Initial Evaluation Procedure (IEP) Assessment

Page 1

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in the New Zealand Society for Earthquake Engineering document "Assessment and Improvement of the Structural Performance of Buildings in Earthquakes, June 2006". This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result orseismic grade.

Street Number & Name:	55 Coote Road	Job No.:	2-63649.00
AKA:	Napier Prison	Ву:	s 9(2)(a)]
Name of building:	Building 7 - Shed/Kit Store	Date:	7/06/2016
City:	Napier	Revision No.:	0

Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)





NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED				
1.2 Sketches (plans etc, show i	items of interest)			
NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED				
1 3 List relevant features (Note				
1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a) Built: 1862 Use: Shed/Kit store Structural bracing system: Timber framed structure in both the longitudinal and transverse direction. Roof: Corrugated iron roofing on timber purlins. Foundation system: Assumed to be concrete slab on grade. Timber boarding for external lining.				
1.4 Note information sources	Tick as appropriate			
Visual Inspection of Exterior Visual Inspection of Interior Drawings (note type)	v	Specifications Geotechnical Reports Other (list)		
Plan lavoute from local council archiv	JOS.			

lame of buildin City:		Napier Prison	By:		
ity:	ng:	Building 7 - Shed/Kit Store	Date		
		Napier	Rev	rision No.: 0	
Table IEP-2	Initial Eva	luation Procedure Step 2			
-	mination of (%				
	i tor particular build nominal <i>(%NB</i> S)	ling - refer Section B5) = (%NBS)	Longitudinal	Transverse	
		7 1841	Longitudinal	Hansverse	
	rengthening Data ding is known to be	ve been strengthened in this direction			
	-	tage of code the building has been strengthened		N/A	
ii saerigaie	eneu, enter percen	tage of code the building has been strengthened	to N/A	N/A	
b) Year of Desi	ign/Strengthening	, Building Type and Seismic Zone			
•			Pre 1935 ⊙	Pre 1935 ⊙	
			1935-1965	1935-1965 🔘	
			1965-1976	1965-1976	
			1976-1984	1976-1984 🔘	
			1984-1992 🔘	1984-1992 🔘	
			1992-2004 🔘	1992-2004 🔘	
			2004-2011 O Post Aug 2011 O	2004-2011 ©	
			Post Aug 2011 C	Post Aug 2011 O	
		Building Type:	Others	Others	-
		Seismic Zone:			-
a) Sail Tuna		Seisilic Zoile.	71		
c) Soil Type	From NZS1170.5:	2004, CI 3.1.3 :	D Soft Soil ▼	D Soft Soil	¥
	From NZ\$4203:19 (for 1992 to 2004	92, CI 4.6.2.2 : and only if known)	Flexible	Flexible	¥
d) Estimate Pe	eriod. T	(2)			
Comment:	•		h _n = 3	3 m	
			A _c = 1.00	1.00 m²	
Moment Re	sisting Concrete F		0	0	
	sisting Steel Fram		0	0	
	y Braced Steel Fra		0	0	
All Other Fr	ame Structures:	$T = \max\{0.08h_n^{0.75}, 0.4\}$ $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	© O	©	
Masonry Sh		$T = \max_{n} \{0.09n_n \mid TA_c \mid 0.4\}$ $T \le 0.4 \operatorname{sec}$	ŏ	0	
	ed (input Period):	· · · · ·	0	Ŏ	
		neight in metres from the base of the structure to the eismic weight or mass.	T: 0.40	0.40	
a) Easter A:	Strongthoning fort	letermined using result from (a) where (and to 4.0.	Eactor A: 4.00	4.00	
e) Factor A:	if not strengthened)	letermined using result from (a) above (set to 1.0	Factor A: 1.00	1.00	
f) Factor B:	Determined from NZS results (a) to (e) above	EE Guidelines Figure 3A.1 using	Factor B: 0.03	0.03	
g) Factor C:	For reinforced concre C = 1.2, otherwise tal	e buildings designed between 1976-84 Factor se as 1.0.	Factor C: 1.00	1.00	
h) Factor D:		d prior to 1935 Factor D = 0.8 except for Wellington be taken as 1, otherwise take as 1.0.	Factor D: 0.80	0.80	
(%NBS) _{nom} =	AVBVCVD		(%NBS) _{nom} 2%	2%	

Street Number & Name:	55 Coote Road			Job No.:	2-63649.00 [s 9(2)(a)]
NKA:	Napier Prison	divit Ctore		By:	
lame of building: City:	Building 7 - She Napier	ed/Kit Store		Date: Revision No.:	7/06/2016
		ura Stan 2 aant	inuad	REVISION NO	U
.2 Near Fault Scaling Facto	valuation Proced	ure Step 2 cont	mueu		
If T ≤ 1.5sec, Factor E =			<u>Longitudin</u>	al	<u>Transverse</u>
 a) Near Fault Factor, N(T,D) (from NZS1170.5:2004, CI 3.1.6) 			N(T,D): 1		1
b) Factor E	,	= 1/N(T,D)	Factor E: 1.00	-	1.00
.3 Hazard Scaling Factor, F a) Hazard Factor, Z, for site					
Locat	Monior	•			
_	Z = 0.38	(from NZS1170.5:2004, T			
	1992 = 1.2 2004 = 0.38	(NZS4203:1992 Zone Fac (from NZS1170.5:2004, T	etor from accompanying Figure 3.5(able 3.3)	b))	
b) Factor F				~ W	
For pre 1992 For 1992-2011	= =	1/Z Z ₁₉₉₂ /Z		SI	
For post 2011	=	Z ₂₀₀₄ /Z		2	
			Factor F: 2.63		2.63
4 Return Period Scaling Fa					
 a) Design Importance Level, (Set to 1 if not known. For building: public building set to 1.25. For building: public building set to 1.33 for Zone 	s designed prior to 1965 and kno Idings designed 1965-1976 and k	nown to be designed as a	I= 1		1
b) Design Risk Factor, R _o				-	_
(set to 1.0 if other than 1976-2004	4, or not known)	(0)	$R_0 = 1$	_ _	1
c) Return Period Factor, R (from NZS1170.0:2004 Building In	mportance Level)	Choose Importance	<u>Level</u>	04 0	1 @2 03 04
			R = 1.0		1.0
d) Factor G	-0	IR _d /R	Factor G: 1.00		1.00
5 Ductility Scaling Factor, a) Available Displacement Di Comment:		tructure	$\mu = 2.00$		2.00
b) Factor H	•		k_{μ}		k_{μ}
	For pre 1976 (maxir For 1976 onwards	mum of 2)	= 1.57 = 1 Factor H: 1.57		1.57 1 1.57
	elastic Spectrum Scaling Factor, f	rom accompanying Table 3.		-	1.01
(where kµ is NZS1170.5:2004 Ine					
6 Structural Performance 9 a) Structural Performance Fa	Scaling Factor, Factor actor, S _p	ı			
.6 Structural Performance \$	Scaling Factor, Factor actor, S _p		S _p = 0.50		0.50
6 Structural Performance S a) Structural Performance Fa (from accompanying Figure 3.4) Tick if light timber-framed co b) Structural Performance So	Scaling Factor, Factor actor, S_p onstruction in this direction	= 1/S _p	$S_p = 0.50$ Factor I: 2.00		

						Page
reet Number & Name: KA:	55 Coote Road Napier Prison				ob No.:	2-63649.00 s 9(2)(a)]
NA: ame of building:	Building 7 - She	ad/Kit Store		B	y: ate:	7/06/2016
ity:	Napier	ATTIC OLOTO			evision No.:	0
	valuation Procedu	ure Step 3				
ep 3 - Assessment of Pe efer Appendix B - Section B3.2,		nent Ratio (PAR)				
Longitudinal Direction						
potential CSWs		Effect on Struct (Choose a value -				Fact
Plan Irregularity	C) Course	0.8	innitionat		♠ Incimificant	
Effect on Structural Perform None	ance C Severe	C Si	gnificant			Factor A 1.0
Vertical Irregularity Effect on Structural Perform	nance 🔾 Severe	O Si	ignificant		⊙ Insignificant	Factor B 1.0
None						
Short Columns Effect on Structural Perform	nance Severe	O si	gnificant		 Insignificant 	Factor C 1.0
None						
(Estimate D1 and D2 and s		vo, or 1.0 if no potenti	al for pounding,	or consequer	nces are consider	red to be minimal)
Note:						1
may be reduced by taking	ng the coefficient to the r	.01	or D1 For Long		ection: 1.0]]
	Alignment of Floors within	Separation 20% of Storey Height	0 <sep<.005h .0<="" td=""><td>005<sep<.01h< td=""><td>Sep>.01H</td><td></td></sep<.01h<></td></sep<.005h>	005 <sep<.01h< td=""><td>Sep>.01H</td><td></td></sep<.01h<>	Sep>.01H	
Ali	gnment of Floors not within	20% of Storey Height	Q 0.4	0.7	0.8	
None		Love di otoroj rraigin				
b) Factor D2: - Heig	ht Difference Effect					
	_,¿O	Facto	or D2 For Long	Martine Direction	1.0	1
b) Factor D2: - Heig	_,¿O	Facto	Severe	itudinal Dire Significant 105 <sep<.01h< td=""><td>ection: 1.0 Insignificant Sep>.01H</td><td>]</td></sep<.01h<>	ection: 1.0 Insignificant Sep>.01H]
	on of Factor D2 Height D	Difference > 4 Storeys	Severe 0 <sep<.005h .0<="" td=""><td>Significant 05<sep<.01h< td=""><td>Insignificant Sep>.01H</td><td></td></sep<.01h<></td></sep<.005h>	Significant 05 <sep<.01h< td=""><td>Insignificant Sep>.01H</td><td></td></sep<.01h<>	Insignificant Sep>.01H	
	on of Factor D2 Height D Height Dil	Difference > 4 Storeys fference 2 to 4 Storeys	Severe 0 <sep<.005h .0<br="">0.4</sep<.005h>	Significant 05 <sep<.01h 0.7 0.9</sep<.01h 	Insignificant Sep>.01H	
	on of Factor D2 Height D Height Dil	Difference > 4 Storeys	Severe 0 <sep<.005h .0<="" td=""><td>Significant 05<sep<.01h< td=""><td>Insignificant Sep>.01H</td><td></td></sep<.01h<></td></sep<.005h>	Significant 05 <sep<.01h< td=""><td>Insignificant Sep>.01H</td><td></td></sep<.01h<>	Insignificant Sep>.01H	
Table for Selection	on of Factor D2 Height D Height Dil	Difference > 4 Storeys fference 2 to 4 Storeys	Severe 0 <sep<.005h .0<br="">0.4</sep<.005h>	Significant 05 <sep<.01h 0.7 0.9</sep<.01h 	Insignificant Sep>.01H	 Factor D 1.0
Table for Selection	on of Factor D2 Height Di Height Dit Height	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys	Severe 0 <sep<.005h .0<br="">0.4 0.7</sep<.005h>	Significant 05-Sep<.01H 0.7 0.9	Insignificant Sep01H 1 1 1 1 1	
Table for Selection	on of Factor D2 Height Dit Height Dit Height lidelity, landslide threat, liqu	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys Lifference < 2 Storeys	Severe 0 <sep<.005h .0<br="">0.4 0.7</sep<.005h>	Significant 05-Sep<.01H 0.7 0.9	Insignificant Sep01H 1 1 1 1 1	
None Site Characteristics - St	on of Factor D2 Height Dit Height Dit Height lidelity, landslide threat, liqu	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys Lifference < 2 Storeys	Severe 0 <sep<.005h .0="" 0.4="" 0.7="" 1="" per<="" structural="" td="" the=""><td>Significant 05-Sep<.01H 0.7 0.9</td><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>pective</td></sep<.005h>	Significant 05-Sep<.01H 0.7 0.9	Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pective
None Site Characteristics - St. Effect on Structural Perform	Height Di Height Dit Height lit Height lit H	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys uefaction etc as it affects	Severe 0 <sep<.005h .0="" 0.4="" 0.7="" 1="" ignificant<="" per="" structural="" td="" the=""><td>Significant 105<sep<.01h 07="" 09="" 11="" 15="" 16="" 17="" 18="" 18<="" td=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>pective Factor E 1.0</td></sep<.01h></td></sep<.005h>	Significant 105 <sep<.01h 07="" 09="" 11="" 15="" 16="" 17="" 18="" 18<="" td=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>pective Factor E 1.0</td></sep<.01h>	Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pective Factor E 1.0
None Site Characteristics - St. Effect on Structural Perform None Other Factors - for allowa Record rationale for ch	Height Dit Height Dit Height Dit Height II Height II Ability, landslide threat, lique mance C Sewere	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys uefaction etc as it affects	Severe 0 <sep<.005h .0="" 0.4="" 0.7="" 1="" ignificant<="" per="" structural="" td="" the=""><td>Significant 105<sep<.01h -="" 07="" 09="" 11="" 3="" mai="" mai<="" storeys="" td="" therwise=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>pective Factor E 1.0</td></sep<.01h></td></sep<.005h>	Significant 105 <sep<.01h -="" 07="" 09="" 11="" 3="" mai="" mai<="" storeys="" td="" therwise=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1</td><td>pective Factor E 1.0</td></sep<.01h>	Insignificant Sep>.01H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	pective Factor E 1.0
None Site Characteristics - State Characteristics - S	Height Dit Height Dit Height Dit Height II Height II Ability, landslide threat, lique mance C Sewere	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys uefaction etc as it affects	Severe 0 <sep<.005h .0="" 0.4="" 0.7="" 1="" ignificant<="" per="" structural="" td="" the=""><td>Significant 105<sep<.01h -="" 07="" 09="" 11="" 3="" mai="" mai<="" storeys="" td="" therwise=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 Insignificant Insignificant Insignificant Insignificant Insignificant</td><td>pective Factor E 1.0</td></sep<.01h></td></sep<.005h>	Significant 105 <sep<.01h -="" 07="" 09="" 11="" 3="" mai="" mai<="" storeys="" td="" therwise=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 Insignificant Insignificant Insignificant Insignificant Insignificant</td><td>pective Factor E 1.0</td></sep<.01h>	Insignificant Sep>.01H 1 1 1 1 1 1 1 Insignificant Insignificant Insignificant Insignificant Insignificant	pective Factor E 1.0
None Site Characteristics - St. Effect on Structural Perform None Other Factors - for allowa Record rationale for ch	Height Dit Height Dit Height Dit Height Dit Height I Heig	Difference > 4 Storeys fference 2 to 4 Storeys Difference < 2 Storeys uefaction etc as it affects	Severe 0 <sep<.005h .0="" 0.4="" 0.7="" 1="" ignificant<="" per="" structural="" td="" the=""><td>Significant 105<sep<.01h -="" 07="" 09="" 11="" 3="" mai="" mai<="" storeys="" td="" therwise=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 Insignificant Insignificant Insignificant Insignificant Insignificant</td><td>pective Factor E 1.0</td></sep<.01h></td></sep<.005h>	Significant 105 <sep<.01h -="" 07="" 09="" 11="" 3="" mai="" mai<="" storeys="" td="" therwise=""><td>Insignificant Sep>.01H 1 1 1 1 1 1 1 Insignificant Insignificant Insignificant Insignificant Insignificant</td><td>pective Factor E 1.0</td></sep<.01h>	Insignificant Sep>.01H 1 1 1 1 1 1 1 Insignificant Insignificant Insignificant Insignificant Insignificant	pective Factor E 1.0

Initi	al Evaluation Procedu	re (IEP) Assessn	nent				Page 5
AKA	e of building:	55 Coote Road Napier Prison Building 7 - Shed/ Napier	Kit Store		By Da	b No.: /: [S ate: evision No.:	2-63649.00 - 9(2)(a)]
Tab	le IEP-3 Initial Evalu	uation Procedure	e Step 3				
	3 - Assessment of Perform r Appendix B - Section B3.2)	mance Achievemer	nt Ratio (PAR)				
b) Tı	ransverse Direction						F4
	potential CSWs		Effect on Stru (Choose a value				Factors
3.1 1	Plan Irregularity Effect on Structural Performance None	Severe	۵	Significant		⊙ Insignificant	Factor A 1.0
3.2 \	Vertical Irregularity						
	Effect on Structural Performance None	, C Severe	а	Significant		Insignificant	Factor B 1.0
3.3	Short Columns Effect on Structural Performance	. C Severe		 Significant		⊙ Insignificant	Factor O 10
	None None	,					Factor C 1.0
241	Counding Retential						
	Pounding Potential (Estimate D1 and D2 and set D	= the lower of the two,	or 1.0 if no potentia	al for pounding	g, or consequen	ces are consider	ed to be minimal)
a)	Factor D1: - Pounding Effect			_0			
	Note: Values given assume the bui may be reduced by taking the					ct of pounding	
			,0,				ı
	Table for Selection of	Factor D1	1.51	Severe		Insignificant	
	Align	nment of Floors within 20	Separation % of Storey Height	0 <sep<.005h< td=""><td>.005<sep<.01h< td=""><td>Sep>.01H ① 1</td><td></td></sep<.01h<></td></sep<.005h<>	.005 <sep<.01h< td=""><td>Sep>.01H ① 1</td><td></td></sep<.01h<>	Sep>.01H ① 1	
	Alignmei None	nt of Floors not within 20	% of Storey Height	0.4	0.7	0.8	
	b) Factor D2: - Height Dif	ference Effect					
	b) ractor bz neight bii	lerence Enect	Fac	tor D2 For Tr	ansverse Dire	ction: 1.0	1
	Table for Selection of	Factor D2	1 40	Severe 0 <sep<.005h< td=""><td>Significant</td><td>Insignificant Sep>.01H</td><td></td></sep<.005h<>	Significant	Insignificant Sep>.01H	
			rence > 4 Storeys	0.4 0.07	005\Sep\.011	01	
			ence 2 to 4 Storeys erence < 2 Storeys	01	O1	□ 1 ⊙ 1	
	None						
							Factor D 1.0
3.5	Site Characteristics - Stability	_	_	•	erformance from		ective
	Effect on Structural Performance None	, C Severe		Significant			Factor E 1.0
3.6	Other Factors - for allowance of Record rationale for choi		cterstics of the buildi		≤3 storeys - Maxi otherwise - Maxi		Factor F 2.00
	Lightweight building, good wall le				NOT	amuil.	
							PAR
	Performance Achievement R (equals A x B x C x D x E x F					T	ransverse 2.00
WAI	RNING!! This initial evaluation has bee	en carried out solely as an init	ial seismic assessment of		ving the procedurese	et out in the New Zeald	and Society for Earthquake

Initial Evaluation Procedure (IEP) Assessment Page 6 Street Number & Name: 55 Coote Road Job No.: 2-63649.00 s 9(2)(a)] Napier Prison AKA: Ву: Building 7 - Shed/Kit Store Name of building: Date: 7/06/2016 City: Napier Revision No.: Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7 Step 4 - Percentage of New Building Standard (%NBS) Longitudinal Transverse Assessed Baseline %NBS (%NBS) b 19% 19% (from Table IEP - 1) Performance Achievement Ratio (PAR) 2.00 2.00 4.2 (from Table IEP - 2) PAR x Baseline (%NBS) b 40% 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? %NBS < 67 (Mark as appropriate) Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Additional Comments (items of note affecting IEP score) [s 9(2)(a)] **Evaluation Confirmed by** Signature Name 1003026 CPEng. No Relationship between Grade and %NBS: Grade: В C D %NBS: > 100 100 to 80 79 to 67 66 to 34 33 to 20 < 20

Initial Evaluation Proce	edure (IEP) Assessment		Page 7
Street Number & Name:	55 Coote Road	Job No.:	2-63649.00
AKA:	Napier Prison	By:	[s 9(2)(a)]
Name of building:	Building 7 - Shed/Kit Store	Date:	7/06/2016
City:	Napier	Revision No.:	0
Step 8 - Identification of p	aluation Procedure Step 8 otential Severe Critical Structural Weaknesses tha a significant number of occupants	t could result in	
8.1 Number of storeys abo	ve ground level		1
3.2 Presence of heavy con	crete floors and/or concrete roof? (Y/N)		N
Occupancy not consi	dered to be significant - no further consideration	required	
	to be significant - no further consideration require		

Initial Evaluation Procedure (IEP) Assessment

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Street Number & Name:	55 Coote Road	Job No.:	2-63649.00
AKA:	Napier Prison	Ву:	[s 9(2)(a)]
Name of building:	Building 7 - Shed/Kit Store	Date:	7/06/2016
City:	Napier	Revision No.:	0

Table IEP-1a Additional Photos and Sketches

Add any additional photographs, notes or sketches required below:











