PDR 18545

31 July 2018

Chief Executive Officer
Mareeba Shire Council,
PI Box 154
Mareeba Qld 4880

Attention: Carl Ewin,

Dear Carl,

RE: Proposed dam for W & C Fabris and A & B Fabris at 1091 Wolfram Road Dimbulah – certification of design

We advise that our firm has been engaged by Fab Fresh, represented by the above owners, to check and certify the design of a farm dam located on a tributary to Walsh River.

Prior to our involvement preliminary and investigative work was carried out by North Australia Water Strategies. The NAWS report and design is attached to this correspondence. Further investigative work was carried out to test and check the existing soil types and to determine the presence and depth of founding rock. Results were satisfactory and the design has taken these results into consideration. The design is shown on NAWS drawing dated January 2017.

It is noted that suitable clay for the construction of the clay core was not available on site. Suitable material has been transported to the site for use in the wall.

We advise that that we have reviewed the work and design completed by North Australia Water Strategies and generally find it to be acceptable subject to the following comments:

1. The clay cut-off trench is to be a minimum of 2.5 metres thick and a minimum of 1.5 metres deep and is to be extended into the underlying rock. If rock is encountered at less than 1.5 metres, then the bottom of the trench is to extend into the rock by 300mm.
2. Where stiff clay is encountered in the cut-off trench the cut-off wall must extend a minimum of 1 metre into the clay. This trench must be checked for soundness and integrity prior to the placement of the clay core (zone 1 material) in the trench.
3. When the area is stripped for the construction of the wall and cut-off trench any fissures found in the underlying rock shall be cleaned out and sealed with compacted clay.
4. The zone 4 material used to provide protection to the upstream and downstream face of the dam is preferred to be medium quarry rock with a minimum thickness of 300mm.
5. The rock lined spillway channel is to be provided with a 1 metre deep, 450mm thick toe at the upstream and downstream end of the spillway. The spillway channel is to be 40 metres wide, 1.3 metres deep and return to the gully. At construction time the bed of the overflow

PDR | SMEC
P 07 4255 9800 E admin@pdrengineers.com.au
Office Suite 62, Level 2, 20-32 Lake Street, Cairns QLD 4870 Mail PO Box 2551, Cairns QLD 4870
www.pdrengineers.com.au

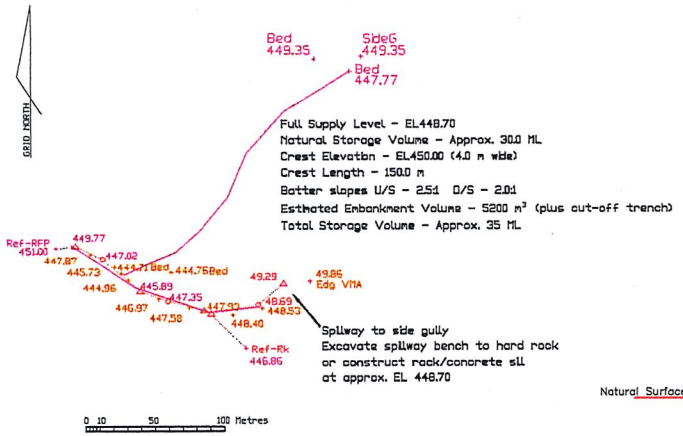
channel needs to be inspected for resistance to erosion and, if the inspection reveals that protection is required, then it shall be lined with rock with a minimum dimension of 300mm.

Provided that the preceding comments are implemented we certify that the design prepared by North Australia Water Strategies is acceptable based on small dam principles.

Yours sincerely,

Alan McPherson
Senior Civil Engineer

RPEQ 809

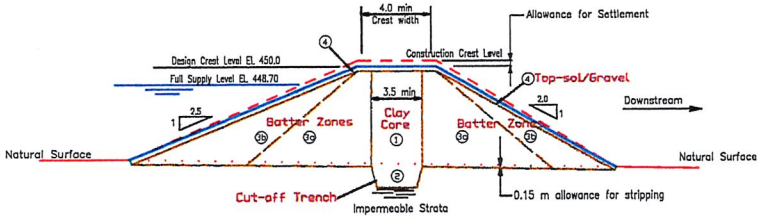


Full Supply Level – EL448.70
Natural Storage Volume – Approx. 30.0 ML
Crest Elevation – EL450.00 (4.0 m wide)
Crest Length – 150.0 m
Batter slopes U/S – 2.5:1 D/S – 2.0:1
Estimated Embankment Volume – 5200 m³ (plus cut-off trench)
Total Storage Volume – Approx. 35 ML

Spillway to side gully
Excavate spillway bench to hard rock or construct rock/concrete sill at approx. EL 448.70

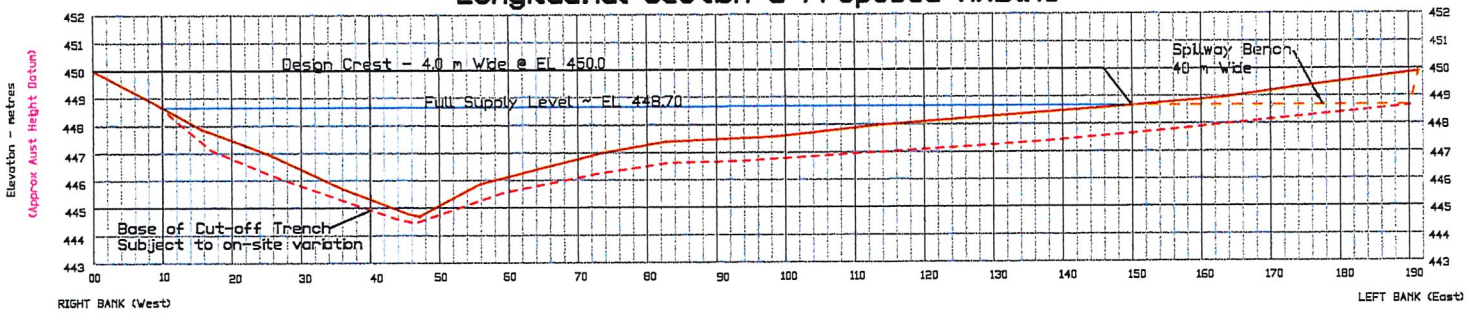
Proposed Embankment Cross-section

NOT TO SCALE



Max. Height – 5.6 m above gully bed at axisline including post-construction settlement allowance.

Longitudinal Section @ Proposed Axisline



Dwg: FAB_001_A3_Rev1

Drawn: JAB
Design:
Chkd: JAB
14 September 2017

NORTH AUSTRALIAN WATER STRATEGIES
MAREEBA Q 4880
Telephone: (07) 40 925 720
Enquiries: Jeff Benjamin
Mobile Phone: 0409 892 933
E-Mail: jeff.benjamin@bigpond.com

Notes

Azimuth – Grid North – UTM
Zone 1 – Compacted, selected high plasticity clay or sandy clay
Zone 2 – Compacted, selected medium high plasticity sandy or gravelly clay
Zone 3a – Low to medium plasticity sandy clay or gravelly clay
Zone 3b – Low plasticity silty to clayey sand or clayey – silty gravel
Zone 4 – Coarse gravelly, sandy top-soil, cobbles or fine to medium quarry rock.

Fabris, W.
Wolfram Rd.
DIMBULAH QLD.

PROPOSED DAM-SITE
Preferred Axisline and Embankment Sections

January 2017