



Doc Ref: WE691-06F02(rev0)- Pressure Memo

Date: July 30, 2020

To: Walker Corporation

Address: Level 21, Governor Macquarie Tower,
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RE: BANKSTOWN CITY CAMPUS, WSU
FAÇADE CLADDING PRESSURE MEMO

1 Introduction

A wind tunnel study was undertaken by Windtech Consultants for the determination of the 1000 year return period ultimate net pressures acting on the façade cladding of the Bankstown City Campus development of the new Western Sydney University (WSU), located at 74 Rickard Road along with a portion of 375 Chapel Road, Bankstown (report ref: WE691-02F03(rev0), dated March 30, 2020). The 1000 year return period is selected in accordance with an Importance Level 3 structure, as defined in the National Construction Code 2016.

The scale model of the development used for the wind tunnel study was based on the latest design scheme of the development available at that time. More recently, several design changes have been made to the development, and this technical memo presents estimates of the 1000 year return period peak ultimate net pressures acting on the façade cladding of the subject development, based on the results of the previous wind tunnel testing. The maximum and minimum peak ultimate net pressures are presented in the form of pressure zone diagrams.

2 Results

The updated pressure zone diagrams for the positive and negative peak 1000 year return period ultimate net pressures are presented in the following figures.

The results of the study indicate that the 1000 year return period peak ultimate net pressures acting on the main building facade of the development range from +2.1kPa to -2.8kPa.

However, it should be noted that these peak pressure values are for quite localised "hot-spots" on the facade, and for approximately 90% of the main building facade the ultimate net pressures range from +1.8kPa to -2.0kPa. The 1000 year return period peak ultimate net pressures acting on the various soffits of the development range from +1.6kPa to -2.3kPa.

The 1000 year return period peak ultimate net pressures acting on the façade elements that are exposed to the wind on both sides are summarised as follows:

- Level 18 Cooling Tower Screening: Range up to ± 1.9 kPa.
- Level 17 Terrace Corner Screen: Range up to ± 1.9 kPa.
- Level 16 Terrace Balustrade: Range up to ± 2.0 kPa.
- Level 13 Terrace Balustrade: Range up to ± 2.7 kPa.
- Level 7 Terrace Canopy: Range from +0.9kPa (downwards load) to -0.7kPa (uplift).
- Level 7 Terrace Balustrade: Range up to ± 4.4 kPa.
- Level 3 Terrace Canopy: Range from +0.9kPa (downwards load) to -0.5kPa (uplift).
- Level 3 Terrace Balustrade: Range up to ± 3.3 kPa.
- Level 2 Corner Terrace Balustrade: Range up to ± 1.2 kPa.
- Ground Level Awning: Range from +1.1kPa (downwards load) to -1.3kPa (uplift).
- Ground Level SE Entrance Screening: Range up to ± 1.2 kPa.

It should be noted that if in the future there is a significant change in the form of the development, the addition or alteration of the facade elements, or a significant change in the layout of surrounding buildings in the immediate vicinity, the facade designer must contact Windtech to review the design pressures which are presented in this technical memo.

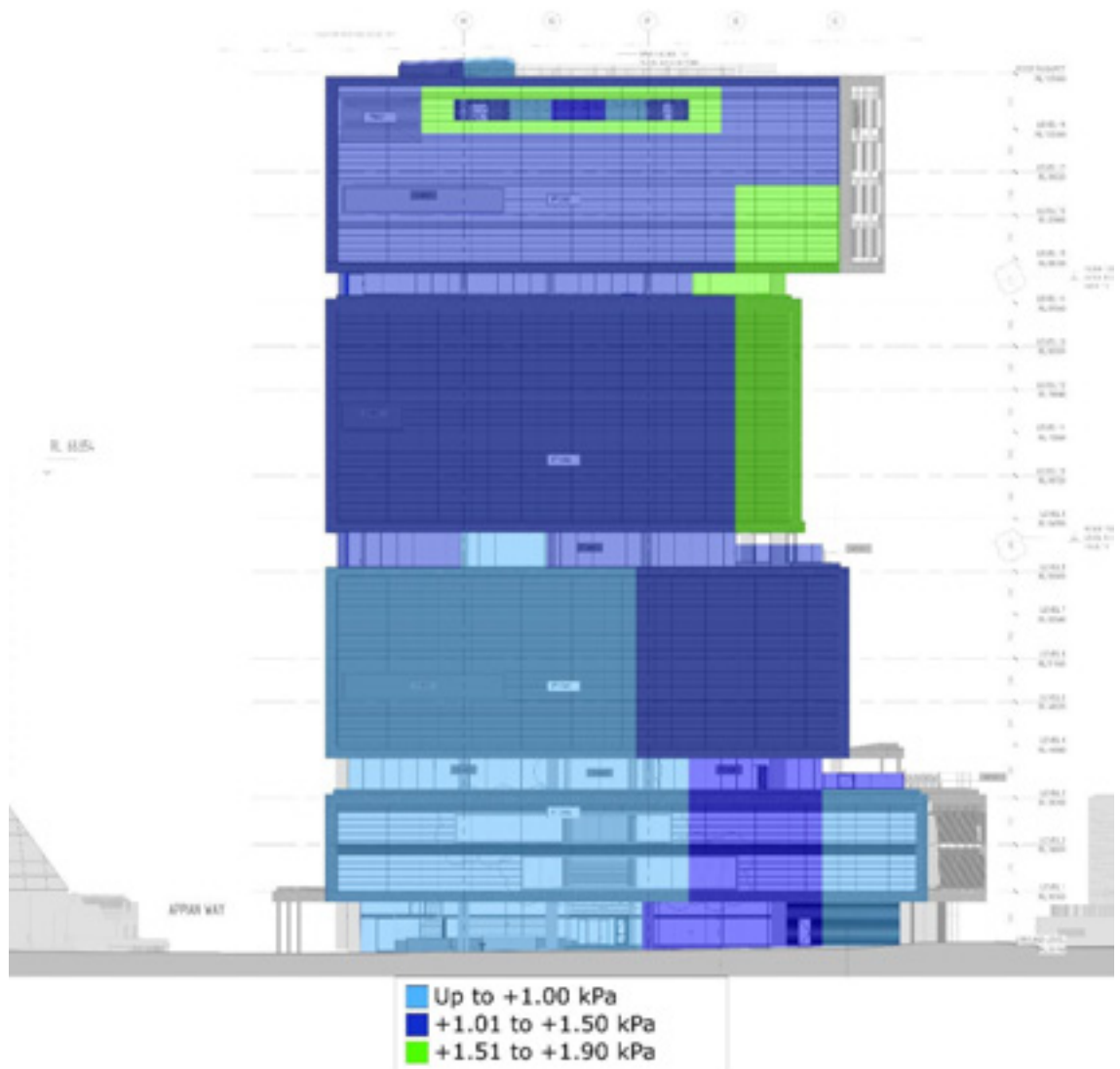


Figure 1a: Positive Peak 1000 year return period Ultimate Net Pressure Zone Diagram – North Elevation

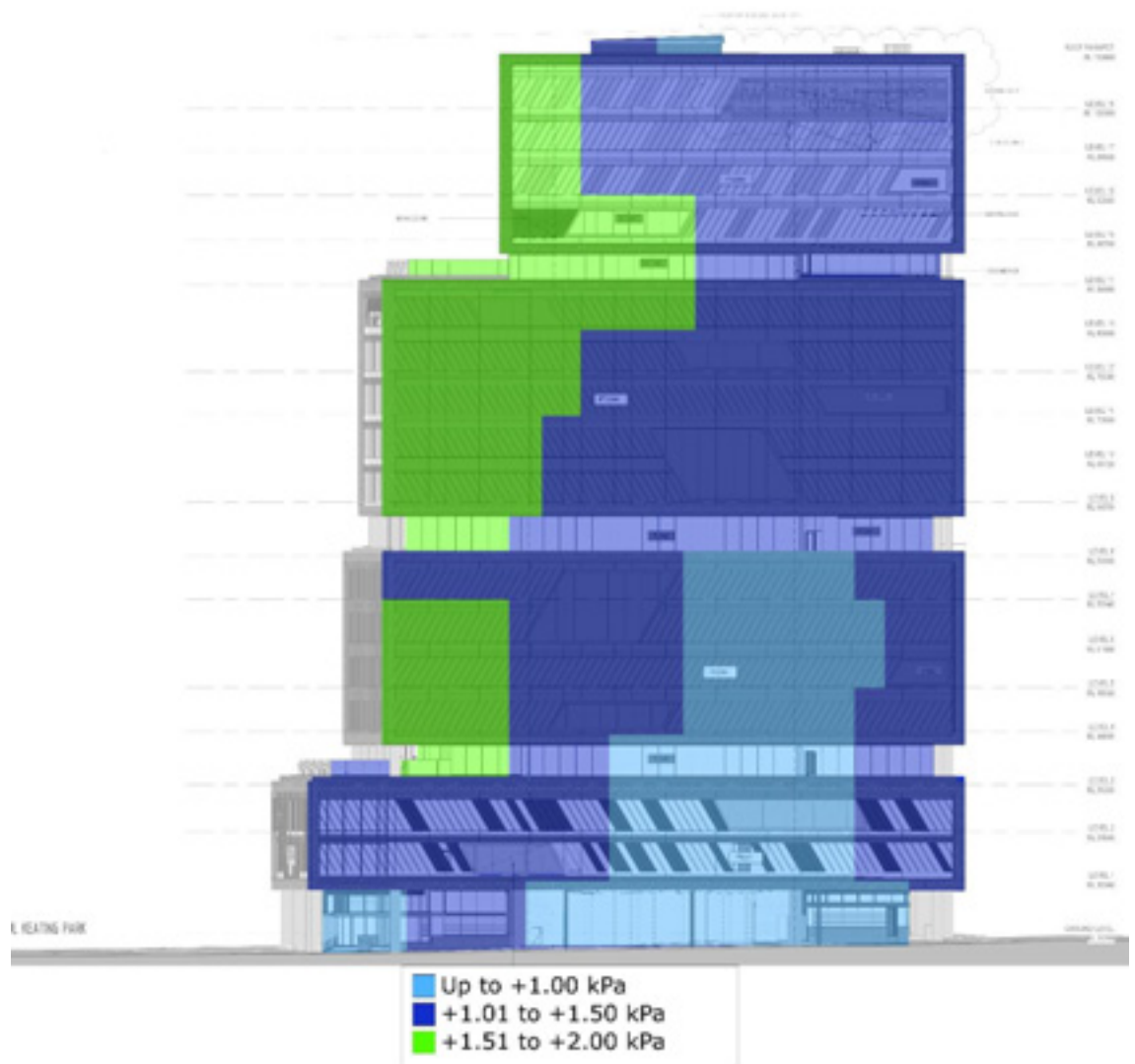


Figure 1b: Positive Peak 1000 year return period Ultimate Net Pressure Zone Diagram – East Elevation

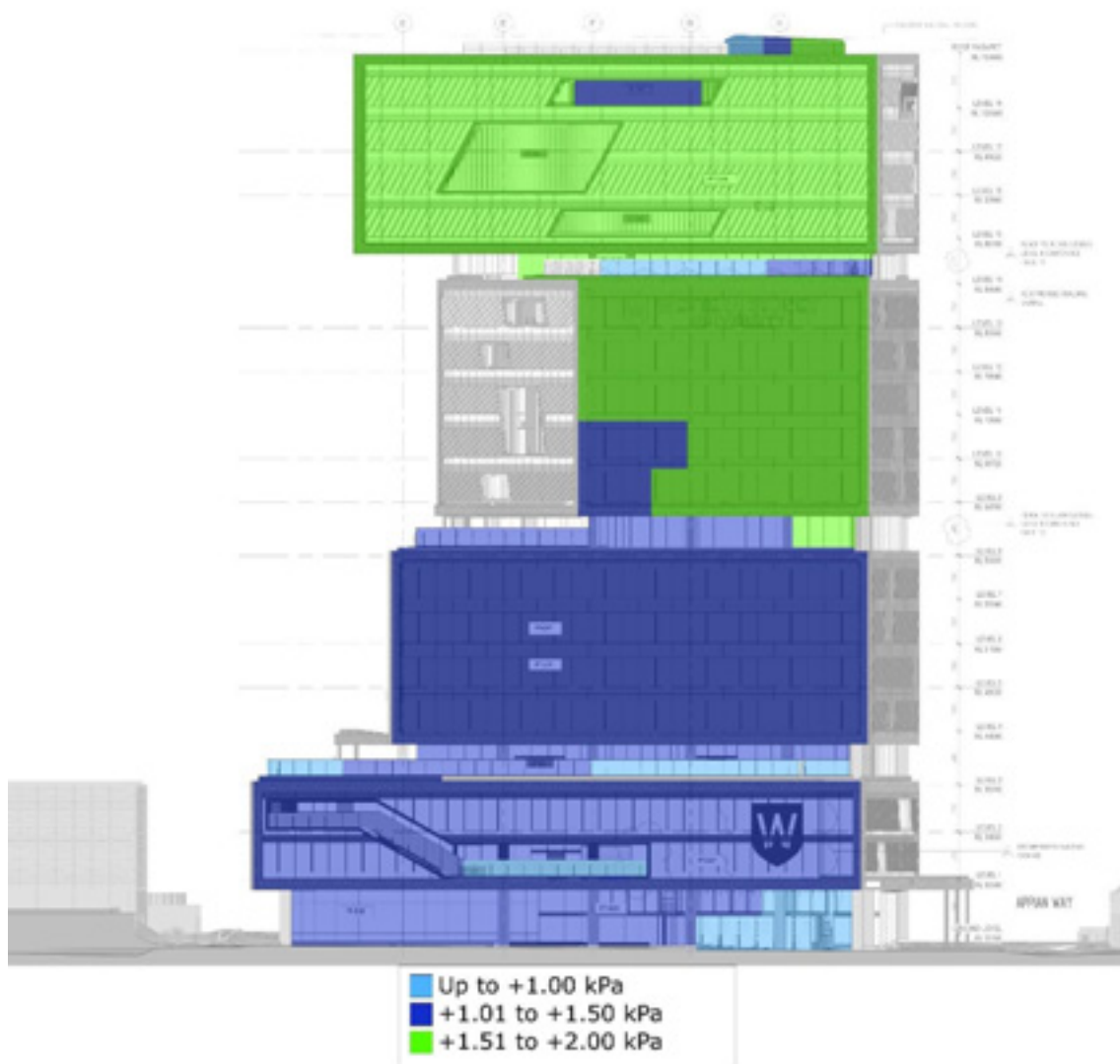


Figure 1c: Positive Peak 1000 year return period Ultimate Net Pressure Zone Diagram – South Elevation

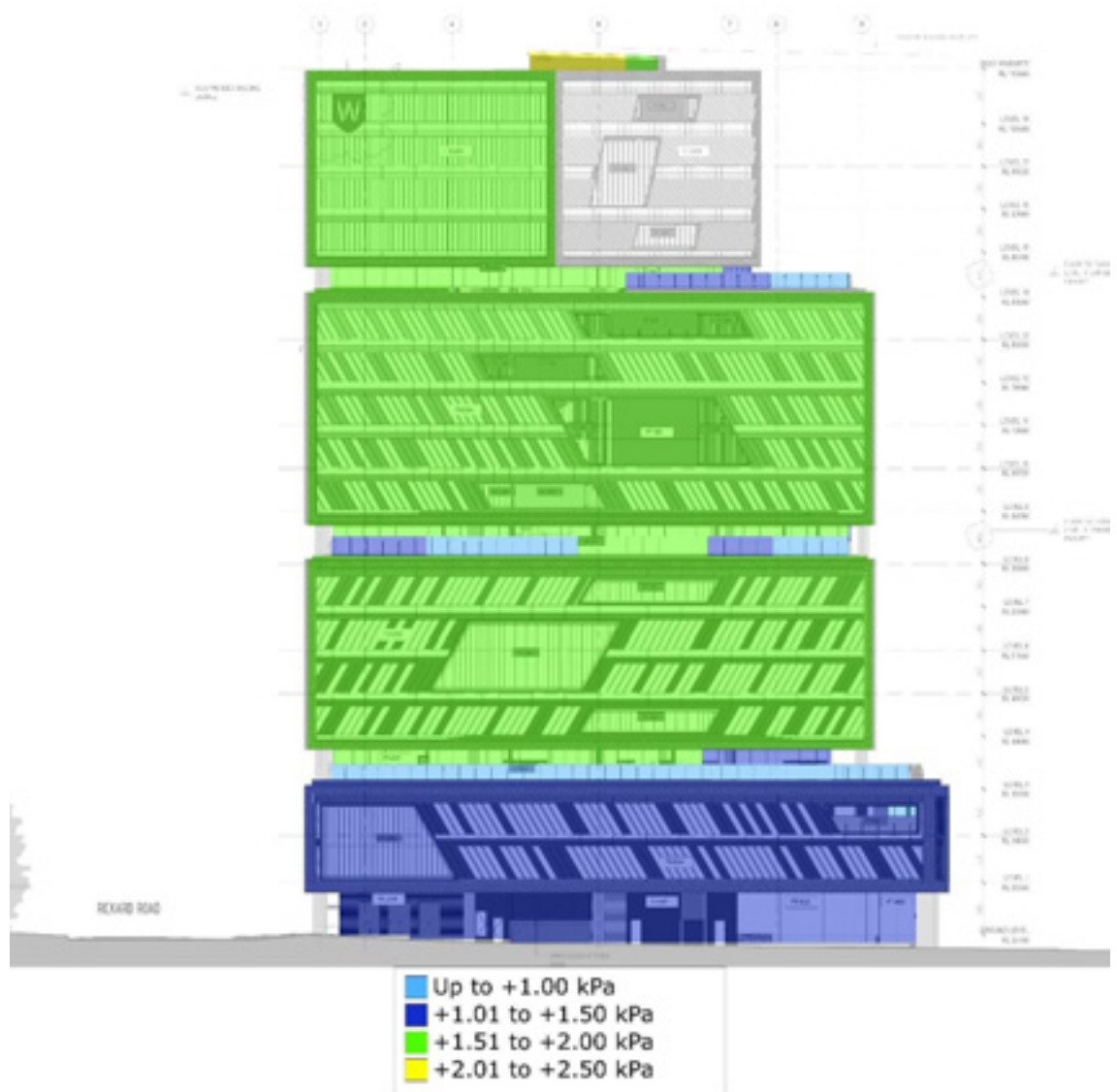


Figure 1d: Positive Peak 1000 year return period Ultimate Net Pressure Zone Diagram – West Elevation

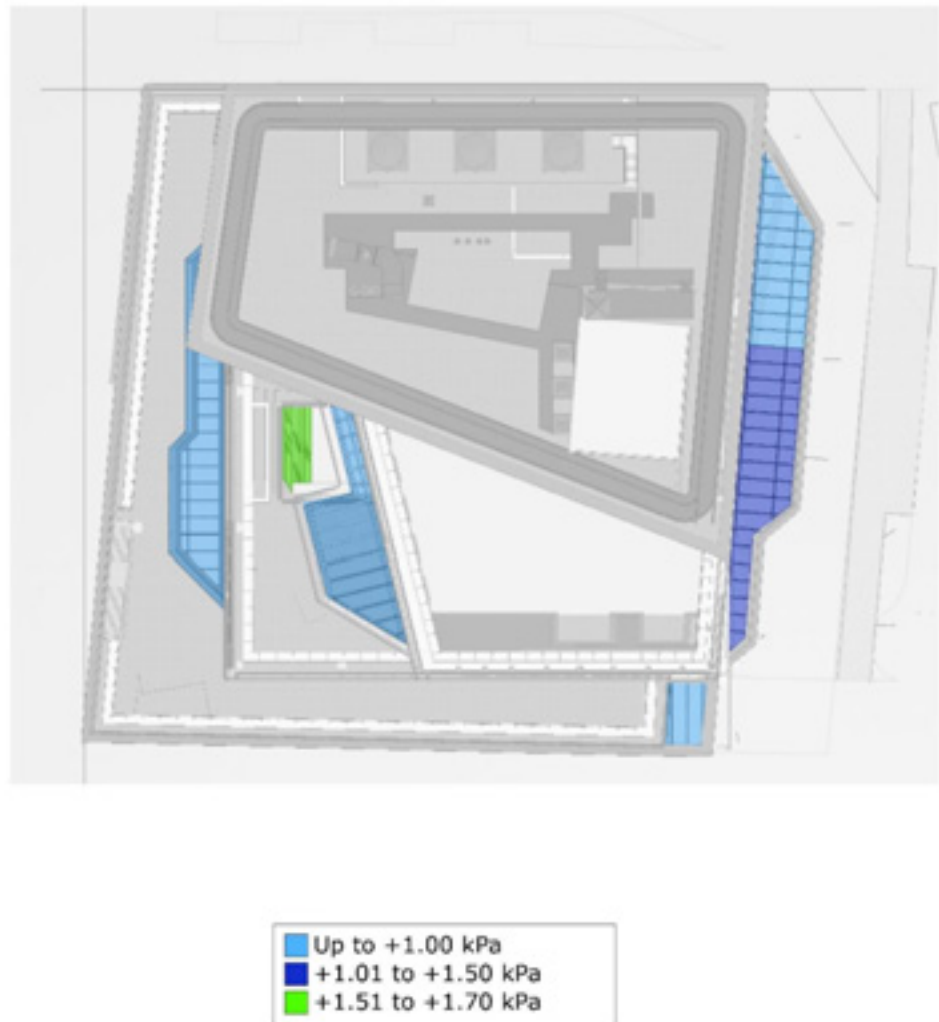


Figure 1e: Positive Peak 1000 year return period Ultimate Net Pressure Zone Diagram – Top View

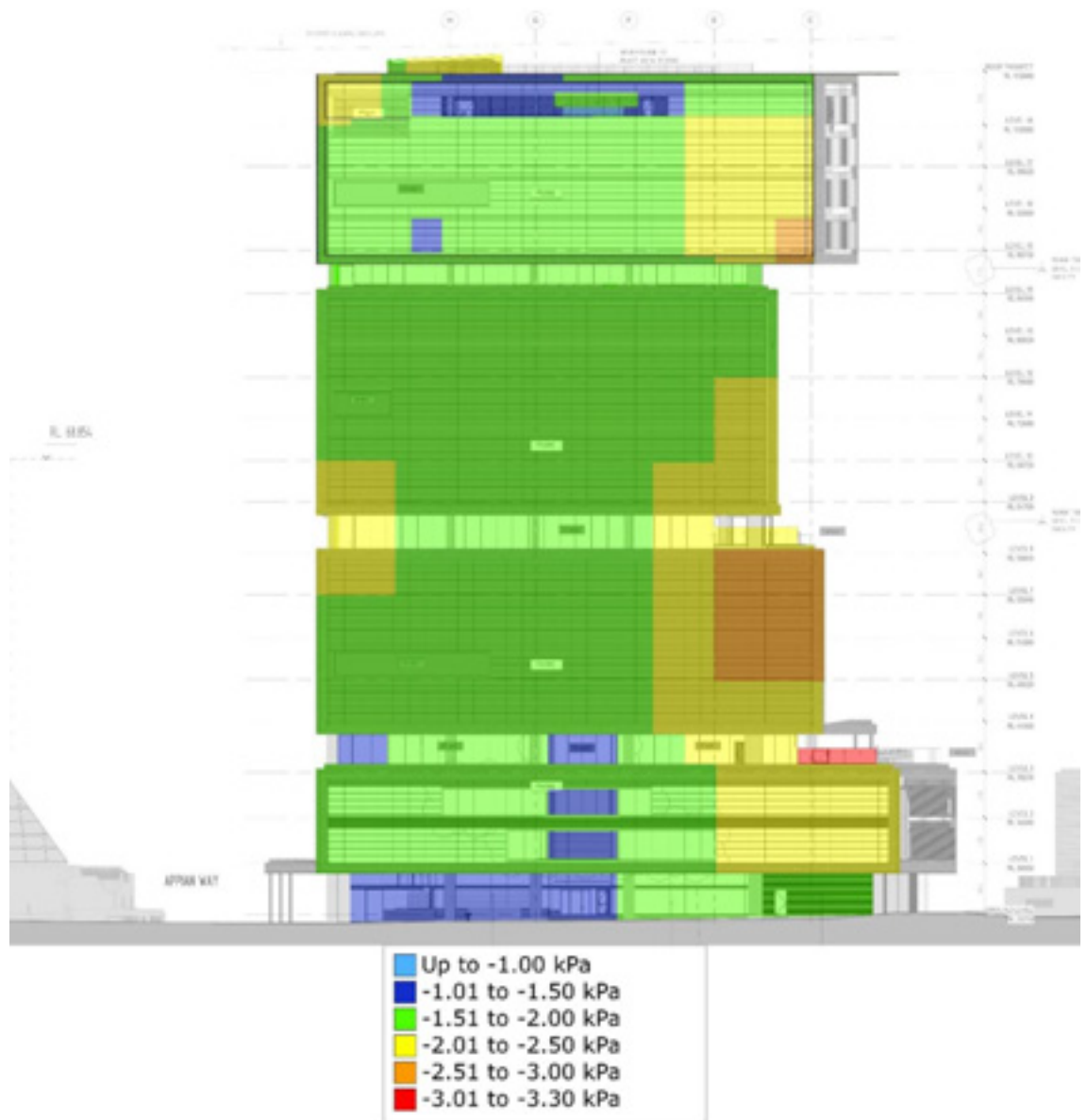


Figure 2a: Negative Peak 1000 year return period Ultimate Net Pressure Zone Diagram – North Elevation

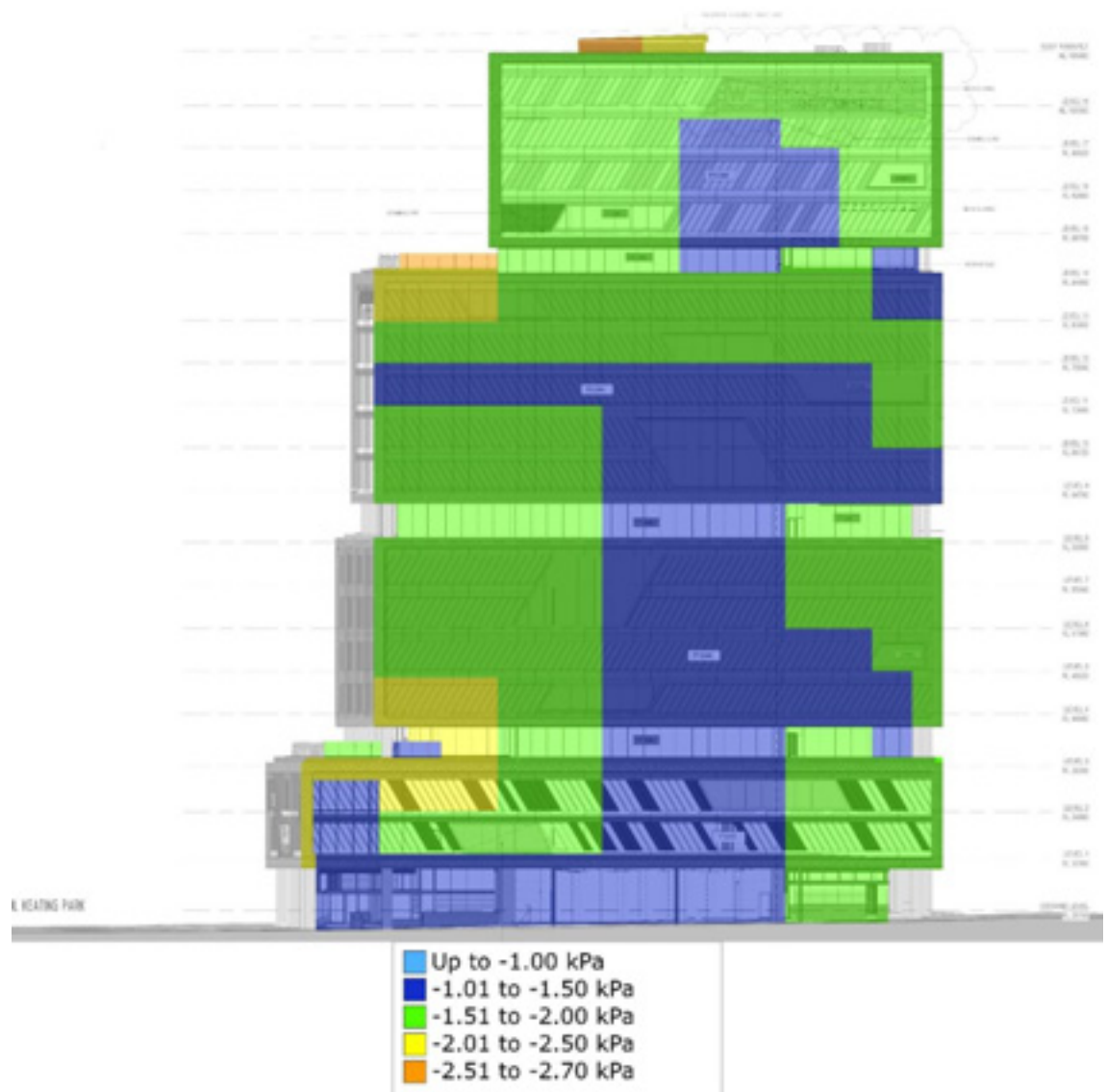


Figure 2b: Negative Peak 1000 year return period Ultimate Net
 Pressure Zone Diagram – East Elevation

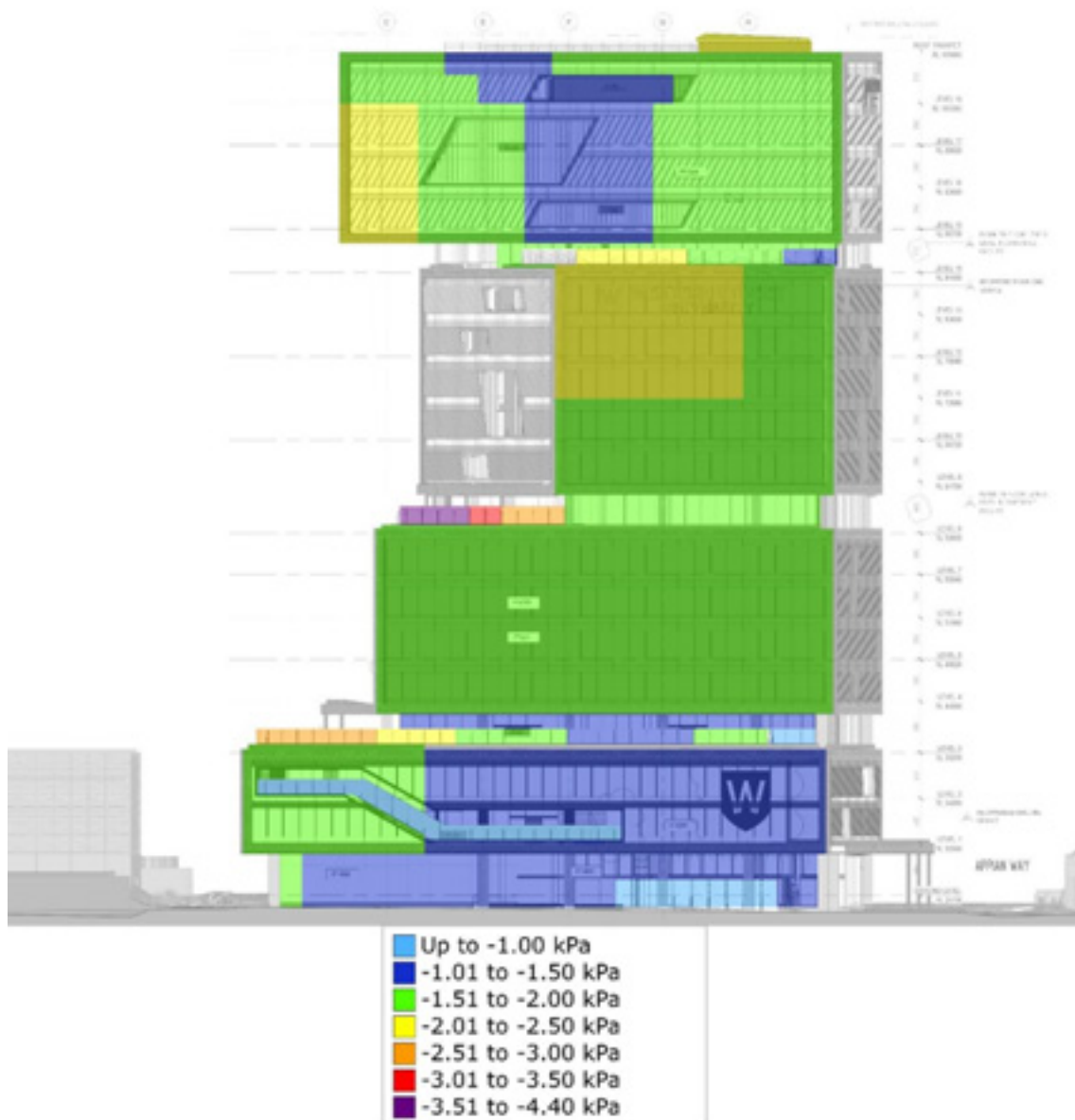


Figure 2c: Negative Peak 1000 year return period Ultimate Net Pressure Zone Diagram – South Elevation

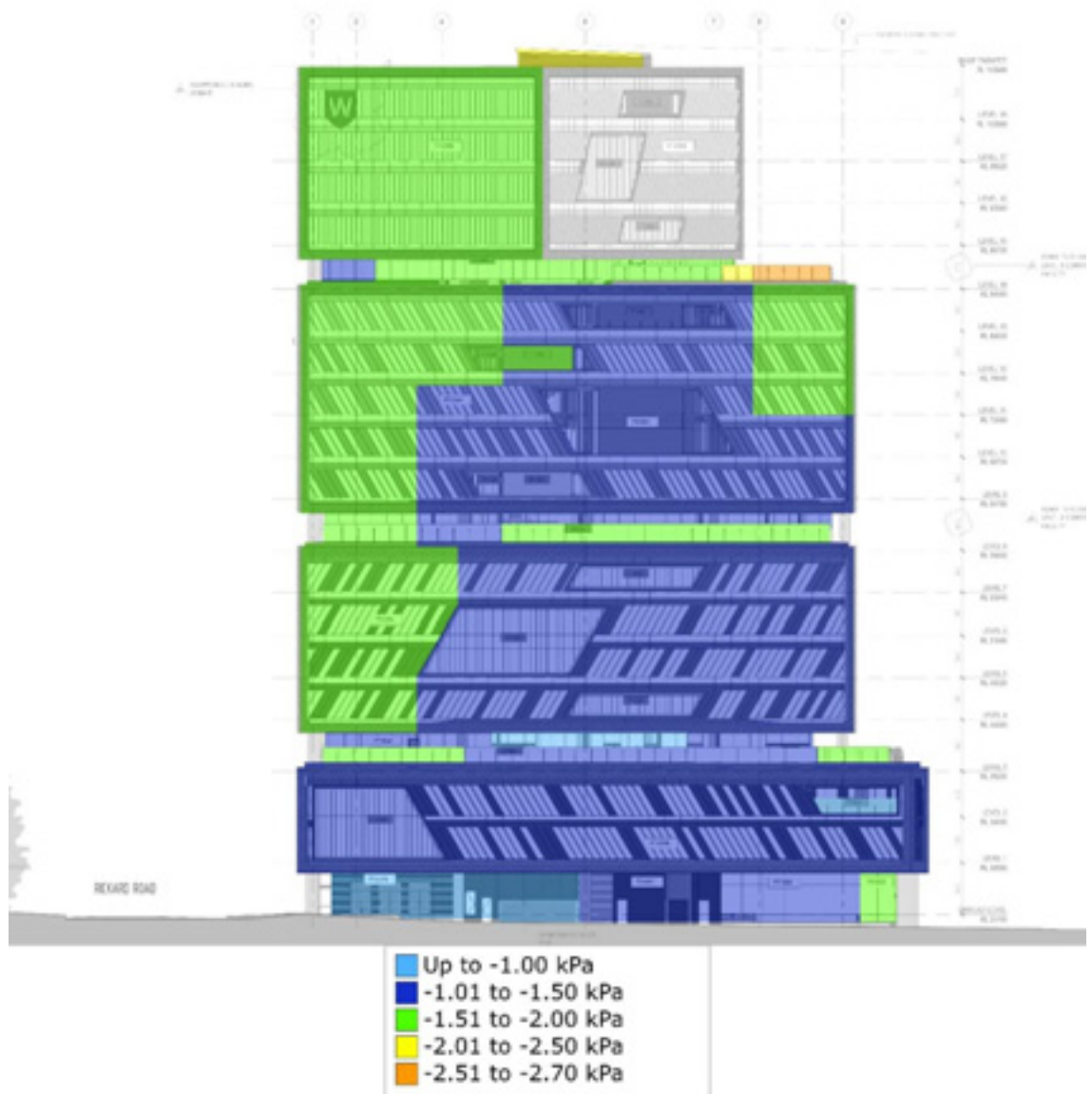


Figure 2d: Negative Peak 1000 year return period Ultimate Net Pressure Zone Diagram – West Elevation

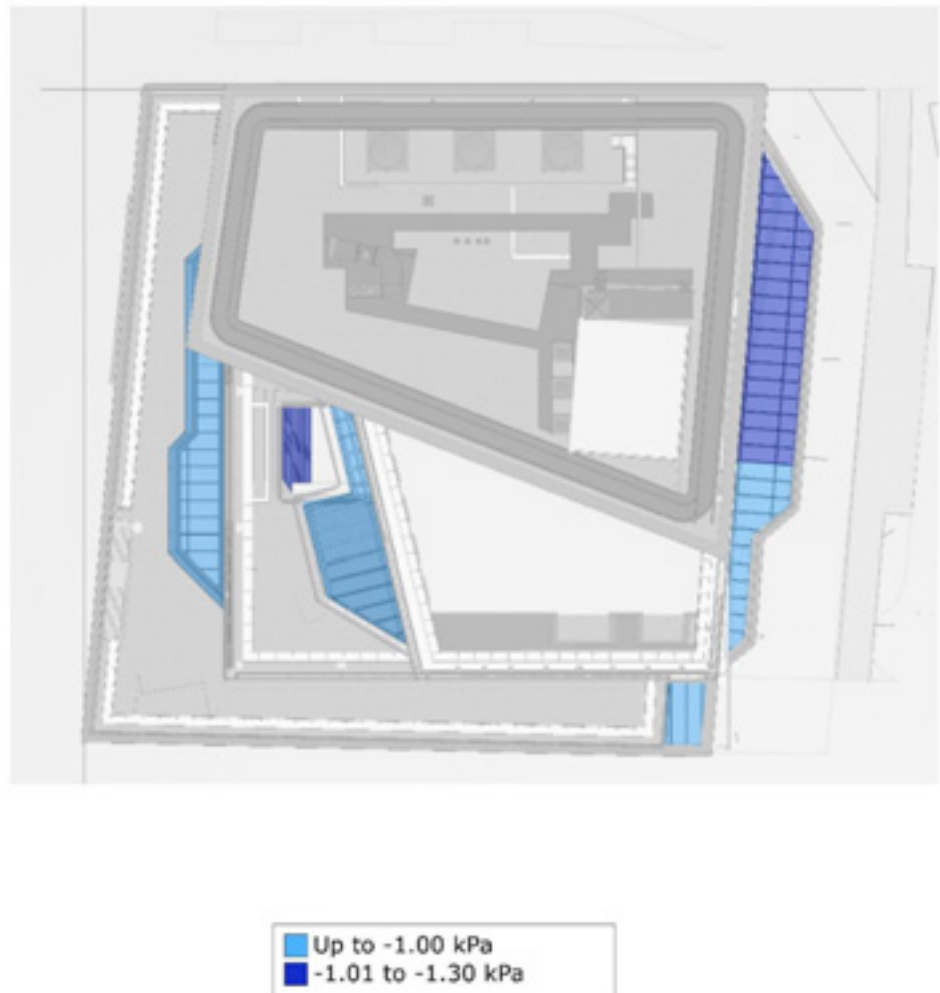


Figure 2e: Negative Peak 1000 year return period Ultimate Net Pressure Zone Diagram – Top View

DOCUMENT CONTROL

Date	Revision History	Issued Revision	Prepared By (initials)	Instructed By (initials)	Reviewed & Authorised by (initials)
July 30, 2020	Initial	0	HK	MV	AB

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