Concept Strengthening for Pricing – MR Solution

Pile Plan

T. Holden -

A253267

NTS 10-02-2020

T. Holden

SK-MR-01

CONCEPT – FOR PRICING

24m x 2.5m x 2.0m Deep Pile Cap (100kg/m^3) w/ 323dia x 12.7CHS Screw piles w/2-900mm dia Helix’s x 15m Long

Seismic Frame

(REFER SK-MR-(11-20))

Note:

- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.

FOUNDING DEPTH AND DESIGN OF SCREWPILES SUBJECT TO FURTHER DETAILED GEOTECHNICAL INVESTIGATIONS. LATERAL LOAD TAKEOUT OF BASE SHEAR ASSUMED TO PRINCIPALLY BE THROUGH PASSIVE PRESSURE ON THE GROUND BEAMS AND RETAINING WALLS. THIS ASSUMPTION IS SUBJECT TO FURTHER INFORMATION ON THE LIQUEFACTION RISK.

EXITING RETAINING WALL

KEY

24m x 2.5m x 2.0m Deep Pile Cap (100kg/m^3) w/ 323dia x 12.7CHS Screw piles w/2-900mm dia Helix’s x 15m Long

Seismic Frame

(REFER SK-MR-(11-20))

CONCEPT – FOR PRICING

PROJECT Wellington Central Library

TITLE Concept Strengthening for Pricing – MR Solution Pile Plan

DESIGNED T. Holden

DRAWN T. Holden

PROJECT No. 253267

SIZE -

SCALE NTS

DATE 10-02-2020

SKETCH No. SK-MR-01

REV A
Mid-Range Solution

BASED ON THE POTENTIAL LIQUEFACTION RISK INSTALLATION OF UC COLUMN STRONG-BACKS MAY BE NECESSARY TO STABILISE THE PRECAST RETAINING WALLS. REFER SK-MR-22 (STUDIES REGARDING CIVIC SQUARE BY OTHERS ONGOING)

EXISTING RETAINING WALL

Note:
• Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.

ALL NEW PILE CAPS TO BE TIED INTO EXISTING SLAB-ON-GRADE AND GROUND BEAMS. WATER-PROOFING/TANKING TO BE REINSTATED.

STABILITY OF EXISTING SLAB-ON-GRADE IN REGARDS TO POTENTIAL LIQUEFACTION UNKNOWN. (STUDIES REGARDING CIVIC SQUARE BY OTHERS ONGOING)
Wellington Central Library
Concept Strengthening for Pricing – MR Solution
GROUND FLOOR PLAN

T. Holden -
253267
NTS 10-02-2020
T. Holden

Hollowcore Support
(200x150x9RHS - REFER SK-MR-24)

Alpha-Slab Support
(250UC89/410UB59 + 100x6SHS - REFER SK-MR-25)

Double-T Seating Support
(200x150x9RHS)

Column Restraint Tie
(RB32 Reid Bar - REFER SK-MR-23)

Seismic Frame
(REFER SK-MR-(11-20))

Diaphragm strengthening
Tyfo SCH-41 FRP
9 layers long. dir
1 layer trans. dir

4 layers long. dir
3 layers trans. dir

4 layers long. dir
1 layer trans. dir

1 layers long. dir
1 layer trans. dir

2.5m x 2.0m Deep Pile Cap (100kg/m^3)
w/ 323dia x 12.7CHS Screwpiles w/2-900mm dia Helix’s x 15m Long

KEY

Note:
• Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.

• Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.

Mid-Range Solution
LONGITUDINAL
TRANSVERSE

NUMBER OF FRP LAYERS IN THIS AREA TO BE REVIEWED BY INSTALLER TO ENSURE CONSTRUCTABILITY. ALTERNATIVELY SIKA 1.4MM CARBODUR MAY BE USED (3 LAYERS LONG. DIR. / 1 LAYER TRANS. DIR.)
CONCEPT – FOR PRICING

Wellington Central Library

Title:
Concept Strengthening for Pricing – MR Solution
Mez Floor Plan

DESIGNED: T. Holden
DRAWN: T. Holden
PROJECT No.: 253267
SIZE: -
SCALE: NTS
DATE: 10-02-2020
SKETCH No.: SK-MR-04
REV: A

Key:
- Hollowcore Support
  (200x150x9RHS - REFER SK-MR-24)
- Alpha-Slab Support
  (250UC89/410UB59 + 100x6SHS - REFER SK-MR-25)
- Double-T Seating Support
  (200x150x9RHS)
- Column Restraint Tie
  (RB32 Reid Bar - REFER SK-MR-23)
- Seismic Frame
  (REFER SK-MR-(11-20))
- Diaphragm strengthening Tyfo SCH-41 FRP
- 1 layer long. dir
- 1 layer trans. dir

Note:
- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
- Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.
**Concept Strengthening for Pricing – MR Solution**

**1st Floor Plan**

T. Holden - 253267

**KEY**

- Hollowcore Support (200x150x9RHS - REFER SK-MR-24)
- Alpha-Slab Support (250UC89/410UB59 + 100x6SHS - REFER SK-MR-25)
- Double-T Seating Support (200x150x9RHS)
- Column Restraint Tie (RB32 Reid Bar - REFER SK-MR-23)
- Seismic Frame (REFER SK-MR-(11-20))

Diaphragm strengthening Tyfo SCH-41 FRP

1 layer long. dir
1 layer trans. dir

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**Note:**

- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
- Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.
Mid-Range Solution

Note:
• Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
• Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.

CONCEPT – FOR PRICING

PROJECT
Wellington Central Library

TITLE
Concept Strengthening for Pricing – MR Solution 2nd Floor Plan

DESIGNED
T. Holden

DRAWN
T. Holden

PROJECT No.
253207

SCALE
NTS

DATE
10-02-2020

SKETCH No.
SK-MR-06

REV
A

KEY

- Hollowcore Support (200x150x9RHS - REFER SK-MR-24)
- Alpha-Slab Support (250UC89/410UB59 + 100x6SHS - REFER SK-MR-25)
- Double-T Seating Support (200x150x9RHS)
- Column Restraint Tie (RB32 Reid Bar - REFER SK-MR-23)
- Seismic Frame (REFER SK-MR-(11-20))
  Diaphragm strengthening Tyfo SCH-41 FRP
  3 layers long. dir
  1 layer trans. dir
  1 layer long. dir
  1 layer trans. dir

Note:
- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
- Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.
Mid-Range Solution

**KEY**

- **Hollowcore Support** (200x150x9RHS - REFER SK-MR-24)
- **Alpha-Slab Support** (250UC89/410UB59 + 100x6SHS - REFER SK-MR-25)
- **Double-T Seating Support** (200x150x9RHS)
- **Column Restraint Tie** (RB32 Reid Bar - REFER SK-MR-23)
- **Seismic Frame** (REFER SK-MR-(11-20))

**Diaphragm strengthening Tyfo SCH-41 FRP**
- 3 layers long. dir
- 1 layer trans. dir
- 1 layer long. dir
- 1 layer trans. dir

**Note:**
- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
- Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.
Note:
- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
- Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.
Note:
- Allowance to be made for the seismic restraint to Existing and New services, ceilings, partitions etc. All restraints to comply with the current Standards for new installations.
- Where required rebate floor 12mm to allow FRP sheet installation. Contractor to apply levelling compound to meet existing levels.
NEW CONCRETE SLAB WHERE NEW SERVICES TO BE RELOCATED. AREA AND LOCATION TBD. NOMINALLY COMFLOR 80 90MM TOPPING W/ SE815 MESH (HDM) HD12 AT 200C/S X 3.0M SADDLE AND STARTER BARS, TYP

NEW LATERAL BRACING FOR NEW SERVICES. EXTENT AND LOCATIONS TBD.
Gridline - 2

Axx – BRB brace sections. Refer CoreBrace Catalogue

NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION
Gridline - 5

Axx – BRB brace sections. Refer CoreBrace Catalogue

NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPoxy CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

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<td>DESCRIPTION</td>
<td>New Seismic Lateral Resisting Frames – Grid 5</td>
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<tr>
<td>DESIGNER</td>
<td>T. Holden</td>
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<td>DRAWN</td>
<td>T. Holden</td>
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Wellington Central Library

New Seismic Lateral Resisting Frames – Grid 8

T. Holden -

[Image: Diagram of gridline 8 showing BRB brace sections and ground beams, with text referring to SK-MR-13 for indicative new to existing column connection and core brace catalogue.]

Gridline - 8

Axx – BRB brace sections.
Refer CoreBrace Catalogue

NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST- IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

mid-range solution
NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPOXY CONNECTIONS.

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

Gridline - 11

Axx – BRB brace sections. Refer CoreBrace Catalogue
NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

Gridline - A

Axx – BRB brace sections.

Refer CoreBrace Catalogue
Gridline - A

Axx – BRB brace sections.
Refer CoreBrace Catalogue

NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST- IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION
NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

Gridline - C

Axx – BRB brace sections. Refer CoreBrace Catalogue
NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

Gridline - F

Axx – BRB brace sections.

Refer CoreBrace Catalogue
NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPOXY CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

Gridline - F
Axx – BRB brace sections. Refer CoreBrace Catalogue
NEW BEAMS TO BE TIED INTO EXISTING BEAMS AND NEW SLAB. ALLOW FOR SIGNIFICANT BREAKING OUT OF CONCRETE AND CAST-IN/EPoxy CONNECTIONS

REFER SK-MR-21 FOR INDICATIVE NEW TO EXISTING COLUMN CONNECTION

Gridline - G
Axx – BRB brace sections.
Refer CoreBrace Catalogue
20mm CHEMSETS @ 200 c/s VERTICALLY

16 PL TO 800mm DIA FULL LENGTH

EXISTING CONCRETE COLUMN

NEW CWB COLUMN

EXISTING CONCRETE BEAM
200UC46

250UC52 @ 2.67m
(1/3 OF TYPICAL 8m BAY MODULE)

RETAINING WALL PARALLEL TO HOLLOWCORE

EXISTING CONCRETE BEAM

200UC46

250UC52 @ 2.67m
(1/3 OF TYPICAL 8m BAY MODULE)

RETAINING WALL PERPENDICULAR TO HOLLOWCORE
Mid-Range Solution

CONCEPT – FOR PRICING

Wellington Central Library

Concept Strengthening for Pricing – MR Solution
Column Tie Detail

REID BAR TIE ROD INSTALLATION METHODOLOGY

1. FERRI SCAN BEAMS TO IDENTIFY EXISTING REINFORCEMENT
2. DRILL HOLES IN BEAM AND FIX CHEMSETS AS PER GRACING GUIDELINES
3. SITE DRILL, FIXING PLATE OR FABRICATE FROM TEMPLATE
4. REPAIR CONCRETE BEAM AS REQUIRED USING APPROVED SKA PRODUCT
5. INSTALL PLATE AND TENSEL TEST
6. INSTALL TIE ROD

NOTE: PLATE IS TO BE SITE DRILLED AS PER INSTALLATION METHODOLOGY

DETAIL A

ANCHOR LOCATION TO BE CONFIRMED BY CONTRACTOR ON SITE

SECTION 1

CORE THROUGH EXISTING BEAM 40mm FOR TIE ROD GRADE 500 THREADS/RODS. CHECK ON SITE FOR LOCATION OF EXISTING SERVICES TO AVOID BEFORE ANY HOLE DRILLING OR FABRICATION. FULLY DRILLED HOLES WITH HIGH STRENGTH LOW SHANK MORTAR (TYPICAL).

NOTE: ALL ANCHOR PLATE STEEL TO BE GRADE 300 MPa

EXISTING FLOOR SLAB LEVEL

ANCHOR LOCATION TO BE CONFIRMED BY CONTRACTOR ON SITE

SECTION 2

DETAIL B

NOTES: PLATE IS TO BE SITE DRILLED AS PER INSTALLATION METHODOLOGY

REFER NOTE 2

EXISTING FLOOR SLAB (TYPICAL)

4x40mm EPOXY ANCHOR, 100mm MORTAR TO DRY CORE ABOVE (TYPICAL)

ALLOW 15 mm DRYPACK MORTAR (TYPICAL)

4x40mm EPOXY ANCHOR, 100mm MORTAR TO DRY CORE ABOVE (TYPICAL)

ALLOW 15 mm DRYPACK MORTAR (TYPICAL)

SECTION 1

ANCHOR LOCATION TO BE CONFIRMED BY CONTRACTOR ON SITE

NOTE: ALL ANCHOR PLATE STEEL TO BE GRADE 300 MPa

EXISTING FLOOR SLAB LEVEL

ANCHOR LOCATION TO BE CONFIRMED BY CONTRACTOR ON SITE

SECTION 2

DETAIL B

NOTES: PLATE IS TO BE SITE DRILLED AS PER INSTALLATION METHODOLOGY

REFER NOTE 2

EXISTING FLOOR SLAB (TYPICAL)

4x40mm EPOXY ANCHOR, 100mm MORTAR TO DRY CORE ABOVE (TYPICAL)

ALLOW 15 mm DRYPACK MORTAR (TYPICAL)

4x40mm EPOXY ANCHOR, 100mm MORTAR TO DRY CORE ABOVE (TYPICAL)

ALLOW 15 mm DRYPACK MORTAR (TYPICAL)
Mid-Range Solution

**Concept Strengthening for Pricing – MR Solution**

Hollowcore Seating Detail

T. Holden - A253267

NTS 10-02-2020

10mm GAP

10mm GAP

25mm DIA CORED HOLE THROUGH END RIB

25mm DIA CORED HOLE

END DETAIL - OPTION

BEAM SECTION - OPTION

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**Concept – For Pricing**

**Project:** Wellington Central Library

**Title:** Concept Strengthening for Pricing – MR Solution Hollowcore Seating Detail

**Designed by:** T. Holden

**Drawn by:** T. Holden

**Project No.:** 253267

**Scale:** NTS

**Date:** 10-02-2020

**Sketch No.:** SK-MR-24

**Rev.:** A