QFCI

Date: 13/10/11 JM

Exhibit Number: 818

QUEENSLAND FLOODS COMMISSION OF INQUIRY

STATEMENT OF ROBERT ALEXANDER FREDMAN

I, Robert Alexander Fredman, Director of Engineering, Gympie Regional Council, make the following statement under oath as required by the Commissioner of Inquiry:

The details of any draft flood studies obtained or made available to the council since March 2011

1. A new flood study by GHD to support Council's three planning schemes was commissioned in 2010 and is currently still a work in progress. A preliminary draft was initially released to Council in August but requires further work by GHD in relation to net worst floodlines. A formal draft is likely to be available in the next month or so.

2. Incidentally, the flood level to be adopted for Gympie in a 1 in 100 year event is likely to remain unchanged from the levels in the current planning scheme as the new analysis has confirmed the level previously recommended by GHD and adopted by Council in 2000.

How information about flood risk for specific properties is made available and any processes for obtaining this information applicable to each of the following:
(a) members of the public
(b) insurance companies
(c) prospective developers and their representatives

3. Members of the public, insurance companies and prospective developers can, and have been able to for many years, access Council's mapping system through a staff enquiry over the counter, for a fee.

4. The system has a "Flooding Estimates" directory with significant estimated information for Gympie such as the:
   a) 1:100 flood line;
   b) 1:50 flood line; and
   c) 1893 flood line.

5. Information is also available for estimated storm surge/tide levels at the Cooloola Coast. This information can also be obtained over the counter for a fee.

6. As a consequence of the 2011 floods, an estimated 2011 flood line for Council's western towns (Goomeri, Kilkivan, Woolooga and Widgee) will also be developed.

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These are likely to be available in the next month or two and will be made available over the counter. It is not known at the date of this statement how this line will correlate with the 1:100 flood line being developed in the flood study by GHD.

Whether and to what extent council infrastructure (for example, sewers, roads, stormwater) was affected by flooding that occurred during the period 1 December 2010 to 31 January 2011, citing specific examples where possible

7. Council's road, water and sewerage infrastructure that was impacted by flooding in the December 2010/January 2011 events are shown in **Attachment 1** and **Attachment 2.** In relation to roads, some were more severely impacted than others. A separate list of the estimated damage to all roads should be available in the near future. The current total estimate of damage is $31M, most of which is road damage.

8. There was minimal damage to Council's water and urban stormwater infrastructure.

Details of the reconstruction of infrastructure including costs and programs

9. Council's current damage estimate in total is $31 million. Detail design is still in progress for some of the road restorative work, so an accurate final figure is not available at this stage.

The program for repair has been considered and determined by Council as follows:

Extract - Works & Services Committee Meeting of 5 April 2011

Report: (Director of Engineering Services – R.A. Fredman)

The Queensland Reconstruction Authority has been advised that Council's current (not final) estimate for road damage in the 2011 flood is $20.58M, comprised as follows:-

Emergent Spend as at 17/03/11	$5.85M
Specified Works	$14.73M

Within these sums are embedded the "ineligible" costs (that Council cannot claim) of routine Council day labour with associated on-costs, and Council's 'trigger point' costs. The Emergent Spend can therefore be subdivided as follows:-

Eligible costs	$4.65M
Ineligible costs	$958,000
Trigger Point costs	$240,000
TOTAL	$5.85M

It is understood that part of Council's ineligible cost burden will be met by a QRA Grant, although no details were available at the time of writing this report.

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No specified works have been undertaken at this time, and all works after 18/4/11 will be deemed "specified" works. There is likely to be a lengthy delay in getting specified works approved, but there is an obligation to the community to continue on these works without delay.

Estimated total expenditure at the cessation of the Emergent Works period will be approx $8.5M, with a potential ineligible/trigger point liability of up to $1.5M. The normal road maintenance budget is currently on-the-line at $2.3M with no net savings expected at the end of the financial year ($3.25M). Hence the liability is a matter to consider at the next Budget review. *Note* that there has been a major delay in the delivery of roads capital works at the same time.

The funding of the Specified Works which will begin after 18/4/11 is a matter which Council needs to consider in due course. Of the $14.7M costs estimated, all material costs (gravel, bitumen etc), abnormal day labour costs (overtime) and work outsourcing (subcontracting) costs are eligible for full reimbursement.

Council could opt to have all the work done by contractors and the full cost of same is reimbursable, although the exclusive use of this option is not recommended for a number of reasons. This matter will be the subject of a report in due course.

Staff are currently investigating the process for approval of specified works so that there is no or minimal delay after 18 April. The intention at this stage is to do key jobs such as Amamoor Creek Road during the period immediately after 18 April, utilising day labour supported by subcontractors where practical.

Issues: (a) continuation and efficient completion of works
(b) Cost and funding
(c) Policy re day labour

Risk Analysis:

(a) The repair of flood damage should take precedence over the capital works program except where safety (eg SafeST projects) and commitments (eg TIDS projects) apply. It should also proceed without delays although some will be caused by the approval process.
(b) Council has to fully understand the costs of the restoration project so that it can budget accordingly.
(c) The full contracting-out of work is appealing from a reimbursement point of view, but has downsides as well. The options will be more fully explored with Council in due course, and after government policy is known.

W10/04/11
Recommend that Council

1. **refer the report to the Draft Budget Meeting;**
2. **refer to the Director of Engineering Services to report on the options for the delivery of flood restoration works; and**
3. **authorise staff to proceed with critical specified works eg Amamoor Creek Road, using Council staff and resources, and outsourcing where appropriate.**

Further, that clarification be sought urgently from the State Government regarding reimbursement for 'ineligible costs' for emergent work.

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Extract - Works & Services Committee Meeting of 7 June 2011

Report: (Director of Engineering Services – R.A. Fredman)

W10/04/11 – Point 2.

Overview: Engineering staff consider that flood damage restoration will be best carried out using a combination of Council staff and subcontractors.

Issues:

1. Cost

   All design and construction costs other than normal Council day labour will be reimbursed under the NDRRA Scheme. Hence the more outsourcing that can be done, the lower cost to Council.

   The lowest cost scenario is to appoint consulting engineers to design and supervise works, and to have contractors do the works. The downside to this option is that Council loses valuable flexibility and inevitably would have to be involved anyway because of public relations or WHS issues.

   The preferred option is "minimum Council cost", with staff designing and carrying out the work utilising subcontractors as much as possible. An example is the Amamoor Creek Road works currently in progress, where a consulting engineer has done specialist geotechnical work, the rock supply is from a private quarry, and much of the traffic control and truck/plant is private. Council's involvement is road design (minimal effort for standard designs), job supervision, some labour and plant operators.

   The preferred option will see Council's costs possibly be 10-20% of the final job cost. This will vary depending on the type of work.

2. Budget

   Council will have to budget for its costs. It is proposed to allocate most categories of capital work that are not committed (eg TIDS) or essential (eg reseals/asphalt) to flood repair. Hence there would be limited funding in the forthcoming budget for new road projects, stormwater, renewal urban and rural and bridge replacement.

   The funding then available for flood repair would enable a total flood repair budget including subsidy of approx $10M.

3. Timeliness

   It is considered that subcontractors will become increasingly difficult to engage, as activity rises across Queensland. The intention, as we did with the Emergent Works, is to obtain early approvals and drive the program hard before the market heats up.

W10/06/11

Recommend that Council authorise the Director of Engineering Services to proceed with flood damage repair on the basis of Council resources with subcontract work maximised.

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Further that the matter be referred to Financial Services Directorate for the Draft Budget.

Further that a delegation of Regional Mayors led by the Mayor meet with the Qld Reconstruction Authority advising that Council wishes to proceed with flood repair on a day labour basis because it is quicker and more efficient. Council believes that it will be a substantially lower cost for the Government and requests consideration of a further day labour subsidy in this regard.

Funding arrangements for repairs to damaged council infrastructure

10. Council will make use of NDRRA funding where possible, but concerns around the timeliness of repairs has led to a decision to use the Council workforce, the labour component of which is not funded under NDRRA.

11. Council has allocated $1.764 million for "day labour" (i.e. work from 7:00am to 4:00pm) for flood repair in its 2011/12 Budget. The funding arrangements under the NDRRA Scheme should enable most of the flood repair to be completed this financial year, provided a target rate of less than 10% day labour component of the total job cost can be achieved.

Details of any flood mitigation infrastructure (for example flood detention basins, storm water culverts, back flow devices) in the council's area including a description of the maintenance programs for such infrastructure

12. Council does not have any flood mitigation infrastructure.

Details of the stormwater design capacity and urban run-off capacity, sewerage design capacity and the most recent review of these capacities including details of any plans to upgrade

13. The current version of Planning Scheme Policy 8 was adopted recently in April 2011. It refers to a stormwater design standard of Q100. **Attachment 3** to this statement is an extract of Planning Scheme Policy 8.

14. Prior to this, the Development Manual (2005) utilized a Q50 standard instead of Q100. However, from about 2005, Council has been requiring developers to design and construct to a Q100 regardless of the content of this old policy.

15. In 2009, Council implemented a written internal policy about overland flow path requirements which included the need for drainage system design to cater for Q100 flows. Planning Scheme Policy 8 now incorporates all the requirements of that internal policy.

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16. Council's sewerage design capacity is outlined in **Attachment 2.** This document also refers to a design standard of Q100 for the Gympie Sewerage Treatment Plant. For the Rainbow Beach, Tin Can Bay and Cooloola Cove treatment plants, the design standard is Q100 estimated.

Details of council's defined flood event including a description of the way in which the council's defined flood event was calculated or determined

17. While no formal "defined flood event" has been adopted by Council pursuant to State Planning Policy 1/03, levels in Council's planning scheme dealing with flood affected land for the Gympie area was determined by Cooloola Shire Council at the current level in May 2000 based on a study by GHD (discussed below). A level has since been determined for Imbil, and storm surge lines have also been determined for Tin Can Bay, Cooloola Cove and Rainbow Beach.

18. Gympie City was the focus of the earlier work because it is the largest single concentration of people in the region. Other locations are smaller by a factor of ten or more.

19. The Gympie 2% and 1% probability levels have been set as a consequence of the GHD study in 2000. However the levels were questioned by Queensland Water Infrastructure ("QWI", a Queensland Government corporation) in 2007, which calculated a level that was 3.13 metres lower than that identified by GHD. The Coordinator General, in a review, did not dispute the QWI proposal despite Council's concerns. The issue for Council staff at the time was that the public risk from adopting a much lower flood line figure was potentially very high. However, both Council's 1% line of 62.15 metres and QWI's 1% line of 59.02 metres were below the 1893 flood level of 62.38m.

20. In any event, GHD has recently confirmed that it remains confident with its original advice/levels. QWI is no longer active.

21. As part of the new planning scheme currently being prepared, GHD has been commissioned to identify 1% probability flood levels for all residential areas. The new study was commissioned in 2010 but has not yet been finalized.

22. Gympie Regional Council resulted from the amalgamation of Cooloola, Kilkivan and part of Tiaro Shires. As far as can be ascertained, Kilkivan and Tiaro had no floodline data or flood policies. However, these are being developed in the new flood study and new planning scheme.

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A description of how levee banks are regulated in the Council are using specific examples

9. Council has no levee banks in its townships.

Details of council infrastructure (sewers, roads, stormwater etc) that was affected by flooding during the period 1 December 2010 to 3 January 2011

10. Details of the road, water and sewerage infrastructure that was impacted by the December 2010/January 2011 floods are listed in **Attachment 1** and **Attachment 2.**

11. There was minimal damage to Council's water and urban stormwater infrastructure as a result of the floods.

A description of the measures used by council to protect council infrastructure (sewers, roads, stormwater etc) and to ensure such infrastructure functions during a defined flood event

12. The primary initial concern for Council in relation to infrastructure during a flood event is sewerage. Other infrastructure such as water, roads and parks require relatively simple and automatic procedures to prepare for the rising waters. For example, disconnecting power to BBQs, removing floatable objects etc. Relevantly, in Gympie, the water rises relatively slowly.

13. The procedure developed for the protection of Gympie's sewerage system is contained in **Attachment 4**. In my opinion, this worked well in during the December 2010/January 2011 floods and will require only minor amendments for the future eg adding new pump stations. Sewage leakage is inevitable in any major event due to the infrastructure being of necessity in the topographically lowest areas. Hence the procedure has been designed to enable its earliest possible re-operation after the event.

Other issues relevant to the Terms of Reference

14. As an Engineer who has had experience with many floods in the Gympie region, I wish to make the following observations that may be of assistance to others:

    - The public/business/developer acceptance of a conservative or careful approach to flood policies is indirectly proportional to the time since the last large flood.

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- Every flood is different in terms of level, gradient (in-stream and across-stream) and duration. This presents a challenge for flood policies.

- Council staff has found problems with recorded debris levels not being an accurate measure of maximum flood level. As a result, Council is adopting a degree of accuracy of +0/-1 metre in relation to the correlation with the actual flood line, especially in country with flat gradients.

- Council has labeled its flooding information group "Flood Estimates" because of problems with accuracy and variability that arise from issues such as the reliability of contour information or debris levels.

- The level "highest flood in memory" carries much risk when determining minimum development levels in rural areas. Whilst it is an emotive term carrying some cogency, it is on balance unlikely that a 1:100 flood has occurred in that person's memory.

- In my opinion, there is not enough emphasis placed on the velocity of the water, compared with the level of the water. For example, the risk to life and property from Mary River flooding (slow water) is much less than a similar height flood in a river with a steeper gradient.

- Council includes the 1893 flood level in Gympie on its Flood Estimates directory. This is higher than the current 1:100 estimated flood line and is very useful because:

  (a) One can tell people it happened, which is an important psychological tool;
  (b) One can also tell people it will happen again, at some time; and
  (c) future floods will provide new levels that will contribute to revisions of the estimated 1:100 line, and as a consequence this line may increase or decrease in height. Hence the 1:100 line, in the long term, is a moving line that is hard for the public to understand. The 1893 flood line on the other hand is easy for people to understand in our region.

Sworn by Robert Alexander Fredman at Gympie this Thirtieth day of August 2011 in the presence of:

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Witness Solicitor/Justice of the Peace/Comm. Dec...

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QUEENSLAND FLOODS COMMISSION OF INQUIRY

STATEMENT OF ROBERT ALEXANDER FREDMAN

I, Robert Alexander Fredman, Director of Engineering, Gympie Regional Council, make the following statement under oath as required by the Commissioner of Inquiry in accord with the letter of request from the Commission dated 30 September 2011:

An overview of the interaction between the Gympie Regional Council (council) and the Queensland Reconstruction Authority (QRA) regarding interim floodplain mapping, including any consultation, data sharing or provision of information.

1. As far as I can ascertain there has been no interaction between Council and the QRA at this stage.

An account of materials received by the council from the QRA since the release of the interim floodplain mapping, including hard copy map books

2. Council has received four maps electronically.

The council's understanding of what the interim floodplain area (yellow shaded area on maps available at www.qld.gov.au/floodcheck) represents

3. The Floodplain Area appears to show where inundation has previously occurred or is likely to occur. Being a line boundary (as compared with a "fuzzy" boundary) conveys a perception that the boundary is accurate.

A comparison of the area covered by the interim floodplain area with other flood mapping, development lines, natural hazard management areas or areas derived from flood studies available to the council.

4. Council had commissioned a new 1:100 Floodline Study prior to the 2011 floods. There is a existing study completed in 2000 for Gympie only. I have compared the draft mapping from the new Study (which is currently a work-in-progress) and the Floodplain mapping supplied by QRA. If the latest Study were to be adopted by Council, there would be some areas of discrepancy with the Floodplain mapping, which need to be resolved.

5. I understand that the intended use of the Floodplain mapping is for public use. For that purpose the Floodplain mapping requires further work. For example, there are areas around Imbil, Kybong, Eel Creek, Curra, Goomeri and the Gympie Aerodrome where the Study indicates flooding could occur, but where the Floodplain mapping does not raise a potential flooding issue. Some of these areas are likely to be subject to development pressure in the future so some certainty is required.

An explanation of whether the council intends to use the interim floodplain maps provided by the QRA in its emergency management, land planning or any other council function, and
(a) if so, for what purpose and why

(b) if not, why

6. As a result of the work-in-progress Council expects to soon meet the Level 3 criterion as described by QRA for flood mapping maturity. It is our strong preference that further work be carried out in conjunction with QRA to determine a full correlation between the Floodline Study and the Floodplain mapping. There will be reasons for the current discrepancies that need to be understood, so they can be overcome.

Sworn by Robert Alexander Fredman at Gympie this 6th day of October 2011 in the presence of:

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Deponent

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Solicitor/Justice of the Peace/Comm. Dec.

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