

CHRISTCHURCH CITY COUNCIL PRK_0818_BLDG_002 Toilets at Phillipstown Court 261 Ferry Road, Waltham



QUALITATIVE ASSESSMENT REPORT FINAL

- Rev B
- **26** November 2013



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Contents

1.	Exec	cutive Summary	1
	1.1.	Background	1
	1.2.	Key Damage Observed	2
	1.3.	Critical Structural Weaknesses	2
	1.4.	Indicative Building Strength (from IEP and CSW assessment)	2
2.	Intro	duction	3
3.	Com	pliance	4
	3.1.	Canterbury Earthquake Recovery Authority (CERA)	4
	3.2.	Building Act	5
	3.3.	Christchurch City Council Policy	6
	3.4.	Building Code	7
4.	Eartl	nquake Resistance Standards	8
5.	Build	ding Details	10
	5.1.	Building description	10
	5.2.	Gravity Load Resisting System	10
	5.3.	Seismic Load Resisting system	10
	5.4.	Geotechnical Conditions	10
6.	Dam	age Summary and Remediation	11
7.	Initia	l Seismic Evaluation	12
	7.1.	The Initial Evaluation Procedure Process	12
	7.2.	Design Criteria and Limitations	14
	7.3.	Survey	14
	7.4.	Critical Structural Weaknesses	14
	7.5.	Qualitative Assessment Results	15
8.	Furtl	ner Investigation	16
9.	Cond	clusion	17
10.	Limi	tation Statement	18
11.	Appe	endix 1 – Photos	19
12.	Appe	endix 2 – IEP Reports	21
13	Anne	andix 3 – CERA Standardised Report Form	28



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1. Executive Summary

1.1. Background

A Qualitative assessment was carried out on the building PRK_0818_BLDG_002 located at 261 Ferry Road, Waltham. The single storey reinforced concrete masonry block building is currently utilized primarily as a public toilet. The timber framed roofing has timber rafters that support the corrugated iron roof sheathing. The toilet block has plastered masonry load bearing walls and sits on a concrete floor slab on grade with strip foundations. An aerial photograph illustrating this area is shown below in Figure 1. Detailed descriptions outlining the building's age and construction type are given in Section 5 of this report.



■ Figure 1 Aerial Photograph of PRK_0818_BLDG_002 – 261 Ferry Road, Waltham

The qualitative assessment includes a summary of the building damage as well as an initial assessment of the current seismic capacity compared with current seismic code loads using the Initial Evaluation Procedure (IEP).

This qualitative report for the building structure is based on the Detailed Engineering Evaluation Procedure document (draft) issued by the Structural Advisory Group on 19 July 2011 and visual inspections on 19 August 2013. There were no drawings available during our assessment.



1.2. Key Damage Observed

Key damage observed includes:

• Hairline cracking to the top of the wall (as indicated in Figure 3).

1.3. Critical Structural Weaknesses

No potential critical structural weaknesses have been identified for this building.

1.4. Indicative Building Strength (from IEP and CSW assessment)

Based on the information available, and using the NZSEE Initial Evaluation Procedure, the original capacity of the building has been assessed to be 61%NBS and post-earthquake capacity of 61%NBS. The buildings post-earthquake capacity excluding critical structural weaknesses is 61%NBS. This assessment has been made without structural drawings and is accordingly limited.

The building has been assessed to have a seismic capacity in the order of 61% NBS and is therefore not potentially earthquake prone.

Please note that structural strengthening is required by law for buildings that are confirmed to have a seismic capacity of less than 34% NBS.

The observed damage is not significant and has not compromised the structural integrity of the building; therefore we can conclude that the building is safe to occupy and we recommend no further strengthening or assessment will be required.



2. Introduction

Sinclair Knight Merz was engaged by Christchurch City Council to prepare a Qualitative Assessment Report for the building located at 261 Ferry Road, Waltham following the magnitude 6.3 earthquake which occurred in the afternoon of the 22nd of February 2011 and the subsequent aftershocks.

The qualitative assessment uses the methodology recommended in the Engineering Advisory Group document "Guidance on Detailed Engineering Evaluation of Earthquake affected Non-residential Buildings in Canterbury" (part 2 revision 5 dated 19/07/2011 and part 3 draft revision dated 13/12/2011). The qualitative assessment includes a summary of the building damage as well as an initial assessment of the likely current Seismic Capacity compared with current seismic code requirements.

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).

This report describes the structural damage observed during our inspection and indicates suggested remediation measures. The inspection was undertaken from a visual inspection only. Our report reflects the situation at the time of the inspection and does not take account of changes caused by any events following our inspection. A full description of the basis on which we have undertaken our visual inspection is set out in Section 7.2.

The NZ Society for Earthquake Engineering (NZSEE) Initial Evaluation Procedure (IEP) was used to assess the likely performance of the building in a seismic event relative to the New Building Standard (NBS). 100% NBS is equivalent to the strength of a building that fully complies with current codes. This includes a recent increase of the Christchurch seismic hazard factor from 0.22 to 0.3¹.

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 not available during our assessment. The building description below is based on our visual inspection.

SINCLAIR KNIGHT MERZ

¹ http://www.dbh.govt.nz/seismicity-info



3. Compliance

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

3.1. 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 (if available). 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

3.2. Building Act

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

3.2.1. 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).

3.2.2. 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.

3.2.3. 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.

3.2.4. 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.



3.2.5. 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.

3.2.6. Section 131 – Earthquake Prone Building Policy

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

3.3. 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. Council recognises that it may not be practicable for some repairs to meet that target. The council will work closely with building owners to achieve sensible, safe outcomes;
- 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 34%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.



3.4. 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:

- a) Hazard Factor increased from 0.22 to 0.3 (36% increase in the basic seismic design load)
- b) 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.



4. Earthquake Resistance Standards

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 2 below.

Description	Grade	Risk	%NBS	Existing Building Structural Performance		Improvement of St	ructural 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	100%NBS desirable. Improvement should achieve at least 67%NBS
Moderate Risk Building	B or C	Moderate	34 to 66	Acceptable legally. Improvement recommended		(unless change in use) This is for each TA to decide. Improvement is not limited to 34%NBS.	Not recommended. Acceptable only in exceptional circumstances
High Risk Building	A or B Low Above 67 Acceptable (improvement m be desirable) B or C Moderate 34 to 66 Acceptable legal Improvement recommended.	Unacceptable (Improvement	╛	Unacceptable	Unacceptable		

Figure 2: NZSEE Risk Classifications Extracted from table 2.2 of the NZSEE 2006 AISPBE Guidelines

Table 1 below provides an indication of the risk of failure for an existing building with a given percentage NBS, relative to the risk of failure for a new building that has been designed to meet current Building Code criteria (the annual probability of exceedance specified by current earthquake design standards for a building of 'normal' importance is 1/500, or 0.2% in the next year, which is equivalent to 10% probability of exceedance in the next 50 years).



Table 1: %NBS compared to relative risk of failure

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



5. Building Details

5.1. Building description

The single storey reinforced concrete masonry block wall building is primarily used as toilet blocks. The timber framed roof supports the corrugated iron roof sheathing. The internal and external walls of the building are plastered reinforced concrete masonry blocks. It has a concrete floor slab on grade with perimeter strip foundations.

We have carried out a cover meter survey using a Profoscope reinforcing detector and confirmed that the walls are reinforced. This check provided cover and spacing of reinforcing but not bar diameter and as such bar diameter will need to be assumed (or intrusive works carried out) if future work is required. Our evaluation was based on our visual inspection on 19 August 2013 only as structural drawings were not available during our assessment.

We have assumed that the building was built in the mid-1980s.

5.2. Gravity Load Resisting System

The gravity load resisting structure of the building is made up of reinforced concrete block walls supported on concrete strip foundations. A reinforced concrete slab on grade creates the ground floor area.

5.3. Seismic Load Resisting system

For the purposes of this report the longitudinal direction of the building is defined as being the north-south direction and the transverse direction is defined as being in the east-west direction.

The reinforced concrete masonry block walls in both the transverse and longitudinal directions provide shear action which resist the lateral loads carrying the loads into the foundations.

5.4. Geotechnical Conditions

There was no settlement or liquefaction observed on site; therefore a geotechnical desktop study is not recommended at this stage of assessment.

Unless a change of use is intended for the site we do not believe that any further geotechnical investigations are required. Specific ground investigation should be undertaken if significant alterations or new structures are proposed. If any excavations are required on the site further investigation of the potential for contamination should be undertaken.



6. Damage Summary and Remediation

SKM undertook a visual inspection of the building on 19 August 2013. Photos of the damage can be found in Appendix 1 – Photos. Cracking was discovered at the top of the reinforced concrete masonry block walls typically around this building as indicated in the sketch below.

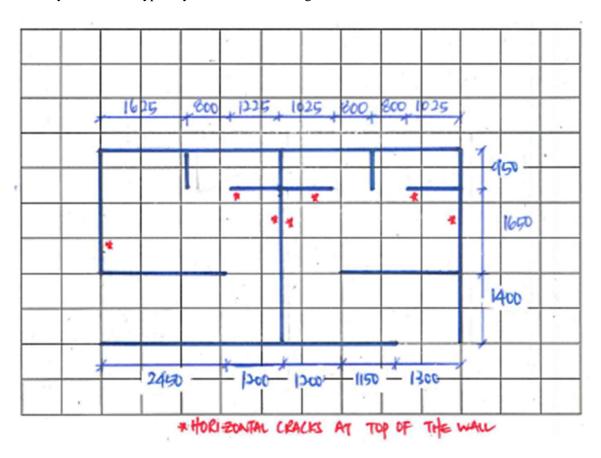


Figure 3 Toilet Block Floor Plan



7. Initial Seismic Evaluation

7.1. The Initial Evaluation Procedure Process

This section covers the initial seismic evaluation of the building as detailed in the NZSEE 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes'. The IEP grades buildings according to their likely performance in a seismic event. The procedure is not yet recognised by the NZ Building Code but is widely used and recognised by the Christchurch City Council as the preferred method for preliminary seismic investigations of buildings².

The IEP is a coarse screening process designed to identify buildings that are likely to be earthquake prone. The IEP process ranks buildings according to how well they are likely to perform relative to a new building designed to current earthquake standards, as shown in Table 2. The building grade is indicated by the percentage of the required New Building Standard (%NBS) strength that the building is considered to have. A building is earthquake prone for the purposes of this Act if, having regard to its condition and to the ground on which it is built, and because of its construction, the building—

- a) will have its ultimate capacity exceeded in a moderate earthquake (as defined in the regulations); and
- b) would be likely to collapse causing
 - i. injury or death to persons in the building or to persons on any other property; or
 - ii. damage to any other property.

A moderate earthquake is defined as 'in relation to a building, an earthquake that would generate shaking at the site of the building that is of the same duration as, but that is one-third as strong as, the earthquake shaking (determined by normal measures of acceleration, velocity and displacement) that would be used to design a new building at the site.'

An earthquake prone building will have an increased risk that its strength will be exceeded due to earthquake actions of approximately 10 times (or more) than that of a building having a capacity in excess of 100% NBS (refer Table 1)³. Buildings in Christchurch City that are identified as being earthquake prone are required by law to be followed up with a detailed assessment and strengthening work within 30 years of the owner being notified that the building is potentially earthquake prone⁴.

² http://resources.ccc.govt.nz/files/EarthquakeProneDangerousAndInsanitaryBuildingsPolicy2010.pdf

NZSEE June 2006, Assessment and Improvement of the Structural Performance of Buildings in Earthquakes, p 2-13

⁴ http://resources.ccc.govt.nz/files/EarthquakeProneDangerousAndInsanitaryBuildingsPolicy2010.pdf



Table 2: IEP Risk classifications

Description	Grade	Risk	%NBS	Structural performance
Low risk	A+	Low	> 100	Acceptable. Improvement may be desirable.
building			100 00	
	A		100 to 80	
	В		80 to 67	
	Б		80 10 07	
Moderate	С	Moderate	67 to 33	Acceptable legally. Improvement
risk building				recommended.
8				
High risk	D	High	33 to 20	Unacceptable. Improvement required.
building	_			
	E		< 20	

The IEP is a simple desktop study that is useful for risk management. No detailed calculations are done and so it relies on an inspection of the building and its plans to identify the structural members and describe the likely performance of the building in a seismic event. A review of the plans is also likely to identify any critical structural weaknesses. The IEP assumes that the building was properly designed and built according to the relevant codes at the time of construction. The IEP method rates buildings based on the code used at the time of construction and some more subjective parameters associated with how the building is detailed and so it is possible that %NBS derived from different engineers may differ.

This assessment describes only the likely seismic Ultimate Limit State (ULS) performance of the building. The ULS is the level of earthquake that can be resisted by the building without collapse or other forms of failure. The IEP does not attempt to estimate Serviceability Limit State (SLS) performance of the building, or the level of earthquake that would start to cause damage to the building⁵. This assessment concentrates on matters relating to life safety as damage to the building is a secondary consideration.

The NZ Building Code describes that the relevant codes for determining %NBS are primarily:

- AS/NZS 1170 Structural Design Actions
- NZS 3101:2006 Concrete Structures Standard
- NZS 3404:1997 Steel Structures Standard
- NZS4230:2004 Design of Reinforced Concrete Masonry Structures
- NZS 3603:1993 Timber Structures Standard
- NZS 3604:2011 Timber Framed Buildings

⁵ NZSEE 2006, Assessment and Improvement of the Structural Performance of Buildings in Earthquakes, p2-9



7.2. Design Criteria and Limitations

Following our inspection on 19 August 2013, SKM carried out a preliminary structural review. The structural review was undertaken using the available information which was as follows:

• SKM site measurements and inspection findings of the building. Please note no intrusive investigations were undertaken.

Structural and architectural drawings were not available during the preparation of the report.

The design criteria used to undertake the assessment include:

- Standard design assumptions for typical office and factory buildings as described in AS/NZS1170.0:2002
 - 50 year design life, which is the default NZ Building Code design life.
 - Structure importance level 2. This level of importance is described as 'normal' with medium or considerable consequence of failure.
 - Ductility level of 1.25 in both directions, based on our assessment and code requirements at the time of design.
 - Site hazard factor, Z = 0.3, NZBC, Clause B1 Structure, Amendment 11 effective from 1 August 2011

This IEP was based only on our visual inspection of the building, as there were no available structural and architectural drawings during our assessment. Since it is not a full design and construction review, it has the following limitations:

- It is not likely to pick up on any original design or construction errors (if they exist)
- Other possible issues that could affect the performance of the building such as corrosion and modifications to the building will not be identified
- The IEP deals only with the structural aspects of the building. Other aspects such as building services are not covered.
- The IEP does not involve a detailed analysis or an element by element code compliance check.

7.3. Survey

There was no visible settlement of the structure, nor were there any significant ground movement issues around the building that was observed during our visual inspection. Therefore, we do not recommend that any survey be undertaken at this point.

7.4. Critical Structural Weaknesses

No critical structural weaknesses for the building were observed during our visual inspection.



7.5. Qualitative Assessment Results

The building has had its capacity assessed using the Initial Evaluation Procedure based on the information available. The building's capacity excluding critical structural weaknesses and the capacity of any identified weaknesses are expressed as a percentage of new building standard (%NBS) and are in the order of that shown below in Table 3. These capacities are subject to confirmation by a quantitative analysis.

Table 3: Qualitative Assessment Summary

<u>Item</u>	%NBS
Likely Seismic Capacity of Building	61

Our qualitative assessment found that the building is likely to be classed as a 'Moderate Risk Building' (capacity between 34% and 67% NBS). The full IEP assessment form is detailed in Appendix 2 – IEP Reports.



8. Further Investigation

As there is only limited structural damage, no further investigation is required at this stage of the assessment.



9. Conclusion

A qualitative assessment was carried out on the building PRK_0818_BLDG_002 located at 261 Ferry Road, Waltham. The building has been assessed to have a seismic capacity of 61% NBS and is therefore not potentially earthquake prone and is likely to be classified as a 'Moderate Risk Building' (capacity between 34% and 67% NBS).

The damage observed during the site investigation was not significant; therefore the postearthquake capacity will not change as a result of earthquake damage.

The observed damage is not significant and has not compromised the structural integrity of the building; therefore it is we can conclude that the building is safe to occupy. We also recommend no further strengthening or assessment will be requirement for this building.



10. Limitation Statement

This report has been prepared on behalf of, and for the exclusive use of, SKM's client, and is subject to, and issued in accordance with, the provisions of the contract between SKM and the Client. It is not possible to make a proper assessment of this report 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, SKM. The report may 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, in the event of any liability, SKM's liability, whether under the law of contract, tort, statute, equity or otherwise, is limited in as set out in the terms of the engagement with the Client.

It is not within SKM's scope or responsibility to identify the presence of asbestos, nor the responsibility of SKM to identify possible sources of asbestos. Therefore for any property predating 1989, the presence of asbestos materials should be considered when costing remedial measures or possible demolition.

There is a risk of further movement and increased cracking due to subsequent aftershocks or settlement.

Should there be any further significant earthquake event, of a magnitude 5 or greater, it will be necessary to conduct a follow-up investigation, as the observations, conclusions and recommendations of this report may no longer apply Earthquake of a lower magnitude may also cause damage, and SKM should be advised immediately if further damage is visible or suspected.



11. Appendix 1 - Photos



NO PATRICE

Photo 1: Southeast Elevation

Photo 2: East Elevation





Photo 3: Northeast Elevation

Photo 4: Sotuh Elevation – West Wing



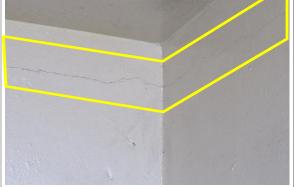
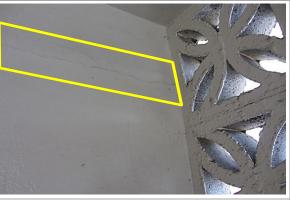


Photo 5: South Elevation – East Wing

Photo 6: Cracks at the top section of the walls (typical)





adjacent to decorative masonry blocks

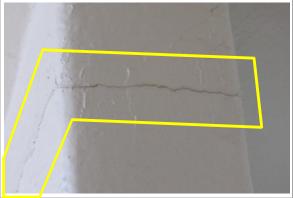


Photo 7: Crack at the top section of the wall Photo 8: Closer view of the crack (refer to Photo 9)



Photo 9: Cracks at the top section of the partition walls (typical)



12. Appendix 2 – IEP Reports



Table IEP-1 Initial Evaluation Procedure – Step 1

(Refer Table IEP - 2 for Step 2; Table IEP - 3 for Step 3, Table IEP - 4 for Steps 4, 5 and 6)



Building Name:	PRK_0818_BLDG_002 Toilets - Phillipstown Courts	Ref.	ZB01276.246
Location:	261 Ferry Road, Phillipstown, Christchurch 8011	Ву	RSB
		Date	8/11/2013
		_	

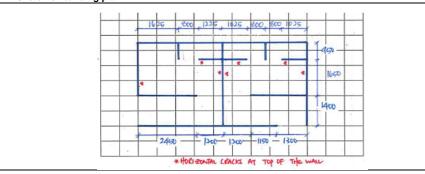
Step 1 - General Information

1.1 Photos (attach sufficient to describe building)





1.2 Sketch of building plan



1.3 List relevant features

The single storey recinforced concrete masonry block building is primarily used as a public toilet block. The timber framed roof has corrugated iron roofing. Gravity loads from the roof are carried by the timber trussed roof back to walls and down to the foundation level. The concrete strip foundation supports the concrete floor slab on grade and the walls. The reinforced concrete masonry blockwalls in the longitudinal and transverse directions provide shear action and resist the lateral load. The building was built circa mid 1980's.

1.4 Note information sources

Visual Inspection of Exterior Visual Inspection of Interior Drawings (note type) Specifications Geotechical Reports Other (list) Tick as appropriate

7	8
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Longitudinal 16.5	Note 3: For buildings designed prior to 1935 multiply No ▼ 1 Longitudinal 16.5 Transverse 16.5			e pullaings aesigned betwee	ın 1976 -1984		NO		1				
	Note 3: For buildings designed prior to 1935 multiply No ▼ 1 Transverse 16.5	Note 2:											
	Note 3: For buildings designed prior to 1935 multiply No ▼ 1 Transverse 16.5	Note 2:	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,										
Note 3: For buildings designed prior to 1935 multiply No 1 Transverse 16.5	(%NBS)nom by 0.8 except for Wellington where the	Note 2:	(,								Longitudina	16.5	(%



Building Name: Location:	PRK_0818_BLDG_002 Toilet 261 Ferry Road, Phillipstown				Ref. By	ZB01276.246 RSB
Direction Considered:		ıal & Transver			Date	8/11/2013
(Choose)	worse case if clear at start. Complete IEF					
2.2 Near Fault Scalir If T < 1	ng Factor, Factor A .5sec, Factor A = 1					
a) Near Fault Factor, N(T (from NZS1170.5:2004,	•		1			
b) Near Fault Scaling Fac	etor =	1/N(T,D)		Factor A	1.00	
2.3 Hazard Scaling F	actor, Factor B	Select Location	Christchurch		-	
a) Hazard Factor, Z, for s	ite		difficultural			
(from NZS1170.5:2004,	Table 3.3)		Z =	0.3		
			Z 1992 =	8.0	Auckland 0.6	Palm Nth 1.2
b) Hazard Scaling Factor					Wellington 1.2	Dunedin 0.6
	For pre 1992 = 1/Z For 1992 onwards = Z 1992/Z	7			Christchurch 0.8	Hamilton 0.67
(Where Z 19	992 is the NZS4203:1992 Zone Factor from ac		i(b))			
				Factor B	3.33	
2.4 Return Period So	aling Factor, Factor C					
a) Building Importance I	evel.		2	-		
 Building Importance L (from NZS1170.0:2004, 			2			
b) Return Period Scaling	Factor from accompanying Tabl	e 3.1		Factor C	1.00	
2.5 Ductility Scaling	Factor, D					
a) Assessed Ductility of	Existing Structure, u		Longitudinal	1.25	μ Maximum =	6
	mum given in accompanying Table	3.2)	Transverse	1.25	μ Maximum =	
b) Ductility Scaling Factor	AF					
For pre 1		\mathbf{k}_{μ}				
For 1976		1				
	s NZS1170.5:2005 Ductility Factor, from		Longitudinal	Factor D	1.00	
accompan	ying Table 3.3)		Transverse	Factor D	1.00	
2.6 Structural Perfor	mance Scaling Factor, Fa	ctor E				
	ral Load Resisting System					
Select Material of Late	Longitudinal		Concrete	•		
	Transverse		Concrete	-		
a) Structural Performand						
irom acc	ompanying Figure 3.4 Longitudinal	Cn.	0.90			
	Transverse	Sp Sp	0.90			
b) Structural Performand	Longitudinal	1/S _p		Factor E	1.11	
b) Structural Performand		1/S _p		Factor E	1.11	
b) Structural Performand	Transverse					
	Transverse for Building, (%NBS) _b m x A x B x C x D x E)				Longitudinal	61.1 (%NB



ilding Name: PRK_0818_BLDG_002 Toilets - Ph	illipstown Courts		Ref.	ZB0127	76.246
cation: 261 Ferry Road, Phillipstown, Chris		_	Ву	RS	BB
rection Considered: a) Longitudinal		=	Date	8/11/2	2013
(Choose worse case if clear at start. Complete IEP-2 and	IEP-3 for each if in doubt)				
tep 3 - Assessment of Performance An (Refer Appendix B - Section B3.2) Critical Structural Weakness	·	PAR)	ce		Building
		e - Do not interpol			Score
3.1 Plan Irregularity	Severe	Significant	Insignificant	1 _	
Effect on Structural Performance	0	0	•	Factor A	1
Comment					
3.2 Vertical Irregularity	Severe	Significant	Insignificant	٦	
Effect on Structural Performance	Oevere	Olginicant	insignificant	Factor B	1
Comment					*
				-	
3.3 Short Columns	Severe	Significant	Insignificant		
Effect on Structural Performance	0		•	Factor C	1
Comment				_	
a) Factor D1: - Pounding Effect Select appropriate value from Table Note:					
Values given assume the building has a frame stru of pounding may be reduced by taking the co-effici					
			Factor D1	1	
Table for Selection of Factor D1			Factor D1	e Significant	Insignificant
		Separation	Severe 0 <sep<.005h< td=""><td>Significant 1.005<sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<></td></sep<.005h<>	Significant 1.005 <sep<.01h< td=""><td>Sep>.01H</td></sep<.01h<>	Sep>.01H
Aligr	nment of Floors within 20%	of Storey Height	Severe 0 <sep<.005h t 0 0.7</sep<.005h 	e Significant	Sep>.01H
Alignme	nment of Floors within 20% nt of Floors not within 20%	of Storey Height	Severe 0 <sep<.005h t 0 0.7</sep<.005h 	Significant H .005 <sep<.01h 0.08<="" td=""><td>Sep>.01H</td></sep<.01h>	Sep>.01H
Align Alignme b) Factor D2: - Height Difference Effect		of Storey Height	Severe 0 <sep<.005h t 0 0.7</sep<.005h 	Significant H .005 <sep<.01h 0.08<="" td=""><td>Sep>.01H</td></sep<.01h>	Sep>.01H
Alignme		of Storey Height	Severe 0 <sep<.005h t 0 0.7</sep<.005h 	Significant 0.005 <sep<.01h 0.08="" 0.7<="" td=""><td>Sep>.01H</td></sep<.01h>	Sep>.01H
Align Alignme b) Factor D2: - Height Difference Effect		o of Storey Height o of Storey Height	Severe	Significant	Sep>.01H 1 0.8
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table	nt of Floors not within 20%	o of Storey Height o of Storey Height	Severe 0 <sep<.005h t<="" td=""><td>Significant 0.05<sep<.01h 0.05<="" 0.05<sep<.01h="" 0.7="" 0.8="" significant="" td=""><td>Sep>.01H 1 0.8 Insignificant Sep>.01H</td></sep<.01h></td></sep<.005h>	Significant 0.05 <sep<.01h 0.05<="" 0.05<sep<.01h="" 0.7="" 0.8="" significant="" td=""><td>Sep>.01H 1 0.8 Insignificant Sep>.01H</td></sep<.01h>	Sep>.01H 1 0.8 Insignificant Sep>.01H
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table	nt of Floors not within 20%	o of Storey Height o of Storey Height Separation rence > 4 Storeys	Severe 0 <sep<.005h t<="" td=""><td>Significant </td><td>Sep>.01H 1 0.8</td></sep<.005h>	Significant	Sep>.01H 1 0.8
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table	nt of Floors not within 20% Height Diffe Height Differe	o of Storey Height o of Storey Height	Severe 0 <sep<.005h t<="" td=""><td>Significant 0.05<sep<.01h 0.05<sep<.01h="" 0.05<sep<.01h<="" 0.7="" 0.8="" 1="" 2="" significant="" td=""><td>Sep>.01H 1 0.8 Insignificant Sep>.01H</td></sep<.01h></td></sep<.005h>	Significant 0.05 <sep<.01h 0.05<sep<.01h="" 0.05<sep<.01h<="" 0.7="" 0.8="" 1="" 2="" significant="" td=""><td>Sep>.01H 1 0.8 Insignificant Sep>.01H</td></sep<.01h>	Sep>.01H 1 0.8 Insignificant Sep>.01H
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table	nt of Floors not within 20% Height Diffe Height Differe	s of Storey Height of Storey Height Separation rence > 4 Storeys ace 2 to 4 Storeys	Severe 0 <sep<.005h t<="" td=""><td>Significant 005<sep<.01h 0.7="" 0.8="" 0.9="" 005<sep<.01h="" 1="" 1<="" significant="" td=""><td> Sep>.01H</td></sep<.01h></td></sep<.005h>	Significant 005 <sep<.01h 0.7="" 0.8="" 0.9="" 005<sep<.01h="" 1="" 1<="" significant="" td=""><td> Sep>.01H</td></sep<.01h>	Sep>.01H
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table	nt of Floors not within 20% Height Diffe Height Differe	s of Storey Height of Storey Height Separation rence > 4 Storeys ace 2 to 4 Storeys	Severe 0 <sep<.005h t<="" td=""><td>Significant 0.05<sep<.01h 0.05<sep<.01h="" 0.05<sep<.01h<="" 0.7="" 0.8="" 1="" 2="" significant="" td=""><td>Sep>.01H 1 0.8 Insignificant Sep>.01H 1 1 1 1 1</td></sep<.01h></td></sep<.005h>	Significant 0.05 <sep<.01h 0.05<sep<.01h="" 0.05<sep<.01h<="" 0.7="" 0.8="" 1="" 2="" significant="" td=""><td>Sep>.01H 1 0.8 Insignificant Sep>.01H 1 1 1 1 1</td></sep<.01h>	Sep>.01H 1 0.8 Insignificant Sep>.01H 1 1 1 1 1
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table	nt of Floors not within 20% Height Diffe Height Differe	s of Storey Height of Storey Height Separation rence > 4 Storeys ace 2 to 4 Storeys	Severe 0 <sep<.005h t<="" td=""><td>Significant 005<sep<.01h 0.07="" 0.7="" 0.8="" 0.9="" 005<sep<.01h="" 1="" d<="" factor="" significant="" td=""><td> Sep> 01H</td></sep<.01h></td></sep<.005h>	Significant 005 <sep<.01h 0.07="" 0.7="" 0.8="" 0.9="" 005<sep<.01h="" 1="" d<="" factor="" significant="" td=""><td> Sep> 01H</td></sep<.01h>	Sep> 01H
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table Table for Selection of Factor D2 3.5 Site Characteristics - (Stability, Ian	nt of Floors not within 20% Height Diffe Height Differ Height Diffe	Separation rence > 4 Storeys rence < 2 Storeys	Severe 0 <sep<.005h (set="" 0.4="" 0.7="" 0<sep<.005h="" d="1.0" d2="" factor="" if="" no<="" set="" severe="" t="" td=""><td> Significant 0.05<sep< 0.08="" 0.1="" 0.1h="" 0.5="" 0.7="" 0.8="" 0.9="" td="" ="" <=""><td> Sep> 01H</td></sep<></td></sep<.005h>	Significant 0.05 <sep< 0.08="" 0.1="" 0.1h="" 0.5="" 0.7="" 0.8="" 0.9="" td="" ="" <=""><td> Sep> 01H</td></sep<>	Sep> 01H
Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table Table for Selection of Factor D2	Height Diffe Height Diffe Height Differer Height Diffe	Separation rence > 4 Storeys rence < 2 Storeys rence < 2 Storeys rence < 2 Storeys	Severe 0 <sep<.005h t<="" td=""><td>Significant 0.05<sep<.01h 0.05<sep<.01h="" 0.1="" 0.7="" 0.8="" 0.9="" and="" d="" d1="" d2="" factor="" of="" or="" poundi<="" prospect="" significant="" td=""><td> Sep>.01H</td></sep<.01h></td></sep<.005h>	Significant 0.05 <sep<.01h 0.05<sep<.01h="" 0.1="" 0.7="" 0.8="" 0.9="" and="" d="" d1="" d2="" factor="" of="" or="" poundi<="" prospect="" significant="" td=""><td> Sep>.01H</td></sep<.01h>	Sep>.01H
Align Alignme b) Factor D2: - Height Difference Effect Select appropriate value from Table Table for Selection of Factor D2 3.5 Site Characteristics - (Stability, Ian	nt of Floors not within 20% Height Diffe Height Differ Height Diffe	Separation rence > 4 Storeys rence < 2 Storeys rence < 2 Storeys rence < 2 Storeys	Severe 0 <sep<.005h t<="" td=""><td> Significant 0.05<sep< 0.08="" 0.1="" 0.1h="" 0.5="" 0.7="" 0.8="" 0.9="" td="" ="" <=""><td> Sep> 01H</td></sep<></td></sep<.005h>	Significant 0.05 <sep< 0.08="" 0.1="" 0.1h="" 0.5="" 0.7="" 0.8="" 0.9="" td="" ="" <=""><td> Sep> 01H</td></sep<>	Sep> 01H
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Building Name: PF	RK_0818_BLDG_002 Toilets - Phillipst	own Courts	Ref.	ZB0127	6.246
ocation: 26	1 Ferry Road, Phillipstown, Christchur	ch 8011	Ву	RSE	3
Direction Considered:	b) Transverse		Date	8/11/2	013
(Choose worse case if o	clear at start. Complete IEP-2 and IEP-3 for e	ach if in doubt)			
Step 3 - Assessment	of Performance Achievemen	nt Ratio (PAR)			
(Refer Appendix	B - Section B3.2)				
Critical Structur	al Weakness	Effect on Structural Performanc	•		Building
		(Choose a value - Do not interpola			Score
3.1 Plan Irregularity		Severe Significant	Insignificant	п	
Effect on	Structural Performance Comment	0 0	•	Factor A	1
	Comment				
3.2 Vertical Irregula	rity	Severe Significant	Insignificant	_	
Effect on	Structural Performance	0 0	•	Factor B	1
	Comment				
3.3 Short Columns		Severe Significant	Insignificant		
	Structural Performance	0 0	•	Factor C	1
	Comment				
0.48: " =					
3.4 Pounding Poten		er of the two, or =1.0 if no potential for po	ounding)		
(L	ounded by and be and set b - the low	5. 5. 5.0 two, or =1.0 if no potential for po	.aanig)		
a) Factor D1: - Pound	ling Effect				
Select appropriate va	lue from Table				
			Factor D1	1	
Table for Selection of	Factor D1	Separation	Severe 0 <sep<.005h< th=""><th>.005<sep<.01h< th=""><th>Insignificant Sep>.01H</th></sep<.01h<></th></sep<.005h<>	.005 <sep<.01h< th=""><th>Insignificant Sep>.01H</th></sep<.01h<>	Insignificant Sep>.01H
	Alignme	ent of Floors within 20% of Storey Height	O 0.7	0.8	● 1
	Alignment	of Floors not within 20% of Storey Height	0.4	0.7	0.8
b) Factor D2: - Heigh	t Difference Effect				
Select appropriate va	lue from Table		_		
			Factor D2	1	
Table for Selection of	Factor D2	Separation	Severe 0 <sep<.005h< td=""><td>Significant .005<sep<.01h< td=""><td>Insignificant Sep>.01H</td></sep<.01h<></td></sep<.005h<>	Significant .005 <sep<.01h< td=""><td>Insignificant Sep>.01H</td></sep<.01h<>	Insignificant Sep>.01H
		Separation Height Difference > 4 Storeys	O 0.4	O 0.7	O 1
		Height Difference 2 to 4 Storeys	0.7	0.9	O 1
		Height Difference < 2 Storeys	0 1	0 1	1
				Factor D	1
			(Set D = lesser	of D1 and D2 or	
			•	prospect of poun	ding)
2 E Okto Objective	eviation (Otability Invalue 1919)	broot liquofaction -t-\			
	teristics - (Stability, landslide t Structural Performance	hreat, liquefaction etc) Severe Significant	Insignificant		
		0.5 0.7	1	Factor E	1
	re	For < 2 storoug Manieron 1 1 1	2.5		
2 6 Other Factor		For < 3 storeys - Maximum value 2	2.5,		
3.6 Other Facto				_	
3.6 Other Facto		otherwise - Maximum value 1.5. N	o minimum.	Factor F	1
	for choice of Factor F:	otherwise - Maximum value 1.5. N	o minimum.	Factor F	1



Location: 261 Ferry Road, Phillipstown, Christchurch 9011 Direction Considered: Longitudinal & Transverse (Choose worse case if clear at start. Complete IP-2 and EP-3 for each at longitudinal Step 4 - Percentage of New Building Standard (%NBS) 4.1 Assessed Baseline (%NBS) _b (from Table IEP - 1) 4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 4.3 PAR x Baseline (%NBS) _b (Use lower of two values from Step 4.3) Step 5 - Potentially Earthquake Prone? (Mark as appropriate) Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Evaluation Confirmed by Nick Calvert Name Alme 242062 CPEng. No	Death of the process of the proce				1; Table IEP - 2		ier - s for Ste	p 3)		
Choose worse case if clear at start. Complete IEP-2 and IEP-3 for each if in doubt) Step 4 - Percentage of New Building Standard (%NBS) Choose worse case if clear at start. Complete IEP-2 and IEP-3 for each if in doubt) Step 4 - Percentage of New Building Standard (%NBS) City	rection Considered: Longitudinal & Transverse (Choose worse case if clear at stant. Complete EIP-2 and EIP-3 for each if in doubt) tep 4 - Percentage of New Building Standard (%NBS) Longitudinal Transverse 4.1 Assessed Baseline (%NBS) _b 61 61 61 (from Table IEP - 1) 4.2 Performance Achievement Ratio (PAR) 1.00 1.00 (from Table IEP - 2) 4.3 PAR x Baseline (%NBS) _b 61 61 4.4 Percentage New Building Standard (%NBS) 61 61 Step 5 - Potentially Earthquake Prone? (Mark as appropriate) Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS: Grade: A+ A B C D E	Building Name:								
(Choose worse case if clear at start. Complete IEP-2 and IEP-3 for each if in doubt) Step 4 - Percentage of New Building Standard (%NBS) 4.1 Assessed Baseline (%NBS) _b (from Table IEP - 1) 4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 4.3 PAR x Baseline (%NBS) _b 61 61 61 61 61 61 61 61 61 61	tep 4 - Percentage of New Building Standard (%NBS) Longitudinal Transverse 4.1 Assessed Baseline (%NBS) _b (from Table IEP - 1) 4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 4.3 PAR x Baseline (%NBS) _b 61 61 61 4.4 Percentage New Building Standard (%NBS) (Use lower of two values from Step 4.3) Step 5 - Potentially Earthquake Prone? (Mark as appropriate) Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS: Grade: A+ A B C D E	Direction Considered:	261 Ferry Ro							
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4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 4.3 PAR x Baseline (%NBS) _b 61 61 4.4 Percentage New Building Standard (%NBS) (Use lower of two values from Step 4.3) Step 5 - Potentially Earthquake Prone? (Mark as appropriate) \$\text{NBS} \leq 33\$ NO Step 6 - Potentially Earthquake Risk? \$\text{NBS} \leq 67\$ YES Step 7 - Provisional Grading for Seismic Risk based on IEP Evaluation Confirmed by \$\text{Nick Calvert}\$ Name \$\text{Nick Calvert}\$ Name	4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 4.3 PAR x Baseline (%NBS) _b 61 61 4.4 Percentage New Building Standard (%NBS) (Use lower of two values from Step 4.3) Step 5 - Potentially Earthquake Prone? (Mark as appropriate) %NBS ≤ 33 NO Step 6 - Potentially Earthquake Risk? %NBS < 67 YES Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPErg. No Relationship between Seismic Grade and % NBS : Grade: A+ A B C D E	4.1 Ass	essed Baselii	ne (%NBS) _t	b			61		61
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(Use lower of two values from Step 4.3) Step 5 - Potentially Earthquake Prone? (Mark as appropriate) %NBS ≤ 33 NO Step 6 - Potentially Earthquake Risk? %NBS < 67 YES Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No	Step 5 - Potentially Earthquake Prone? (Mark as appropriate) Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS: Grade: A+ A B C D E	4.3 PAR	x Baseline (%NBS) _b				61		61
(Mark as appropriate) Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No	(Mark as appropriate) Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS:	4.4 Pero								61
Step 6 - Potentially Earthquake Risk? %NBS < 67 YES Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No	Step 6 - Potentially Earthquake Risk? Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS:	Step 5 -	· Potentially E							
Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No	Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade C Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS:							%NBS ≤ 33	3	NO
Evaluation Confirmed by Nick Calvert Name 242062 Seismic Grade Name CPEng. No	Evaluation Confirmed by Signature	Step 6 -	· Potentially E	arthquake	Risk?			%NBS < 6	7	YES
Seismic Grade Evaluation Confirmed by Nick Calvert Name 242062 CPEng. No	Evaluation Confirmed by Signature	Stor 7	Dravioianal	Cradina fa	. Soiomia D	ials bassal s	IED			
Nick Calvert Name 242062 CPEng. No	Nick Calvert Name 242062 CPEng. No Relationship between Seismic Grade and % NBS : Grade: A+ A B C D E	Step 7 -	Provisional	Grading for	r Seismic K	ISK DASEG (ON IEP	Seismic G	rade	С
	242062 CPEng. No Relationship between Seismic Grade and % NBS : Grade: A+ A B C D E	Evaluat	ion Confirme	d by	M	Wali	at		Signature	
	Relationship between Seismic Grade and % NBS : Grade: A+ A B C D E				Nick Calvert				Name	
Relationship between Seismic Grade and % NBS :	Grade: A+ A B C D E				242062				CPEng. No	
		Relation	nship betwee	n Seismic (Grade and '	% NBS :				
	%NBS: >100 100 to 80 80 to 67 67 to 33 33 to 20 < 20]
%NBS: > 100 100 to 80 80 to 67 67 to 33 33 to 20 < 20			%NBS:	> 100	100 to 80	80 to 67	67 to 33	33 to 20	< 20	



13. Appendix 3 – CERA Standardised Report Form



Location	Building Name	Phillipstown Courts	Reviewer	Nick Calvert
	Building Address	Toilets	No: Street CPEng No 261 Ferry Road, Philliostown Company Company project number	262042 Sinclair Knight Merz
	Legal Description		Company project number Company phone number	ZB01276.246 03 940 4900
	GPS south	Degrees 43	Min Sec 32 24.77 Date of submission	
	GPS east	172	39 32.24 Inspection Date:	19/08/2013
E	Building Unique Identifier (CCC)	PRK 0818 BLDG 002	Is there a full report with this summary?	ves
iite				
	Site slope Soil type	flat	Max retaining height (m) Soil Profile (if available)	
Prox	Site Class (to NZS1170.5) imity to waterway (m, if <100m)	D	If Ground improvement on site, describe:	
Pr	eximity to clifftop (m, if < 100m) eximity to cliff base (m,if <100m)		Approx site elevation (m)	
	,		. +	
uilding	No. of storeys above ground		Council floor algorithm (About to Council for About	0.00
	Ground floor split	no	single storey = 1 Ground floor elevation (Absolute) (m). Ground floor elevation above ground (m):	0.00
	Storeys below ground Foundation type	strip footings	if Foundation type is other, describe:	
	Building height (m) Floor footprint area (approx)	4.00	height from ground to level of uppermost seismic mass (for IEP only) (m):	
	Age of Building (years)	. 28	Date of design	1976-1992
	Strengthening present	(no	If so, when (year)?	
	Use (ground floor)		And what load level (%g)? Brief strengthening description.	
	Use (upper floors) Use notes (if required)		onor strongstoning description.	
Ir	nportance level (to NZS1170.5)			
Gravity Structure				
		load bearing walls		timber rafters/purlins and corrugated iron
	Roof Floors	timber framed concrete flat slab	rafter type, purlin type and cladding slab thickness (mm	
	Beams Columns	load bearing walls		150mm concrete masonry block
	Walls:	partially filled concrete masonry	thickness (mm	150
ateral load resisting structu	re			
	Lateral system along Ductility assumed, μ	concrete shear wall 1.25	Note: Define along and across in enter wall data in "IEP period calcs" worksheet for period calculation	
	Period along Total deflection (ULS) (mm)	0.40	0.005 from parameters in sheet estimate or calculation? estimate or calculation?	
maximum int	erstorey deflection (ULS) (mm)		estimate or calculation?	
	Lateral system across		enter wall data in "IEP period calcs"	
	Ductility assumed, µ Period across	1.25 0.40	0.006 from parameters in sheet worksheet for period calculation? worksheet for period calculation?	estimated
maximum int	Total deflection (ULS) (mm) erstorey deflection (ULS) (mm)		estimate or calculation? estimate or calculation?	estimated
Separations:				
	north (mm) east (mm)		leave blank if not relevant	
	south (mm)			
	west (mm)			
lon-structural elements	Stairs			
	Roof Cladding	exposed structure Metal	describe	painted and plastered RC masonry block wall corrugated iron roofing
	Glazing			
	Ceilings	plaster, fixed		
		plaster, fixed		
vailable documentation	Ceilings	plaster, fixed		
available documentation	Ceilings Services(list)	none	original designer nameistate	
vailable documentation	Ceilings Services(list) Architectura Structura Mechanica	none	original designer name/date original designer name/date	
vailable documentation	Cellings Services(list) Architectura Structura	none none	original designer name/date	
	Ceilings Services(list) Architectura Structura Mechanica Electrica	none none	original designer namedate original designer namedate original designer namedate	
Damage Site:	Ceilings Services(list) Architectura Structura Mechanica Electrica	none none	original designer namedate original designer namedate original designer namedate	
Damage Site:	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor	none none	original designer nametlate original designer nametlate original designer nametlate original designer nametlate original designer nametlate	None observed
wallable documentation Damage Site: Fereir DEE Table 4-2)	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settisment Differental settlement	none none Good none observed none observed	orignal designer nametate	None observed
tamage iite:	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlisment Differential settliement Liquefaction Lateral Spreade	Good none observed none observed none apparent none apparent	orignal designer nametate placetate notes (if applicable) notes (if applicable) notes (if applicable) notes (if applicable)	None observed
tamage iite:	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlement Liquefaction Liquefaction Lateral Spread Differential lateral spread	Good none observed none apparent	original designer nametate Describe damage notes (if applicable)	None observed
Damage Site: Verler DEE Table 4-2)	Cellings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlement Differential settlement Liquefaction Lateral Spread	Good none observed none apparent	orignal designer nametate Describe damage notes (if applicable)	None observed
Damage Site: Verler DEE Table 4-2)	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlement Liquefaction Liquefaction Lateral Spread Differential lateral spread	Good Tona observed rome observed rome observed rome observed rome apparent	original designer nametate Describe damage notes (if applicable)	None observed
Damage Site: refer DEE Table 4-2) Suitching:	Ceilings Services(list) Architectura Structura Mechanica Electrica Electrica Geotech repor Site performance Settlement Differental settlement Liquefaction Lateral Spread Differenfal alteral spread Ground cracks Damage to area Current Placard Status	Good Tona observed rome observed rome observed rome observed rome apparent	orignal designer nametate Describe damage notes (if applicable)	None observed
Damage Site: Verler DEE Table 4-2)	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlement Differental settlement Liquefaction Lateral Spread Differential settlement Capter of the control of the control Lateral Spread Differential settlement Diagnetic of the control Lateral Spread Diagnetic of the control	Good Tona observed rome observed rome observed rome observed rome apparent	original designer nametate Describe damage notes (if applicable)	None observed
Damage Site: refer DEE Table 4-2) Suitching:	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlement Liquefaction Lateral Spread Differential lateral spread Differential settlement Current Placard Status Damage ratio Describe (summary) Damage ratio Describe (summary)	Good Good Good Inone observed Inone observed Inone observed Inone apparent Inone Ino	original designer nametate original designer nam	None observed
Damage Site: Verter DEE Table 4-2) Relefing: Nong Nong	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlisment Liquefaction Lateral Spread Differential settlement Current Placard Status Damage ratio Describe (summary) Damage ratio Describe (summary)	Good Good Good Inone observed Ino	original designer nametate Describe damage notes (if applicable) notes (i	None observed
Damage Liter Liter Lefer DEE Table 4-2) Multing Long Long Long Long Long Long Long Lo	Ceilings Services(list) Architectura Structura Mechanica Electrica Electrica Geotech repor Site performance Settlement Liquelaction Lateral Spread Differential settlement Coround cracks Damage ratio Describe (summary) Damage ratio Describe (summary) Damage?	Good Good Good Good Inone observed Inone observ	original designer nametate Describe damage notes (if applicable) notes (i	None observed
hamage itis: efer DEE Table 4-2) suitcling: long cross	Ceilings Services(list) Architectura Structura Mechanica Electrica Geotech repor Site performance Settlisment Liquefaction Lateral Spread Differential settlement Current Placard Status Damage ratio Describe (summary) Damage ratio Describe (summary)	Good Good Good Good Inone observed Inone observ	original designer nametate Describe damage notes (if applicable) notes (i	None observed
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