505-523 George Street, Sydney

Development Application:
Geotechnical Report

PSM3712-003R Rev 1 26 July 2019
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Executive Summary

The Geotechnical Report presents our geotechnical desktop study for the proposed development at 505-523 George Street, Sydney using available geotechnical data from PSM database and published information. The aim of the report is to provide a preliminary geotechnical model for the site, geotechnical advice on temporary, permanent excavation and expected impact on adjacent infrastructure.

The geotechnical desktop study indicate that the site is underlain by the Hawksebury Sandstone, with the Ashfield Shale boundary and Martin Place Joint Swarm located to the eastern section of the site.

The presence of the Martin Place Joint Swarm is likely to impact the quality of sandstone at the site. It is therefore unlikely that sandstone from the excavation would be suitable for harvesting as quarry sandstone.

The impact of excavation on neighbouring buildings and rail infrastructure (both existing and future) is expected to be minor and manageable. Further work including detailed impact assessment and liaising with relevant authorities are required to assess the potential impacts of the proposed development works on neighbouring infrastructure.

The regional groundwater table is expected to be within the Hawkesbury Sandstone. However, the presence of basements and tunnels around the site has inevitably provided drainage, lowering the groundwater table close to the base of the proposed excavation.
Preamble

505-523 George Street, Sydney is located within Central Sydney in a block bound by Bathurst Street to the north, George Street to the east, Liverpool Street to the south and Kent Street to the west. The site has an area of approximately 4,308m² and is legally described as Lot 1 in Deposited Plan 573250. The site is currently occupied by Event Cinemas, a number of supplementary retailers and a college. Primary pedestrian access to the site is provided via George Street and secondary access, including vehicular access, is provided via Kent Street to the west. The site is well serviced by public transport and is within walking distance to Town Hall Station and will benefit from the future George Street light rail.

The proposed development will include an approximately 270m tall tower comprising residential apartments (with a time limited approval for use as serviced apartments) above a mixed-use podium incorporating retail, serviced apartment lobby and porte cochere, conference facilities, and a residential lobby. The proposed development will include basement loading for service vehicles and car parking.

The Stage 2 Development Application seeks consent for residential accommodation with a time limited condition of consent for use as serviced apartments over all or part of the tower.
1. Introduction

This report presents the results of a geotechnical desktop study completed by PSM as part of the Development Application (DA) for the proposed development at 505-523 George Street, Sydney (the Site). The site location is shown in Inset 1 below.

Inset 1: Aerial photo of the site

The purpose of this study is to consider all available information for the Stage 2 DA submission and to inform the preliminary geotechnical assessment of the proposed basement excavation on existing and future rail assets and other neighbouring structures and assets. Specifically, the following scope had been completed and reported:

1. Collation of available geotechnical information relevant to the Site
2. Development of a preliminary geotechnical model based on the available information
3. Preliminary geotechnical advice and recommendations
4. Coordination with relevant authorities for existing and future rail infrastructure
5. Discussion on expected impacts of the proposed development on the adjacent infrastructure.

We understand that this report will be included as part of the DA submission.

2. Proposed Development

Based on the information provided, we understand the following regarding the proposed development:

- Demolition of the existing low-rise building
- Construction of a new building with approximately 81 storeys above ground and up to 7 basement levels below ground (approx. RL -13.5 mAH).

3. Available Geotechnical Data

This geotechnical desktop study was based on published data, information supplied by Coombes Property Group (the Client) and PSM’s database. These include the following which are relevant to the Site:

- Coffey Geotechnical Desktop Study for 505 George St completed for the Client (ref. GEOTLCOV25104AA-AB, 2014)
- Geotechnical information (including mapping, borehole logs and excavation photographs) for the following sites:
Lumiere apartments (formerly Genting Centre), the site immediately to the north of the Site. This is also supplemented by the information on the excavation as published by Hewitt et al (1999) (Ref. Hewitt PB, McQueen LB & Davies PR (1999), Genting Centre, Sydney – Deep Excavation Adjacent to Railway Tunnels, Proc 8th Australia New Zealand Conference on Geomechanics, Hobart)

- Meriton development (545–551 George St) to the south of the Site
- 580 George St to the east of the Site
- Cross City Tunnel (CCT), which runs east west below Bathurst St to the north of the Site.

Figure 1 presents a locality plan of the Site and available geotechnical information in the vicinity of the site that has been considered in development of the geotechnical ground model.

4. Site Walkover

A site walkover was completed by PSM, in the company of the client, on 30 November 2018. The walkover comprised a general inspection of the existing basement within the Site and the basement of the adjoining property to the north (Lumiere apartments and the Fraser Suits).

Within the existing basement of the Site, a rock face approximately 2 m high comprising weathered interbedded sandstone / siltstone bedrock was observed along the George St side (Photo 1). Based on the observations, it is inferred that the basement does not extend to the property boundary with bedrock close to the surface along the George St boundary.

No exposed rock faces were visible within the basement of the Lumiere apartments.

Photo 1: Bedrock observed through 505 George St basement (east boundary)

5. Site Conditions

5.1 Surface Conditions

The Site is occupied by an existing six storey building with a single basement towards George St (east boundary) and is at grade at Kent St (west boundary).

It is bound by the following existing buildings:

- North boundary – 101 Bathurst St (Lumiere apartments), a high-rise building understood to have 7 levels of basement and 488 Kent St (Fraser Suites), a 40-storey serviced apartment building with 7 basement levels.
• South boundary – 527-529 George St (southern portion of Event Cinema), a low rise building equivalent to 5 storeys high, understood to have 2 levels of basement (1 lower than the existing basement of the Site).

The 2019 survey of the site (ref. Veris Detail and Level Survey Rev A, dated 22/01/2019) indicates that:

• The surface along George St grades gently south from approximately RL 21.8 m AHD (north) to RL 20.1 m AHD (south)
• The surface along Kent St is generally flat at approximately RL 16.5 m AHD
• The surface level drops towards the west from George St to Kent St by approximately 3.5 m to 5.5 m.

5.2 Geological Setting

The 1:100,000 Sydney Geological Map (Sheet 9130, Ed 1 1983) indicates the Site is underlain by Hawkesbury Sandstone (Rh) with the Ashfield Shale boundary located to the east of the Site. The Mittagong Formation is a transitional formation that separates the Ashfield Shale from the underlying Hawkesbury Sandstone and often occurs near the surface close to the Ashfield Shale boundary.

5.2.1 Hawkesbury Sandstone

Hawkesbury Sandstone is described as a medium to coarse grained, quartzose sandstone deposited in generally 1 m to 3 m thick layers. These layers form primary bedding planes that range in thickness from less than 0.5 m to greater than 5 m but generally occur between 1 m to 3 m. Layers of shale breccia or clasts comprising fragments of siltstone between 50 mm and 4000 mm wide occur within the Hawkesbury Sandstone. They commonly occur as layers and often accumulate along primary bedding planes.

Sandstone between the primary beds is described as either massive or cross bedded, the latter being referred to as ‘sheet facies’. Sheet facies make up approximately 70% of the Hawkesbury Sandstone.

Siltstone interbeds termed ‘laminites’, or ‘mudstone facies’, form a minor part of the unit (around 5%). Laminites typically range in thickness from 0.5 m to 3 m but generally occur less than 1 m and rarely up to around 12 m. The lateral extent of these units is highly variable and can occur laterally from tens of meters to hundreds of meters. These laminate beds may be associated with increased occurring of shearing of bedding.

5.2.2 Mittagong Formation

The Mittagong Formation typically comprises fine grained, brownish sandstone typically 0.5 m to 1.5 m thick, overlying a 1 m to 3 m thick (but up to 10 m) fine grained sandstone and interlaminated or interbedded dark grey siltstone. The Mittagong Formation is inferred to be present at the near surface of the Site.

5.3 Subsurface Conditions

Based on the available geotechnical data in the vicinity of the Site, a ground model was developed. The inferred subsurface conditions are presented below.

5.3.1 Soil and Rock Mass

The inferred subsurface profile for the Site is presented in Table 1. The inferred subsurface conditions comprise a thin layer of soil (fill and residual) overlying sandstone bedrock (Mittagong Formation overlying Hawkesbury Sandstone). Given the presence of an existing basement on Site, the soils are likely to have been removed. The sandstone bedrock has been classified using the rock mass classification system developed by Pells et al (1998)\(^1\) for Sydney rocks. This classification system is based on rock strength, defect spacing and allowable seams.

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### Table 1 - Inferred Subsurface Profile

<table>
<thead>
<tr>
<th>Inferred Unit</th>
<th>Typical Description</th>
<th>Inferred Depth to Top of Unit (m)</th>
<th>Estimate Thickness of Unit (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil</td>
<td>Sandy clay / clayey sand</td>
<td>0</td>
<td>0.5 to 1.0</td>
</tr>
<tr>
<td>Class IV/V Sandstone</td>
<td>Interbedded sandstone and siltstone, highly to moderately weathered, low to medium strength</td>
<td>0.5 to 1.0</td>
<td>1.5 to 2.0</td>
</tr>
<tr>
<td>Class III Sandstone</td>
<td>Interbedded sandstone and siltstone, moderately to slightly weathered, medium to high strength</td>
<td>2.0 to 3.0</td>
<td>4.0 to 6.0</td>
</tr>
<tr>
<td>Class I/II Sandstone</td>
<td>Sandstone, slightly weathered to fresh, medium to high strength</td>
<td>7.0 to 8.0</td>
<td>&gt;20</td>
</tr>
</tbody>
</table>

#### 5.3.2 Geological Structures

The sedimentary successions in the Sydney Basin are generally sub-horizontal. Bedding is expected to dip very gently between 0° and 10°. However, dips up to 30° with variable orientation have been observed in the Hawkesbury Sandstone in association with cross bedding. It is also common for bedding to be locally steeper adjacent to major geological structures such as faults and dykes. Generally cross bedding is closed and tight and does not necessarily form a defect; these are termed bedding fabric. Bedding that does form a defect is termed bedding partings. The Mittagong Formation is expected to have an average bedding parting spacing of 0.5 to 1 m. The average bedding parting spacing in the Hawkesbury Sandstone (massive and sheet facies) is between 1 m and 3 m. Bedding parting spacing of massive Hawkesbury Sandstone facies increases to approximately 6 m.

Joints in the Mittagong Formation and Hawkesbury Sandstone consists of an orthogonal pair of sub-vertical joint sets striking approximately north-north east and a less developed set commonly observed striking east-southeast; these are considered to be ubiquitous. Spacing range from between 1 m to 10 m with closer spaced (0.1 m to 0.5 m) sub-vertical joints often locally occurring in association with major faulting (as discussed below).

The Martin Place Joint Swarm is inferred to be located to the east of the Site as shown on the Pells et al (2004)\(^2\) map (Appendix A). It is described as a sub-vertical north-northeast striking fault zone with sub-vertical closely spaced joints, zones of crushing and shearing and low angled thrust faults. Some of these closely spaced joints were observed at 545–551 George St site during the basement excavation. The rock mass class is anticipated to be locally reduced in association with this geological structure. Exposures of this geological structure have been observed during the excavation of 545-551 George St to the south (Photo 2) with subparallel joints exposed in the east wall and the same set of joints daylighting perpendicular to the north wall.

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\(^2\) Pells PJN, Braybrook JC & Och DJ (2004), Map and Selected Details of Near Vertical Structural Features in the Sydney CBD.
Photo 2: Martin Place Joint Swarm exposed in 545-551 George St basement excavation

5.3.3 Groundwater

The regional groundwater table is expected to be within the Hawkesbury Sandstone between RL 5 mAHD and RL 0 mAHD. However, the presence of basements and tunnels around the Site has inevitably provided drainage, lowering the groundwater table to close to the base of the proposed excavation.

6. DA Stage Geotechnical Advice and Recommendations

The geotechnical advice and recommendations provided herein are suitable for the DA Stage design and planning and are to be confirmed following detailed design possibly including additional site investigation.

6.1 Excavation Support

Based on the inferred conditions, the support presented in Table 2 can be anticipated for the DA Stage design purposes.

Table 2 - Anticipated excavation support

<table>
<thead>
<tr>
<th>Inferred Unit</th>
<th>Anticipated Excavation Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil</td>
<td>Retention structure to support the inferred shallow soils</td>
</tr>
<tr>
<td>Class IV/V Sandstone</td>
<td>Retention structure or pattern rock bolts with shotcrete</td>
</tr>
<tr>
<td>Class III Sandstone</td>
<td>Spot rock bolts or pattern rock bolts and shotcrete</td>
</tr>
<tr>
<td>Class I/II Sandstone</td>
<td>Spot rock bolts (installed as required based on observations) to support any rock blocks or wedges that may be formed by intersecting rock defects</td>
</tr>
</tbody>
</table>

A layer of surface protection shotcrete is often applied to excavations where siltstone is exposed, e.g. in the interbedded sandstone / siltstone of the Mittagong Formation.

For excavation of the east wall (George St side), where the Martin Place Joint Swarm is anticipated, the required support would likely comprise pattern rock bolts to the base of the excavation. The rock bolts do not extend into the first rail protection reserve.

Section 7.4 of the Geometrical Desktop Study (Ref. PSM3712-004R dated 09 July 2019) gives details of the temporary excavation support for the east wall (George St side) and west wall (Kent St side).
It is anticipated that some underpinning would be required where the proposed basement is excavated below and adjacent to footings of neighbouring buildings, e.g. at 527-529 George St, 101 Bathurst St and 488 Kent Street. This may comprise installing rock bolts, shotcrete, mesh and other structures below the neighbour’s shallow footings. Any such work would require prior agreement with the owners of the neighbouring buildings.

6.2 Foundations

For preliminary design, pad footings may be proportioned on the basis of an allowable bearing pressure (ABP) for centric vertical loads on the sandstone units as provided in Table 3. Higher bearing capacities are often available subject to specific investigation and advice at detailed design.

Where piles are required, they should be designed in accordance with the requirements in AS 2159-2009, *Piling – Design and Installation*. The parameters provided in Table 3 may assist in the design of piles within the sandstone units.

**Table 3 - Foundation engineering parameters of inferred geotechnical units**

<table>
<thead>
<tr>
<th>Inferred Unit</th>
<th>Ultimate Bearing Pressure (kPa)(^{1,2,5})</th>
<th>Allowable Bearing Pressure (kPa)(^{1,3,5})</th>
<th>Ultimate Shaft Adhesion (kPa)(^4)</th>
<th>Typical Long Term Young’s Modulus (MPa)</th>
<th>Poisson’s Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class III Sandstone</td>
<td>20,000</td>
<td>3,500</td>
<td>800</td>
<td>350-1,200</td>
<td>0.25</td>
</tr>
<tr>
<td>Class II Sandstone (or better)</td>
<td>60,000</td>
<td>6,000</td>
<td>1,500</td>
<td>900-2,000</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Notes:

1. Pad footings should have a minimum horizontal dimension of 1.0 m and a minimum embedment depth of 0.5 m
2. Ultimate values occur at large settlement (>5% of minimum footing dimension)
3. End bearing pressure to cause a settlement of <1% of minimum footing dimension
4. Assumes clean socket with roughness category R2 or better
5. Under vertical centric loading in compression only

We understand that higher bearing capacities may be required for the lift shaft/core. These should be available. Specific analyses to predict the settlements resulting from the higher loads may be required.

All recommendations provided in this letter adhere strictly to the requirements of the Transport for New South Wales (TfNSW) standard *Development Near Rail Tunnels*.

6.3 Sandstone Harvesting

The presence of the Martin Place joint swarm is likely to impact on the Sandstone quality and hence we consider that it is unlikely that the sandstone from the excavation would be suitable for harvesting for use as quarry sandstone.

6.4 Expected Impact on Neighbouring Infrastructures

6.4.1 General

Our geometrical desktop study (Ref. PSM3712-004R dated 09 July 2019) has outlined details of adjacent infrastructure both existing and proposed around the site. The client has already engaged with the owners and stakeholders responsible for the aforementioned infrastructure which have indicated their expectations with regards to assessing the impact of the proposed excavation and development works on their structures. Details of work completed to date with Sydney Train and Transport for NSW are presented in Section 6 in our geometrical desktop study (Ref. PSM3712-004R dated 09 July 2019).

We understand that the client intends to address these requirements through a series of specific submissions to be developed and issued post submission of the DA. PSM, and other consultants, will assist in this process by:

- Further investigation
- Continuing to develop the geotechnical model for the site
- Completing detailed 2D and 3D numerical analyses
• Completing dilapidation inspections and condition assessment of the assets
• Undertaking structure specific detailed impact assessments, and
• Developing monitoring plans including appropriate trigger and action plans for each structure.

The above would be undertaken on behalf of the Client and in collaboration with the appropriate stakeholders.

Notwithstanding the above, the following subsections discuss in more detail the current state of knowledge with regards to the expected impact of the development on the adjacent infrastructure and our opinion with regards to the likely impact of the excavation on the infrastructure. Clearly this is not a concluded view of the issue but provides a starting point for the future assessment. This initial view is informed by:

• General experience with excavations in the CBD including:
  – Development at 286 Sussex street: PSM provided advice to stakeholders with regards to the effect of basement excavation adjacent to the Cross-City Tunnel and the future CBDRL along Sussex Street and Bathurst Street.
  – Sydney Metro City & South West: PSM is providing design assistance to structural engineers for the design of station shafts in the CBD for the Pitt Street and Martin Place Stations. This has included detailed advice with regards to underpinning of neighbouring buildings and effect on infrastructure including liaison with the various stakeholders.
  – Wynyard Walk Tunnel: PSM acted as the tunnel designer and developed the methodology for excavating below adjacent structure including underpinning requirements.

• Site Specific Displacement Monitoring Data indicating the displacements experienced in and around the basement excavation during:
  – Excavation of the basement at 528 Kent Street south of the site, and
  – 101 Bathurst St (Genting Centre) immediately north of the site.

• Due to their involvement on both sites, PSM are privy to information on these sites which are directly related to the effect of the excavation on surface displacements and Sydney Trains rail tunnel displacements. An example of the available data is shown diagrammatically in Inset 1.

• Initial numerical analysis completed by PSM for the client to inform the early decision making with regards to the basement excavation footprint and basement support strategy. These will form the basis for future analysis which we expect to report in full as part of post DA submissions.

Inset 2: Previous ground movement data due to excavation
6.4.2 Adjacent Buildings

Additional post DA analyses and detailed impact assessments are proposed to assess the effect of the proposed excavation on the neighbouring structures. Given the levels of the proposed excavation relative to the neighbouring basements we expect that the impact assessment will indicate that the effect of the excavation on neighbouring buildings to be very minor and able to be managed by appropriate monitoring plans and trigger action plans developed post DA.

As discussed previously some minor underpinning works may be required where the excavation extends below the adjacent buildings. Such works may require permissions from the neighbouring owners.

6.4.3 Existing Sydney Trains Rail Tunnels

Our geometrical desktop study has outlined the geometry of the existing Sydney Train rail tunnels. Post DA we intend to undertake 3D modelling and detailed impact assessment as required by the relevant TfNSW standards *Development Near Rail Tunnels* to assess the effect of the excavation on these tunnels. We have undertaken preliminary 3D modelling for the impact assessment in accordance with TfNSW standard. Initial results indicate impact to existing tunnels is expected to be within the acceptable limit set out by the standard.

The remainder of the tasks set out in the TfNSW standard will be undertaken post DA and appropriate approvals sought from Sydney Trains prior to the commencement of excavation works.

6.4.4 Future CBD Rail Link (CBDRL) Corridor Station and Tunnels

The geometry and design requirement of the future CBDRL are set out in Aurecon drawing 250091-041-01.02 (presented in Appendix B). The notes from this drawing are reproduced below in Inset 3:

**SETTLEMENT IMPACT:**

1. THE DESIGN OF THE BUILDING MUST ALLOW FOR THE EFFECTS OF REASONABLE GROUND MOVEMENT DUE TO CONSTRUCTION OF CBDRL TUNNELS. AS A GUIDE, THE BUILDING MOVEMENT SHOULD BE DESIGNED TO ACCOMMODATE THE MOVEMENT DETAILED BELOW. TRANSPORT FOR NEW SOUTH WALES WILL NOT BE LIABLE FOR THE REPAIR OF DAMAGE OF THE BUILDING.

2. MAXIMUM DIFFERENTIAL SETTLEMENT BETWEEN INDIVIDUAL COLUMNS AND WALLS SHALL BE L/500, WHERE L IS THE GRID SPACE BETWEEN ADJOINING COLUMNS AND WALLS IN ANY DIRECTION I.E. TRANSVERSE OF LONGITUDINAL.

3. THE MAX VERTICAL SETTLEMENT OF ANY COLUMN OR WALL IS LIMITED TO 10mm.

Inset 3: **Design Requirement from City West Station (CBDRL)**

The future building at 505 George Street is proposed to be founded below the elevation of the invert of the CBDRL tunnels. On this basis, we expect that detailing of the building can be included in the final design to accommodate for:

- Maximum differential settlement between individual columns and walls of L/500, where L is the grid space between adjoining columns and walls in any direction i.e. transverse of longitudinal.
- The max vertical settlement of any column or wall of 10mm.

Post DA it is intended to undertake appropriate ground/structure interaction analysis using finite element modelling to demonstrate the above to the satisfaction of TfNSW.

6.4.5 Sydney Light Rail

Sydney Light Rail have provided initial feedback with regards to its expectations with regards to the geotechnical elements needing to be addressed by the client pre excavation. This feedback is reproduced in Inset 4 below.
Inset 4: Design Requirements from Sydney Light Rail

Dot points 1, 2, 3, 4 and 6 are addressed in this report. The remaining items will be addressed individually in our post DA submission. We note that our current expectation with regards to these is that future assessments will demonstrate that:

- The deformations of the light rail due to the excavations will be very minor and not result in changes in alignment likely to impact the Light Rail Infrastructure.
- Appropriate excavation methodology and support can be designed to control the stability of the excavation pre, during and post construction. This will be informed by a combination of 2D and 3D modelling.

7. Conclusion

The report presents the geotechnical desktop study for the site at 505 – 523 George Street, Sydney. The report indicate that the site is underlain by the Hawkesbury Sandstone, with the Ashfield Shale boundary and Martin Place Joint Swarm located to the eastern section of the site.

The presence of the Martin Place Joint Swarm is likely to impact the quality of sandstone at the site. It is therefore unlikely that sandstone from the excavation would be suitable for harvesting as quarry sandstone.

The impact of excavation on neighbouring buildings and rail infrastructure (both existing and future) is expected to be minor and manageable. Further work including detailed impact assessment and liaising with relevant authorities are required to assess the potential impacts of the proposed development works on neighbouring infrastructure.
Should there be any queries, do not hesitate to contact the undersigned.

For and on behalf of
PELLS SULLIVAN MEYNINK

ANH DUC TRAN
 SENIOR GEOTECHNICAL ENGINEER

DAVID PICCOLO
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NOTE:
Proposed City West Station - CBDRL plan is taken from Aurecon drawing 250091-41-01 Rev 01 dated 29/04/19
Appendix A
Map of Structural Features in the Sydney CBD (2004)
MAP AND SELECTED DETAILS OF NEAR VERTICAL STRUCTURAL FEATURES IN THE SYDNEY CBD
Appendix B
Future CBD Rail Link (CBDRL) Corridor Preliminary Drawings
**GENERAL NOTES**

1. FOR GENERAL NOTES, REFER TO DRAWING 01

**KEY**

ZONE 1
- EXCAVATIONS AND ROBOTS, ANCHOR GROUND SUPPORT ARE NOT PERMITTED IN THIS ZONE.

ZONE 2
- FOUNDATIONS AND STRUCTURES MAY INTERSECT THIS ZONE BUT NOT VERTICALLY.
- LOADS SHALL BE TRANSFERRED BELOW THE ZONE. LOAD-BEARING WALLS AND FACES MUST BE ISOLATED FROM THE GROUND BY MEANS OF DE-BONDING OR SLEEVING. BASEMENT SLABS SHALL BE SUSPENDED WITHIN THIS ZONE.

ZONE 3
- LOADS FROM STRUCTURES PERMITTED.
- STRUCTURE TO BE DESIGNED TO ALLOW FOR REMOVAL OF GROUND IN ASSUMED CBDRL TUNNEL ZONE & OVERLYING STRATA.

ZONE 4
- ASSUMED CBDRL TUNNEL EXCAVATION.

**SETTLEMENT IMPACT:**

1. THE DESIGN OF THE BUILDING MUST ALLOW FOR THE EFFECTS OF REASONABLE GROUND MOVEMENT DUE TO CONSTRUCTION OF CBDRL TUNNELS. AS A GUIDE, THE BUILDING MOVEMENT SHOULD BE DESIGNED TO ACCOMMODATE THE MOVEMENT DETAILED BELOW. TRANSPORT FOR NEW SOUTH WALES WILL NOT BE LIABLE FOR THE REPAIR OF DAMAGE TO THE BUILDING.

2. MAXIMUM DIFFERENTIAL SETTLEMENT BETWEEN INDIVIDUAL COLUMNS AND WALLS SHALL BE L/500, WHERE L IS THE GRID SPACING BETWEEN ADJOINING COLUMNS AND WALLS IN ANY DIRECTION (I.E. TRANSVERSE OR LONGITUDINAL).

3. THE MAX VERTICAL SETTLEMENT OF ANY COLUMN OR WALL IS LIMITED TO 10mm.