

## **Annexure 3**

Earthworks Advisor Assessment

John Davies

*In the matter of*

the Resource Management Act 1991

*And*

*In the matter of*

Land use resource consent under the Wellington City Council Operative District Plan for the construction of two new buildings at 1 Molesworth Street in the Parliamentary Precinct.

*By*

WELLINGTON CITY COUNCIL  
*Requiring Authority*

**STATEMENT OF EVIDENCE OF JOHN DAVIES  
(EARTHWORKS)  
ON BEHALF OF WELLINGTON CITY COUNCIL**

12 January 2023

1. My full name is John Robert DAVIES. I am an earthworks engineer at Wellington City Council, Specialist Advice and Compliance Team. My qualifications are set out in **Appendix A**.
2. My assessment of the application is based around the information provided by the applicants engineering and planning experts which includes the following documents:
  - Parliament Precinct Future Accommodation Strategy (FAS) Geotechnical Report for Land Use Resource Consent Parliamentary Service Reference: 255585 Revision: D 2022-02-16.
  - Future Accommodation Strategy (FAS) Three Waters and Earthworks Resource Consent Report Parliamentary Services Reference: 255585 Revision: D 2022-09-22.
  - Assessment of Environmental Effects Report Parliamentary Precinct, 1 Molesworth St, Wellington dated 2022-09-22.
3. Earthworks Summary
  - i. Earthworks to construct the new builds will consist of around 24,000m<sup>3</sup> of material to be excavated from the site and approximately 400m<sup>3</sup> of that material will be used as fill.
  - ii. It should be noted that details around the final foundation design and landscaping may impact earthwork volumes so an additional 30% has been added to these figures as a contingency.
    - Cut Volume = 23,900m<sup>3</sup>
    - Fill Volume 400m<sup>3</sup>
    - Cuts up to ~6.4m
    - Fill up to ~3m
  - iii. The risk of erosion, sediment and dust loss from the site are typically managed in accordance with an Erosion and Sediment Control Plan (ESCP), for issues with stability of earthworks the controls are usually documented in a Construction Management Plan. Both of which are yet to be developed but are required in the recommended earthwork conditions below.
4. Stability Assessment
  - i. A geotechnical report has been supplied as part of the application. The geotechnical report was developed by Aurecon Ltd. (dated 2022-02-16). The geotechnical report reviews the current proposal and ground conditions in the area.

- ii. The site is relatively close to both active faults and inactive faults. The most significant of which is considered to be the Wellington Fault, which also is the closest, at 450m to the northwest, and is classed as a major fault in NZ standard 1170.5:2004. A second active fault, the Aotea Fault is also detailed in the report and is located 1.5km to the southeast. The report also identified several 'inactive faults' in immediate the area.
- iii. Bore holes did not show a consistent pattern making interpretation of the ground conditions difficult. That being said, the bore holes indicate that fill is present in the immediate 1.5-2.2m below the surface. Below this is weak alluvium/colluvium to a depth of around 20m with firm-very-stiff conditions below this to bedrock at around 53-76m.
- iv. Ground water levels have also been recorded for the site with areas of the excavations expected to intersect these levels. Dewatering of the exactions will need to be considered as part of the site erosion and sediment controls.
- v. The geotechnical review considers that temporary support will be required to ensure stability of the cuts due to the proximity of the proposed earthworks to existing structures and depths of the proposed excavations.
- vi. A liquefaction assessment of the site was undertaken with recommendations of broad approaches for the mitigation of these risks. Further detailed analysis is expected to be undertaken as part of the detailed design for the foundations as part of the building consent process.
- vii. The report also notes that a filled stream is likely to be present beneath the site but was not located in the investigation.

#### 5. Erosion and Sediment Assessment (including Dust)

- i. Typically, the controls required to minimise the risk posed by erosion, sediment and dust loss from the site are documented in an Erosion and Sediment Control Plan (ESCP). An ESCP is considered to be required and is included as part of the consent conditions below. This is in line with the suggested conditions from the applicant and should be provided in advance of any earthworks commencing on site.
- ii. Typically, these management plans are developed in conjunction with the consultant engineers and earthwork contractors and as such are typically provided after consents are granted but at least 10 working days prior to earthworks starting. The risk of erosion, sediment and dust loss is considered to be adequately addressed with development of typical industry controls required as part of the ESCP.

6. Visual Amenity Assessment

- i. The proposed earthworks will exceed the of earthworks rule thresholds for area and cut height. Therefore, an assessment on the visual impact is typically triggered. This is typically reviewed by planning experts or their advisors with conditions of the consent developed accordingly. No visual impact assessment is included within this report.

7. Submitters

I have read all submissions. There are a total of five submissions, one neutral, four in opposition. One submitter raised concerns in relation to earthworks which is discussed below.

- i. **Submission by Ben Blinkhorne Address: 30 Salamanca Road:** The submitter raises concerns around dust effecting the outdoor bar area of Huxley's restaurant and bar that is located on the eastern ground floor of the Bowen State Building.

**Response:** this concern, in relation to earthworks, is considered to be addressed through requirements of the conditions including details of how dust in relation to earthworks will be managed and monitored as part of the ESCP.

8. Applicants Suggested Conditions

- i. The applicant has suggested typical Council earthwork conditions be applied; these conditions are included below.

9. Conclusion:

- i. The new development is considered to adequately address the long-term stability risks through redevelopment of the site with specific engineered retaining walls. In order to minimize the risk of instability during the construction phase it is recommended that monitoring by a chartered professional engineer and development of a Construction Management Plan be undertaken.
- ii. The proposal is supported from an earthworks point of view, as it is expected that standard industry methodologies will be implemented to mitigate any potential erosion, sediment and dust effects.
- iii. The following conditions/advice notes are suggested to ensure that standard earthwork methodologies are implemented:

## 10. Recommended Conditions

### Geotechnical Professional

- i. A Geotechnical Professional must be engaged for the detailed design and construction phases of the project.

A 'Geotechnical Professional' is defined as a Chartered Professional Engineer (CPEng) with specialist geotechnical skills and experience in the design and construction of earthworks and retaining works similar to those proposed and in similar ground conditions.

The name and the contact details of the Geotechnical Professional must be provided to the Council's Compliance Monitoring Officer, at least 20 working days prior to any work commencing.

- ii. The Geotechnical Professional will monitor the earthworks. The Geotechnical Professional will advise on the best methods to ensure:
  - the stability of the site and surrounding land.
  - the construction of cut faces, fill batters, staging, shoring, and benching as required for stability of the earthworks.
  - the design and construction of the temporary and permanent retaining
  - the earthworks methodology is consistent with the recommendations in the geotechnical assessment by Aurecon Ltd. (date 2022-02-16) and to ensure adequate engineering monitoring is undertaken of the earthworks.

The Consent Holder must follow all the advice of the Geotechnical Professional in a timely manner.

### Construction Management Plan:

- iii. At least 10 working days prior to any work commencing on the site a Construction Management Plan (CMP) developed by the consent holder must be submitted to the Council's Compliance Monitoring Officer for certification in relation to any temporary works and earthworks to ensure there is not uncontrolled instability or collapse affecting any neighboring properties, buildings, or infrastructure.
- iv. The CMP must be consistent with the finding and recommendations of the geotechnical assessment by Aurecon Ltd. (date 2022-02-16) and will include, but is not limited to, the following:
  - Details of the staging of work including hold points for engineering inspections and an illustrated plan showing the proposed staging and earthworks.

- Measures to limit the exposure of unretained earthworks at any one time including maximum cut heights of earthworks before the support is put in place.
  - Any runoff controls required to minimise the risk of instability
  - Roles and responsibilities of key site personnel.
  - A contact (mobile) telephone number(s) for the on-site manager, where contact can be made 24 hours a day / 7 days a week.
- v. The CMP must be reviewed by the CPEng prior to being submitted to the Council, to ensure that the methodology is in accordance with the geotechnical assessment, by Aurecon Ltd. (date 2022-02-16).

The review must be provided to the Council's Compliance Monitoring Officer when the final CMP is filed for certification.

- vi. Work must not commence on the site until the CMP is certified by the Council's Compliance Monitoring Officer. The earthworks and retaining work must be carried out in accordance with the certified CMP.

Note: Any amendments to the CMP (once work starts) must be approved by the CPEng and certified by the Council's Compliance Monitoring Officer.

#### Erosion Sediment Control Plan (ESCP)

- vii. An Erosion and Sediment Control Plan (ESCP) must be developed by the Consent Holder and submitted to the Council's Compliance Monitoring Officer for certification, at least 10 working days prior to any work commencing on site.

The purpose of the ESCP is to identify the erosion and sediment control measures that will be implemented on site during construction activities and how these will comply with the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Wellington Region (February 2021).

The ECMP will include, but is not limited to, the following:

#### Erosion and Sedimentation Controls

- An illustrated plan that records the key features of the ECMP (including the approved earthworks plan)
- A description of the broad approaches to be used to prevent erosion, and minimise problems with dust and water-borne sediment
- Measures to limit the area of earthworks exposed to the weather at any one time (sources of dust and sediment)
- Stabilisation of the site entrance(s) to minimise the tracking of earth by vehicles onto the adjoining roads
- Detail of the use of diversion bunds/cut-off drains, as required, to minimise stormwater entering the site and discharging onto earthworks areas where it can pick up sediment and not discharged on to sloping ground

- The type and location of silt fences to control water-borne sediment
- Methods for protecting stormwater sumps from the infiltration of water-borne sediment
- Stabilisation of soil or other material that is stockpiled on the site or transported to, or from, the site, to prevent dust nuisance or erosion by rain and stormwater (creating water-borne sediment)

#### Dust Suppression

- Limiting the vehicle speed on site to 10 kilometres an hour
- Assessing weather and ground conditions (dryness and wind) before undertaking potentially dusty activities
- Ceasing all dust generating activities if site dust is observed blowing beyond the site boundary
- Stabilising exposed areas that are not being worked on, using mulch, hydroseeded grass, chemical stabilisers or other similar controls

#### Management of Controls

- The methods for managing and monitoring the ECMP controls
- Nomination of a site person responsible for the implementation and administration of the ECMP.

The EMP must be reviewed by the Suitably Qualified Engineering Professional prior to being submitted to Council, to ensure that the methodology is in accordance the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Wellington Region (February 2021). The review must be provided to the Council's Compliance Monitoring Officer when the final ECMP is filed for certification.

- viii. No work may commence on site until the ECMP is certified by the Council's Compliance Monitoring Officer. The earthworks and associated work must be carried out in accordance with the certified ECMP.
- ix. Any amendments to the ECMP once work starts must be approved by the Suitably Qualified Engineering Professional and Certified by the Council's Compliance Monitoring Officer.
- x. The erosion, dust and sediment control measures put in place must not be removed until the site is remediated to the satisfaction of the Council's Compliance Monitoring Officer. 'Remediated' means the ground surface of the areas of earthworks have been stabilised (no longer producing dust or water-borne sediment), and any problems with erosion, dust or sediment that occur during the work have been remedied.

#### Note:

If necessary, the Council's Compliance Monitoring Officer may require changes to the implementation of the ECMP, to address any problem that occurs during the work or before the ground surface is stabilised.

- xi. A copy of the certified ECMP must be held on site throughout the duration of the earthworks and must be made available on request.



### Producer Statements

- xii. A copy of the producer statement 'PS4 – Construction Review' and its accompanying documents for structures/buildings required for the stabilisation of earthworks and, prepared for the associated building consent process, must be provided to the Council's Compliance Monitoring Officer within one month of the structures/buildings being completed.

### Grassing of Earthworks

- xiii. All exposed areas of earthworks, unless otherwise built on and/or stabilised, are to be grassed or re-vegetated within 1 month of completing each stage of the earthworks, to a level of establishment satisfactory to Council's Compliance Monitoring Officer.

The Council's Compliance Monitoring Officer may agree to a longer period than 1 month, if appropriate, and will approve it in writing.

- xiv. If construction works at the site cease for a period of greater than 2 months, the exposed areas of earthworks must then be stabilized to reach a level of establishment satisfactory to the Council's Compliance Monitoring Officer.

### General Earthworks Conditions

- xv. Run-off must be controlled to prevent muddy water flowing, or earth slipping, onto neighbouring properties or the legal road. Sediment, earth or debris must not fall or collect on land beyond the site or enter the Council's stormwater system. Any material that falls on land beyond the site during work or transport must be cleaned up immediately (with the landowner's permission on land that isn't public road). The material must not be swept or washed into street channels or stormwater inlets, or dumped on the side of the road.

Note: As a minimum, 100 mm clarity is required to allow water to be discharged offsite. If clarity is less than 100mm then the water is considered to be muddy and must be captured and treated on site.

- xvi. Dust created by earthworks, transport and construction activities must be controlled to minimise nuisance and hazard. The controls must be implemented for the duration of the site works and continue until the site stops producing dust.

## **Appendix A -John Davies Qualifications and Experience**

My name is John Davies. I am the Earthworks Engineer in the Council's City Consenting and Compliance Unit. I am an engineering geologist and a Member of Engineering New Zealand. I have a BSc in Geology and a Masters in Mining Engineering majoring in geomechnaics. I have been in my current role with the Council for over 6 years, following 12 years working in the mining industry.

As Earthworks Engineer my main role is to assess individual resource consent applications and provide verbal and written advice to the resource consent planner on earthworks issues. I recommend requests for further information from the applicant, and conditions to be used in the resource consent.

I confirm that I am familiar with the Code of Conduct for expert witnesses contained in section 7 of the 2014 Environment Court Practice Note and agree to abide by the principles set out therein.