NEW ZEALAND GEOTECHNICAL SOCIETY INC

A Collaborating Technical Society of Engineering New Zealand

10 December 2024

Chief Executive, Te Waihanga
New Zealand Infrastructure Commission
Level 7, The Todd Building
95 Customhouse Quay, Wellington 6011

Dear Geoff Cooper,

NZGS Comments on the Development of the National Infrastructure Plan

On behalf of the New Zealand Geotechnical Society (NZGS) we provide the following comments on the Development of the Development of the National Infrastructure Plan (Te whakamatautau i o maatau whakaaro).

The New Zealand Geotechnical Society is the affiliated organization in New Zealand of the International Societies representing practitioners in Soil mechanics, Rock mechanics and Engineering geology. NZGS is also affiliated to the Institution of Professional Engineers NZ (Engineering New Zealand) as one of its collaborating technical societies. The NZGS has a membership of more than 1,500 geotechnical engineers and engineering geologists. The aims of the Society are:

- To advance the education and application of soil mechanics, rock mechanics and engineering geology among engineers and scientists
- To advance the practice and application of these disciplines in engineering
- To implement the statutes of the respective International Societies in so far as they are applicable in New Zealand
- To ensure that the learning achieved through the above objectives is passed on to the public as is appropriate

Geotechnical inputs play a crucial role in the planning, design, and management of infrastructure projects. Here are some ways in which geotechnical considerations can influence various aspects of infrastructure development:

1. **Long-term Vision and Political Consensus**: Geotechnical assessments provide essential data on soil stability, earthquake risk, and other ground conditions, which are critical for developing a realistic and sustainable long-term infrastructure vision.
2. **Low Productivity**: Addressing geotechnical challenges, such as difficult soil conditions or high seismic activity, can improve construction efficiency and productivity. Advanced geotechnical engineering solutions can mitigate these challenges.
3. **Uncertainty Management**: Geotechnical conditions are a significant source of uncertainty in infrastructure projects. Regular geotechnical surveys and monitoring help manage these uncertainties by providing up-to-date information on ground conditions.
4. **Affordability**: Geotechnical issues can lead to higher construction and maintenance costs. Thorough geotechnical assessments help avoid unexpected expenses and ensure projects remain within budget.
5. **Public Behaviour and Expectations**: Educating the public about geotechnical risks, such as landslides or earthquakes, can help manage expectations and support the need for certain infrastructure investments.

6. **Asset Maintenance**: Geotechnical data is crucial for maintaining infrastructure, especially in areas prone to natural hazards. Understanding soil and rock behaviour informs maintenance strategies and prevents failures.
7. **Interdependency Management**: Coordinating geotechnical studies across multiple projects can help manage interdependencies and optimize resource use, ensuring that infrastructure systems work together effectively.
8. **Standards Improvement**: Updating standards to reflect the latest geotechnical knowledge can improve the safety and efficiency of infrastructure projects. This includes incorporating geotechnical considerations into standard contracts and design practices.
9. **Project Management**: Incorporating geotechnical data into project planning and management helps avoid delays and cost overruns due to unforeseen ground conditions. It also supports better scope management and risk assessment.
10. **Resilience**: Geotechnical assessments are essential for understanding and mitigating risks from natural hazards like earthquakes, landslides, and floods. This information is crucial for building resilient infrastructure that can withstand such events.
11. **Decarbonisation**: Geotechnical considerations can influence the choice of materials and construction methods, impacting the carbon footprint of infrastructure projects. For example, using locally sourced materials can reduce transportation emissions.
12. **Procurement Practices**: Geotechnical conditions should be considered in procurement practices to ensure contracts cover potential ground-related issues, leading to more accurate project scoping and cost management.
13. **Consistency in Building Consenting**: Reducing the number of Building Consent Authorities (BCAs) can lead to more consistent application of geotechnical standards and practices, improving overall efficiency and safety.
14. **Leadership and Governance**: Training and involving leaders in understanding geotechnical risks can improve project outcomes and ensure that infrastructure investments are well-informed and sustainable.

By integrating geotechnical considerations into all stages of infrastructure planning and management, projects can be more robust, resilient, and cost-effective. This holistic approach ensures that infrastructure investments are based on a solid understanding of ground conditions, leading to safer and more reliable infrastructure systems.

Yours sincerely,

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