22 April 2016

ENGINEERS
AUSTRALIA
Tasmania Division

Office of Security Management
Department of Premier and Cabinet
GPO Box 123
HOBART TAS 7001

Dear Sir/Madam

Re: Engineers Australia Submission to Tasmanian Draft Coastal Hazard Package

Thank you for the opportunity to submit a response to the Tasmanian draft coastal hazard package.

Engineers Australia is the peak body for the engineering profession in Australia. With over 100,000 members across Australia, we represent all disciplines and branches of engineering. Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community.

The National Committee on Coastal and Ocean Engineering (NCCOE) is a specialist sub-committee of the Civil College within Engineers Australia. Coastal and Ocean engineering provide specialized knowledge needed to ensure safe and ecologically sustainable development of Australia's nearshore zone, vital ports and harbours and valuable offshore resources. The expertise of the NCCOE has been included in the following submission.

Does the draft package achieve the right balance between planning, building control and emergency management?

Engineers Australia believes that the framework is useful for identifying the extent of potential hazards and how this knowledge may be utilised for planning and building control purposes. However, while the technical report mentions the use of this coastal hazard package for emergency management (Section 5), this does not tend to flow into the summary document, and may, potentially, dilute its effectiveness in this application.

How can the risk assessment and mapping could be improved?
Engineers Australia has several user experience improvement suggestions for consideration.

- It is important that the maps are refined so that the perimeter of a hazard zone can be identified accurately. This is because decisions will probably be made on the basis of whether a development site is "in or out" of a hazard zone.

- Colour grading bars should be automatically turned on with the relevant hazard layer rather than needing to interrogate the image (with the ability to minimise them if desired).

- There appears to be a lack of uniformity between the hazard exposure rating ID versus colours used in the documents and the mapped hazard bands. For example, on *TheList* mapping, green denotes a zone where a hazard may be present but where insufficient information is available to classify the exposure rating and where

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further investigation of the coastal erosion risk is required. However, for Tables 1 & 2 of the draft Summary Report, green denotes the hazard exposure as “acceptable”. In contrast, *TheList* mapping has “acceptable” as colourless. In the draft Technical Report, ID colours are further confused on Figure 11 where in green denotes a “low” exposure whereas *TheList* mapping has yellow to denote a “low” exposure rating.

- In the draft Technical Report, Section 2.1.1 refers to three aspects of coastal erosion, the first being titled ‘Hazardous coastal erosion’. Is this a heading error as, presumably, shorelines affected by coastal recession would also be hazardous and so on? Section 2.1.4 defines coastal erosion, 2050 recession and 2100 recession as ‘high’, ‘medium’ and ‘low’ hazard exposure ratings, respectively.

- The Hazard Planning Matrix and the Use and Development Guide may benefit from some rephrasing to better express the intent for each. It is also recommended that Table 2 should also state specific requirements for foundations of buildings that are not residential.

- There appears to be a lack of uniformity between the hazard exposure rating ID versus colours used in the documents and the mapped hazard bands. On *TheList* maps utilise faint colours (yellow/orange/red). Our suggestion is that these colours could be bolder presumably with colours not already used in other layers, but with some obvious correlation to the rating ID colours in the reports.

- The DPAC Projected Sea Level Rise mapping appear to be based upon a ‘bathtub’ water level model wherein isolated areas of inundation are shown that are obviously not linked/contiguous to the sea either directly or via recognisable watercourses.

- It is worth considering that the ‘high’ hazard exposure rating should highlight that the vulnerability is assessed against a 2010 MHW tide level + 0.20 m SLR without any concurrent storm surge event (which of course is to be expected from time to time in 2010). However, the table in the draft Technical Report, Section 7.2.1 notes that storm surge elevations were modelled for the ‘high’ hazard exposure rating.

- Mapping on *TheList* should note that coastal inundation is exclusive of concurrent riverine flooding at estuaries.

- Mapping on *TheList* should note that coastal inundation is exclusive of tsunami effects.

- Presumably new use or development can be acceptable if they are practicable works that are to protect land, property and/or human life.

What information and resources may assist your organisation implementing the Package into your core business, including asset management, emergency management, community or member awareness, along with planning and building controls?

One of the key challenges with implementing these types of initiatives is ensuring that users have a common understanding of the definitions and application. As such, a communication strategy and education program should be developed as part of the roll-out of the final package. Engineers Australia would be very happy to assist with this where appropriate, such as offering its facilities for information sessions, or including an article in its member newsletter.

Another aid to implement the use of this package is the ability for the line defining a hazard zone perimeter being exportable into any third party computer aided drawing package that is based on real world coordinates.

Any other matters that you may consider relevant to the package

The successful implementation and proper application of this package as is intended relies current and competent practitioners. In Tasmania, the only registration requirement for engineers in this area is the Scheme for the Accreditation of Building Practitioners as approved in accordance with the *Building Act 2000.* The absence of quality assurance mechanisms for engineering service providers highlights the potential for different outcomes with regard to the implementation of the coastal hazard package, with regard to ensuring that engineering designs will function correctly and that appropriate materials, where appropriate, are specified.

National Engineering Register

Where there is no consistent form of registration, consumers are usually unable to verify the competence of service providers. To overcome this information imbalance, Engineers Australia launched the National Engineering Register (NER). All members of the profession who meet the national benchmark standard of professionalism for the NER are eligible to apply to be registered on the NER. All registrants on the NER have:

- A recognized qualification benchmarked to the international education standards to which Engineers Australia is the Australian signatory
- A minimum period of professional practice post-graduation
- Currency of continuing professional development (CPD)
- The benefit of Professional Indemnity (PI) insurance
- A commitment to ethical practice
- And annual certificate of registration
- An entitlement to use the 'NER' post nominal.

By choosing to engage an engineer who is on the NER, the consumer - be they individuals, planning authorities or government – can be confident that the engineer will meet the above criteria and be competent to practice.

Options for Government

The NER is a voluntary register and governments may choose to utilize it in a number of ways:

- **A pathway:** Where systems are already in place to assure the competence of engineers, the NER can be nominated as an acceptable pathway to registration or licensing. This approach has already been taken by the Queensland government for engineers seeking status as a Registered Professional Engineer Queensland (RPEQ) and could be replicated by all jurisdictions.

- **A new tool for expanded quality assurance:** A risk-based approach to regulation may deem it appropriate to expand requirements for the regulation of engineers to other fields building, planning and emergency management (or even to other engineering activities across the board). Creating a register would be a significant undertaking, and the NER offers an existing framework to make sure an action much simpler.

- **Community awareness:** It is agreed that industry and consumers require better information to make informed choices. The NER is a voluntary register and it would be appropriate for the government to promote the NER as a means to verify the quality of engineers. Just as quality assurance schemes and voluntary standards exist for many professions and products, the NER is a quality assurance mechanism for engineering service providers.

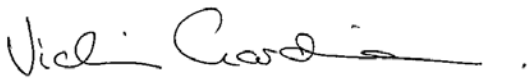
Conclusion

Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community. Coastal hazards and their assessment and mitigation are an important element of planning, building control and emergency management, especially with their application in achieving government policies such as economic growth, population and infrastructure. Ensuring that there is a means for the community and consumers to assess and select competent engineers service providers is an important function of the association.

Should you have any questions about the content of this submission, Engineers Australia's position more broadly, or opportunities to protect the community via the NER, please do not hesitate to contact me directly, either by telephone on
03 6218 1902 (mob: 0409 955 720), or by email on VGardiner@engineersaustralia.org.au.

Thank you for consideration of this submission.

Yours faithfully



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