Before the Hearings Panel

At Porirua City Council

Under	Schedule 1 of the Resource Management Act 1991
In the matter of	the Proposed Porirua District Plan
Between	**Various**
	Submitters
And	**Porirua City Council**
	Respondent

Statement of evidence of Andreas Giannakogiorgos on behalf of Porirua City Council (Miyamoto International NZ Ltd | Technical Director – CPEng Geotechnical Engineer)

Date: 02/12/2021

INTRODUCTION:

1 My full name is Andreas Giannakogiorgos, and I am the Geotechnical Engineering Technical Director at Miyamoto International New Zealand Ltd.

2 I have prepared this statement of evidence on behalf of the Porirua City Council (**Council**) in respect of technical related matters arising from the submissions and further submissions on the Proposed Porirua District Plan (**PDP**).

3 This statement of evidence relates to matters covered in Planner's section 42A reports on the INF-Infrastructure and EW-Earthworks chapters of the Proposed Porirua District Plan (PDP). Specifically, my evidence responds to submissions requesting amendments to the:

- EW-Earthworks rules R1 to R4 related to permitted activities and compliance for general earthworks (R1).
- EW-Earthworks standards S2 (height, location and slope of earthworks);
- INF-S14 Infrastructure chapter standard which is related to the slope, height, depth and location of permitted earthworks.

4 I am authorised to provide this evidence on behalf of the Council.

QUALIFICATIONS AND EXPERIENCE

5 I am a Chartered Professional Engineer (CPEng - Geotechnical), Chartered Member (CMEngNZ) and an International Professional Engineer on the Engineering New Zealand (EngNZ) register.

6 I have a Master of Science (MSc) and have a Diploma in Soil Mechanics and Engineering Seismology from the Imperial College of Science, London.

7 I am also a member of:

7.1 The New Zealand Geotechnical Society.

7.2 The New Zealand Society for Earthquake Engineering and the Structural Engineering Society of New Zealand.

7.3 The Structural Extreme Events Reconnaissance (**StEER**) Network (Level 4 membership) eligible to participate in StEER's Virtual Assessment Structural Teams and serve as a team leader on Field Assessment Structural Teams.

7.4 The British Geotechnical Association.

7.5 International Society of Soil Mechanics and Geotechnical Engineering.

7.6 International Society of Rock Mechanics.

7.7 The Hellenic Scientific Society of Soil Mechanics and Foundation Engineering.

8 I have over 22 years' experience in geotechnical engineering consulting for large scale civil infrastructure, commercial and residential projects in New Zealand, Australia, US (California, Nevada, New Mexico), Mexico, Indonesia (Palu), Myanmar (Yangon), India (Northern Bihar), Samoa, UK, Cyprus, and Greece.

9 I have conducted numerous geotechnical investigations for New Zealand insurers, individual property owners and developers in relation to residential and commercial earthquake claims and new developments. In my current role as a Technical Director with Miyamoto International NZ Ltd, I oversee a team of eight geotechnical engineers and geologists and have been responsible for the technical review and signoff of the final reports.

10 I have a technical background in Ground Engineering with experience in deep and shallow foundations, slope stability, geotechnical earthquake engineering, rock falls, rock mechanics, site investigations, evaluations of site and laboratory testing, site reconnaissance, embankments and earthworks, soil liquefaction assessments and hazard analysis, ground improvement scheme designs and large-scale land development employing such tools as numerical modelling and soil-structure interaction.

11 I'm currently member of the National Seismic Hazard Model Technical Advisory Group (NSHM TAG) representing NZGS, for the revision of NZ's seismic hazard.

12 I have also published papers on liquefaction susceptibility, and ground reinforcement for soils susceptible to liquefaction.

Code of conduct

13 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

INVOLVEMENT WITH THE PROPOSED PLAN

14 Miyamoto and I have been involved in several aspects before the submission of the PDP since 2019.

SCOPE OF EVIDENCE

15 My statement of evidence specifically relates to the matters in Planner's section 42A reports on the INF-Infrastructure and EW-Earthworks chapters of the Proposed Porirua District Plan (PDP), by providing technical expertise in responding to the proposed amendments raised by Kāinga Ora – Homes and Communities [Submitter #81].

16 My evidence is structured to address the matters raised with regards to EW and INF rules and standards. Where submissions points have raised similar or same issues, I have dealt with those together for each EW or INF.

17 My written evidence addresses only those submission points to which I have been directed by council officers.

EVIDENCE

Sub. Ref. 81.493 / 81.331; Kāinga Ora – Homes and Communities

18 Amendments are sought by Kāinga Ora to enable works up to 2.5m in cut height or fill depth (EW-S2-1a).

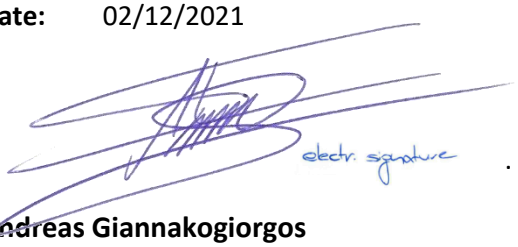
19 Kāinga Ora supports the general intent of the INF-S14 standard but seeks some changes to make it more applicable to infrastructure works, similar to those proposed for the earthworks, by enabling cut height and/or fill depth up to 2.5m, and deleting the 1.0m from site boundary and depth limit for trenching.

Response & Recommendation

20 I do not recommend acceptance of the amendment for enabling 2.5 metre cut height and/or fill depth within permitted standard EW-S2-1a (and INF-S14), due to the likely geotechnical hazards related with the stability of the cut, and the potential surcharge of the fill.

21 A 2.5m fill, for example, will add significantly more load on the ground (surcharge) than any other typical NZS 3604 structure, roughly about 50kPa for a wider area, resulting in potentially significant consolidation settlements if not carefully considered (let alone the potential stability issue if that load is on a 34deg sloping ground).

Date: 02/12/2021



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