

1 February 2019

Enquiries: Michael Matthews  
Our Ref: OP2971/2019 (887428)  
Your Ref: 20185233

Administration Office  
64 - 66 Front St Mossman  
P 07 4099 9444  
F 07 4098 2902

B R Eldridge & A P Eldridge  
C/- Patrick Clifton, GMA Certification  
PO Box 2760  
**NERANG QLD 4211**

Dear Sir / Madam

**INFORMATION REQUEST**  
**(GIVEN UNDER SECTION 12 OF THE DEVELOPMENT ASSESSMENT RULES)**

Thank you for your development application for the following premises received on 09/01/2019.

***Location details***

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Street address: 22R Mountain View Drive SHANNONVALE  
Real property description: LOT: 4 SP: 134229

***Application details***

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Application number: OP2971/2019  
Approval sought: Development Permit  
Nature of development proposed: Operational Works  
Description of the development proposed: Earth Dam

The Douglas Shire Council has determined that the following additional information is needed to assess the application:

**Design, Construction and Certification**

- 1) An RPEQ must confirm that there is no reasonable belief that persons can be at risk down stream of the dam. This must be demonstrated by supplying a failure impact assessment.
- 2) Demonstrate that the freeboard of minimum 900mm, including 300mm depth for wave action can be maintained between the crest of dam and full supply level.
- 3) Detail what type of core/foundation material was used in the construction of the dam wall.

- 4) Demonstrate the suitability of dam material properties used in the construction of the foundation and bank. Provide test outcomes from the following factors:
  - a) Clay content
  - b) Slaking
  - c) Dispersion
  - d) Linear shrinkage
  - e) Organic matter
  - f) Permeability
- 5) Detail the construction methodology undertaken to construct the dam.
- 6) Detail the thickness of compaction layers and maximum size of particles in the dam.
- 7) Detail the compaction effort achieved for the standard maximum dry density for each layer and provide the appropriate number of compaction results for the volume of earthworks.
- 8) Demonstrate how shrinkage, cracks and erosion risk factors have been managed or how they are intended to be managed.
- 9) Detail the side slope embankment grade.
- 10) Detail whether cut-off excavation and stripping of surface material was conducted as part of the dam construction.
- 11) Provide RPEQ certified design drawings of the dam detailing the cut and fill undertaken for its construction. In particular:
  - a) Plan area and set off of the dam with dimensioned offsets to property boundaries and local features (fence/roads etc).
  - b) Detail the size and dimensions of the constructed spillway. Detail the width, depth and grade of the spillway.
  - c) Detail the crest width.
  - d) Detail flow velocities at full supply level leaving the spillway.
  - e) Detail spillway construction materials.
  - f) Detail dam wall geometry, with cross section through the dam at its greatest depth/wall height.
- 12) Demonstrate whether dam embankment was designed and constructed considering a homogenous dam, zoned dam, diaphragm dam or mixture of those.
- 13) Provide a stability analysis conducted under the supervision of, or by an RPEQ with experience in this field and confirm it is in accordance with the Geotechnical Design Standard- Minimum Requirements.
- 14) Council notes that the dam constructed has diverted overland flow paths from the lawful point of discharge at the culvert of the Shannonvale and Borzi Road intersection, to the boundary of Lot

5 on SP134229 resulting in a concentrated unlawful point of discharge. Demonstrate how the dam can achieve a lawful point of discharge.

15) An acceptable solution to achieve RPEQ Certification may be to demonstrate that the proposal can comply with, and is designed and constructed in accordance with the following material based on best practice for small dam construction:

- a) AS1170 Minimum design loads on structures (SAA Loading Code)
- b) AS1289 Set- Method of testing soil for engineering purposes
- c) AS4678 Earth-retaining Structures
- d) Queensland Government
  - i) Guidelines for Failure Impact Assessment of Water Dams
  - ii) Guidelines on Acceptable Flood Capacity for Water Dams
  - iii) Farm Water Supply – Design Manual – Farm Storages – Volume 1
  - iv) Gully Erosion- Facts Land Series
- e) United States Department of the Interior – Bureau of Reclamation
  - i) Design of Small Dams
- f) Healthy Waterways
  - i) Rural Dams
- g) Eyre Peninsula Natural Resources Management Board
  - i) Farm Dams - A Guide to Siting, Design, Construction and Management on Eyre Peninsula
- h) Food and Agriculture Organisation of the United Nations
  - i) Manual on Small Earth Dams
- i) Department of Transport and Main Roads
  - i) Manual - Geotechnical Design Standard - Minimum Requirements
- j) Geoscience Australia
  - i) Australian Rainfall and Runoff
- k) Department of Natural Resources, Mines and Energy
  - i) Queensland Urban Drainage Manual
- l) Landlinks Publication
  - i) Farm Dams Planning Construction and Maintenance by Lewis B. 2002
- m) United States Army Corps of Engineers

- i) Coastal Engineering Manual
- ii) Hydraulic Design of Spillways
- iii) Seepage analysis and Control of Dam
- iv) Slope Stability

#### **Sediment and Erosion Control Plan**

16) Provide an RPEQ certified sediment and erosion control plan.

The due date for providing the requested information is 3 May 2019. As Douglas Shire Council's assessment of your application will be based on the information provided, it is recommended that you provide all of the information requested. In accordance with section 14.2 of the Development Assessment Rules, if you do not provide a response before the above due date (or a further agreed period), it will be taken as if you have decided not to respond to the information request and the Douglas Shire Council will continue with the assessment of your application without the information requested.

Please quote Council's application number: OP2971/2019 in all subsequent correspondence relating to this development application. Should you require any clarification regarding this matter, please contact Michael Matthews on telephone 07 4099 9444.

Yours faithfully

**PAUL HOYE**  
**Manager Environment and Planning**