Southland Times Building, Strengthening Concept to 100%NBS(IL2), Invercargill, Southland.



Client Name:	HWCP Management Ltd
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BMC Reference: 1711-2266

Date Issued: 22/01/2019

BMC have been requested to provide a strengthening concept to achieve 100%NBS(IL2) capacity. This information is to provide sufficient detail to enable rough order costing by a Quantity Surveyor. Section 10 of the original Southland Times DSA Report identifies the seismic capacity of the relative components of the building along with their %NBS rating.

In the DSA we derived the Figure 16 and 17 sketches to illustrate the relative deficiencies of the building components to the Façade (Typical Transverse wall) and the West elevations (Typical Longitudinal wall) only. To enable the full extent of the 100%NBS (IL2) remedial works to be identified this technique has been used to incorporate all of the wall elevations both externally and internally. See page 2 for these outputs and an illustration of the Out of Plane and In-plane remedial works locations to the walls of the building.

It can be seen that the structural elements of concern relate to: Wall capacities Out of Plane (OOP), Wall Capacities In plane (IP), Roof and Floor diaphragm strengths and Diaphragm fixings to the walls.

The Table in the Quantitative Results Summary of the DSA has been expanded to include the Repair strategies required for each component to reach a strength equivalent to 100%NBS (IL2) along with a rough order extent for this work for costing purposes. See pages 3 & 4.

Please note these provisions do not allow for the serviceability requirements in the NZ loading code that any new build is required to perform to.

The 1986 refurbishment provided a number of strengthening elements to the building some of which were amended on site from the provisions in the archive drawings. Amongst these are the resin anchor fixings of the roof diaphragms to the façade and side walls which appear to have been installed whereas those to the floor diaphragms were substituted for through bolts with steel plate pattress plates. Evidence form the Christchurch earthquakes found that few resin anchors were installed adequately and given these are over 30 years old we would recommend that a selection of the anchors are checked for their pull-out capacity on site to ensure their adequacy. For the purposes of this remedial strategy we would recommend an allowance for 100% replacement of the roof level anchors should be made as a provisional sum which will be dependent upon the testing results.

The detailing required to strengthen the respective elements to the 100%NBS (IL2) capacity have then been detailed in the drawings appended to this report comprising Drawing No's 1711-2266, S1-00 to S1-02 dated 22/01/2019, Rev C1.

We would also note that our experience in refurbishing historic buildings is that the actual works invariably uncover hidden details which complicate the installation significantly. We would therefore recommend that any costs include a contingency for an increase of no less then 30% and the quantified total from this report.



Southland Times Existing Wall Seismic Rating (%NBS (IL2))







2



Internal Wall (B)

North Elevation (A)

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Rear Elevation (D)

Summary of Southland Times Proposed Strengthening Provisions for 100%NBS (IL2)



Building area	Loading direction	Specific review element	%NBS	Notes/Description of limiting criteria	Repair Strategy
	Transverse	Side walls - Parapet OOP	40%	URM Wall - Rocking Stability *	Install Steel strongbacks and struts to existi Detail 1 on Sheet S1-01
	(E-W)	Side wails - Parapel OOP	>100%	Connections - N/A	NA
		0.1 11 0 151 000	33%	URM Wall - Rocking Stability *	Timber strongbacks fixed to inside face of U
		Side walls - Second Floor OOP	62%	Connections Floor - Anchor Pull-out	New diaphragm fixings around entire exteri & 5 on Sheet S1-02.
			72%	URM Wall - Rocking Stability *	Timber strongbacks fixed to inside face of U
		Side walls – First Floor OOP	64%	Connections Floor – Anchor Pull-out	Strengthen diaphragm-wall connection. Ref 4 & 5 on Sheet S1-02
		Side Walls – Ground Floor OOP	>100%	URM Wall – Stability – N/A *	NA
			>100%	GIB Sheathing - Deformation - N/A	NA
		Roor Diaphragm - Front	64%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Ref on Sheet S1-01
		Oceand Floor Discharger, Front	>100%	Timber Boarding - Deformation - N/A	NA
		Second Floor Diaphragm - Front	34%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Ref 4 & 5 on Sheet S1-02
		First Floor Discharger, Front	>100%	Timber Boarding - Deformation - N/A	NA
		riist rioor Diaphragm - riont	31%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Ref 4 & 5 on Sheet S1-02
			>100%	GIB Sheathing - Deformation - N/A	NA
		Rooi Diaphragm - Real	49%	Connections Ceiling - Anchor Shear	Strengthen diaphragm-wall connection. Ref on Sheet S1-01
Southland Times			>100%	Timber Boarding - Deformation - N/A	NA
		Second Floor Diaphragm - Kear	22%	Connections Floor - Anchor Shear	Strengthen diaphragm-wall connection. Ref 4 & 5 on Sheet S1-02
		First Floor Diaphragm - Rear	>100%	Timber Boarding - Deformation - N/A	NA
			19%	Connections Floor - Anchor Shear	Strengthen diaphragm-wall connection. Ref 4 & 5 on Sheet S1-02
		In-plane Façade A – Second Floor	>100%	URM Wall - N/A	NA
		In-plane Façade A - First Floor	>100%	URM Wall - N/A	NA
- - -		In-plane Façade A – Ground Floor	76%	URM Wall - URM Rocking	Load will redistribute into remaining panels
		In-plane Internal Wall B – Second Floor	>100%	URM with RC Frame - N/A	NA
		In-plane Internal Wall B – First	>100%	URM with RC Frame - N/A	NA
		In-plane Internal Wall B - Ground	>100%	RC Frame - N/A	NA
		In-plane Internal Wall C - Second	>100%	URM with RC Frame - N/A	NA
		In-plane Internal Wall C– First	>100%	URM with RC Frame - N/A	NA
		In-plane Internal Wall C - Ground	93%	URM with RC Frame - URM Sliding	Wall Panel surrounded by RC frames at she
		In-plane Rear Wall D - Second	>100%	URM – N/A	NA
		In-plane Rear Wall D– First	>100	URM – N/A	NA
		In-plane Rear Wall D - Ground	>100	URM with RC Frame - N/A	NA
	Longitudinal	Facade Wall - Parapot OOP	>67%	URM Wall - Rocking Stability *	Install Steel strongbacks and struts to existi Detail 1 on Sheet S1-01
	(N-S)	I avave Wall - Falapel UUP	>100%	Connections - N/A	NA

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for Globally >100%NBS
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ng roof framing /structure. Refer to



иния 	Building area	Loading direction	Specific review element	%NBS	Notes/Description of limiting criteria	Repair Strategy
P3 Partial source Partial source Partinte Partinte Partial source Partinte Partial source Partial sou		Longitudinal	Facade Wall – Second Floor OOP –	43%	URM Wall - Rocking Stability *	Timber strongbacks fixed to inside face of URM. Refer to Detail 2 on Sheet S1-01
		(N-S)		80%	Connections Floor - Anchor Pull-out	New diaphragm fixings around entire exterior of all diaphragms. Refer to Detail X
Index 0.000 Partine face face face face face face face fac			Facade Wall – First Floor OOP –	81%	URM Wall - Rocking Stability *	Timber strongbacks fixed to inside face of URM. Refer to Detail 2 on Sheet S1-01
				61%	Connections Floor - Anchor Pull-out	New diaphragm fixings around entire exterior of all diaphragms. Refer to Detail X
Read Secondsord ··NPS VIC VIG 1984, NV VIC VIG 1984, NV VIC VIG VIG 1984, VIC VIG			Facade Wall – Ground Floor OOP	>100%	URM Wall – Stability – N/A *	NA
Real Mark Real Para Para Para Para Para Para Para Pa			Internal Walls – Second Floor OOP	>100%	URM Wall – Stability – N/A *	NA
Interstore ······· ······· ······· ········ Number of the state of the			Internal Walls – First Floor OOP	>100%	URM Wall – Stability – N/A *	NA
RetWit-Register Gen RetWit Register RetWit Register Note RetWit-Register RetWit-Register RetWit-Register Note RetWit-RetWi			Internal Walls – Ground Floor OOP	>100%	URM Wall – Stability – N/A *	NA
National Page Cont ONE Constant Daily Action Pacial Mater charagests hard to lack to zet ulfillability actions to				55%	URM Wall - Rocking Stability *	Install Steel strongbacks and struts to existing roof framing /structure. Refer to Detail 1 on Sheet S1-01
Rearbance 30% Biol Control C			Real Wall - Palapel OOP	97%	Connections Ceiling- Anchor Pull-out	NA
Number of the section of the sectin of the section of the section of the section of the secti				33%	URM Wall - Rocking Stability *	Timber strongbacks fixed to inside face of URM. Refer to Detail 2 on Sheet S1-01
Return Fine 72 60 / 40 / 40 / 40 / 40 / 40 / 40 / 40 /			Real Wall - Second Floor OOF	92%	Connections Floor - Anchor Pull-out	New diaphragm fixings around entire exterior of all diaphragms. Refer to Detail 4 & 5 on Sheet S1-02.
Number Name 0% 0xeedore Proc - Andor Pul-x Net-Supprogram For to Beal 4 & a subject of all disphages. Net to 0 all disphag			Poor Wall First Floor OOP	72%	URM Wall - Rocking Stability *	Timber strong back fixed to inside face of URM. Refer to Detail 2 on Sheet S1-01
Ret Wai - Doug Doub Op - 00% UR Wai - Doug Doup An - Mach - Mach - ABD Bybers - Doub Control -			Real Wall – Filst Floor OOF	64%	Connections Floor - Anchor Pull-out	New diaphragm fixings around entire exterior of all diaphragms. Refer to Detail 4 & 5 on Sheet S1-02.
Number Network Note Note Network Network Network Section Trans Network Section Networ			Rear Wall – Ground Floor OOP	>100%	URM Wall – Stability – N/A *	NA
Non-Section Non-Section Non-Section Strengthen displagment-will connection. Refer to Plant on Sheet S1-00 and Detail 2 on short S100 Southerd Times 1000 Strengthen displagment in the section Na Southerd Times 1000 Strengthen displagment in the section Na Born Displagment - Front 1000 Strengthen displagment in the section Na Born Displagment - Front 1000 Strengthen displagment in the section Na Born Displagment - Front 1000 Strengthen displagment in the section Na Born Displagment - Front 1000 Strengthen displagment in the section Na Born Displagment - Front 1000 Strengthen displagment in the section Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 and Detail 2 on Sheet S1-00 Born Displagment - Front 1000 Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 Born Displagment - Front 1000 Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 Born Displagment - Front 1000 Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 Strengthen displagment will connection. Hefer to Plant on Sheet S1-00 Born Displagment - F			Roof Diaphragm - Front	>100%	GIB Sheathing - Deformation - N/A	NA
South P Thene 100% 10ther Boarding - Detomation - NA Main end adding - Detomation - NA Part Floor Diaphragn - Front 100% Time Floarding - Audimation - NA Main end adding - Detomation - NA Part Floor Diaphragn - Front 100% Consections - Auding - Detomation - NA Main end adding - Detomation - NA Rod Diaphragn - Front 100% Other Southing - Detomation - NA Main end adding - Detomation - NA Rod Diaphragn - Rear 100% Other Southing - Detomation - NA Main end adding - Detomation - NA Rod Diaphragn - Rear 100% Consections - Auding - Detomation - NA Main end adding - Detomation - NA Rod Diaphragn - Rear 100% Consections - Auding - Detomation - NA Main end adding - Detomation - NA Part Floor Diaphragn - Rear 100% Consections - Auding - Detomation - NA Main end adding - Detomation - NA Part Floor Diaphragn - Rear 100% Consections - Auding - Detomation - NA Main end adding - Detomation - NA Part Floor Diaphragn - Rear 100% Consections - Auding - Detomation - NA Main end opticity - Detomation - NA Part Floor Diaphragn - Rear 100% Main end opticity - Detomation - NA Main end opticity - Detomation				48%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Refer to Plans on Sheet S1-00 and Detail 2 on Sheet S1-01
Note Of Display Print 100% Convections - NAE Embedded Jaais NAE Pires Poor Displayages - Front 1-00% Tinder Boarding - Deformation - NAI Na Pires Poor Displayages - Front 1-00% Convections - Anchor Shear Streightengharwail connection. Refer to Plans on Sheet 31-02 Pires Poor Disphages - Front 1-00% GB Sheathing - Deformation - NAI Na Pires Disphages - Rear 1-010% GB Sheathing - Deformation - NAI Na Pires Poor Disphages - Rear 1-010% Grenetions - Anchor Shear Strengthen disphages wail connection. Refer to Plans on Sheet 51-00 and Detail 2 Pires Poor Disphages - Rear 1-010% Connection - Anchor Shear Strengthen disphages wail connection. Refer to Plans on Sheet 51-00 and Detail 2 Pires Poor Disphages - Rear 1-010% Connection - Anchor Shear Strengthen disphages wail connection. Refer to Plans on Sheet 51-00 and Detail 2 Pires Poor Disphages - Rear 1-010% Connections - Anchor Shear Strengthen disphages wail connection. Refer to Plans on Sheet 51-00 and Detail 2 Pisher Wail West M - Second Poor 1-010% URM with more masory infil - NAI Account on Sheet 51-00 Pisher Wail West M - First Pior 0-010% URM with m	Southland Times		Octored Flore Directorery Front	>100%	Timber Boarding - Deformation - N/A	NA
First Fibor Dilaphragen - Froot 1 100% Timbe Boarding - Delomation - NA Medication - Streingthen diaphragen-wall connections. Refer to Plans on Sheet S1:01 Rot Dilaphragen - Rear 0			Second Hoor Diaphraght - Hone	100%	Connections – N/A Embedded Joists	NA
No. 100 displayed. Nation 32% Connections – Anchor Shear Strengthen disphragen-wall connection. Refer to Plans on Sheet S1-02 and betalls Rod Disphragen - Rear 3.000% GB Sheathing - Deformation - N/A Na Rod Disphragen - Rear 5.000 Connections – Anchor Shear Strengthen disphragen-wall connection. Refer to Plans on Sheet S1-02 and Detail 2 on Sheet S1-02 Baccond Floor Disphragen - Rear 3.000% Connections – Anchor Shear Strengthen disphragen-wall connection. Refer to Plans on Sheet S1-02 and Detail 2 on Sheet S1-02 Prest Floor Disphragen - Rear 3.000% Tinber Boarding - Deformation - N/A Na Prest Floor Disphragen - Rear 3.000% Connections – N/A Embedded Joiets Na In-plane Wall West M - Second Floor Screngthen disphragen-wall connection. Refer to Plans on Sheet S1-02 In-plane Wall West M - First Floor 3.000% URM with minor masony infill - N/A Na In-plane Wall West M - First Floor 3.000% URM with minor Reserver Screngthen disphragen-wall connection. Refer to Plans on Sheet S1-02 In-plane Wall West M - First Floor 3.000% URM with minor Reserver Screngthen disphragen-wall connection. Refer to Plans on Sheet S1-02 In-plane Wall West M - First Floor 3.000% URM with minor Reserver Screngthen disphragen			First Floor Diaphragm - Front	>100%	Timber Boarding - Deformation - N/A	NA
Not GB Sheathing - Deformation · NA Mediation - Machiner Shear Second Shear Shea				32%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Refer to Plans on Sheet S1-00 and Details 4 & 5 on Sheet S1-02
Not bighting in YeamSS%Connections – Anchor ShearStrengthen diaphragm-wall connection. Refer to Plans on Sheet S1.00 and Detail 2 on Sheet S1.00Becom Ploor Diaphragm - Rear-100%Timber Boarding - Deformation - N/ANAPitel Floor Diaphragm - Rear-100%Connections – N/A Embedded JoistsNAPitel Floor Diaphragm - Rear-100%Timber Boarding - Deformation - N/ANAPitel Floor Diaphragm - Rear-22%Connections – Anchor ShearStrengthen diaphragm-wall connection. Refer to Plans on Sheet S1:00 and Details (& Son Sheet S1-02In-plane Wall West M - Second Floor100%URM with miror masorry infill - N/ANAIn-plane Wall West M - First Floor83%URM with miror RC Frame - URM RockingLoad will redistribute into remaining panels for Globally >100%/NBSIn-plane Wall East N Froot - First Floor0<0%			Roof Diaphragm - Rear	>100%	GIB Sheathing - Deformation - N/A	NA
Pach Rear-100%Timber Boarding - Deformation - NANA-100%Connections - NA/A Enbedded JoitsNANA-100%Timber Boarding - Deformation - NANAPTST Floor Diaphragm - Rear-100%Timber Boarding - Deformation - NANAPalene Wall West M - Second Floor-100%Connections - Anchor ShearStrengthen diaphragm-wall connection. Refer to Plans on Sheet S1:02In-plane Wall West M - Second Floor-100%URM with mior masory infil – NANAIn-plane Wall West M - First Floor83%VRM with mior RC Frame - URM RockingConnectional - NAIn-plane Wall West M - First Floor50%URM with mior RC Frame - URM RockingSon Sheet S1:02In-plane Wall East N Front - Second Floor50%URM with mior RC Frame - NANAIn-plane Wall East N Front - Second Floor50%URM with mior RC Frame - NANaIn-plane Wall East N Front - Second Floor50%URM with mior RC Frame - NANaIn-plane Wall East N Front - Second Floor50%URM with mior RC Frame - NANaIn-plane Wall East N Front - Second Floor60%URM with mior RC Frame - NANaIn-plane Wall East N Rear - Second Floor60%URM with mior RC Frame - NANaIn-plane Wall East N Rear - Second Floor60%URM with RC Frame - NANaIn-plane Wall East N Rear - Second Floor60%VRM with RC Frame - NANaIn-plane Wall East N Rear - Second Floor60%VRM with RC Frame - NANaIn-plane Wa				55%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Refer to Plans on Sheet S1-00 and Detail 2 on Sheet S1-01
ConditionConnectionsNAFirst FloorDiaphragm-100%Timber BoardingNAFirst FloorDiaphragm-100%Timber BoardingStrengthen diaphragmNA1-22%ConnectionsAnchor ShearStrengthen diaphragmStrengthen diaphragmStrengthen diaphragmNaIn-plane Wall West MSecond Floor>100%URM with minor masorry infillNANaNaIn-plane Wall West MFirst Floor63%WRM with minor RC FrameLoad will redistribute into remaining panels for Globally >100% MBSIn-plane Wall West MGround Floor>100%WRM with minor masorry infillNAIn-plane Wall East N FrontSecond 66%URM with minor RC FrameNaIn-plane Wall East N FrontSecond66%URM with minor RC FrameNaIn-plane Wall East N FrontSecond66%URM with minor RC FrameNaIn-plane Wall East N FrontSecondURM with minor RC FrameNaIn-plane Wall East N FrontSecondURM with minor RC FrameNaIn-plane Wall East N RearSecond97%URM with RC FrameNaIn-plane Wall East N RearSecond <td< td=""><td rowspan="2">Second Floor Diaphragm - Rear</td><td>>100%</td><td>Timber Boarding - Deformation - N/A</td><td>NA</td></td<>			Second Floor Diaphragm - Rear	>100%	Timber Boarding - Deformation - N/A	NA
First Floor Diaphragm - Rear<100%Timber Boarding - Deformation - N/ANAIn-plane Wall West M - Second Floor22%Connections - Anchor ShearStrengthen diaphragm-wall connection. Refer to Plans on Sheet S1-02In-plane Wall West M - Second Floor>100%URM with mior masonry infill - N/ANAIn-plane Wall West M - First Floor83%Colmections - Anchor ShearCod will redistribute into remaining panels for Globally>100%/NBSIn-plane Wall West M - First Floor83%URM with minor masonry infill - N/ANAIn-plane Wall East N Front - Second86%URM with minor ResonryInfill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonryIn-plane Wall East N Front - Second>100%URM with mior RC Frame - URM RockingInfill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonryIn-plane Wall East N Front - Second>100%URM with minor RC Frame - N/ANAIn-plane Wall East N Front - Second Floor>100%URM with minor RC Frame - N/ANaIn-plane Wall East N Front - Second Floor97%URM with mior RC Frame - N/ANaIn-plane Wall East N Rear - Second Floor97%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floo>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/A				>100%	Connections – N/A Embedded Joists	NA
Instruction22%Connections – Anchor ShearStrengthen diaphragm-wall connection. Refer to Plans on Sheet S1-00 and Details 4 & S on Sheet S1-02In-plane Wall West M – Second Floor>100%URM with minor masonry infill – N/ANAIn-plane Wall West M – First Floor83%URM with minor RC Frame – URM RockingLad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall West M – Ground Floor>100%URM with minor RC Frame – URM RockingNAIn-plane Wall East N Front – Second Floor86%URM with RC Frame – URM RockingInfill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonryIn-plane Wall East N Front – First Floor>100%URM with minor RC Frame – N/ANAIn-plane Wall East N Front – First Floor>100%URM with minor RC Frame – N/ANaIn-plane Wall East N Front – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – Second Floor97%URM with RC Frame – URM RockingLad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM wi			First Floor Diaphragm - Rear	>100%	Timber Boarding - Deformation - N/A	NA
In-plane Wall West M - Second Floor>100%URM with minor masonry infill – NANAIn-plane Wall West M - First Floor83%URM with minor RC Frame - URM RockingIcad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall West M - Ground Floor>100%URM with minor masonry infill – NANAIn-plane Wall East N Front - Second Floor86%URM with RC Frame - URM RockingInfill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonryIn-plane Wall East N Front - First Floor>100%URM with minor RC Frame - N/ANAIn-plane Wall East N Front - Ground Floor>100%URM with minor RC Frame - N/ANAIn-plane Wall East N Front - Ground Floor>100%URM with minor RC Frame - N/ANAIn-plane Wall East N Rear - Second Floor97%URM with RC Frame - URM RockingLoad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East N Rear - First Floor>100%URM with RC Frame - N/ANaIn-plane Wall East				22%	Connections – Anchor Shear	Strengthen diaphragm-wall connection. Refer to Plans on Sheet S1-00 and Details 4 &5 on Sheet S1-02
In-plane Wall West M – First FloorB3%URM with minor RC Frame – URM RockingLoad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall West M – Ground Floor>100%URM with minor masonry infill – N/ANAIn-plane Wall East N Front – Second Floor86%URM with RC Frame – URM RockingInfill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonryIn-plane Wall East N Front – First Floor>100%URM with minor RC Frame – URM With minor RC Frame – N/ANAIn-plane Wall East N Front – Ground Floor>100%URM with minor RC Frame – N/ANAIn-plane Wall East N Front – Ground Floor97%URM with Rc Frame – URM RockingIcad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall East N Rear – Second Floor97%URM with Rc Frame – URM RockingLoad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall East N Rear – First Floor>100%URM with Rc Frame – N/ANAIn-plane Wall East N Rear – Ground Floor>100%URM with Rc Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with Rc Frame – N/ANaIn-plane Wall East N Rear – Ground Floor>100%URM with Rc Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with Rc Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with Rc Frame – N/ANaIn-plane Wall East N Rear – Ground Floor>100%URM – N/ANa			In-plane Wall West M – Second Floor	>100%	URM with minor masonry infill – N/A	NA
In-plane Wall West M - Ground Floor>10%URM with minor masonry infili – N/ANAIn-plane Wall East N Front - Second86%URM with RC Frame – URM RockingInfili window between panels 5 & 6 from façade with dowelled and reinforced concrete masonryIn-plane Wall East N Front – First Floor>100%URM with minor RC Frame – N/ANAIn-plane Wall East N Front – Ground>100%URM with minor RC Frame – N/ANaIn-plane Wall East N Front – Ground97%URM with RC Frame – URM RockingLoad will redistribute into remaining panels for Globally >100%NBSIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – First Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – Ground Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – Ground Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – Ground Floor>100%URM with RC Frame – N/ANaIn-plane Wall East N Rear – Ground Floor>100%URM with RC Frame – N/ANa			In-plane Wall West M – First Floor	83%	URM with minor RC Frame – URM Rocking	Load will redistribute into remaining panels for Globally >100%NBS
In-plane Wall East N Front – Second Floor 86% URM with RC Frame – URM Rocking Infill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonry In-plane Wall East N Front – First Floor >100% URM with minor RC Frame – N/A NA In-plane Wall East N Front – Ground Floor >100% URM with minor RC Frame – N/A NA In-plane Wall East N Front – Ground Floor 97% URM with RC Frame – URM Rocking Load will redistribute into remaining panels for Globally >100%NBS In-plane Wall East N Rear – First Floor >100% URM with RC Frame – N/A NA In-plane Wall East N Rear – Ground Floor >100% URM with RC Frame – N/A Na In-plane Wall East N Rear – Ground Floor >100% URM with RC Frame – N/A Na In-plane Wall East N Rear – Ground Floor >100% URM with RC Frame – N/A Na			In-plane Wall West M – Ground Floor	>100%	URM with minor masonry infill – N/A	NA
In-plane Wall East N Front – First Floor >100% URM with minor RC Frame – N/A NA In-plane Wall East N Front – Ground Floor >100% URM with minor RC Frame – N/A NA In-plane Wall East N Rear – Second Floor 97% URM with RC Frame – URM Rocking Na In-plane Wall East N Rear – First Floor >100% URM with RC Frame – URM Rocking Load will redistribute into remaining panels for Globally >100% NBS In-plane Wall East N Rear – First Floor >100% URM with RC Frame – N/A NA In-plane Wall East N Rear – First Floor >100% URM with RC Frame – N/A Na In-plane Wall East N Rear – Ground Floor >100% URM with RC Frame – N/A Na			In-plane Wall East N Front – Second Floor	86%	URM with RC Frame – URM Rocking	Infill window between panels 5 & 6 from façade with dowelled and reinforced concrete masonry
In-plane Wall East N Front – Ground Floor >100% URM with minor RC Frame – N/A NA In-plane Wall East N Rear – Second Floor 97% URM with RC Frame – URM Rocking Load will redistribute into remaining panels for Globally >100%NBS In-plane Wall East N Rear – First Floor >100% URM with RC Frame – N/A NA In-plane Wall East N Rear – Ground Floor >100% URM with RC Frame – N/A NA In-plane Wall East N Rear – Ground Floor >100% URM - N/A NA			In-plane Wall East N Front – First Floor	>100%	URM with minor RC Frame – N/A	NA
In-plane Wall East N Rear – Second Floor 97% URM with RC Frame – URM Rocking Load will redistribute into remaining panels for Globally >100%NBS In-plane Wall East N Rear – First Floor >100% URM with RC Frame – N/A NA In-plane Wall East N Rear – Ground Floor >100% URM – N/A NA			In-plane Wall East N Front – Ground Floor	>100%	URM with minor RC Frame – N/A	NA
In-plane Wall East N Rear – First Floor >100% URM with RC Frame – N/A NA In-plane Wall East N Rear– Ground Floor >100% URM – N/A NA			In-plane Wall East N Rear – Second Floor	97%	URM with RC Frame – URM Rocking	Load will redistribute into remaining panels for Globally >100%NBS
In-plane Wall East N Rear- Ground Floor >100% URM - N/A NA			In-plane Wall East N Rear – First Floor	>100%	URM with RC Frame – N/A	NA
			In-plane Wall East N Rear- Ground Floor	>100%	URM – N/A	NA