

Design and Building Practitioners Regulation 2020

Your Name: *Tim Morris*

Position: *Associate Engineering Geologist*

Organisation Name: [REDACTED]

Date: *11 January 2020*

I am a member of the Australian Geomechanics Society (AGS). The AGS is a technical society of Engineers Australia (EA), created to promote and advance the theory and practice of geomechanics in Australia. The membership of the AGS comprises Geotechnical Engineers and Engineering Geologists, with the two disciplines having significant cross over. I suggest that the AGS are well placed to provide further information to the NSW government on the roles of these two disciplines in the building industry.

I have worked in the geotechnical industry for more than 10 years with Regional Geotechnical Solutions, a geotechnical consultancy based in regional NSW. My qualifications include:

- Bachelor of Applied Science (Geology), 1st Class Honours;
- Graduate Certificate of Engineering Science.

I current work on a range of geotechnical engineering projects that include multi-storey, multi-unit and residential apartment buildings. As an Engineering Geologist the proposed reforms will prevent my involvement with the design, verification or participation in any compliance regarding Class 2 Buildings

Registration of Compliance Declaration practitioners (page 23)

5. Do you support the proposed classes of Design Practitioner? Why or why not?

The Design Practitioner – Geotechnical Engineering should be renamed **Design Practitioner – Ground Engineering** to cater for Engineering Geologists which are key design practitioners for class 2 buildings;

or

An additional category of Design Practitioner is proposed: **Design Practitioner – Engineering Geologist** to cater for Engineering Geologists who are currently design practitioners for class 2 buildings.

6. Are there other types of Design Practitioners that should be included or any that should be removed? If so, what are they and why?

Yes. The Regulations omit an essential type of Design Practitioner: Engineering Geologists.

Engineering Geologists investigate and interpret the natural and built environment subsurface to manage ground risks at planning, design and construction stage. They use their geological skills to enhance engineering practice in such fields as site investigation, slope stability analysis, mapping of geological and geotechnical hazards, foundation and earthworks design, and underground construction and excavation supervision. Engineering Geologists are therefore key Design Practitioners for residential apartment buildings class 2 and as such should be included in these Regulations.

The important role played by professional engineering geologists is already recognized by the NSW Department of Infrastructure, Planning and Natural Resources in their Geotechnical Policy Kosciuszko Alpine Resorts. This policy is applicable for building work covered by State Environmental Planning Policy No. 73 Kosciuszko National Park - Alpine Resorts) 2007. Professional engineering geologists with RPGeo or CPGeo are recognised by this Policy.

Poor characterisation and understanding of the soil or rock mass can severely impact class 2 buildings in NSW. Examples of geological hazards affecting NSW Class 2 buildings are provided in the table below. The damage to these class 2 buildings could have been avoided with an assessment of ground conditions by an Engineering Geologist.






Photo: James D Morgan / Getty Images

Erosion (Newcastle - 2020);

Source:

<https://www.theguardian.com/australia-news/2020/jul/18/nsw-central-coast-houses-partially-collapse-after-beach-erosion-caused-by-swells>

 <p>Photo: Tim Hunter. Source: News Corp Australia</p>	<p>Differential settlement (Jordan Springs East - 2020).</p> <p>This issue led to a Contractor buying back 841 homes (source: https://www.theguardian.com/australia-news/2020/dec/15/western-sydney-lendlease-to-buy-back-up-to-841-homes-at-jordan-springs-east-site).</p>
 <p>Photo: Sydney Morning Herald</p>	<p>Slope instability (Thredbo - 1997);</p> <p>This event led to the loss of 17 lives on Wednesday July 30, 1997.</p>
 <p>Photo: Newcastle Star</p>	<p>Subsidence due to mine tunnel collapse (Swansea Heads - 2014).</p> <p>Source: https://www.newcastlestar.com.au/story/2386272/mine-subsidence-damage-compensation-payouts-rise/</p>

The current Regulations do not cater for Engineering Geologists and changes are required in the definitions of Design Practitioners.

Following two approaches are proposed for to cater for Engineering Geologists within the Regulations:

- Group Engineering Geologists with the Design Practitioner - Geotechnical Engineers in a new design practitioner type called Design Practitioner - Ground Engineering Specialist (Alternative 1), or:
- Add a new design practitioner type called Design Practitioner - Engineering Geologist (Alternative 2).

7. Do you support the proposed qualification, skills, knowledge and experience requirements for each class of practitioner? Why or why not? Please make suggestions for additional or alternative requirements.

As described in the answer to Question 7, there are two approaches for the Regulations to cater for Engineering Geologists:

- Group Engineering Geologists with the Design Practitioner - Geotechnical Engineers in a new design practitioner type called Design Practitioner - Ground Engineering Specialist (Alternative 1), or:
- Add a new design practitioner type called Design Practitioner - Engineering Geologists (Alternative 2).

ALTERNATIVE 1

For alternative 1, the possible change would be to rename the qualification matching the renamed type of design practitioner:

- Schedule 2, Part 3 Section 17
Design practitioner - ~~geotechnical~~ **ground** engineering
 - (1) **Qualification**
Must be registered as a professional engineer in the class of professional engineer — geotechnical engineering under the Act, **or**
Must be registered as a professional engineering geologist in an area of ground engineering by a professional body of engineers or engineering geologist that—
 - (i) **operates with a professional standards scheme, and**
 - (ii) **requires the successful completion of a qualification relevant to carrying out professional engineering work in accordance with the professional standards scheme.**

ALTERNATIVE 2

For alternative 2, the possible change would be to add the new qualification/knowledge and skills matching the new proposed type of design practitioner:

- Schedule 2, Part 3

20 Design practitioner— engineering geologist

(1) Qualification

At least one of the following—

- (a) **an accredited 3 year full-time or equivalent part-time undergraduate bachelor degree in engineering geology**
- (b) **an accredited postgraduate masters degree in engineering geology,**
- (c) **a non-accredited qualification that has been assessed as being equivalent to an accredited qualification in paragraph (a) or (b)—**
 - (i) **for a qualification that was conferred by an Australian university or tertiary institution—**

- by an Australian signatory to the Washington Accord,
or
- (ii) for a qualification that was conferred by a foreign university or tertiary institution—by an assessing authority for the skilled occupation of engineering geologist.
- (2) **Knowledge**
Must know and understand the knowledge referred to in clause 17(2) of this Schedule.
- (3) **Skills**
In addition to the skills referred to in clause 17(3) of this Schedule, must be able to:
- Demonstrate they can assess the nature of the ground in activities requiring specialist and in-depth engineering geological knowledge.
 - Demonstrate they can work closely with other engineering professionals to solve (identify, investigate, assess and communicate) complex engineering geological problems.
 - Demonstrate they can work closely with other engineering professionals to convey engineering geological context.
- (4) In this clause— accredited, assessing authority, skilled occupation and Washington Accord have the same meanings as in clause 21 of this Schedule.

Registration of Professional Engineers (page 29)

11. Are there any other areas of engineering that should be captured for the purposes of designing or constructing a class 2 building, or a building containing a class 2 part?

Engineering geologists operate in the area of geotechnical engineering as currently defined in the Regulations (“an area of engineering that involves the mechanics of soil and rock and the application of the mechanics to the design and construction of foundations, retaining structures, shoring excavations, and ground bearing structures for buildings and other systems constructed of, or supported by, soil or rock”).

Mechanics of soils and rock depend on material and mass properties, which the professional engineering geologist is particularly well-suited to characterise. The engineering geologist fulfils a key role in the identification of any required changes to design assumptions during construction of foundations, particularly retaining structures, shoring excavations, and ground bearing structures and elements for Class 2 buildings which are constructed of, or supported by, soil or rock.

The important role played by professional engineering geologists is already recognized by the NSW Department of Infrastructure, Planning and Natural Resources in their Geotechnical Policy Kosciuszko Alpine Resorts. This policy is applicable for building work covered by State Environmental Planning Policy No. 73 Kosciuszko National Park - Alpine Resorts) 2007. Professional engineering geologists with RPGeo or CPGeo are recognised by this Policy.

ALTERNATIVE 1

For alternative 1 (as provided in the answer to Question 7 - Design Practitioner - Ground Engineering Specialist), the only required change would be to rename the area of

geotechnical engineering to area of ground engineering without further changes to the definition provided in the Regulations.

ALTERNATIVE 2

For alternative 2, an additional (or change to) area of engineering is not required to cater for the new proposed type of design practitioner: Design Practitioner - Engineering Geologist as both practice areas can refer to the provided geotechnical engineering definition in the Regulations.

12. Would you be supportive of professional bodies developing a PSS for Pathway 3 to be available?

I would support Pathway 3 in the near future to cater for engineering geologists.

There are three Australian professional bodies which could provide professional accreditation for engineering geologists in the near future: the Geological Society of Australia (GSA), the Australian Institute of Geoscientists (AIG) and AusIMM (Australasian Institute of Mining and Metallurgy).

13. Do you agree that Professional Engineers should be required to have 5 years of recent and relevant practical experience?

Yes, I agree that in both proposed alternatives (refer to the answer to Question 7) the 5 years of recent and relevant practical experience should be required.