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Section 2.1 MetroLink Building Damage Assessment of Cadenza Building

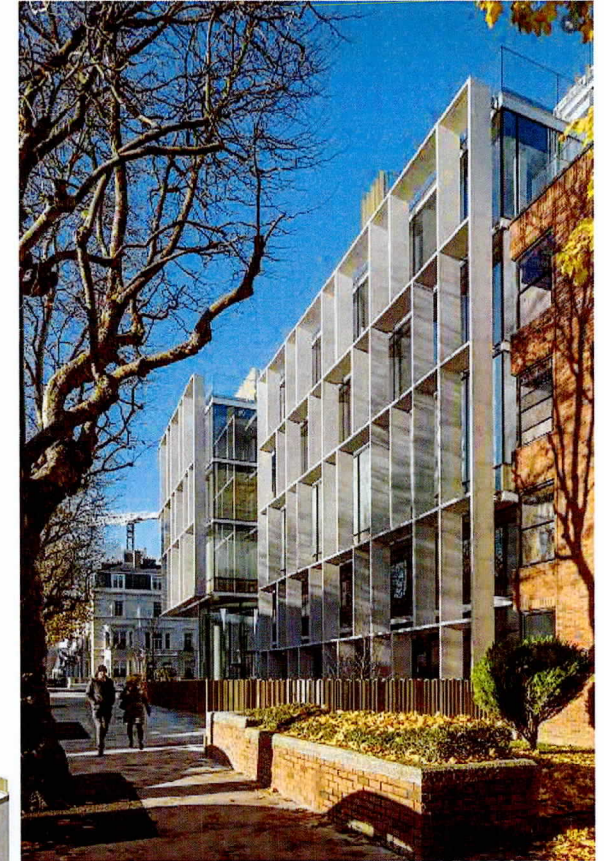
The proximity of the proposed tunnel to the existing structure has not been correctly assessed or considered by the Jacob / IDOM team. I have reviewed the Building Damage Report ("the BDR") produced by Jacob/IDOM, which was included in Appendix A5.17 of the Environmental Impact Assessment Report ("the EIAR"). In the BDR, the property referenced at the chainage of the Cadenza Building, the Davitt Building was demolished at the end of 2019, four years ago.

The Davitt Building (B147) described in the BDR is a four-story building with a 2.5m basement. It is clearly incorrect and does not represent the Cadenza Building that has been constructed.

The findings of the BDR concerning the Building Damage Categorisation are incorrect as the data used was not checked or verified.

Therefore, the expected Category of Damage present by Jacob / IDOM cannot be relied upon, which, if followed, would result in damage to our Client's building.

Section 2.1 MetroLink Building Damage Assessment of Cadenza Building



Section 2.2 MetroLink Settlement Assessment at the Cadenza Building

The magnitude of the subsidence/settlement under the Cadenza Building is not uniform and varies from 0mm to 30mm. The maximum subsidence/settlement is experienced directly under one of the main stair cores, which provides stability to the building.

The settlement contours presented by Jacob / IDOM indicate that differential settlement/distortion of the Cadenza Building is going to occur, resulting in the following damage:

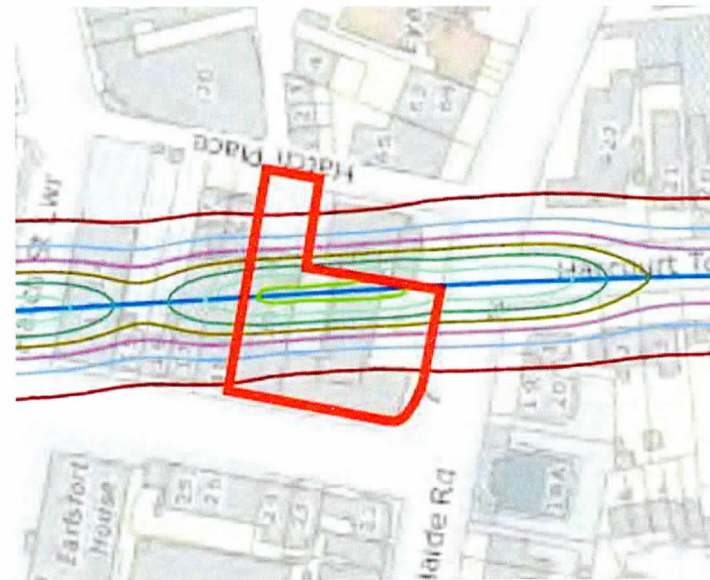
- The basement uses a whitetank waterproofing system, which relies on the watertightness of the reinforced concrete basement floor slab and walls. Therefore, even minor cracking could lead to groundwater ingress;
- The internal reinforced concrete frame uses post-tensioned reinforced concrete floor slabs for large spans, which would be more sensitive to differential settlement than conventional RC slabs;
- The tunnel passes under one of the main structural cores for the building, and this incorporates a complex transfer structure at the first-floor level to accommodate a shift in the position of the core for the upper floors of the building;
- The building has a modern steel and glass façade, which would be more sensitive to distortion due to differential settlement along the perimeter secant pile wall than a masonry or blockwork structure.

The Cadenza Building cannot accommodate movement of this magnitude without damage to the structure, waterproofing and facades being caused.

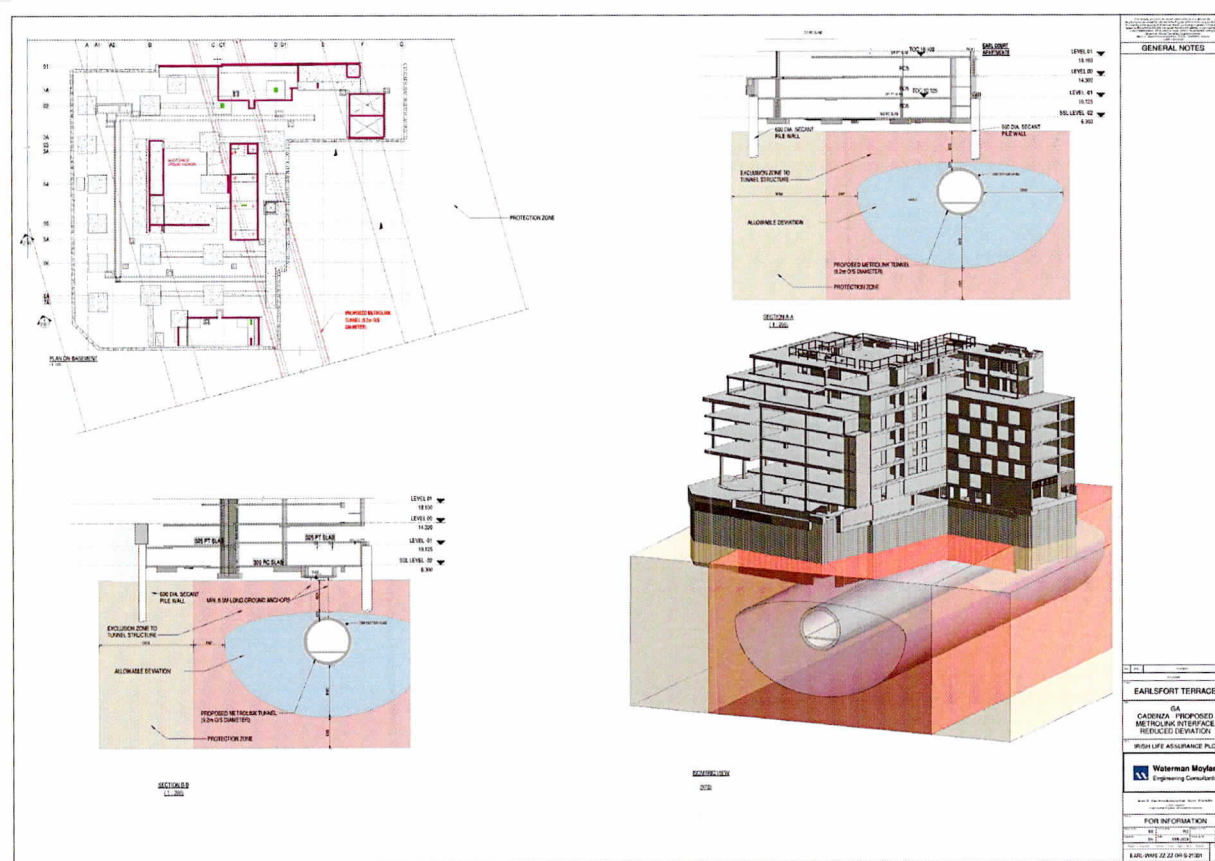
The map displays the proposed MetroLink station area, bounded by 14th Avenue to the west and 14th Street to the east. The station is located at the intersection of 14th Avenue and 14th Street. The map shows the proposed station layout, including the platform and tracks, and the surrounding urban environment. The map includes a legend, a scale bar, and a north arrow.

Legend

- Alignment**
 - Station
 - Station Footprint
 - Project Boundary
- Geographic Split**
 - ADA Nominated to Characterize
- Settlement Contours**
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- We development drawing number EARL-WMS-ZZ-ZZ-DR-S-21301 which is included in Appendix D of our Report, which indicates the existing structure of the Cadenza Building overlaid with the proposed Metrolink tunnel route and the reduced tunnel exclusion zones set out in document DOC ML1-JAI-GEO-ROUT_XX-RP-Y-00034.



Any damage to the tension anchors or the secant piled wall is going to result in damage to the basement structure and the integrated basement waterproofing system provided through the whitetank waterproofing system.



Section 2.4 Future Extension of the Cadenza Building

The Cadenza Building is a modern building. However, it is likely that at some point in the future, there will be a need to either extend the existing building vertically or demolish the existing building and replace it with a new building.

Currently, the existing building could be vertically extended through the removal of the upper step back floors and four additional floors added to the existing structure without causing any distress to the existing structure or foundations. The foundation loads would increase to support the additional floors of the building.

There is also potential that the Cadenza Building, at some point in the future, will be redeveloped through the demolition of the existing structure and basement and a new basement and building constructed in its place, subject to the improvement in building technologies and sustainable targets being achieved or exceeded through the reconstruction of the site.

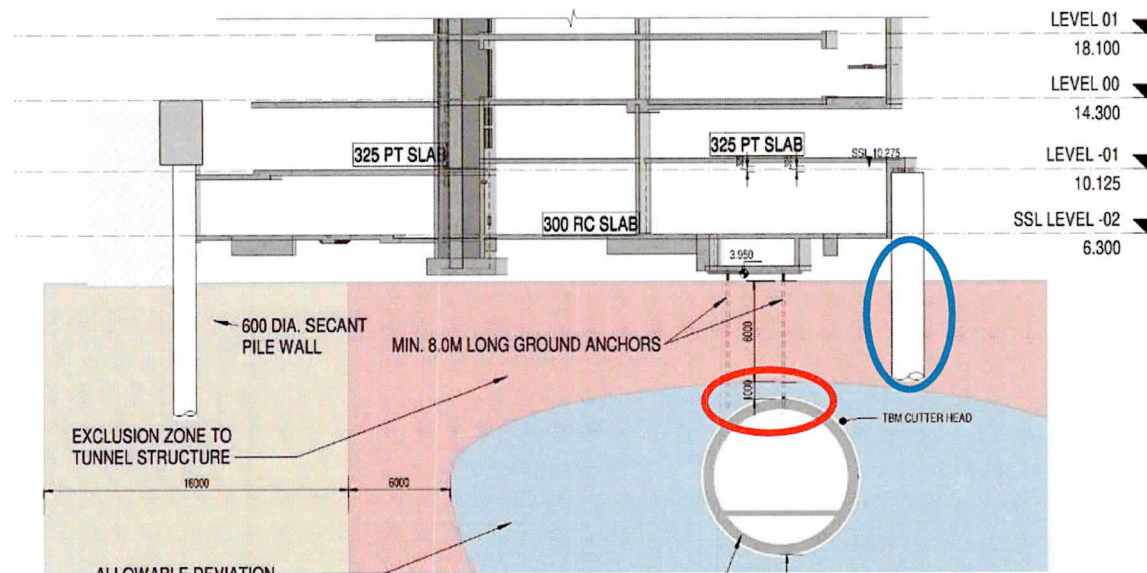
In both scenarios above, either the extension vertically or the replacement structure would be subject to limitations imposed by the Metrolink Tunnel being located so close to the existing substructure of the Cadenza Building.

If this level of load limiting is imposed due to the Metrolink Tunnel, it would not be possible to build a traditional house, let alone rebuild the Cadenza Building, which imposes 1000kN/m^2 at the underside of the foundation level directly above the tunnel.

The conditions being imposed by the Metrolink Tunnel would preclude either the vertical extension or the demolition and redevelopment of the Cadenza Building, and the exclusion zone would also appear to preclude the deepening of the existing basement level.

Section 2.5 Damage to the Cadenza Building Substructure in the Exclusion Zone

- We understand that the Cadenza Building could not have been developed in its current form had the Metrolink Tunnel been previously constructed, as there are substructure elements required to extend into the exclusion zone, which could cause damage to the Metrolink Tunnel.
- As the Metrolink Tunnel is a significant piece of infrastructure and has been designed to resist significant earth pressures, it is equally likely that such a significant piece of structure could cause damage to the existing substructure elements of the Cadenza Building that are currently in place and providing support to the Cadenza Building.



Section 2.5 Damage to the Cadenza Building Substructure in the Exclusion Zone

Based on our findings, we believe that if the Metrolink Tunnel is to pass under or close to the Cadenza Building, we require a detailed Phase 3 assessment using the correct building geometry and structural form to be completed and independently verified, ensuring the maximum damage caused to the Cadenza Building is limited to 0.1mm cracking.

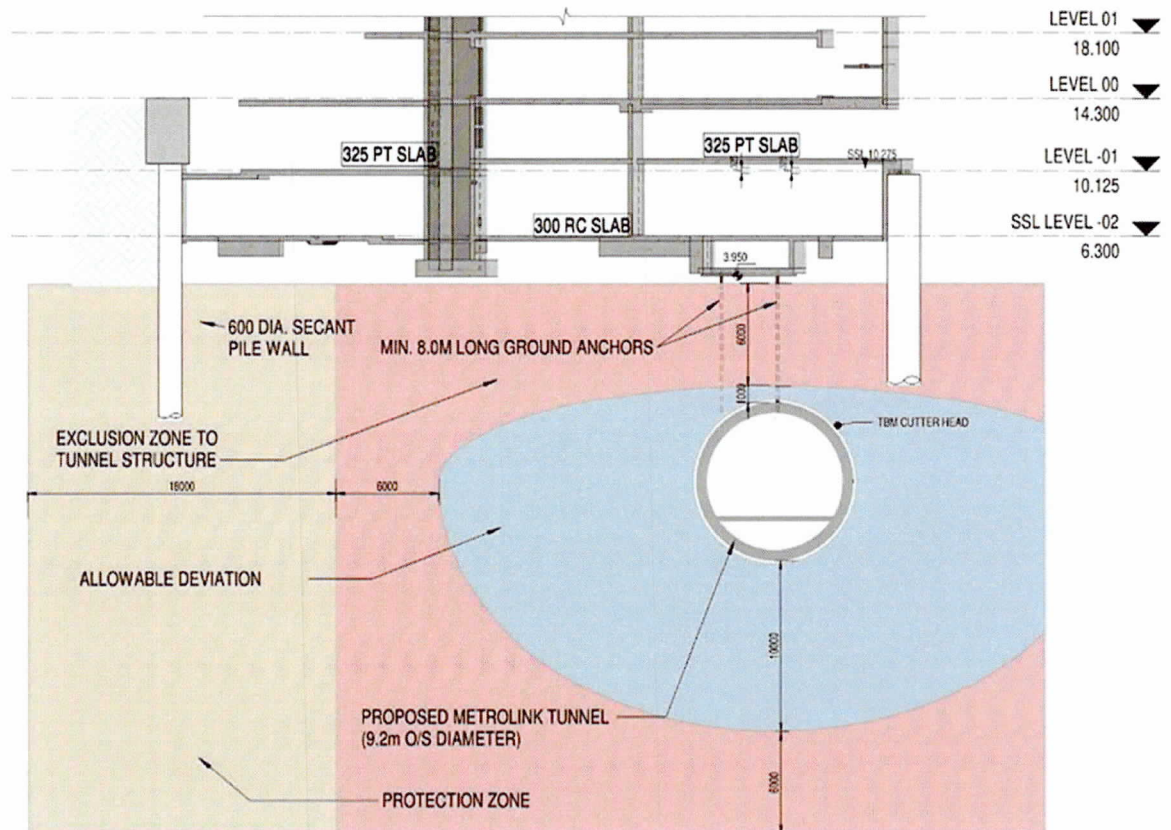
The proposed tunnel elevation may require to be lowered more than the current LOD downwards, i.e. more than the 10.0m indicated in the Wider Effects Report submitted as part of the application, considering the proximity and sensitivity of the Cadenza Building.

Based on the findings of our Report, we believe that the Metrolink Tunnel should either be:

- 1) rerouted around the substructure of the Cadenza building or,
- 2) the elevation of the Metrolink tunnel should be significantly lowered to a level that no damage will be caused to any part of the Cadenza Building.

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