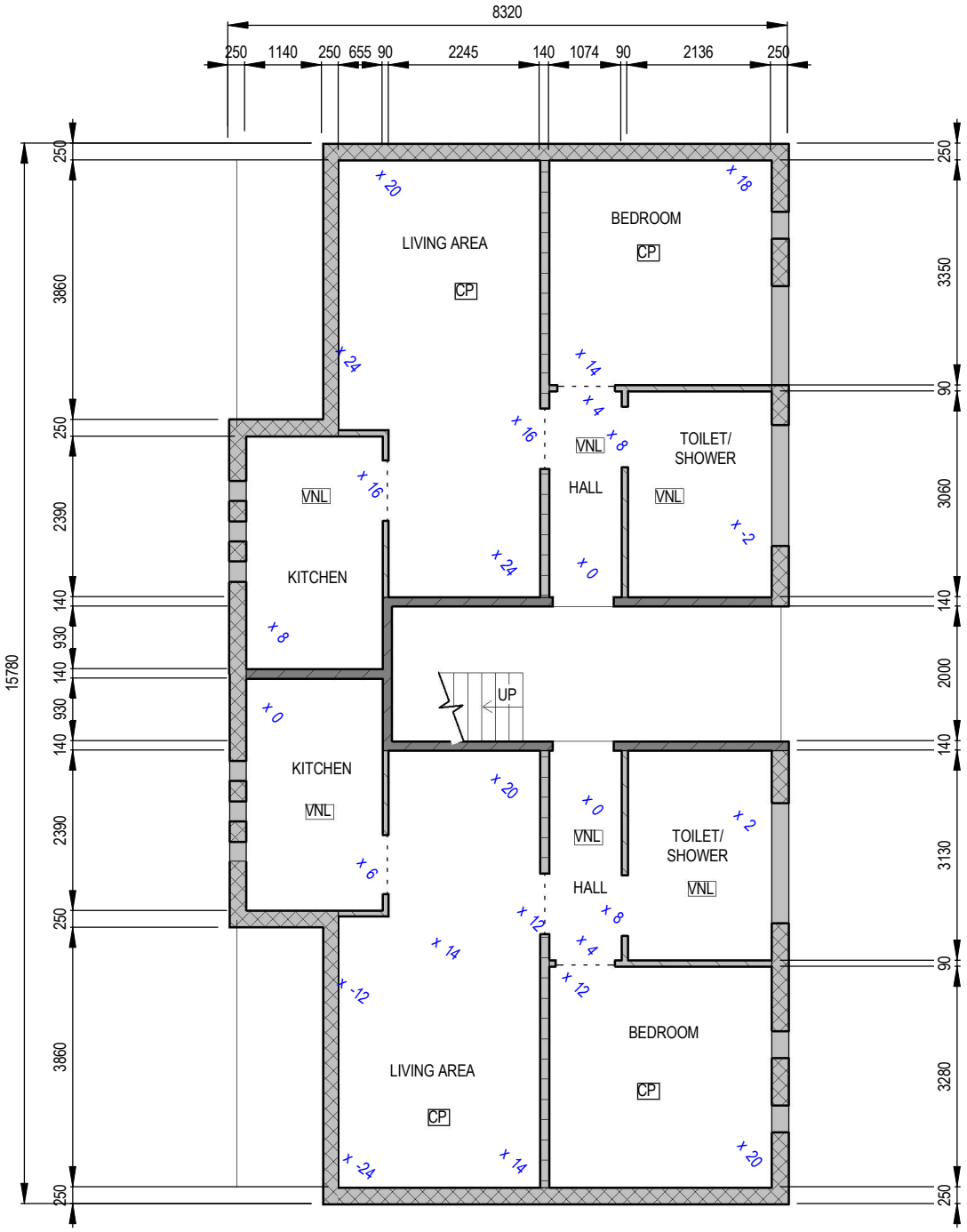
DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

TITLE: LEVEL SURVEY
UNIT 30

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.	
232539	
SCALE	SIZE
1 : 100	A4
DRAWING No.	REV
SK-I-05	B



BLOCK I
UNIT 31A AND 31B
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:27 p.m.

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www.aurecongroup.com

CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

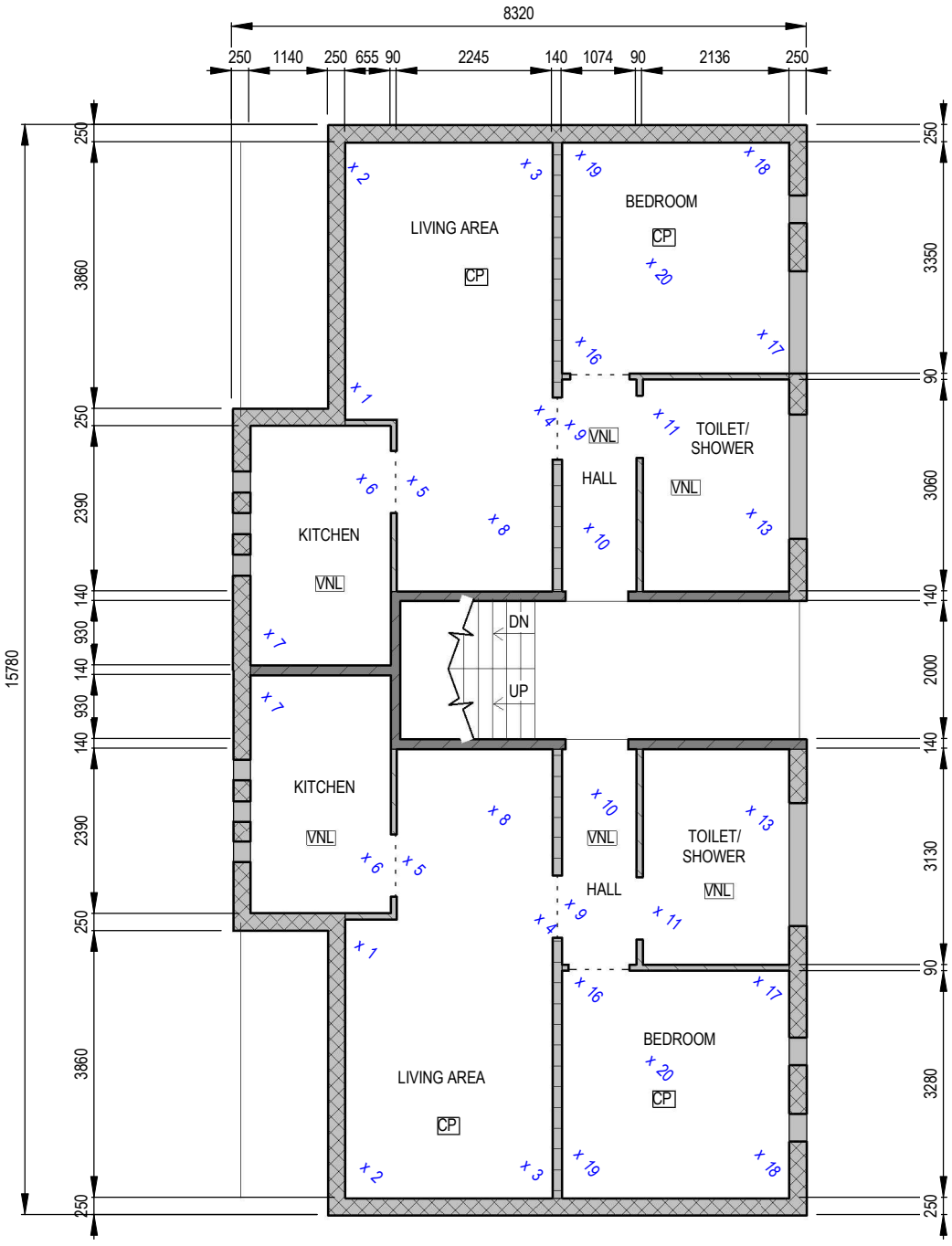
TITLE
LEVEL SURVEY
UNIT 31A AND 31B

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-I-06	B



BLOCK I
UNIT 31C AND 31D
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:29 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

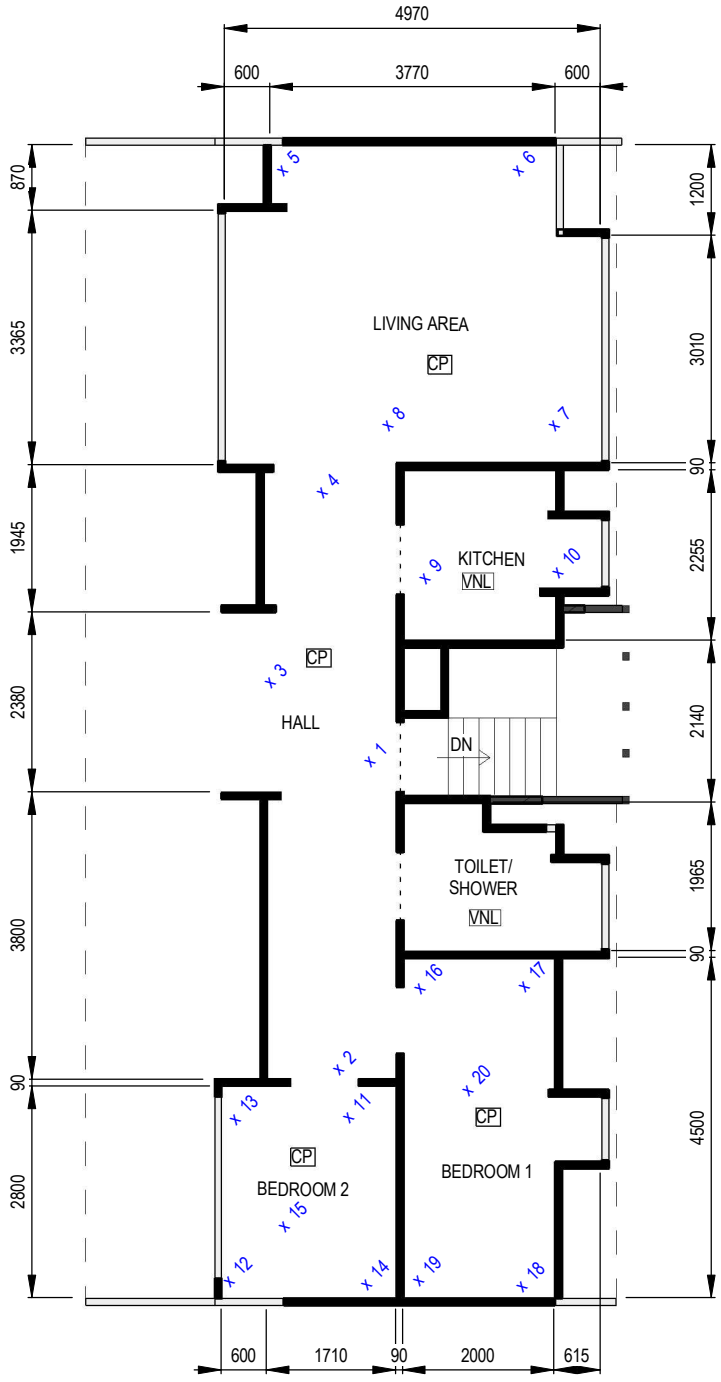
TITLE
LEVEL SURVEY
UNIT 31C AND 31D

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-I-07	B



BLOCK I
UNIT 31E
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 140mm THICK BLOCK
- 140mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
- 140mm THICK REINFORCED BLOCKWORK WALL
- 90mm THICK PARTIALLY REINFORCED BLOCKWORK WALL
  (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x ? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:31 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

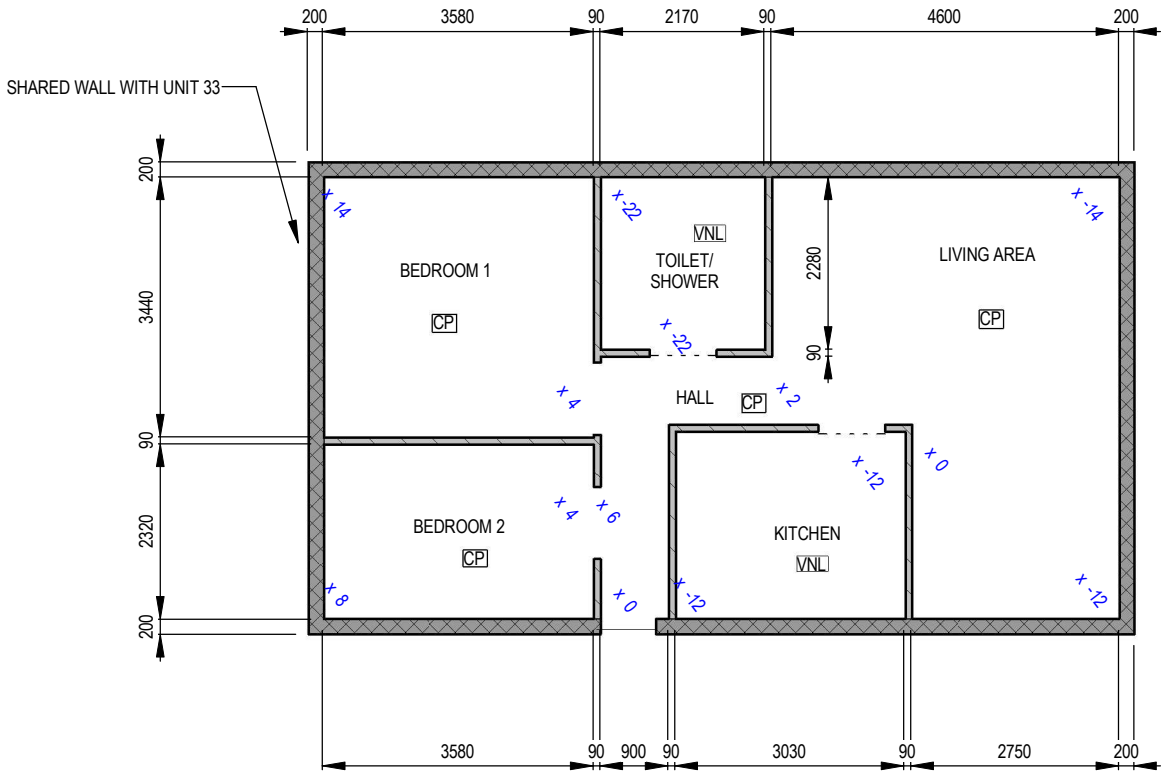
TITLE
LEVEL SURVEY
UNIT 31E

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-I-08	B



BLOCK J
UNIT 32
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED
  BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK
  WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- +? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:34 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

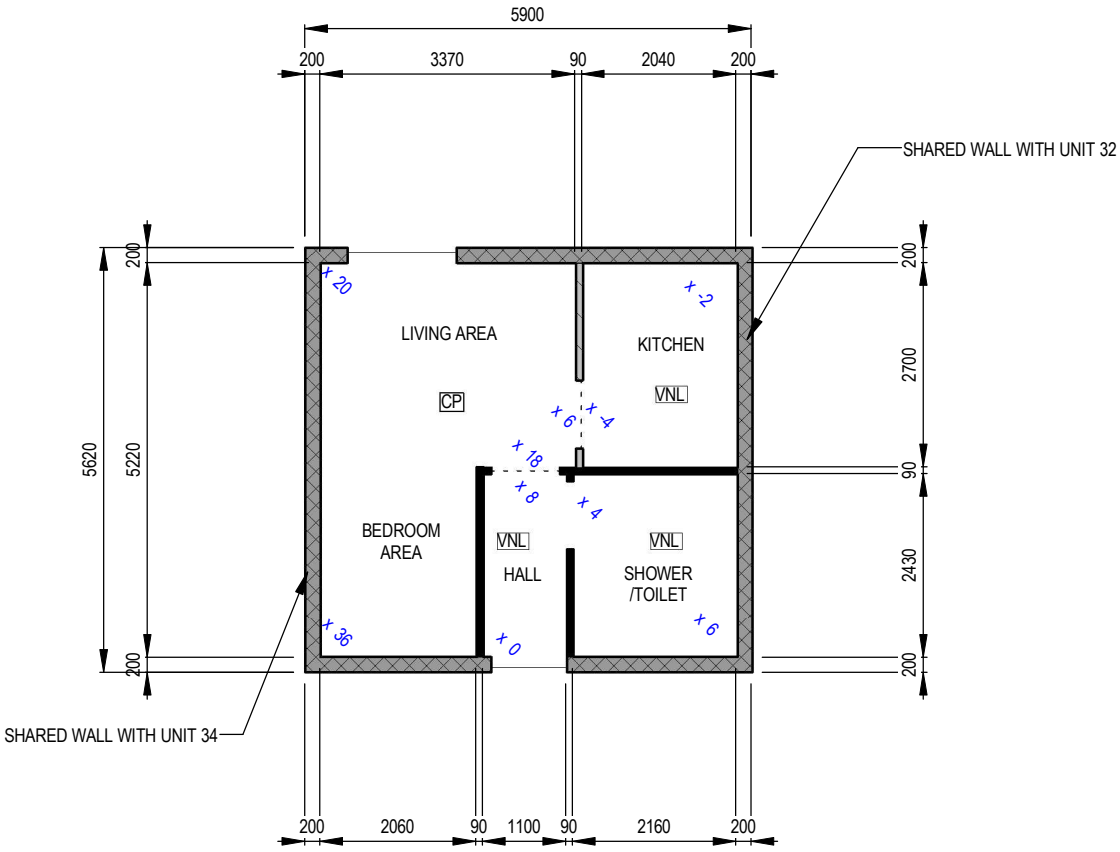
DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

TITLE
LEVEL SURVEY
UNIT 32

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.	
232539	
SCALE	SIZE
1 : 100	A4
DRAWING No.	REV
SK-J-01	B



BLOCK J
UNIT 33
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:37 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT: 183 STRICKLAND STREET

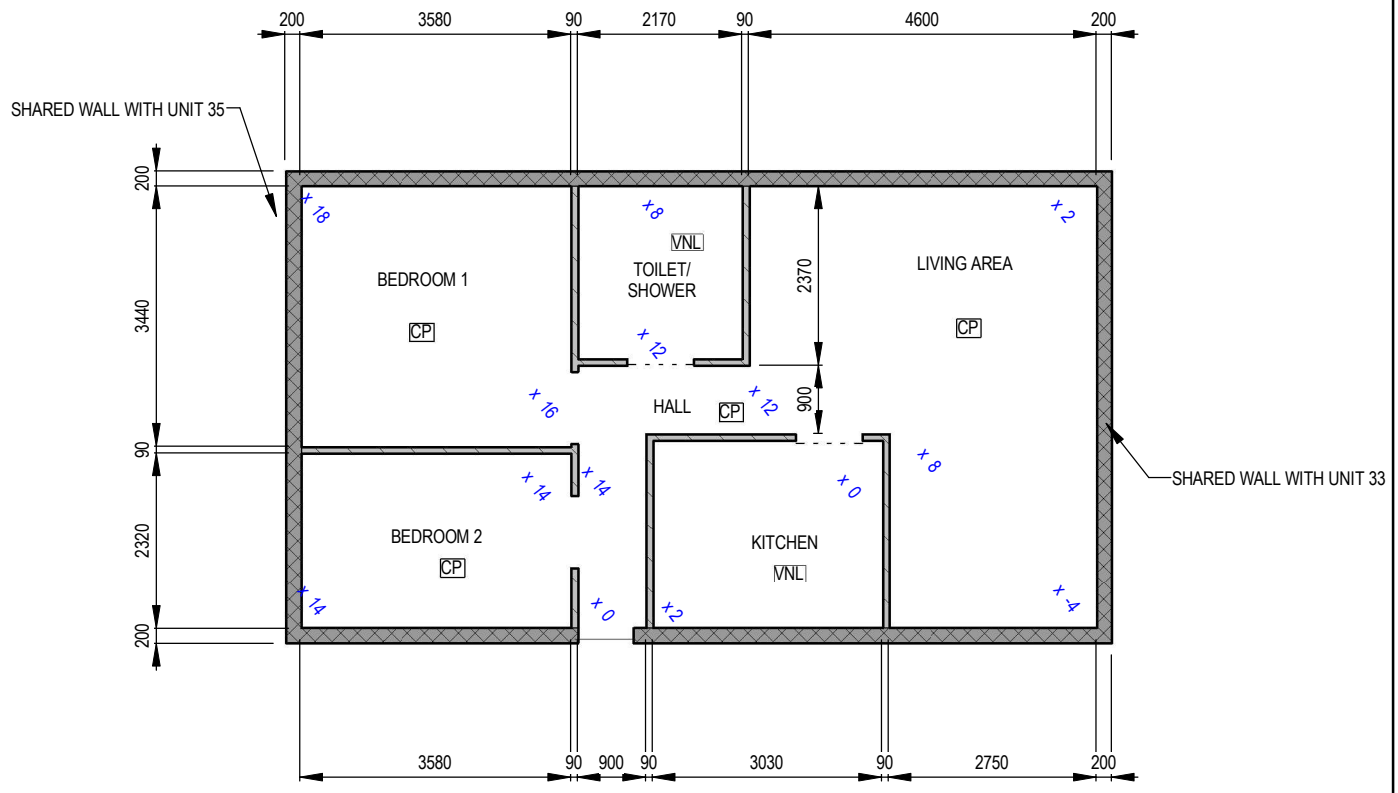
TITLE: LEVEL SURVEY
UNIT 33

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.: 232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-J-02	B



BLOCK J
UNIT 34
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- +2.7 FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:40 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

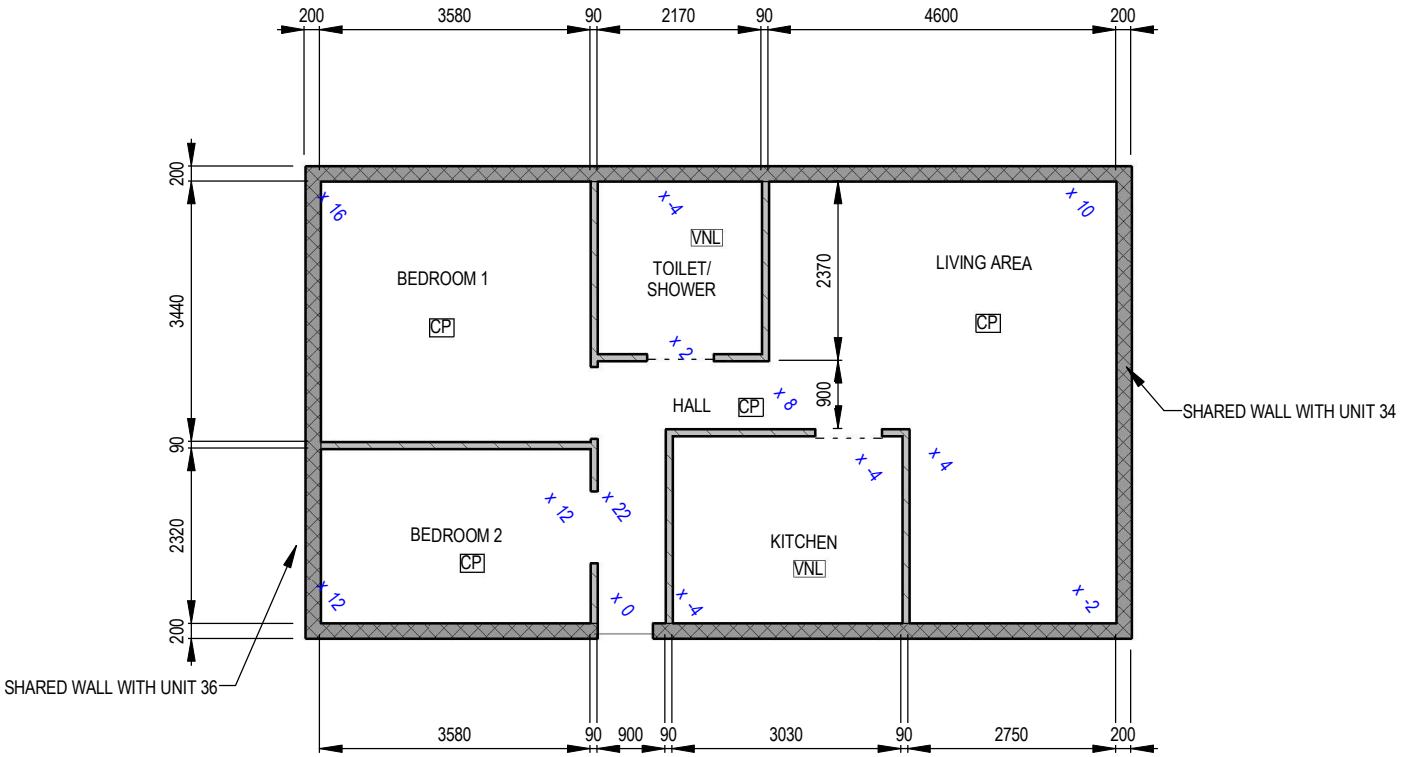
TITLE
LEVEL SURVEY
UNIT 34

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-J-03	B



BLOCK J
UNIT 35
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- x.? FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:43 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

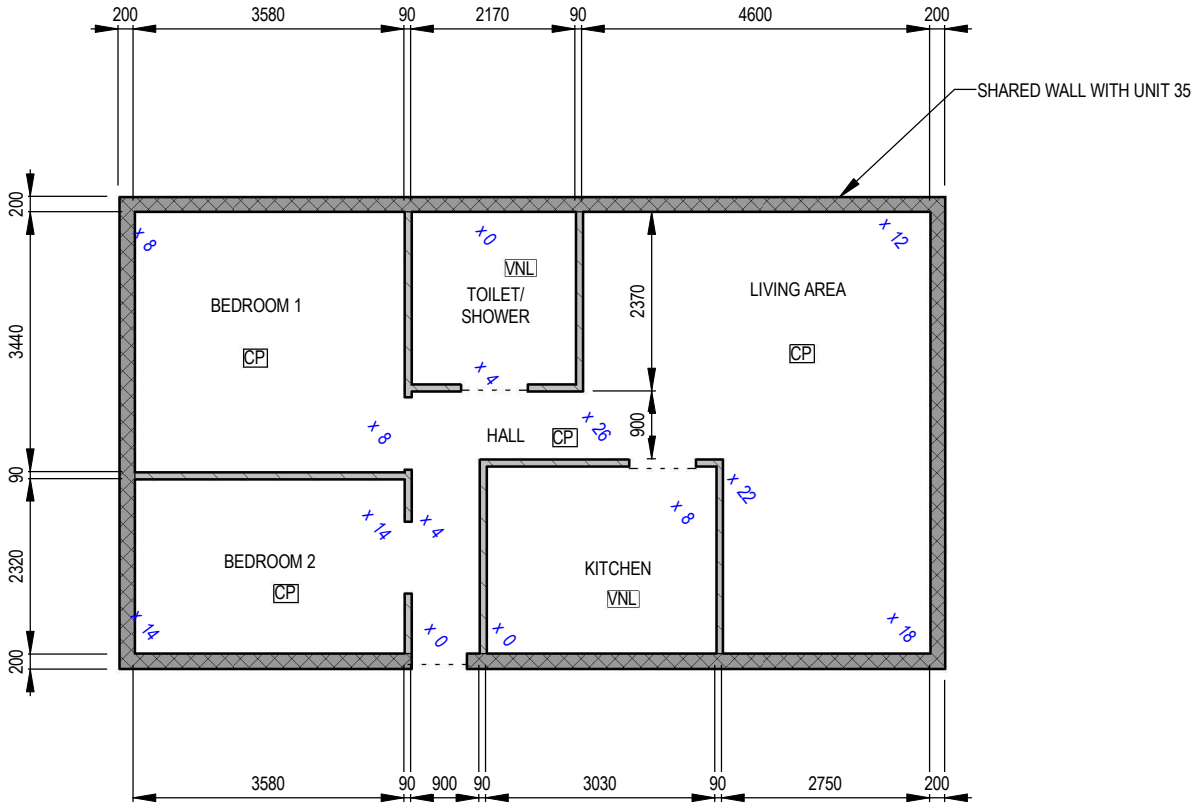
TITLE
LEVEL SURVEY
UNIT 35

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-J-04	B



BLOCK J
UNIT 36
1:100

WALL LEGEND

- TWO LEAF PARTIALLY REINFORCED BLOCKWORK WALL
  OUTER LEAF = 90mm THICK BLOCK
  INNER LEAF = 90mm THICK BLOCK
- TWO 90mm LEAF PARTIALLY REINFORCED BLOCKWORK FIREWALL
- 90mm THICK PARTIALLY FILLED REINFORCED BLOCKWORK WALL (NON-LOAD BEARING)
- TIMBER FRAMED WALL

LEGEND

- FLOOR LEVEL READING
- CP CARPET
- VNL VINYL

16/07/2013 2:19:46 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
B	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	
A	31.01.13	LEVEL SURVEY	L.Howard

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

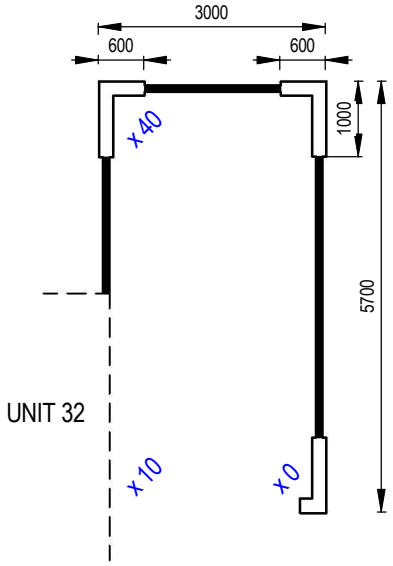
TITLE
LEVEL SURVEY
UNIT 36

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-J-05	B



BLOCK J
GARAGE 1
1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x ? FLOOR LEVEL READING

CP CARPET

VNL VINYL

16/07/2013 2:19:47 p.m.

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Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

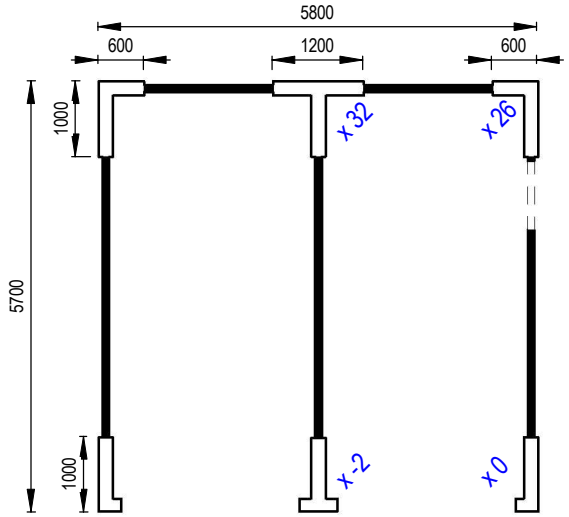
TITLE
LEVEL SURVEY
GARAGE 1

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-J-06	A



GARAGE 8 AND 9

1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x ? FLOOR LEVEL READING

CP CARPET

VNL VINYL

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

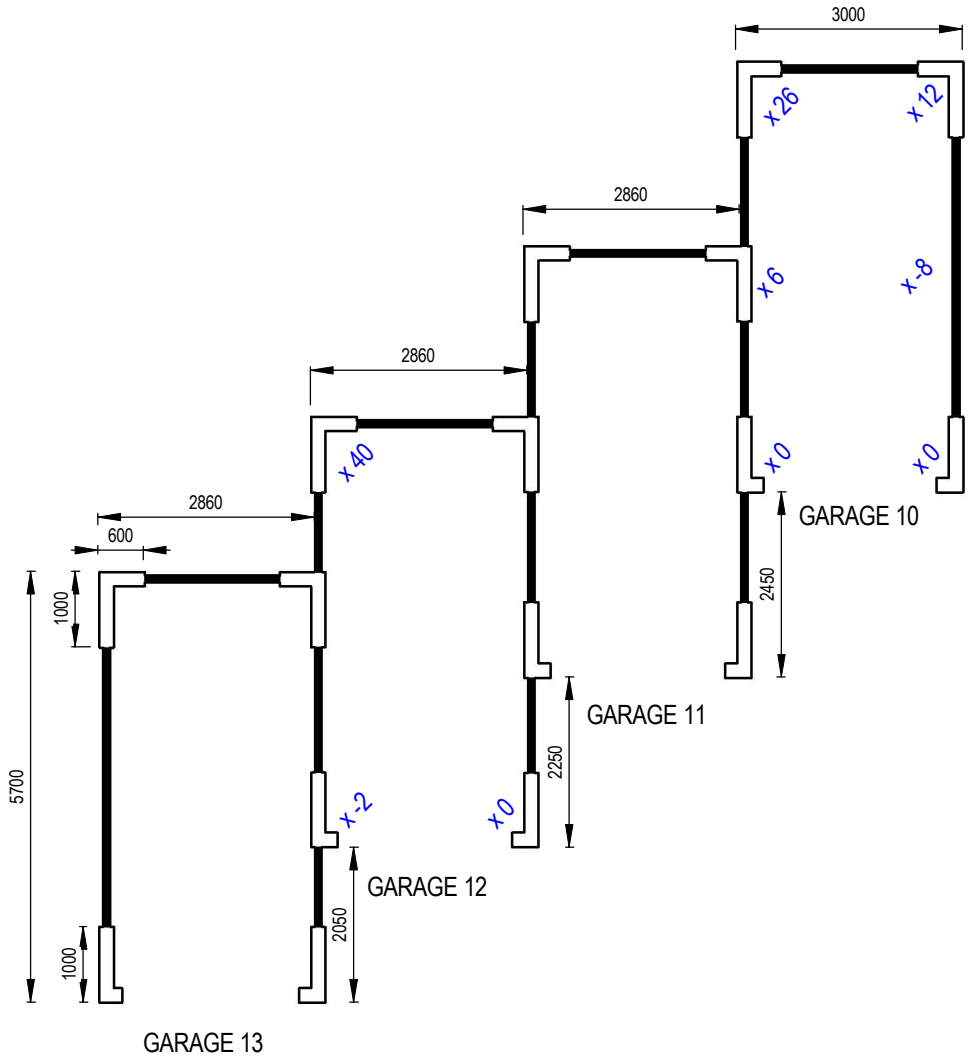
TITLE
LEVEL SURVEY
GARAGE 8 AND 9

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-K-05	A



GARAGE 10,11,12 AND 13

1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x ? FLOOR LEVEL READING

CP CARPET

VNL VINYL

16/07/2013 2:19:51 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

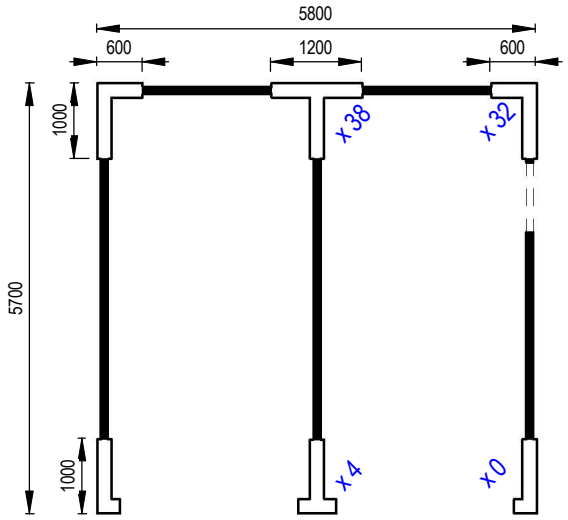
TITLE
LEVEL SURVEY
GARAGE 10,11,12 AND 13

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-K-06	A



GARAGE 14 AND 15

1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x? FLOOR LEVEL READING

CP CARPET

VNL VINYL

16/07/2013 2:19:52 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer

CHECKED: L.Castillo

APPROVED: L. Howard

DATE

PROJECT: 183 STRICKLAND STREET

TITLE: LEVEL SURVEY GARAGE 14 AND 15

PRELIMINARY
NOT FOR CONSTRUCTION

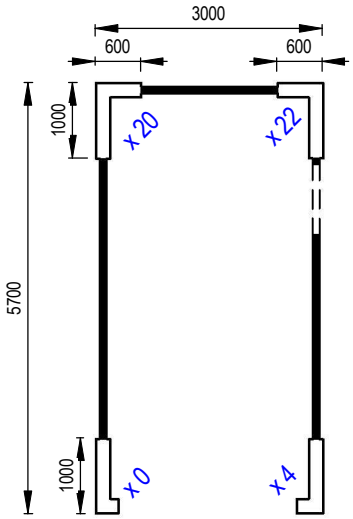
PROJECT No.: 232539

SCALE: 1 : 100

SIZE: A4

DRAWING No.: SK-K-07

REV: A



GARAGE 18
1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x ? FLOOR LEVEL READING

CP CARPET

VNL VINYL

16/07/2013 2:19:53 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer
CHECKED	
L.Castillo	
APPROVED	DATE
L. Howard	

PROJECT
183 STRICKLAND STREET

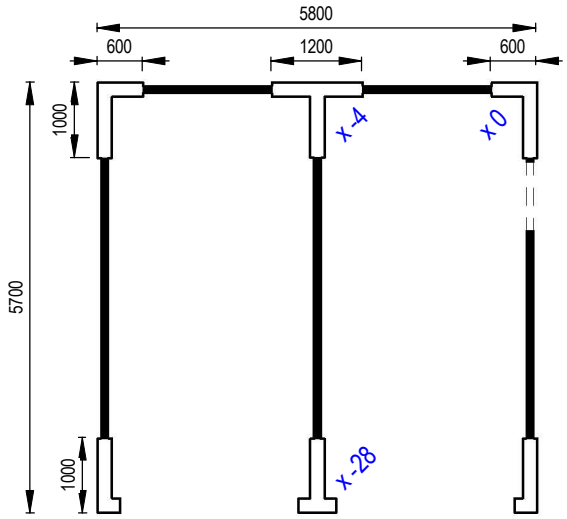
TITLE
LEVEL SURVEY
GARAGE 18

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.
232539

SCALE	SIZE
1 : 100	A4

DRAWING No.	REV
SK-K-09	A



GARAGE 24 AND 25

1:100

WALL LEGEND

190mm THICK PARTIALLY REINFORCED BLOCKWORK WALL

TIMBER FRAMED WALL

LEGEND

x-? FLOOR LEVEL READING

CP CARPET

VNL VINYL

16/07/2013 2:19:54 p.m.

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CLIENT
Christchurch City Council

REV	DATE	REVISION DETAILS	APPROVAL
A	16.07.13	LEVEL SURVEY-SHEETS RENUMBERED	

DRAWN	DESIGNED
D.Hunia	R.So-Beer

CHECKED: L.Castillo

APPROVED: DATE: L. Howard

PROJECT: 183 STRICKLAND STREET

TITLE: LEVEL SURVEY GARAGE 24 AND 25

PRELIMINARY
NOT FOR CONSTRUCTION

PROJECT No.: 232539

SCALE: 1 : 100 | SIZE: A4

DRAWING No.: SK-K-12 | REV: A

Appendix B
Building Element Strengths

Block A

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane along	50
	Out of plane across	51
	Shear	93
	Flexure	100
Firewalls – Single Storey	Out of plane	56
Plywood Walls - Single Storey	Hold down	77
Blockwork walls – Three Storey	Flexure out of plane	82
	Flexure in plane	53
	Shear	56
Precast Concrete floor	CSW – Shear connectors	88
Timber walls – three storey	Shear (along)	78
	Shear (across)	100

Block B

Building Element	Failure Mode	%NBS
Blockwork walls – Single storey	Shear along	100
	Flexure along	77
	Shear across	100
	Flexure across	100
Fire walls- Single storey	Flexure	81
Bond beam	Flexure	40
Timber walls	Shear along	100
	Shear across	69

Block C

Building Element	Failure Mode	%NBS
Level 2 timber framed walls	Shear (along)	100
	Shear (across)	100
Ground Level and Level 1 blockwork walls	Shear (along)	100
	Shear (across)	79
10 series blockwork external walls	Out of plane	100
15 series blockwork external walls	Out of plane	100
10 series blockwork internal walls	Out of plane	73
15 series blockwork internal walls	Out of plane	100
Precast Concrete Floor diaphragm	Flexure Along	100
	Flexure Across	100
	CSW – Shear connectors	41

Block D

Building Element	Failure Mode	%NBS
Blockwork walls – Single storey	Shear along	53
	Flexure along	43
	Shear across	100
	Moment across	100
Fire walls- Single storey	Flexure	76
Bond beam	Flexure	54
Timber walls	Shear along	100
	Shear across	54

Block E

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane -along	43
	Shear	100
	Flexure	100
Firewalls – Single Storey	Out of plane – across	52
Three storey – Identical to Block A	NA	NA

Block F

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane -across	51
	Shear	100
	Flexure	100
Firewalls – Single Storey	Out of plane	100
Three storey – Identical to Block A	NA	NA

Block G

Building Element	Failure Mode	%NBS
Blockwork Walls – Single Storey	Out of Plane –across	51
	Shear	100
	Flexure	100
	Bond beam – along	50
Firewalls – Single Storey	Out of plane – along	52

Block H

Building Element	Failure Mode	%NBS
Level 2 timber framed walls	Shear (along)	100
	Shear (across)	100
Ground Level and Level 1 blockwork walls	Shear (along)	100
	Shear (across)	79
10 series blockwork external walls	Out of plane	100
15 series blockwork external walls	Out of plane	100
10 series blockwork internal walls	Out of plane	73
15 series blockwork internal walls	Out of plane	100
Precast Concrete Floor diaphragm	Flexure Along	100
	Flexure Across	100
	CSW – Shear connectors	41

Block I

Building Element	Failure Mode	%NBS
Blockwork walls – Single storey	Shear along	86
	Flexure along	54
	Shear across	100
	Moment across	100
Fire walls – Single storey	Flexure	74
Bond beam	Flexure	-
Timber walls	Shear along	66
	Shear across	100
Precast Concrete Floor diaphragm	Flexure along	100
	Flexure across	100
	CSW – Shear connectors	41
Attached garage	Flexure out of plane	41

Block J

Building Element	Failure Mode	%NBS
Blockwork walls – Single storey	Shear along	60
	Flexure along	57
	Shear across	100
	Moment across	100
Fire walls - Single storey	Flexure	67
Bond beam	Flexure	44
Timber walls	Shear along	61
	Shear across	68
Attached garage	Flexure out of plane	44

Appendix C
References

1. Engineering Advisory Group (EAG): Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury: July 2011

2. Ministry of Business, Innovation and Employment (MBIE) “Repairing and rebuilding houses affected by the Canterbury earthquakes”, December 2012

3. New Zealand Society for Earthquake Engineering (NZSEE), “Assessment and Improvement of the Structural Performance of Buildings in Earthquakes”, April 2012

4. Standards New Zealand, “AS/NZS 1170 Part 0, Structural Design Actions: General Principles”, 2002

5. Standards New Zealand, “AS/NZS 1170 Part 1, Structural Design Actions: Permanent, imposed and other actions”, 2002

6. Standards New Zealand, “NZS 1170 Part 5, Structural Design Actions: Earthquake Actions – New Zealand”, 2004

7. Standards New Zealand, “NZS 3101 Part 1, The Design of Concrete Structures”, 2006

8. Standards New Zealand, “NZS 4230, Design of Reinforced Concrete Masonry Structures”, 2004

Appendix D
Strength Assessment Explanation

New building standard (NBS)

New building standard (NBS) is the term used with reference to the earthquake standard that would apply to a new building of similar type and use if the building was designed to meet the latest design Codes of Practice. If the strength of a building is less than this level, then its strength is expressed as a percentage of NBS.

Earthquake Prone Buildings

A building can be considered to be earthquake prone if its strength is less than one third of the strength to which an equivalent new building would be designed, that is, less than 33%NBS (as defined by the New Zealand Building Act). If the building strength exceeds 33%NBS but is less than 67%NBS the building is considered at risk.

Christchurch City Council Earthquake Prone Building Policy 2010

The Christchurch City Council (CCC) already had in place an Earthquake Prone Building Policy (EPB Policy) requiring all earthquake-prone buildings to be strengthened within a timeframe varying from 15 to 30 years. The level to which the buildings were required to be strengthened was 33%NBS.

As a result of the 4 September 2010 Canterbury earthquake the CCC raised the level that a building was required to be strengthened to from 33% to 67% NBS but qualified this as a target level and noted that the actual strengthening level for each building will be determined in conjunction with the owners on a building-by-building basis. Factors that will be taken into account by the Council in determining the strengthening level include the cost of strengthening, the use to which the building is put, the level of danger posed by the building, and the extent of damage and repair involved.

Irrespective of strengthening level, the threshold level that triggers a requirement to strengthen is 33%NBS.

As part of any building consent application fire and disabled access provisions will need to be assessed.

Christchurch Seismicity

The level of seismicity within the current New Zealand loading code (AS/NZS 1170) is related to the seismic zone factor. The zone factor varies depending on the location of the building within NZ. Prior to the 22nd February 2011 earthquake the zone factor for Christchurch was 0.22. Following the earthquake the seismic zone factor (level of seismicity) in the Christchurch and surrounding areas has been increased to 0.3. This is a 36% increase.

For this assessment, the building's earthquake resistance is compared with the current New Zealand Building Code requirements for a new building constructed on the site. This is expressed as a percentage of new building standard (%NBS). The new building standard load requirements have been determined in accordance with the current earthquake loading standard (NZS 1170.5:2004 Structural design actions - Earthquake actions - New Zealand).

The likely capacity of this building has been derived in accordance with the New Zealand Society for Earthquake Engineering (NZSEE) guidelines 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes' (AISPBE), 2006. These guidelines provide an Initial Evaluation Procedure that assesses a buildings capacity based on a comparison of loading codes from when the building was designed and currently. It is a quick high-level procedure that can be used when undertaking a Qualitative analysis of a building. The guidelines also provide guidance on calculating a modified Ultimate Limit State capacity of the building which is much more accurate and can be used when undertaking a Quantitative analysis.

The New Zealand Society for Earthquake Engineering has proposed a way for classifying earthquake risk for existing buildings in terms of %NBS and this is shown in Figure C1 below.

Description	Grade	Risk	%NBS	Existing Building Structural Performance	Improvement of Structural Performance	
					Legal Requirement	NZSEE Recommendation
Low Risk Building	A or B	Low	Above 67	Acceptable (improvement may be desirable)	The Building Act sets no required level of structural improvement (unless change in use) This is for each TA to decide. Improvement is not limited to 34%NBS.	100%NBS desirable. Improvement should achieve at least 67%NBS
Moderate Risk Building	B or C	Moderate	34 to 66	Acceptable legally. Improvement recommended		Not recommended. Acceptable only in exceptional circumstances
High Risk Building	D or E	High	33 or lower	Unacceptable (Improvement	Unacceptable	Unacceptable

Figure C1: NZSEE Risk Classifications Extracted from table 2.2 of the NZSEE 2006 AISPBE Guidelines

Table C1 below compares the percentage NBS to the relative risk of the building failing in a seismic event with a 10% probability of exceedance in 50 years (i.e. 0.2% in the next year). It is noted that the current seismic risk in Christchurch results in a 6% probability of exceedance in the next year.

Table C1: Relative Risk of Building Failure In A

Percentage of New Building Standard (%NBS)	Relative Risk (Approximate)
>100	<1 time
80-100	1-2 times
67-80	2-5 times
33-67	5-10 times
20-33	10-25 times
<20	>25 times

Appendix E
Background and Legal Framework

Background

Aurecon has been engaged by the Christchurch City Council (CCC) to undertake a detailed engineering evaluation of the building

This report is a Qualitative Assessment of the building structure, and is based on the Detailed Engineering Evaluation Procedure document (draft) issued by the Structural Advisory Group on 19 July 2011.

A qualitative assessment involves inspections of the building and a desktop review of existing structural and geotechnical information, including existing drawings and calculations, if available.

The purpose of the assessment is to determine the likely building performance and damage patterns, to identify any potential critical structural weaknesses or collapse hazards, and to make an initial assessment of the likely building strength in terms of percentage of new building standard (%NBS).

At the time of this report, no intrusive site investigation, detailed analysis, or modelling of the building structure had been carried out. Construction drawings were made available, and these have been considered in our evaluation of the building. The building description below is based on a review of the drawings and our visual inspections.

Compliance

This section contains a brief summary of the requirements of the various statutes and authorities that control activities in relation to buildings in Christchurch at present.

Canterbury Earthquake Recovery Authority (CERA)

CERA was established on 28 March 2011 to take control of the recovery of Christchurch using powers established by the Canterbury Earthquake Recovery Act enacted on 18 April 2011. This act gives the Chief Executive Officer of CERA wide powers in relation to building safety, demolition and repair. Two relevant sections are:

Section 38 – Works

This section outlines a process in which the chief executive can give notice that a building is to be demolished and if the owner does not carry out the demolition, the chief executive can commission the demolition and recover the costs from the owner or by placing a charge on the owners' land.

Section 51 – Requiring Structural Survey

This section enables the chief executive to require a building owner, insurer or mortgagee carry out a full structural survey before the building is re-occupied.

We understand that CERA will require a detailed engineering evaluation to be carried out for all buildings (other than those exempt from the Earthquake Prone Building definition in the Building Act). It is anticipated that CERA will adopt the Detailed Engineering Evaluation Procedure document (draft) issued by the Structural Advisory Group on 19 July 2011. This document sets out a methodology for both qualitative and quantitative assessments.

The qualitative assessment is a desk-top and site inspection assessment. It is based on a thorough visual inspection of the building coupled with a review of available documentation such as drawings and specifications. The quantitative assessment involves analytical calculation of the buildings strength and may require non-destructive or destructive material testing, geotechnical testing and intrusive investigation.

It is anticipated that factors determining the extent of evaluation and strengthening level required will include:

- The importance level and occupancy of the building
- The placard status and amount of damage
- The age and structural type of the building
- Consideration of any critical structural weaknesses
- The extent of any earthquake damage

Building Act

Several sections of the Building Act are relevant when considering structural requirements:

Section 112 – Alterations

This section requires that an existing building complies with the relevant sections of the Building Code to at least the extent that it did prior to any alteration. This effectively means that a building cannot be weakened as a result of an alteration (including partial demolition).

Section 115 – Change of Use

This section requires that the territorial authority (in this case Christchurch City Council (CCC)) be satisfied that the building with a new use complies with the relevant sections of the Building Code 'as near as is reasonably practicable'. Regarding seismic capacity 'as near as reasonably practicable' has previously been interpreted by CCC as achieving a minimum of 67%NBS however where practical achieving 100%NBS is desirable. The New Zealand Society for Earthquake Engineering (NZSEE) recommend a minimum of 67%NBS.

Section 121 – Dangerous Buildings

The definition of dangerous building in the Act was extended by the Canterbury Earthquake (Building Act) Order 2010, and it now defines a building as dangerous if:

- in the ordinary course of events (excluding the occurrence of an earthquake), the building is likely to cause injury or death or damage to other property; or
- in the event of fire, injury or death to any persons in the building or on other property is likely because of fire hazard or the occupancy of the building; or
- there is a risk that the building could collapse or otherwise cause injury or death as a result of earthquake shaking that is less than a 'moderate earthquake' (refer to Section 122 below); or
- there is a risk that that other property could collapse or otherwise cause injury or death; or
- a territorial authority has not been able to undertake an inspection to determine whether the building is dangerous.

Section 122 – Earthquake Prone Buildings

This section defines a building as earthquake prone if its ultimate capacity would be exceeded in a 'moderate earthquake' and it would be likely to collapse causing injury or death, or damage to other property. A moderate earthquake is defined by the building regulations as one that would generate ground shaking 33% of the shaking used to design an equivalent new building.

Section 124 – Powers of Territorial Authorities

This section gives the territorial authority the power to require strengthening work within specified timeframes or to close and prevent occupancy to any building defined as dangerous or earthquake prone.

Section 131 – Earthquake Prone Building Policy

This section requires the territorial authority to adopt a specific policy for earthquake prone, dangerous and insanitary buildings.

Christchurch City Council Policy

Christchurch City Council adopted their Earthquake Prone, Dangerous and Insanitary Building Policy in 2006. This policy was amended immediately following the Darfield Earthquake of the 4th September 2010.

The 2010 amendment includes the following:

- A process for identifying, categorising and prioritising Earthquake Prone Buildings, commencing on 1 July 2012;
- A strengthening target level of 67% of a new building for buildings that are Earthquake Prone;
- A timeframe of 15-30 years for Earthquake Prone Buildings to be strengthened; and,
- Repair works for buildings damaged by earthquakes will be required to comply with the above.

The council has stated their willingness to consider retrofit proposals on a case by case basis, considering the economic impact of such a retrofit.

We anticipate that any building with a capacity of less than 33%NBS (including consideration of critical structural weaknesses) will need to be strengthened to a target of 67%NBS of new building standard as recommended by the Policy.

If strengthening works are undertaken, a building consent will be required. A requirement of the consent will require upgrade of the building to comply 'as near as is reasonably practicable' with:

- The accessibility requirements of the Building Code.
- The fire requirements of the Building Code. This is likely to require a fire report to be submitted with the building consent application.

Building Code

The building code outlines performance standards for buildings and the Building Act requires that all new buildings comply with this code. Compliance Documents published by The Department of Building and Housing can be used to demonstrate compliance with the Building Code.

After the February Earthquake, on 19 May 2011, Compliance Document B1: Structure was amended to include increased seismic design requirements for Canterbury as follows:

- Hazard Factor increased from 0.22 to 0.3 (36% increase in the basic seismic design load)
- Serviceability Return Period Factor increased from 0.25 to 0.33 (80% increase in the serviceability design loads when combined with the Hazard Factor increase)

The increase in the above factors has resulted in a reduction in the level of compliance of an existing building relative to a new building despite the capacity of the existing building not changing.

Appendix F
Standard Reporting Spread Sheets

PRO 1137 B001 – Block A

PRO 1137 B002 – Block B

PRO 1137 B003 – Block C

PRO 1137 B004 – Block D

PRO 1137 B005 – Block E

PRO 1137 B006 – Block F

PRO 1137 B007 – Block G + Garage 22

PRO 1137 B008 – Block H

PRO 1137 B009 – Block I + Garage 23

PRO 1137 B010 – Block J + Garage 1

PRO 1137 B011 – Garages 3-4

PRO 1137 B012 – Garage 5

PRO 1137 B013 – Garages 6-7

PRO 1137 B014 – Garages 10-13

PRO 1137 B015 – Garages 14-15

PRO 1137 B016 – Garage 18

PRO 1137 B017 – Garages 24-25

PRO 1137 B018 – Garage 2

PRO 1137 B019 – Garages 8-9

PRO 1137 B020 – Garages 16-17

PRO 1137 B021 – Garages 19-21

PRO 1137 B022 – Garage 26

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block A				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	1,2,3,4,5,6A,6B,6C,6D,6E		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	52.84	Date of submission:	30/07/2013	
GPS east:		172	37	36.74	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B001				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	9.20	height from ground to level of uppermost seismic mass (for IEP only) (m):		0
Floor footprint area (approx):	320			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100mm Rib precast slab, 64mm topping
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	10 series and 15 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	exposed structure	describe	blockwork exposed
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	full	original designer name/date	Christchurch City Council/1974
Structural	full	original designer name/date	Christchurch City Council/1974
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site:

(refer DEE Table 4-2)			
Site performance:	Good	Describe damage:	minor cracks in walls
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	cracks in plasterboard ceiling

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	Strengthening of bondbeam and diaphragm connections re
	Building Consent required:	no		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	50%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	50%			
Across	Assessed %NBS before e'quakes:	51%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	51%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: 0m

Seismic Zone, if designed between 1965 and 1992: B

not required for this age of building
not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block B				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	7,8		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	52.54	Date of submission:	30/07/2013	
GPS east:		172	37	38.21	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B002				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.60	height from ground to level of uppermost seismic mass (for IEP only) (m):		5.4
Floor footprint area (approx):	124			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*100 mm seriesblock walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**			Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:			No
Wall cladding:	exposed structure	describe	Mainly blockwork and partially Plasterboard
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council/1974
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	Some cracks in few walls
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	cracks in plasterboard ceiling

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	Strengthening of bondbeam required
	Building Consent required:	yes		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	77%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	77%			
Across	Assessed %NBS before e'quakes:	40%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	40%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts Block C			Reviewer:	Lee Howard
	Unit	No:	Street	CPEng No:	1008889
Building Address:	9A,9B,9C,9D,9E	183	Strickland Street	Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139			Company project number:	232539
				Company phone number:	3750761
	Degrees	Min	Sec		
GPS south:	43	32	52.90	Date of submission:	30/07/2013
GPS east:	172	37	38.80	Inspection Date:	4/06/2013
				Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B003			Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m):	
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	strip footings		if Foundation type is other, describe:	
Building height (m):	9.20	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	135			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):	multi-unit residential			
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber framed	rafter type, purlin type and cladding	steel trough roofing
Floors:	precast concrete with topping	unit type and depth (mm), topping	100mm Rib precast slab, 64mm topping
Beams:	cast-insitu concrete	overall depth x width (mm x mm)	varies
Columns:	load bearing walls	typical dimensions (mm x mm)	10 series and 15 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	plaster system	describe	painted CMU, plasterboard walls
Roof Cladding:	Metal	describe	Steel trough section roofing
Glazing:			
Ceilings:	plaster, fixed		
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	full	original designer name/date	Christchurch City Council
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	Minor cracking in CMU and plasterboard.
Settlement:	25-100m	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	Minor cracking in plasterboard joints

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	Improve connection of slabs to walls
	Building Consent required:	yes		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	59%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	59%			
Across	Assessed %NBS before e'quakes:	41%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	41%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block D				Reviewer:	Lee Howard	
	Unit	No:	Street		CPEng No:	1008889	
Building Address:	10,11,12,13,14	183	Strickland		Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
	Degrees	Min	Sec				
GPS south:	43	32	52.49		Date of submission:	30/07/2013	
GPS east:	172	37	38.47		Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B004				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.60	height from ground to level of uppermost seismic mass (for IEP only) (m):		5.4
Floor footprint area (approx):	241			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*100 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**			Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25		note total length of wall at ground (m):		
Period along:	0.40	##### enter height above at H31	estimate or calculation?		estimated
Total deflection (ULS) (mm):			estimate or calculation?		
maximum interstorey deflection (ULS) (mm):			estimate or calculation?		
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25		note total length of wall at ground (m):		
Period across:	0.40	##### enter height above at H31	estimate or calculation?		estimated
Total deflection (ULS) (mm):			estimate or calculation?		
maximum interstorey deflection (ULS) (mm):			estimate or calculation?		

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:			No
Wall cladding:			Mainly blockwork and partially Plasterboard
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Along Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Across Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	Cracks in plasterboard ceiling

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	Strengthening of the bondbeams, Plasterboard walls, Som
Building Consent required:	yes		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along Assessed %NBS before e'quakes:	43%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Assessed %NBS after e'quakes:	43%			
Across Assessed %NBS before e'quakes:	54%	##### %NBS from IEP below		
Assessed %NBS after e'quakes:	54%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B — not required for this age of building / not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block E			Reviewer:	Lee Howard
	Unit	No:	Street	CPEng No:	1008889
Building Address:	15A,15B,15C,15D,15E,16,17,18	183	Strickland	Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139			Company project number:	232536
				Company phone number:	33660821
	Degrees	Min	Sec		
GPS south:	43	32	53.75	Date of submission:	30/07/2013
GPS east:	172	37	37.03	Inspection Date:	4/06/2013
				Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B005			Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	9.20	height from ground to level of uppermost seismic mass (for IEP only) (m):		0
Floor footprint area (approx):	240			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100mm Rib precast slab, 64mm topping
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	10 series and 15 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**		
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	exposed structure	describe	blockwork exposed
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	full	original designer name/date	Christchurch City Council/1974
Structural	full	original designer name/date	Christchurch City Council/1974
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	minor cracks in walls
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Along Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Across Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	cracks in plasterboard ceiling

Recommendations

Level of repair/strengthening required:	minor structural	Describe:	Strengthening of bondbeam and diaphragm connections re
Building Consent required:	no	Describe:	
Interim occupancy recommendations:	full occupancy	Describe:	
Along Assessed %NBS before e'quakes:	52%	##### %NBS from IEP below	
Assessed %NBS after e'quakes:	52%	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Across Assessed %NBS before e'quakes:	43%	##### %NBS from IEP below	
Assessed %NBS after e'quakes:	43%		

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: 0m

Seismic Zone, if designed between 1965 and 1992: B

	not required for this age of building	
	not required for this age of building	
	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		
Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0		
Note 2: for RC buildings designed between 1976-1984, use 1.2		
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)		
	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block F				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	19,20,21A,21B,21C,21D,21E		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	54.69	Date of submission:	30/07/2013	
GPS east:		172	37	38.14	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B006				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	9.20	height from ground to level of uppermost seismic mass (for IEP only) (m):		0
Floor footprint area (approx):	220			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100mm Rib precast slab, 64mm topping
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	10 series and 15 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**		
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	exposed structure	describe	blockwork exposed
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	full	original designer name/date	Christchurch City Council/1974
Structural	full	original designer name/date	Christchurch City Council/1974
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site:

(refer DEE Table 4-2)			
Site performance:	Good	Describe damage:	minor cracks in walls
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	cracks in plasterboard ceiling

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	Strengthening of bondbeam and diaphragm connections re
	Building Consent required:	no		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	51%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	51%			
Across	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	100%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 0m

Seismic Zone, if designed between 1965 and 1992: B — not required for this age of building / not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block G			Reviewer:	Lee Howard
	Unit	No:	Street	CPEng No:	1008889
Building Address:	22,23,24	183	Strickland	Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139			Company project number:	232536
				Company phone number:	33660821
	Degrees	Min	Sec		
GPS south:	43	32	55.43	Date of submission:	30/07/2013
GPS east:	172	37	38.85	Inspection Date:	4/06/2013
				Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B007			Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	3.30	height from ground to level of uppermost seismic mass (for IEP only) (m):		0
Floor footprint area (approx):	95			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400 mm,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100mm floor slab
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2 - 10 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	100

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	exposed structure	describe	blockwork exposed
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	full	original designer name/date	Christchurch City Council/1974
Structural	full	original designer name/date	Christchurch City Council/1974
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	minor cracks in walls
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	cracks in plasterboard ceiling

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	Strengthening of bondbeam and diaphragm connections re
	Building Consent required:	no		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	51%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	51%			
Across	Assessed %NBS before e'quakes:	50%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	50%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 0m

Seismic Zone, if designed between 1965 and 1992: B — not required for this age of building / not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts Block H			Reviewer:	Lee Howard
	Unit	No:	Street	CPEng No:	1008889
Building Address:	25A,25B,25C,25D,25E	183	Strickland Street	Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139			Company project number:	232539
				Company phone number:	3750761
	Degrees	Min	Sec		
GPS south:	43	32	56.13	Date of submission:	30/07/2013
GPS east:	172	37	39.43	Inspection Date:	4/06/2013
				Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B008			Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m):	
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	strip footings		if Foundation type is other, describe:	
Building height (m):	9.20	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	135			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):	multi-unit residential			
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber framed	rafter type, purlin type and cladding	steel trough roofing
Floors:	precast concrete with topping	unit type and depth (mm), topping	100mm Rib precast slab, 64mm topping
Beams:	cast-insitu concrete	overall depth x width (mm x mm)	varies
Columns:	load bearing walls	typical dimensions (mm x mm)	10 series and 15 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	plaster system	describe	painted CMU, plasterboard walls
Roof Cladding:	Metal	describe	Steel trough section roofing
Glazing:			
Ceilings:	plaster, fixed		
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	full	original designer name/date	Christchurch City Council
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site:

(refer DEE Table 4-2)			
Site performance:	Good	Describe damage:	Minor cracking in CMU and plasterboard.
Settlement:	25-100m	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	Minor cracking in plasterboard joints

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	Improve connection of slabs to walls
Building Consent required:	yes		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along Assessed %NBS before e'quakes:	59%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Assessed %NBS after e'quakes:	59%			
Across Assessed %NBS before e'quakes:	41%	##### %NBS from IEP below		
Assessed %NBS after e'quakes:	41%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts Block I			Reviewer:	Lee Howard
	Unit	No:	Street	CPEng No:	1008889
Building Address:	26,27,28,29,30,31A,31B,31C,31D,31E	183	Strickland Street	Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139			Company project number:	232539
				Company phone number:	3750761
	Degrees	Min	Sec		
GPS south:	43	32	54.85	Date of submission:	30/07/2013
GPS east:	172	37	39.45	Inspection Date:	4/06/2013
				Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B009			Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	3	single storey = 1	Ground floor elevation (Absolute) (m):	
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	strip footings		if Foundation type is other, describe:	
Building height (m):	9.20	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	135			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):	multi-unit residential			
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber framed	rafter type, purlin type and cladding	steel trough roofing
Floors:	precast concrete with topping	unit type and depth (mm), topping	100mm Rib precast slab, 64mm topping
Beams:	cast-insitu concrete	overall depth x width (mm x mm)	varies
Columns:	load bearing walls	typical dimensions (mm x mm)	10 series and 15 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**		
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:	cast insitu	notes	
Wall cladding:	plaster system	describe	painted CMU, plasterboard walls
Roof Cladding:	Metal	describe	Steel trough section roofing
Glazing:			
Ceilings:	plaster, fixed		
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	full	original designer name/date	Christchurch City Council
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	Minor cracking in CMU and plasterboard.
Settlement:	25-100m	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Along Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Across Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	Minor cracking in plasterboard joints

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	Improve connection of slabs to walls
Building Consent required:	yes		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along Assessed %NBS before e'quakes:	54%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Assessed %NBS after e'quakes:	54%			
Across Assessed %NBS before e'quakes:	41%	##### %NBS from IEP below		
Assessed %NBS after e'quakes:	41%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Block J				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	32,33,34,35,36		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	54.76	Date of submission:	30/07/2013	
GPS east:		172	37	39.47	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B010				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.60	height from ground to level of uppermost seismic mass (for IEP only) (m):		5.4
Floor footprint area (approx):	420			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	multi-unit residential		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400 mm,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*100 series block walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**			Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:			No
Wall cladding:			Mainly blockwork and partially Plasterboard
Roof Cladding:	Metal	describe:	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	cracks in plasterboard ceiling

Recommendations

	Level of repair/strengthening required:	significant structural		Describe:	Strengthening of the bondbeams, Some plasterboard walls
	Building Consent required:	yes		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	44%			
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	44%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 3-4				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 3-4		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	52.49	Date of submission:	30/07/2013	
GPS east:		172	37	40.01	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B018				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	34			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**			
Ductility assumed, μ:	1.25	**detailed report!**		note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural			Describe:	
Building Consent required:	no			Describe:	
Interim occupancy recommendations:	full occupancy			Describe:	
Along Assessed %NBS before e'quakes:	100%	#####	%NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Assessed %NBS after e'quakes:	100%				
Across Assessed %NBS before e'quakes:	44%	#####	%NBS from IEP below		
Assessed %NBS after e'quakes:	44%				

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garage 5				Reviewer:	Lee Howard
	Unit	No:	Street		CPEng No:	1008889
Building Address:	Garage 5	183	Strickland		Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536
					Company phone number:	33660821
	Degrees	Min	Sec			
GPS south:	43	32	53.12		Date of submission:	30/07/2013
GPS east:	172	37	38.46		Inspection Date:	4/06/2013
					Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B012				Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.00		height from ground to level of uppermost seismic mass (for IEP only) (m):	5.4
Floor footprint area (approx):	17			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*10 seriesblock walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site:

Site performance:	Good	Describe damage:	
(refer DEE Table 4-2)			
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS(before) - \%NBS(after))}{\%NBS(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	
Building Consent required:	yes		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology: Quantitative Assessment
	Assessed %NBS after e'quakes:	100%		

Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below
	Assessed %NBS after e'quakes:	44%	

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B

not required for this age of building
not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final $(\%NBS)_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:
Z_{1992}, from NZS4203:1992
Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2
Return Period Scaling factor from Table 3.1, **Factor C**:

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:

Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!
2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E **$\%NBS_b$:**	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential
Pounding effect D1, from Table to right 1.0
Height Difference effect D2, from Table to right 1.0
Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)
List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 6-7				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 6-7		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	52.49	Date of submission:	30/07/2013	
GPS east:		172	37	40.01	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B013				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	34			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS(before) - \%NBS(after))}{\%NBS(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	

Recommendations

	Level of repair/strengthening required:	minor structural	Describe:	
	Building Consent required:	no	Describe:	
	Interim occupancy recommendations:	full occupancy	Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology: Quantitative Assessment
	Assessed %NBS after e'quakes:	100%		
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below	
	Assessed %NBS after e'quakes:	44%		

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 10-13				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 10-13		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	53.14	Date of submission:	30/07/2013	
GPS east:		172	37	37.34	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B014				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		5.4
Floor footprint area (approx):	17			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400mm,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*10 seriesblock walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in detailed report!**			Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Along Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Across Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural			Describe:	
Building Consent required:	yes			Describe:	
Interim occupancy recommendations:	full occupancy			Describe:	
Along Assessed %NBS before e'quakes:	100%	#####	%NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Assessed %NBS after e'quakes:	100%				
Across Assessed %NBS before e'quakes:	44%	#####	%NBS from IEP below		
Assessed %NBS after e'quakes:	44%				

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B — not required for this age of building / not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 14-15				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 14-15		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	54.05	Date of submission:	30/07/2013	
GPS east:		172	37	36.71	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B015				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	34			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS(before) - \%NBS(after))}{\%NBS(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	

Recommendations

	Level of repair/strengthening required:	minor structural	Describe:	
	Building Consent required:	no	Describe:	
	Interim occupancy recommendations:	full occupancy	Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology: Quantitative Assessment
	Assessed %NBS after e'quakes:	100%		
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below	
	Assessed %NBS after e'quakes:	44%		

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Grage 18				Reviewer:	Lee Howard	
	Unit	No:	Street		CPEng No:	1008889	
Building Address:	Garage 18		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
	Degrees	Min	Sec				
GPS south:	43	32	54.72		Date of submission:	30/07/2013	
GPS east:	172	37	37.34		Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B016				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.00		height from ground to level of uppermost seismic mass (for IEP only) (m):	5.4
Floor footprint area (approx):	17			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400mm,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*10 seriesblock walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25	**Note: Define along and across in**		note total length of wall at ground (m):	
Period along:	0.40	##### **detailed report!** enter height above at H31		estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31		estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site:

Site performance:	Good	Describe damage:	
(refer DEE Table 4-2)			
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS(before) - \%NBS(after))}{\%NBS(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	
Building Consent required:	yes		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	100% ##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
	Assessed %NBS after e'quakes:	100%	methodology:	

Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below
	Assessed %NBS after e'quakes:	44%	

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B

not required for this age of building
not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final $(\%NBS)_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:
Z_{1992}, from NZS4203:1992
Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2
Return Period Scaling factor from Table 3.1, **Factor C**:

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:

Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!
2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E **$\%NBS_b$:**	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential
Pounding effect D1, from Table to right 1.0
Height Difference effect D2, from Table to right 1.0
Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)
List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 24-25				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 24-25		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	55.10	Date of submission:	30/07/2013	
GPS east:		172	37	40.03	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B017				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	34			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS(before) - \%NBS(after))}{\%NBS(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	

Recommendations

	Level of repair/strengthening required:	minor structural	Describe:	
	Building Consent required:	no	Describe:	
	Interim occupancy recommendations:	full occupancy	Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	
	Assessed %NBS after e'quakes:	100%		
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below	
	Assessed %NBS after e'quakes:	44%		

If IEP not used, please detail assessment methodology: Quantitative Assessment

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B

not required for this age of building
not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garage 2				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garage 2		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	52.99	Date of submission:	30/07/2013	
GPS east:		172	37	40.17	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B018				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		5.4
Floor footprint area (approx):	17			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400mm,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*10 seriesblock walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25	**Note: Define along and across in detailed report!**		note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%		Describe how damage ratio arrived at:
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no		Describe:
CSWs:	Damage?:	no		Describe:
Pounding:	Damage?:	no		Describe:
Non-structural:	Damage?:	yes		Describe:

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	
	Building Consent required:	yes		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	100%			
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	44%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B — not required for this age of building / not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 8-9				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 8-9		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	52.86	Date of submission:	30/07/2013	
GPS east:		172	37	37.74	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B019				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	34			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU		**Note: Define along and across in**		
Ductility assumed, μ:	1.25		**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%	Describe how damage ratio arrived at:	
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no	Describe:	
CSWs:	Damage?:	no	Describe:	
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural			Describe:	
Building Consent required:	no			Describe:	
Interim occupancy recommendations:	full occupancy			Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	100%			
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	44%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)$_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 16-17				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 16-17		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	54.48	Date of submission:	30/07/2013	
GPS east:		172	37	37.14	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B020				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	34			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**		
Ductility assumed, μ:	1.25	**detailed report!**	note total length of wall at ground (m):	
Period along:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	partially filled CMU			
Ductility assumed, μ:	1.25		note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	
Building Consent required:	no		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
Assessed %NBS after e'quakes:	100%			
Across Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below		
Assessed %NBS after e'quakes:	44%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - Garages 19-21				Reviewer:	Lee Howard	
		Unit	No:	Street	CPEng No:	1008889	
Building Address:	Garages 19-21		183	Strickland	Company:	Aureon	
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536	
					Company phone number:	33660821	
		Degrees	Min	Sec			
GPS south:		43	32	55.10	Date of submission:	30/07/2013	
GPS east:		172	37	40.03	Inspection Date:	4/06/2013	
					Revision:	2	
Building Unique Identifier (CCC):	PRO 1137 B021				Is there a full report with this summary?	yes	

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):		
Floor footprint area (approx):	51			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	150 Series Blockwork
Walls:	partially filled concrete masonry	thickness (mm)	140

Lateral load resisting structure

Lateral system along:	partially filled CMU	**Note: Define along and across in**			
Ductility assumed, μ:	1.25	**detailed report!**		note total length of wall at ground (m):	
Period along:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	#####	enter height above at H31	estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	Good	Describe damage:	
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

	Current Placard Status:	green		
Along	Damage ratio:	0%		Describe how damage ratio arrived at:
	Describe (summary):			
Across	Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$	
	Describe (summary):			
Diaphragms	Damage?:	no		Describe:
CSWs:	Damage?:	no		Describe:
Pounding:	Damage?:	no		Describe:
Non-structural:	Damage?:	yes		Describe:

Recommendations

	Level of repair/strengthening required:	minor structural		Describe:	
	Building Consent required:	no		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment methodology:	Quantitative Assessment
	Assessed %NBS after e'quakes:	100%			
Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below		
	Assessed %NBS after e'quakes:	44%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 h_n from above: m

Seismic Zone, if designed between 1965 and 1992: B not required for this age of building

not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0

Note 2: for RC buildings designed between 1976-1984, use 1.2

Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final (%NBS)nom:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:

Z_{1992}, from NZS4203:1992

Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2

Return Period Scaling factor from Table 3.1, **Factor C:**

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:		
Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!

2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E

$\%NBS_b$:	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential

Pounding effect D1, from Table to right 1.0

Height Difference effect D2, from Table to right 1.0

Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)

List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Norman Kirk Courts - garage 26				Reviewer:	Lee Howard
	Unit	No:	Street		CPEng No:	1008889
Building Address:	Garage 26	183	Strickland		Company:	Aureon
Legal Description:	Pt Lot 1 DP 30139				Company project number:	232536
					Company phone number:	33660821
	Degrees	Min	Sec			
GPS south:	43	32	55.12		Date of submission:	30/07/2013
GPS east:	172	37	40.03		Inspection Date:	4/06/2013
					Revision:	2
Building Unique Identifier (CCC):	PRO 1137 B022				Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:	mixed	Soil Profile (if available):	
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	0.00
Ground floor split?	no		Ground floor elevation above ground (m):	0.00
Storeys below ground	0			
Foundation type:	mat slab		if Foundation type is other, describe:	0
Building height (m):	2.00		height from ground to level of uppermost seismic mass (for IEP only) (m):	5.4
Floor footprint area (approx):	17			
Age of Building (years):	39		Date of design:	1965-1976
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	parking		Brief strengthening description:	
Use (upper floors):				
Use notes (if required):				
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	load bearing walls		
Roof:	timber truss	truss depth, purlin type and cladding	2400 mm,Timber, Corrugated Steel
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:	none	overall depth x width (mm x mm)	
Columns:	load bearing walls	typical dimensions (mm x mm)	2*10 seriesblock walls
Walls:	partially filled concrete masonry	thickness (mm)	200

Lateral load resisting structure

Lateral system along:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25	**Note: Define along and across in**		note total length of wall at ground (m):	
Period along:	0.40	##### **detailed report!** enter height above at H31		estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	
Lateral system across:	partially filled CMU				Blockwork wall reinforced @800mm
Ductility assumed, μ:	1.25			note total length of wall at ground (m):	
Period across:	0.40	##### enter height above at H31		estimate or calculation?	estimated
Total deflection (ULS) (mm):				estimate or calculation?	
maximum interstorey deflection (ULS) (mm):				estimate or calculation?	

Separations:

north (mm):		leave blank if not relevant
east (mm):		
south (mm):		
west (mm):		

Non-structural elements

Stairs:			No
Wall cladding:			Blockwork
Roof Cladding:	Metal	describe	Steel Sheeting
Glazing:	timber frames		Mainly timber
Ceilings:	plaster, fixed		No
Services(list):			

Available documentation

Architectural	partial	original designer name/date	Christchurch City Council
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site:

Site performance:	Good	Describe damage:	
(refer DEE Table 4-2)			
Settlement:	none observed	notes (if applicable):	
Differential settlement:	none observed	notes (if applicable):	
Liquefaction:	none apparent	notes (if applicable):	
Lateral Spread:	none apparent	notes (if applicable):	
Differential lateral spread:	none apparent	notes (if applicable):	
Ground cracks:	none apparent	notes (if applicable):	
Damage to area:	none apparent	notes (if applicable):	

Building:

Current Placard Status:	green		
Along Damage ratio:	0%	Describe how damage ratio arrived at:	
Describe (summary):			
Across Damage ratio:	0%	$Damage\_Ratio = \frac{(\%NBS(before) - \%NBS(after))}{\%NBS(before)}$	
Describe (summary):			
Diaphragms Damage?:	no	Describe:	
CSWs: Damage?:	no	Describe:	
Pounding: Damage?:	no	Describe:	
Non-structural: Damage?:	yes	Describe:	

Recommendations

Level of repair/strengthening required:	minor structural		Describe:	
Building Consent required:	yes		Describe:	
Interim occupancy recommendations:	full occupancy		Describe:	
Along Assessed %NBS before e'quakes:	100%	##### %NBS from IEP below	If IEP not used, please detail assessment	Quantitative Assessment
Assessed %NBS after e'quakes:	100%		methodology:	

Across	Assessed %NBS before e'quakes:	44%	##### %NBS from IEP below
	Assessed %NBS after e'quakes:	44%	

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above): 1965-1976 — h_n from above: 5.4m

Seismic Zone, if designed between 1965 and 1992: B

not required for this age of building
not required for this age of building

	along	across
Period (from above):	0.4	0.4
(%NBS)nom from Fig 3.3:		

Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0
Note 2: for RC buildings designed between 1976-1984, use 1.2
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)

	along	across
Final $(\%NBS)_{nom}$:	**0%**	**0%**

2.2 Near Fault Scaling Factor

Near Fault scaling factor, from NZS1170.5, cl 3.1.6:

	along	across
Near Fault scaling factor (1/N(T,D), **Factor A**:	#DIV/0!	#DIV/0!

2.3 Hazard Scaling Factor

Hazard factor Z for site from AS1170.5, Table 3.3:
Z_{1992}, from NZS4203:1992
Hazard scaling factor, **Factor B:** #DIV/0!

2.4 Return Period Scaling Factor

Building Importance level (from above): 2
Return Period Scaling factor from Table 3.1, **Factor C**:

2.5 Ductility Scaling Factor

	along	across
Assessed ductility (less than max in Table 3.2)		
Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:		
Ductiity Scaling Factor, **Factor D**:	0.00	0.00

2.6 Structural Performance Scaling Factor:

Sp:

Structural Performance Scaling Factor **Factor E**:	#DIV/0!	#DIV/0!
2.7 Baseline %NBS, $(NBS\%)_b$ = $(\%NBS)_{nom}$ x A x B x C x D x E **$\%NBS_b$:**	**#DIV/0!**	**#DIV/0!**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A: insignificant 1

3.2. Vertical irregularity, Factor B: insignificant 1

3.3. Short columns, Factor C: insignificant 1

3.4. Pounding potential
Pounding effect D1, from Table to right 1.0
Height Difference effect D2, from Table to right 1.0
Therefore, Factor D: 1

3.5. Site Characteristics insignificant 1

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

3.6. Other factors, Factor F

	Along	Across
For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.0	1.0
Rationale for choice of F factor, if not 1		

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)
List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**1.00**	**1.00**
4.3 PAR x (%NBS)b: PAR x Baselline %NBS:	**#DIV/0!**	**#DIV/0!**
4.4 Percentage New Building Standard (%NBS), (before)		**#DIV/0!**

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