Appendix 5

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Expert Report
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Gladstone Area Water Board

GLADSTONE AREA WATER BOARD EXPERT REPORT

PUBLIC report

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Disclaimer

The Expert Report has been prepared with due professional care based on the information supplied by the Gladstone Area Water Board and detailed in the Bibliography.

The opinions and conclusions expressed in the Expert Report are those of the author and are not warranted in any manner.

The report must be read as a whole and the author accepts no responsibility if parts of this report are used in isolation.

1.0 Executive Summary

1.1 Introduction

The Gladstone Area Water Board (GAWB) made a submission to the Queensland Competition Authority (the Authority) in 2007 with regards to their intention "to undertake preparatory expenditure associated with investigation of a contingent water supply" for Gladstone. In their submission GAWB proposed "that efficient costs of that expenditure will broadly be recovered in its 2010 price reset."

The Authority conducted a detailed investigation and consultation process in regards to GAWB's submission which included consultation with stakeholders and the commissioning and receipt of an Engineering Report from Cardno. During this time the Authority also received further submissions from GAWB.

At the conclusion of the investigation period the Authority tabled a Final Report entitled Gladstone Area Water Board: 2007 Investigation of Contingent Water Supply Strategy pricing practices - Stage A in December of that year.

The following extracts from the Authority's Final Report form the basis of the matters to be considered in this Expert Report.

The QCA Final Report indentified:

> ***"GAWB's Proposal***
>
> *In its initial submission regarding part (a), GAWB identified as its key prospective risks: projected new demand growth; the effect of changes in hydrology on supply; and the potential for continuing drought to reduce short term supply.*
>
> *In response to these risks, GAWB proposed a contingent supply strategy based on the construction of a pipeline to link the Lower Fitzroy River and the proposed Aldoga Reservoir. The water is to be sourced from the raising of the existing Eden Bann Weir and/or a new weir at Rookwood Crossing.*
>
> *To ensure water is available within two years of a decision to construct the pipeline, GAWB proposed completing preparatory works totalling $23.8 million by mid to late 2008. In addition, GAWB considered that expenditure of $1 million is warranted to assess the feasibility of a local desalination plant.*
>
> *GAWB proposed that the costs of its contingent source strategy be capitalised to 1 July 2010, by which time it expected that the Authority would have reviewed the expenditure incurred and built it into prices. GAWB also proposed that preparatory costs be incorporated into prices in a manner which ensured that all users share the cost."*

The Executive Summary provided the Authority's Assessment.

> ***"Authority's Assessment***

Based on comments provided by stakeholders in response to GAWB's proposals, the Authority released a Draft Report for comment. Responses to the Draft Report have been taken into consideration in this Final Report.

The Risks Confronting GAWB

The Authority notes that:

- *historically, demand for water from new projects has generally been overestimated. Nevertheless, the Authority has considered low and high demand scenarios in conjunction with supply scenarios in determining the prudence of the various response strategies;*
- *hydrology is a long-term risk. Until such time as the historic no failure yield (HNFY) is formally re-assessed, it remains the appropriate measure for long-term planning; and*
- *drought is the key imminent risk. GAWB's proposed average three-year worst inflow scenario is reasonable for triggering the DMP. However, as noted by GAWB, there is a possibility of an unpredicted event, such as one or more years of even lower inflows or a failure in inflows in the coming wet season.*

Key Conclusions

With regard to the prudence of GAWB's contingent source strategy, the Authority concludes that:

(a) A contingent supply strategy is a prudent response to the demand and supply risks facing GAWB;

(b) The assessment and threshold criteria applied by GAWB were generally reasonable given imminent risks; and

(c) Under the worst case scenario postulated by GAWB (the average of the three worst consecutive inflows), there is sufficient time to undertake further investigations of options before finally committing to a preferred contingent supply source. The Authority has concerns that GAWB's preference for the Fitzroy Pipeline may reflect the relative level of effort applied to date to the evaluation of other available options, rather than the result of the evaluation of those options.

Following consideration of the relevant issues and taking account of stakeholder submissions, the Authority considers that:

(a) It is prudent for GAWB to continue working towards implementing the Fitzroy Pipeline option as there is a possibility of an unexpected event, such as one or more years of even lower inflows or a failure in inflows in the coming wet season. Under this scenario, the Fitzroy Pipeline would be the prudent option;

(b) GAWB should ensure that the necessary arrangements have been entered into to ensure a right of access to supplies of water from the Fitzroy River from mid-2012 should they be required;

(c) GAWB should continue to work on options such as desalination, air and sea water cooling and alternative supply restrictions; and

(d) GAWB should ensure that there is significant level of customer support

for its preferred contingent strategy option before proceeding with significant asset creation expenditure. It should provide indicative pricing implications or the alternative options based on alternative demand scenarios. This would provide the information to enable all parties to compare the financial risks of the alternative contingent supply strategies. It is possible that, once the pricing implications of the Fitzroy Pipeline are known, customers may find by-pass opportunities or demand management strategies which reduce their water requirements of GAWB.

In relation to the level and timing of efficient costs associated with the development of GAWB's contingent supply strategy that should be included in prices, the Authority considers that:

(a) Preparatory expenditure on items such as project management, approvals, consultation and communication, engineering and investigations and land acquisition are appropriate if there is a high probability of project commencement in the next few years. Given the need to continue working towards implementing the Fitzroy Pipeline option, to manage the risk of minimal inflows over the coming wet season, it is considered prudent to incur such expenditures on this option. Expenditures on the feasibility of air and sea water cooling and desalination are also appropriate;

(b) Asset creation should be deferred until the preferred contingent supply source is settled. Any items purchased in advance of construction will be at GAWB's own risk;

(c) The demand/supply situation should be kept under active review and the level and timing of preparatory expenditure on the Fitzroy Pipeline should be reconsidered if circumstances allow more time to review other options; and

(d) Preparatory expenditures should be subject to an ex-post review before being considered for incorporation in the asset base, as proposed by GAWB.

In relation to the means by which the efficient costs of the contingent supply strategy should be included in prices in subsequent years, the Authority considers that:

(a) Consistent with its general approach to regulatory pricing, efficient preparatory costs should be taken into account when determining prices at the next regulatory reset. In other words, prices determined at the next regulatory reset should include a return on capital in respect of efficient preparatory expenditure;

(b) In general, efficient preparatory costs should not be incorporated into GAWB's regulated asset base until the assets related thereto are commissioned. Correspondingly, in general, depreciation of efficient preparatory costs should not commence until the assets related to the preparatory expenditure are commissioned or, if it is certain that the assets will not be commissioned because of changing circumstances, when that decision is taken. In the latter instance, the time period over which the efficient preparatory expenditures would be recovered would require particular consideration. To the extent that efficient

preparatory expenditures diminish in value prior to commissioning of the assets to which they relate, the extent of any diminution in value should however be taken to account in pricing as should the costs of maintaining the currency of preparatory expenditure;

(c) The appropriate WACC rate for capitalising preparatory costs is the WACC rate that applies from time to time to GAWB regulated assets;

(d) In accord with the Authority's current general practice, efficient preparatory costs should not be optimised out of the asset base without compensation other than under certain limited circumstances; and

(e) It is inappropriate to consider the basis for recovering preparatory costs independent of considering GAWB's submission in regard to the recovery of the costs of the new infrastructure to which the preparatory costs relate. This matter should be considered in part (c) of the Ministers' Direction.

Although the Authority does not propose to consider the treatment of preparatory costs for pricing purposes separately from the treatment of the remainder of the costs of the related assets, it reviewed GAWB's estimates for the purpose of providing greater information to customers. The Authority's conclusions are that:

(a) The preparatory costs would add between $18 and $27/ML to prices; and

(b) The impact on prices of the construction of the contingent supply is likely to be substantial. On the basis of the limited available information, the Authority estimates that, based on a 30,000/ML per year Fitzroy Pipeline, prices would need to increase by around $410/ML on average under low demand scenario, and by around $310/ML under a high demand scenario.

The analysis supporting these conclusions is set out in the body of the Final Report."

The Authorities Assessment is based on GAWB t providing a further submission to QCA in October 2009 in regards to preparatory costs to be included in the June 2010 Price Reset.

This GAWB submission will include a description of the scope of Works that has been or will be undertaken complete with:

- Cost up to 30/06/2009; and
- Forecast costs from 30/06/2009 to 30/06/2010.

1.2 Expert Brief

GAWB commissioned Mr Ian Harrington to review the various reports and submission, detailed in the brief, and seek further information as required from GAWB as reasonably required in order to provide a view in regard to the following question:

Do the actual and forecast scope, standards and costs of the Preparatory Works up to June 2010 satisfy the following tests:

- *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
- *the cost of the work is reasonable, that is, it is economically efficient."*

1.3 GAWB's Purpose for Expenditure

GAWB have outlined the challenges that they face in managing the security of future supplies to their customers.

Currently GAWB have one source of water, Awoonga Dam, which has a well defined capacity however like all natural sources the inflow into the Dam is highly variable, and can be subject to severe drought.

GAWB supplies to residential and commercial customers. Currently commercial customers represent a high percentage of the total water supplied. Demand can increase by large increments by the addition of new commercial customers. Household increase in demand, by comparison is slow and in small increments.

GAWB, as a part of their proposal indentified two major risks namely:

- drought and resultant reduction in the quantity of water in Awoonga Dam; and
- inability to meet demand of a new major industrial client.

In an effort to mitigate these risks GAWB indentified 13 potential new areas of supply and undertook preparatory expenditure in order to identify the option that provided the most economically efficient outcome. As a result of this detailed analysis GAWB's preferred option was for a pipeline between the Lower Fitzroy River and the proposed Aldoga Reservoir (the Lower Fitzroy option).

As a part of the process GAWB also allocated $1m to:

> *"to assess the feasibility of a local desalination plant".*

In addition to this GAWB identified that the lead time between making a decision to commit to a new source and its delivery was critical to providing a reliable service to its customers. Hence GAWB submitted, and the Authority agreed, that an acceptable Contingent Strategy is:

> *"to ensure that water is available within two years of a decision to construct the pipeline".*

The work involved, up to mid 2010, to meet this strategy is called the Preparatory Works, and the analysis of the scope and cost of these works is the purpose of this report.

1.4 Comparison of Budgets

The following is a comparison of the 2007 Budget included in GAWB's submission to the Authority and the costs to be submitted by GAWB to the Authority in October 2008.

Table 1

Description of Cost Area 1	2007 Budget to mid 2008 $m 2	2009 Cost Estimate to mid 2010 $m 3	Variance Overspend = + $m
Project Management	3.5	5.3	+1.8
Approvals	1.9	4.2	+2.3
Land Acquisition	5.1	2.2	-2.9
Communication and consultation	1.5	0.6	-0.9
Investigation, Engineering and Technical Support	6.9	19.4	+12.5
Asset Creation	5.0	0.1	-4.9
Contingency	0	0.3	+0.3
Sub Total for GFP	**23.9**	**32.1**	**+8.2**
Federal Funding		**-10**	
Net Overall for the GFP	**23.9**	**22.1**	**-1.8**
Desalination	1.0	1.2	+0.2
Water Rights	0	0.3	+0.3
Lower Fitzroy River Infrastructure Plan (LFRIP)	0	7.7	+7.7
LFRIP Contingency		0.5	+0.5
Regulatory Submissions	0	1	+1
Real Options	0	0.6	+0.6
Subtotal Costs other than GFP	**1.0**	**11.3**	**+10.3**
Overall CSS Preparatory Works Total	**24.9**	**33.4**	**+8.5**

1.5 Key Findings

The Sections 2 to 6 of this report include a detailed analysis of the scope and cost of each Cost Area of this submission.

The following is an Executive Overview of the key findings of this report in regard to:

> *"the scope of Preparatory Works to be completed and by June 2010, with particular reference to the "Authority's Assessment" as provided in the Executive Summary of the Authority's Final Report entitled Gladstone Area Water Board: 2007 Investigation of Contingent Water Supply Strategy pricing practices - Stage A. A copy of the "Authority's Assessment is included in section 1.1 of this report".*

The Key Findings are:

(1) The purpose and scope of the Preparatory Works changed once the "drought broke" This meant the task changed from a "Fast Track" launch of a construction project to preparation of the project to meet GAWB's contingent plan of "*To ensure water is available within two years of a decision to construct the pipeline."*

(2) The duration of the Preparatory works (the costs of which are considered in this report) increased from approx 2 years to approx 4 years.

(3) GAWB has considered and need a trigger point approximately 12 months prior to commencement of the construction of the GFP to obtain regulatory and commercial approvals and to undertake Early Works to enable the commencement of construction as programmed.

(4) On the basis of current planning there exists the potential that the LFRIP will be not concluded until after the GFP, should the decision to commence construction be made immediately preceding the commencement of the wet season. Although GAWB is continuing its assessment of the issue and of options available to it, including re-programming and/or obtaining access to water available from other allocations from the Fitzroy, GAWB does not consider this to represent a material risk to the delivery of its strategic objectives.

(5) The Authority's Assessment remained relevant and the following reports the findings against each of the Authorities "*following consideration of the relevant issues and taking account of stakeholder submissions, the Authority considers that:*

(a) *"It is prudent for GAWB to continue working towards implementing the Fitzroy Pipeline option*." GAWB has continued to work towards implementing the Fitzroy Pipeline Project GAWB have selected and are delivering a scope for the preparatory works This report has reviewed the scope and concluded that the scope is appropriate for the CSS. This report concludes that the scope will produce assets which can be maintained for a number of years. This will allow the project to be kept in constant "state of readiness".

(b) *"GAWB should ensure that the necessary arrangements have been entered into to ensure a right of access to supplies of water from the Fitzroy River from mid-2012 should they be required*…" To allow GAWB to ensure right of access to the water (and that the timing is approximately the same as the time taken to have the GFP ready for

use), GAWB have worked with , and shared costs with, SunWater to develop the Lower Fitzroy Infrastructure Project(LFRIP), which are additional weir(s) to store water allocations.

(c) *"GAWB should continue to work on options such as desalination, air and sea water cooling and alternative supply restrictions…;"* GAWB have continued to work on desalination and is developing a framework (based upon real options methodology) that will enable it to transparently and robustly evaluate all investment opportunities, including the potential for demand reduction that may arise, by example the introduction of air cooling by the Callide Power Stations prior to making its final investment decision.

(d) *"GAWB should ensure that there is significant level of customer support for its preferred contingent strategy option before proceeding with significant asset creation expenditure*…." The augmentation of Awoonga Dam, project has been put 'On Hold" until after the period ending June 2010, therefore this item has been of lower immediate importance. However GAWB have implemented the "Real Options" process whereby they will retain a reasonably up to date cost comparison of the Desalination and Lower Fitzroy solutions, this would allow negotiations with Customers in regards to commence at relatively short notice.

(e) *"Preparatory expenditure on items such as project management, approvals, consultation and communication, engineering and investigations and land acquisition are appropriate if there is a high probability of project commencement in the next few years."* During the preparatory works the project went from a fast track response to a current drought situation to a future potential project. As discussed in this report GAWB responded and adopted an approach to complete the preparatory works to a stage where the assets could be maintained and the contingent strategy maintained.

(f) *Asset creation should be deferred until the preferred contingent supply source is settled*…" GAWB has not purchased any physical assets except land.

(g) *The demand/supply situation should be kept under active review and the level and timing of preparatory expenditure on the Fitzroy Pipeline should be reconsidered if circumstances allow more time to review other options*..." GAWBs ongoing plan is to keep the various options developed to a stage whereby a comparison can readily be updated and completed. Monitoring supply demand and supply capacity is an ongoing part of GAWB functions."

1.6 Conclusion

This report concludes that:

(1) GAWB has complied with the Authority's "considerations" [Ref Authority's Assessment in the Authority's Final Report entitled Gladstone Area Water Board: 2007 Investigation of Contingent Water Supply Strategy pricing practices - Stage A.] and this report has found that GAWB have acted in accordance with the Authority's Final Report. Refer Section 1.5 of this report.

(2) The scope of Preparatory Works up to June 2010 complies with the test defined by the Authority namely, "*the standard of work is appropriate in that the works do not involve any*

unnecessary works and are not over designed;" Refer to Sections 2 to 6 of this report for the detailed assessment.

(3) The cost of the Preparatory Works up to June 2010 complies with the test defined by the Authority namely, "*the cost of the work is reasonable, that is, it is economically efficient*" Refer to Sections 2 to 6 of this report for the detailed assessment.

2.0 Methodology

2.1 Introduction

GAWB had adopted, with the Authorities' endorsement, a contingent strategy which consists of several parts, namely:

(1) to ensure that water is available within two years of a decision to construct the pipeline (GFP);

(2) to undertake preliminary investigation of a desalination plant; and

(3) to develop a framework that will evaluate the comparative merits of investments projects to reduce demand which defers augmentation in addition to source augmentation projects.

and as corollary to the construction of the Gladstone Fitzroy Pipeline:

(1) GAWB had ensured that they could extract their allocation of water from the Fitzroy River. This requires the upgrade of existing and/or addition of new weirs in the Fitzroy to regulate flow in order to provide a reliable water source.

(2) The new (or lifted) weirs (hereafter called the LFRIP) are required to ensure the GAWB can access their water reallocation in the Fitzroy River. GAWB are working with SunWater to develop the initial preparatory works for the LFRIP to match GAWB's Strategic Plan. To date, GAWB and SunWater are sharing the costs of the preparatory works on a 50/50 basis.

(3) The allocation of costs of the early works and capital works for the LFRIP has not been decided at this time. However GAWB have allowed in their comparison, of the different alternatives, that GAWB customers would be responsible for between 50 to 100% of the total construction cost of the individual LFRIP options, depending on the option selected at the time of augmentation.

2.2 Scope of Works and Associated Costs to be Reviewed

The following table describes the projects and costs sub sections to be reviewed and discussed in this expert report.

Table 2

Scope of Works	Cost Areas
Gladstone Fitzroy Pipeline	▪ Project Management ▪ Approvals ▪ Land Acquisition ▪ Communication and Consultation ▪ Site Investigation and Engineering and Technical support ▪ Asset Creation
Lower Fitzroy Project	▪ Phase 1 Preliminary works (by GHD)

Scope of Works	Cost Areas
	▪ Phase 2 Preliminary works (by GHD) ▪ GAWB costs
Desalination	▪ Site selection ▪ Water Quality Investigation ▪ Very preliminary engineering ▪ Preliminary cost estimates ▪ Investigation into Co-siting with an industrial client
Air Cooling	▪ Negligible expenditure incurred by GAWB
Works common to all Options	▪ Regulatory submissions ▪ Real Options (Comparison of Options)

2.3 Methodology for Expert Review

The method adopted for the preparation of this expert report is as follows:

2.3.1 Fitzroy Gladstone Pipeline

(1) Compare 2007 Budget with Cost Estimate for GAWB's September 2009 Submission. Include analysis of the reason for and use of Federal Funding and Regulatory Submissions.

(2) Obtain additional information, over and above the reports supplied to the Author of this report, by a set of questions to and answers from GAWB [Q&A].

(3) Provide an overview analysis of scope and costs. Make particular reference to the Cardno Report. Compare overall cost with current budget for the project.

(4) For the GFP Project provide an analysis of each cost type. Review and discuss against the two criteria designated by the Authority, namely:

- *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
- *the cost of the work is reasonable, that is, it is economically efficient."*

(5) Summarise the GFP scope and costs.

2.3.2 Lower Fitzroy Infrastructure

(1) Obtain additional information, over and above the reports supplied to the Author of this report, by a set of questions to and answers from GAWB [Q&A].

(2) Review the need to incur these costs.

(3) Comment on how the Lower Fitzroy Infrastructure fits within the GAWB Contingent Plan.

(4) Review of scope of works and level of costs involved.

2.3.3 Desalination

(1) Obtain additional information, over and above the reports supplied to the Author of this report, by a set of questions to and answers from GAWB [Q&A].

(2) Comment on how the potential desalination plans within GAWB's Contingent Plan.

(3) Analyse the scope of work included in the Budget and how this fits within GAWB's Contingent Plan.

(4) Review and analyse the costs against the criteria designated by the Authority.

2.3.4 Demand Reduction Activities

Part of GAWB's supply management includes consideration of demand reduction. This can be both long term (eg substitution of water demand by converting power stations water cooling to air cooling) and short term to reduce demand to maintain water stocks such as during droughts.

GAWB appear to have and are carrying out this work. However as there are no specific costs included in the submission to QCA, this review has not considered this activity in any further detail.

The cost of the Real Options is considered separately.

2.3.5 Works common to all Options

This work is in two distinct sections namely Regulatory submissions and Real Options (Preparation and update of the comparison of options).

(1) Regulatory Submissions:

  (a) Obtain additional information, over and above the reports supplied to the Author of this report, by a set of questions to and answers from GAWB [Q&A].

  (b) Comment as to whether this work is a cost relevant to the contingent supply strategy.

  (c) Review the scope and costs for reasonableness.

(2) Real Options

  (a) Obtain additional information, over and above reports supplied to the author of this report, by a set of questions to and answers from GAWB.

  (b) Comment on whether this work is a cost relevant to the contingent supply strategy.

  (c) Review the scope and costs for reasonableness.

3.0 Gladstone Fitzroy Pipeline

3.1 Introduction

The Gladstone Fitzroy Pipeline project consists of the following key elements which make up the scope of the project:

- Inlet Pump Station of the Fitzroy River;
- Pipeline from the Fitzroy River to Alton Downs;
- Alton Downs Water Treatment Plant;
- Pipeline from Alton Downs to Raglan Pump Station;
- Raglan Pump Station;
- Pipeline from Raglan to Aldoga Reservoir;
- Aldoga Reservoirs; and
- Connection from Aldoga Reservoirs into existing GAWB water distribution system.

The scope will be considered as a single entity because all parts of the scope are required to develop an operating water system.

The key functions involved in developing this project and described by the cost areas of:

- Project Management;
- Approvals;
- Land Acquisition;
- Communication and Consultation;
- Site Investigation and Engineering and Technical Support;
- Asset Creation

and the scope and need for each area, is further discussed in each section of this expert report.

3.2 Comparison between 2007 Budget and Cost Estimate in GAWB Sept 2009 Submission to the Authority

3.2.1 Introduction

The Sept 2009 Cost Estimate consists of costs incurred up till 30/06/2009 and forecast cost 30/06/2009 to 30/06/2010.

The 2007 Budget was split into the following cost categories:

- Project Management;
- Approvals;

- Land Acquisition;
- Communication;
- Site Investigation and Engineering; and
- Asset Creation.

This is a reasonable split of categories to define the scope of works necessary to develop a project up to being able to award supply and construction contracts. This report notes that some detailed activities could be designated to more than one of the list of items. In general this report has clarified the distribution of costs by questions to and answers from GAWB.

The duration of the preparatory Works has been extended from mid 2008 until at least mid 2010. The drought was broken by rain in 2007, and Awoonga Dam filled to a stage where drought augmentation was not required, thereby alleviating the need to commit to the GFP (because of the drought).

Once the drought was broken GAWB were faced with two practical choices:

- Immediately cease work on the GFP, with a result that little value would be retained for the expenditure already incurred.

OR

- Continue work on the GFP project to a stage where:
  - The value of the work already commenced could be complete to a stage where the value could be retained for a period of several years;
  - The project was completed to a status where *"water is available within two years of a decision to construct the pipeline"*;
  - The level of confidence of the likely final cost improved; and
  - Additional monies were invested to help minimise the likely final cost of the project.

GAWB chose the second alternative which would appear to be:

(1) In compliance with GAWB's stated contingent plan;

(2) In compliance in the finding in the QCA Final Report;

(3) A sensible decision in terms of cost vs. value when the total project is considered; and

(4) Supported by comments in the Cardno Report.

In support of this reports observation that "a sensible decision in terms of cost vs. value when the total project is considered" the following provides an overview argument.

Work commenced on the GFP in response to the drought situation and a "fast track" approach can be generally described as time critical; and the costs are as they fall.

It is reasonable to expect, supported by history of projects that "fast track" projects will have a higher cost at completion than projects where more time can be taken, prior to commencement of construction, to properly plan the project.

Some of the key reasons for a cost differential between the two approaches are:

(1) Optimisation of Design - more time to develop the most economical and functional design; including preparation of the documentation to a stage whereby the design can be maintained for a period of years.

(2) Risk Reduction - more time to recognise risks and develop strategies to avoid the cost of risks being realised, which includes allocating risks to the party best able to manage those risks.

(3) Improved Procurement - more time to develop good and competitive contracts and obtain best value for money. This included allocating risk to other parties, mainly the contractor, where the contractor is better able to manage the risk.

This report will examine as to whether the additional time has been used to carry out works that are *"economically efficient"* by reducing the likely final cost of the project and whether *"the cost of (these) works is reasonable".*

Further this report refers to Cardno Report (Oct 2007) Page 15 "Section 4.10 Minimising Standard Investment in Proprietary Costs" which states:

> *"If the project was deferred in some case the consultancy contracts and preparatory work will be well advanced and sensibly should be completed."*

This approach of completing (rather than abandoning) preparatory works complies with GAWB's contingent plan to have the project in a state of readiness so that water could be delivered within two years of the decision to proceed to construction of the pipeline.

3.2.2 Comparison Total Cost

The following provides the total cost comparison.

Table 3

Description of Cost Area 1	2007 Budget to mid 2008 $m 2	2009 Cost Estimate to mid 2010 $m 3	Variance Overspend =+ $m
Project Management	3.5	5.3	+1.8
Approvals	1.9	4.2	+2.3
Land Acquisition	5.1	2.2	-2.9
Communication and Consultation	1.5	0.6	-0.9
Investigation, Engineering and Technical Support	6.9	19.4	+12.5
Asset Creation	5.0	0.1	-4.9
Contingency	0	0.3	+0.3

Description of Cost Area 1	2007 Budget to mid 2008 $m 2	2009 Cost Estimate to mid 2010 $m 3	Variance Overspend =+ $m
Sub Total	23.9	32.1	+8.2
Federal Funding	Nil	<10>	<10>
TOTAL	**23.9**	**22.1**	**-1.8**

This Table 3 and the discussion in Section 3.2.1 above shows that:

- The total expenditure is greater than budgeted.
- The cost to GAWB customers is less than budgeted.
- That GAWB have created an asset, subject to the project proceeding within a reasonable number of years.
- That the period over which the costs were incurred increased by 2 years.

The tests that are applied to the expenditure are considered in detail later in this report.

3.2.3 Comparison of Costs

The following schedule provides a comparison of costs recognising the 2 year increase in time.

Table 4

Description of Cost Area	Up to mid 2008			Mid 2009 to Mid 2010 Budget
	2007 Budget	Actual cost	Variance Over spend =+	
Project Management	3.5	2.7	-0.8	2.6
Approvals	1.9	2.5	+0.6	1.7
Land Acquisition	5.1	0.1	-5.0	2.1
Communication and Consultation	1.5	0.4	-1.1	0.2
Investigation, Engineering and Technical Support	6.9	11.2	+4.3	8.2
Asset Creation	5.0	0	-5.0	0.1
Contingency	0	0	0	0.3
TOTAL	**23.9**	**16.9**	**-7**	**15.2**

This schedule shows that the total shows up to June 2008.

The various cost categories both under and overrun the original budget.

The tests that are applied to the expenditure are considered in detail later in this report.

3.2.4 Federal Funding

Federal Funding was provided to GAWB to develop the project and had no conditions which added to the cost of the preparatory works (or forecast cost of the capital works) [Refer Q&A No 5 and 6.].

The use of Federal Funding did provide GAWB with the opportunity to add value to the project by both (a) potentially reducing the likely final cost of the project and (b) improving the level of confidence that water could be delivered two years (after a decision to proceed to construction) **WITHOUT** any additional increase in cost of water to clients in the 2010 price reset.

3.3 Overview of Scope of Works and Costs

The actual preparatory costs of $32.1m [of which $10m is suppled by the Commonwealth Govt at no cost to the GAWB customers] will result in the following scope of works being completed:

(1) Initial site investigation and route survey completed.

(2) Pipeline route and location of major components selected.

(3) Procurement of all the land, either by purchase or lease. The State Developmental Area (SDA) licence will not be achieved prior to June 2010 (Refer Q&A No 16).

(4) Approvals that have been or will be granted by mid 2010. Refer Q&A No 14 which lists approvals granted/ approvals expected to be granted.

(5) Engineering to a stage where the preferred contractor has provided a Lump Sum Contract Price with a relatively low level of “Provisional Sums” in the Contract Price.

(6) Procurement of a Contractor to the stage where a Lump Sum Contract will be signed prior to June 2010:

- This contract will be valid for several years from signing and this validity period could be extended by agreement between the parties.
- The contract is subject to a condition precedent of GAWB ordering construction to commence.
- The parties are currently (to be completed prior to June 2010) in the process of agreeing a comprehensive Revalidation Process to:

  - upgrade the Lump Sum Price because of increases/ decreases of cost inputs between Nov 2008 and the ordered Construction Period;
  - incorporate any changes ordered by GAWB;
  - incorporate any changes as a result of more and better information particularly in relation to: the EIS, conditions of entry to the pipeline corridor, new survey information, additional site investigation; and
  - undertake “value engineering” to improve the “value for money” of the project.

This report believes that the status of the:

- land procurement;
- approvals;
- engineering design;
- construction contract;

all provide GAWB with real assets, if the project proceeds at some future date.

GAWB will need to set up processes to maintain these assets. This report believes that GAWB will to produce and execute a plan to maintain these assets, details to be included in the preliminary scope and costs for the price reset after June 2010.

This report also states that if each of the above (four dot points – assets) were not advanced to their proposed mid 2010 status, then the retained value of the Preparatory Work completed up to the time the decision was made to defer the project, would have been negligible.

The further work that, in the opinion of this report should be undertaken to minimise cost of variations and extension of time to the Lump Sum Contract includes:

- Detailed ground survey; and
- Additional geotechnical investigation particularly at the Intake structure on the Fitzroy River.

GAWB's plans to carry out this work after an initial trigger to restart the project (Ref Q&A No.7). This report believes that this is a prudent decision.

Therefore this report suggests that GAWB have taken reasonable steps to optimise the project in terms of the scope of these preparatory works in accordance with the Contingent Plan.

This report demonstrates that after the drought broke the actual extent of Preparatory works was increased (with a commensurate increase in cost and time) and that this increased scope was appropriate both in terms of:

- developing the GFP to where a “state of readiness “could be maintained; and
- minimising the potential capital cost of developing the GFP.

This report argues that the value added to GAWB assets on the project are significant, and the assets will by mid 2010 be in a state whereby they can be maintained for a number of years, and good value for money will have been achieved.

To support this argument the following is a comparison of the relative status of readiness to construct.

Table 5

Description	Status if Project had proceeded to Construction in 2008	Status of Project by mid 2010 [Construction to commence at some indeterminate date after mid 2010]	Harrington Construction Consultants Comment
Site Investigation	Preliminary with major unknowns particularly of the Intake Pump Station	Preliminary with major unknowns particularly of the Intake Pump Station	Sufficient time to complete this work after the initial trigger. Not proceeding with this investigation is not detrimental to the GAWB asset.
Route	Selected but with access arrangements not finalised.	Selected with most access arrangements either finalised or agreed in principal	Route selection critical for land acquisition.
Land Acquisition	Not Completed	Completed	Route secured, of considerable value
Communication with Stakeholders	Fast tracked with issues still to be resolved after construction commences	Sufficient time to resolve major issues prior to start of construction	Reduces risk
Engineering (Design)	Not sufficiently advanced to obtain Lump Sum Construction Contract	Sufficiently advanced to obtain a Lump Sum Contract	Allows a contractor to commit to a lump sum contract price. Reduces risk of cost increases during the construction period
Procurement of Contractor	Cost Reimbursable style of contract with considerable risks worn by GAWB	Lump Sum Contract with limited defined risks attributable to GAWB	Reduces GAWB risk and likely has a lower cost at completion
Asset Creation	Subject to delivery time of pipes and fittings	Agreement for power supply	Delivery of mains power to all the permanent woks sites prior to construction will reduce the cost of construction

Therefore on the basis of this overview (Section 3.3) it is reasonable to conclude that:

- The standard of work is appropriate to satisfy GAWB's Contingent Plan; and
- That no unnecessary work has been undertaken.

The next question is whether the costs of the Preparatory Works up to mid 2010 satisfy the following test:

"the cost of the work is reasonable, that is, it is economically efficient."

In consideration of this question this report addresses the following issues:

- whether the works were completed to the original budget;
- whether any increase in cost is justifiable in terms of increased scope and value; and
- the value of the assets VS the costs incurred.

The costs up to mid 2008 were less than budgeted, however there are significant variations between the various cost areas, so no conclusion is drawn on an overview basis and each cost area is examined in more detail.

The total costs, up to mid 2010, are in excess of the original budget, however, the costs to GAWB customer have been reduced by $10m due to the Commonwealth Grant. No conclusion is drawn on an overview basis and each cost area is examined in more detail.

The scope of works and status of the project will be, by mid 2010, in advance to the original plan. Therefore the original budget is no longer a fair measure of the efficiency of the costs incurred. The cost / value comparison is examined in more detail later in this report.

3.4 Review of Project Management Costs, Communication and Consultation

3.4.1 Introduction

GAWB's cost areas are a mixture of:

(1) Service Functions (to the Project):

- Project Management; and
- Communication and Consultation.

(2) Work Functions:

- Approvals;
- Engineering, Investigation and Technical Support; and
- Regulatory Submissions.

(3) Capital Expenditure:

- Land Acquisition; and
- Asset Creation.

(4) Contingency

This section reviews the service functions as a single entity because the differences are how the services were procured, rather than in their role. For the remainder of Section 3.4 we will refer to the Project Management role.

GAWB is a relatively small organisation, primarily involved in water supply, as opposed to capital works. Therefore GAWB used a combination of internal personnel and external consultants with the relevant expertise to undertake the Project Management role.

The Project Management role is to:

- Plan;
- Organise;
- Direct;
- Control;
- Satisfy the Stakeholders in the project;

all the work functions to complete the Preparatory Works

PLUS

The Project Management role also undertook the role of the Owner of the Project to:

- Define requirements (of the Project);
- Develop, review, select the preferred method of approaching both the Preparatory Works and the Project;
- Review, critique and select technical, organisational, contract options for the design and delivery of the Project; and
- Communicate and consult with all the relevant stakeholders in the project.

The measure of success or performance of the Project Management role is whether the purpose of the Preparatory Works has been achieved:

- On time;
- To quality;
- “Best value for money”;
- To the satisfaction of Stakeholders;

for the project.

The cost efficiency of the Project Management role can be reviewed in terms of:

- Original budget (2007) compared with Sept 2009 Costs;
- Original (2007) and Planned Scope (2009); and
- Source and cost of personnel.

3.4.2 Performance of Project Management Role

The Preparatory Works started, in earnest in mid 2006, with a view of being ready to start construction in 2008, if there was no break in the drought.

By any standards a period of 24 months is a very short time to launch a project. We refer to Cardno Report Page iii of the Executive Summary which states:

"It can typically take 3 years to complete preparatory works"

However the drought did break and the Project Management task changed from:

- Fast track approach to delivery, with a tight time frame, both the preparatory works and for the project itself;

TO

- Undertaking Preparatory Works that are:

- prepared the project for delivery of water within two years of committing to construction while achieving "best value for money" for the project; and
- prepared the various assets, both physical and intellectual, to a stage where by the contract could be deferred for an indefinite period and the value of the assets are able to be maintained.

Table No. 5 (This table is repeated) provides an overview of the changes.

Description	Status if Project had proceeded to Construction in 2008	Status of Project by mid 2010 [Construction to commence at some indeterminate date after mid 2010]	Harrington Construction Consultants Comment
Site Investigation	Preliminary with major unknowns particularly of the Intake Pump Station	Preliminary with major unknowns particularly of the Intake Pump Station	Sufficient time to complete this work after the initial trigger. Not proceeding with this investigation is not detrimental to the GAWB asset.
Route	Selected but with access arrangements not finalised.	Selected with most access arrangements either finalised or agreed in principal	Route selection critical for land acquisition.
Land Acquisition	Not Completed	Completed	Route secured, of considerable value

Communication with Stakeholders	Fast tracked with issues still to be resolved after construction commences	Sufficient time to resolve major issues prior to start of construction	Reduces risk
Engineering (Design)	Not sufficiently advanced to obtain Lump Sum Construction Contract	Sufficiently advanced to obtain a Lump Sum Contract	Allows a contractor to commit to a lump sum contract price. Reduces risk of cost increases during the construction period
Procurement of Contractor	Cost Reimbursable style of contract with considerable risks worn by GAWB	Lump Sum Contract with limited defined risks attributable to GAWB	Reduces GAWB risk and likely has a lower cost at completion
Asset Creation	Subject to delivery time of pipes and fittings	Agreement for power supply	Delivery of mains power to all the permanent woks sites prior to construction will reduce the cost of construction

As of August 2009 GAWB are confident that the planned status will be completed successfully by June 2010. This report concludes that this is a reasonable to expectation.

This report concludes that the Project Management effort will satisfy all the tests that "*the standard of work is appropriate in that the works do not include any unnecessary works and are not over designed*".

3.4.3 Cost Efficiency of Project Management

The following Table provides and overview.

Table 6

Description	2007 Budget	2010 estimate
Project Management, Communication and Consultation*	$5.0m	$5.9 m
Duration of Project Management	24 months	48 months
Average Rate /month	$0.21m/month	$0.12m/month
Scope	As described in Table 5	As described in Table 5

This overview clearly shows that:

- The scope of the work functions that were managed increased considerably (Table 5);
- The duration of the Project Management effort increased by 100%;

all for an 18% increase in the Project Management Cost.

The personnel selected to undertake the Project Management role included GAWB staff augmented by external consultants who were selected to provide expertise, not available within GAWB but necessary to successfully complete the Preparatory Works.

GAWB advises that the external consultants were suitably qualified and paid market rates for their expertise and were only paid for hours worked.

This approach is a reasonable and sensible approach and is more economical than GAWB recruiting a fulltime in house team.

Section 3.3 concluded that:

- The standard of work was appropriate to satisfy GAWB's contingent plan; and
- That no unnecessary work has been undertaken'

This report believes that all the stakeholders including customers, landholders, have been adequately involved and no major issues are in dispute.

This report did not carry out any further investigation of detailed break-up of costs because the Project Management, Consultation and Communications roles were both effectively performed in performance and the overall cost of the Preparatory Works was cost efficient.

The Project Management, Communications and Consultation have satisfied their role of completing the preparatory works:

- On time;
- To quality;
- "Best value for money"; and
- To the satisfaction of Stakeholders.

And in addition the cost/month reduced and the scope appeared to increase at least as much or more than the increase in the costs.

This report concludes that the cost of the Project Management, Communications and Consultation satisfies the test that the cost "*was reasonable and economically efficient."*

3.5 Review of Approvals

3.5.1 Introduction

The scope of work included in the Approvals (Ref Q&A No.14):

- Preparation, submission, public consultations, and approval process for the Environmental Impact Statement;
- Permission to access land for site investigation;
- Creation of the Cultural Heritage Plan;

- Investigating and community infrastructure designation option for the project;
- Preliminary vegetation clearing permit;
- Preliminary approvals for working adjacent to QR and Powerlink land or infrastructure; and
- Investigation of Native Title requirements.

GAWB would be required to complete these approvals plus identify and obtain all other approvals once the "trigger" to recommence Early Works, occurs, post June 2010.

3.5.2 Review of Scope of Approvals

GAWB commenced the approval process in 2006 with a view to construction starting in 2008.

After the drought broke, GAWB's task changed, as described in section 3.2.2.

This change meant that Approvals which could be obtained in a period of 6-12 months prior to commencement of construction could be excluded from the Scope for works for Approvals.

To meet the Contingent Plan, GAWB needed to continue with Approvals which met the following criteria:

(1) Could affect the ability to proceed with the project in the scope and location as planned;

(2) Would take twelve plus months to achieve;

(3) Could have a significant effect on the capital costs of the project; and

(4) Were necessary to allow site investigation and subsequent design work.

The following table reviews the actual scope against those criteria.

Table 7

Description of Approval	(1) Project Ability	(2) Time to obtain approval	(3) Effect on Capital Cost	(4) Necessary for site Investigation
EIS	✓	✓	✓	
Land access for Site Investigation			✓	✓
Cultural Heritage Plan	✓	✓		
Community Infrastructure Designation		✓		
Preliminary Vegetation Clearing	✓			
Preliminary approvals from QR/Powerlink			✓	

Native Title requirements	✓		✓	

The above analysis demonstrates that the "Approvals" satisfied the criteria for continuing the approval process up to mid-2010.

Refer to Q & A No, 14, 28 for additional information.

3.5.3 Review of Cost Efficiency of Approvals

The budgeted cost was $1.9m and the forecast actual cost of $4.2m which is a cost overrun of $2.3m.

The detailed split of Approved Costs (to mid-2010) are:

Table 8

Description	Estimated Cost to June 2010
Land Access	$545K
EIS	$2,590K
EIS related Approvals	$221K
Investigation into appropriateness of a Community Infrastructure Designation	$90K
Native Title	$25K
Cultural Heritage Management Plan	$672K
Total	**$4,143K**

This report suggests, on the basis of general industry experience on other projects that a budget of $1.9m to obtain approvals for a project of this magnitude was considerably understated, particularly when this includes a full EIS and subsequent work arising out of the public consultation process.

Therefore, on this project a test of actual cost in comparison with budget is not a relevant test.

Each project is different, with varying degrees of work required to achieve each Approval. Therefore, it is difficult to provide a meaningful comparison test either as a whole or for individual approvals.

Section 3.5.2 concluded that the Scope of Works was appropriate and not excessive.

Therefore, the most appropriate test of whether the seeking of Approvals was efficient is to examine GAWB's approach to managing the various consultants in regards to:

- defining the consultant's scope or deliverables; and
- procurement process to obtain value for money.

GAWB appears to have followed adequate processes throughout the Preparatory Works, therefore in the absence of evidence in the negative it is reasonable to conclude that in relation to the cost of Approvals satisfies the test that "*the cost of the work is reasonable, that is economically efficient".*

3.6 Review of Engineering, Investigation and Technical Support

3.6.1 Introduction

The Scope of Works involved in the Engineering Investigation and Technical Support includes:

- Survey (of pipeline route);
- Geotechnical Investigation including drilling/ task pits/ geotechnical analysis;
- Investigation into water quality;
- Development performance parameters for the GFP;
- Value Engineering including workshops;
- Consideration of alternate design solutions for components of the GFP;
- Develop procurement strategies for pipeline materials; and
- Design of the works, to a stage where the preferred contractor would provide a lump sum price for the works.

The level of Engineering, Investigation and Technical Support [hereafter called Engineering in this Section 3.6] to be carried out during Preparatory Works is always a matter of judgement.

In this case the Preparatory Works commenced on the basis of undertaking what was possible in a short time frame and then (after the drought broke) changed to looking to achieve "best value for money" for the Project.

This report highlights that:

(1) The more Engineering that is done prior to committing to a construction contract the increases the opportunity of achieving a competitive Lump Sum Price with the lowest reasonable risk level to be borne by GAWB during the construction period.

(2) The Engineering must be undertaken at some stage to complete the project, therefore any increase in preparatory costs will result in an equivalent saving in the cost of Engineering during the Construction Period.

(3) To ensure the value of the Preparatory Works is not lost (during the period when the project is "on Hold") requires Engineering to be advanced to a stage where the value can be "locked in" for as long as period as possible.

3.6.2 Review of Value of Engineering and Investigation Works

The original concept in 2007 was to maximise progress until mid 2008 and then proceed to construction with a cost reimbursable form of contract and complete the Engineering during to Construction Period.

This is an industry accepted approach to deliver a project to a tight time frame. However the construction period will commence with no Lump Sum Contract, a relatively low level of confidence of the final cost of the project, and this approach accepts the inefficiency involved in "fast tracking" where time has a higher priority than cost minimisation.

The planned status of Engineering at June 2010 is defined by:

- Design sufficiently advanced for Contractor to provide Lump Sum Contract Price (except for a modest level of provisional sums where additional design/ geotechnical information is required);
- A Lump Sum Construction Contract will be signed, complete with a comprehensive process to upgrade the Contract Price to reflect the passage of time. The contract has a condition precedent included which allows GAWB to move to construction or cancel the contract; and
- An agreed (with the preferred contractor) process to further "value engineer" the scope and design in a short period before construction period commences.

This paper advises that the approach taken by GAWB and described above is industry best practice to both:

- Defer the project for a time while minimising loss of value of the "intangible assets" over the next few years;
- Providing processes to "carry out maintenance or rework on intangible assets so that when the trigger point is reached for construction there will not be undue delays". (Refer to Cardno Report, Executive Summary, Page v); and
- Providing process to undertake further "value engineering" in order to reduce costs and or improve performance of the GFP.

This report concludes that the scope of the work carried for the Engineering is at an *"appropriate standard in that the works do not involve any unnecessary works and are not over designed'.*

The cost of Engineering of $19.5m is included in the Preparatory Works, plus an allowance of say $5 for the Early Works and approx $5.5 m in the RAP price gives a total cost of Engineering of approximately $30m.

A standard approach to assess the reasonableness (or otherwise) of engineering costs is to compare the cost of the Engineering costs with the Engineering costs for other equivalent projects. This comparison is generally done on the basis of the engineering costs expressed as a percentage of the total capital costs.

This report does not have access to finalised estimates of capital cost for the GFP but is able to use GAWB's advice of the likely level of capital cost. With reference to No. 2 of the attached Q&A " the nominal construction cost in the order of $500 to $600m is assumed at present", therefore, for the purpose of this analysis we have used the nominal mean of $550M.

In this case we can compare the GFP engineering costs with the LFRIP engineering costs and comment on the basis of the author's industry experience.

A secondary test is to consider the approach taken to procuring and delivering the engineering.

GHD have provided a preliminary estimate for the LFRIP for all the engineering required to deliver the LFRIP which provides a basis for comparison.

The break-up of the GHD estimate for LFRIP Engineering is $30m for the engineering which is approximately the same scope as the $30m of engineering costs budgeted for the GFP. The table below provides the overview summary as to how the LFRIP engineering cost is derived.

Table 9

Phase 1 and 2 (excluding Project Management	$10.9m
Phase 3 (excluding Tender process)	$15.1m
Phase 4 – Approvals	Excluded
Phase 5 – Contract Supervision only @ 50% for design support	$4m
Sub-total	**$30m**
Plus actual costs of site investigation	Not known

GHD budget for total project costs of $370m for the full LFRIP scope.

Therefore engineering costs are [30/370] 8% plus it would be reasonable to add 1 to 2% for geotechnical investigation to give a total engineering cost in the range of 9% to 10% for the LFRIP.

The forecast capital for the GFP is assumed as a nominal mean of $550M.

Therefore engineering costs for GFP are in the order of 30/550 x 100 = 5.5%

The report concludes that (a) on a historical basis engineering (incl. site investigation) costs of 8% to 9% while not excessive are on the upper levels and (b) on the basis of comparing the Engineering cost for the GFP (65% expended) with the Engineering costs for the LFRIP (all based on an estimate from GHD) the GFP engineering costs of approx 5.5 % are quite competitive and reasonable.

GAWB's approach to undertake the Engineering has been to select a preferred Contractor to undertake a Design and Construct Contract.

GAWB has employed their own Consulting Engineering firm to undertake the Owner's role of:

- developing performance parameters for the project;
- developing the required scope of the project;
- reviewing alternatives;
- reviewing the Contractor's design; and
- value Engineering (with the Contract's designers) to obtain best value for money.

This is a legitimate approach and has resulted in a design sufficiently advanced for the Contractor to provide a Lump Sum Price.

Both GAWB and the Contractor took care to ensure that the consulting provided "market rates" for the hourly rates used. Therefore the method of procurement seems reasonable.

This report concludes, that based on the information used in the analysis, that in relation to the test for the cost of the Engineering for the GFP "*the cost of the work is reasonable, that is, economically efficient".*

3.7 Review of Capital Expenditure

3.7.1 Introduction

Capital expenditure includes two components, namely:

- Land Acquisition; and
- Physical Assets (to be used in the servicing or construction of the Works).

Land Acquisition services both access to the work site and the actual pipeline corridor, and, with the exception of finite lease periods, secures the land for the project for an indefinite period.

The method of acquisition ***does not*** preclude the land continuing in its present use, whether crown land or privately owned forming properties.

This means that land acquisition provides surety for the project, for whenever the project may proceed, without any negative consequences to the land or its use in the interim period.

Physical assets, such as pipes, are obviously not required when the start date of the project is still indeterminate. These materials should only be ordered and received to ensure that the construction schedule can be met.

3.7.2 Review of Scope and Cost of Land Acquisition

The scope and cost to June 2010 is for the following (Ref. Q&A No.16).

Table 10

Description	Cost $000
Interim lease for pump station site from Sun Water	34
Pipeline easement in Alton Downs	1,197
Water Treatment Plan purchase 5 lots	361
Land Acquisition costs, land holder consultations and general legal fees	256
Land for Aldoga Reservoirs	140
Allowance for compulsory acquisition, if required	100
Raglan pump station – purchase one lot and acres	77
Negotiation with DIP of a first right of refusal regarding the alignment in the State Development are	30
Miscellaneous to round out the level of accuracy in the	05

Description	Cost $000
forecast	
TOTAL	**2,200**

The main outstanding requirement is the licence for the two State Development Areas (SDA's) in the GFP Project Area.

GAWB is intending to secure an option regarding the route alignment within the Stanwell Gladstone Infrastructure Corridor (SGIC) and the Gladstone SDA.

This approach appears to be a logical method of securing the route, at minimum cost.

Therefore, this report concludes that in relation to the test for the scope of Land Acquisition, *"the standard of work is appropriate in that the Works do not involve any unnecessary works and are not over designed*".

The costs are split into two categories:

Table 11

Purchase of land (or lease)	$1,809,000
Costs to obtaining purchases, leases, access to land	$391,000
Total	**$2,200,000**

The purchase of the leases and land ($1.8m) has been a result of due process, with GAWB as a price taker.

On this basis, it is reasonable to conclude that the costs are the best achievable in the circumstances.

Costs of services to obtain the land ($0.39m) include estimated actual costs plus an allowance of $0.1m if compulsory acquisition is required.

As discussed elsewhere GAWB have undertaken reasonable processes and used consultants charging market competitive rates, therefore there is no apparent reason to conclude that the costs were other than reasonable.

Therefore, this report concludes that in relation to the test of the costs incurred for Land Acquisition, "*the cost of the work is reasonable, that is, economically efficient".*

3.7.3 Review of Scope and Cost of "Assets"

The single scope item (Ref Q&A No.17) is securing an Energy Supply Contract with Ergon.

Ergon have long lead times to supply energy to new locations. New locations required for this project include:

- Intake Pump Station;
- Alton Downs Water Treatment Plant;

- Raglan Pump Station; and
- Aldoga Reservoirs.

It is reasonable to expect that Ergon could deliver power to those locations in 3 years (one year early works plus 2 years' construction).

However, it has been identified that there are considerable savings to the construction costs if power could be delivered to the four permanent works locations and a suitable location for a construction camp at the commencement of the construction period.

The Energy Supply Contract with Ergon is part of GAWB's attempt to ensure Ergon can supply power to some or all of the locations at the commencement of construction.

The cost is small in comparison to the potential savings of several million dollars.

This report concludes that for the tests in relation to Asset Creation:

- *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
- *the cost of the work is reasonable, that is, it is economically efficient."*

3.8 Contingency

Contingencies can be introduced in an estimate to cover:

- potential increases in scope; and
- potential increase in costs.

This contingency of $0.3 is an allowance to cover both.

The contingency is from 1/7/2009 to 30/6/2010 and is 8% of the budgeted costs for that period of $4.3m.

This report is reasonable and acceptable and when spread across the cost centres does not affect the conclusions met on each of the costs for which the contingency applies.

3.9 Summary of Review of GFP

This expert report has used the Authority's test criteria:

- *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
- *the cost of the work is reasonable, that is, it is economically efficient."*

to review the GFP Preparatory Works and this review included:

- An overview of all the Preparatory Work, including scope and cost
- Individual reviews of Project Management (including Consultants and Communications), Approvals, Land Acquisition, Engineering and Investigation, Asset

Creation, Regulatory Submissions.

For each cost centre this expert report:

- Could find no unnecessary work was carried out;
- The scope and standard of work was appropriate for the circumstances of this project;
- The cost of the Preparatory Works was reasonable and within industry experience;
- The value obtained (for the whole project) made the Preparatory expenditure economically efficient; and
- That the additional Federal Funding allowed the extra works (the 2007 Budget compared with 2009 Forecast cost) to be carried out to the benefit of he total Project but without any additional disadvantage to GAWB's customers (as a result of the 2010 price reset).

4.0 Lower Fitzroy River Infrastructure Project

4.1 Introduction

GAWB has identified three areas, other than GFP and desalination as part of "Total Cost of Servicing Water" and these consist of:

- Water Rights;
- Contingency; and
- LFRIP.

This section of the report considers these three areas.

Water Rights relate to initial costs for securing the access to water in the Fitzroy River.

The contingency is a specific allowance for bodies of work which may eventuate and before June 2010 namely:

Table 12

GAWB's share of a culture heritage survey and modelling studies for the LFRIP	$0.5M

The Lower Fitzroy River Infrastructure Plan (LFRIP) consists of constructing additional storage capacity on the Fitzroy River to ensure that water has the highest possible probability to be available to match the commitments to various parties drawing water from the Fitzroy River.

4.2 Review of Scope and Cost of Water Rights

Securing "water rights" is an essential pre-requisite to building infrastructure to obtain water, and is an integral part of developing a water supply by GAWB from the Fitzroy.

The finalisation of "water rights" needs to be developed as part of the project so that at all times, the project has a good level of confidence that the water rights will be finalised prior to GAWB committing to the GFP project.

This is in compliance with QCA's response to GAWB's 2007 submission, QCA states:

> *"GAWB should ensure that necessary arrangements have been entered into to ensure a right of access to supplies of water from the Fitzroy River mid-2012 should they be required".*

The work is ongoing and GAWB is required to make progressive decisions to ensure that the development and securing of water rights is adequately advanced at each stage of the project.

To ensure the above, GAWB is a member of the Lower Fitzroy Planning Group (with SunWater and Rockhampton Council). GAWB has been given rights to a water allocation, however, all or

part of the LFRIP (i.e. additional water storage capacity) is integral to GAWB being given permits to draw on their water allocation.

The costs included have been incurred through the use of legal advice (Minter Ellison) and engineering advice (ARUP) to support GAWB in their negotiation, and whose procurement followed reasonable standards.

This report concludes that the need for the work is in accordance with GAWB's contingent plant and QCA's response to this plan.

It is not possible to accurately assess the level of costs.

However, the costs of Water Rights do not appear unreasonable and as there is no evidence to the opposite, it should be accepted as reasonable.

Therefore, this report concludes in relation to the test applied to Water Rights that:

- *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
- *the cost of the work is reasonable, that is, it is economically efficient."*

4.3 Responsibility for LFRIP

GAWB have a contingent plan to increase their capacity to supply water by the construction of the GFP. To be able to draw water its source water from the Fitzroy the GFP is linked to the LFRIP.

At this time no other water service provider has committed to the construction of the LFRIP.

In order to expedite their contingent plan, GAWB agreed with Sun Water to equally share the costs of Phase I and II Preparatory Works.

The cost of Phase III and IV of the early works and the construction costs of the LFRIP may or may not be included in with the GAWB GFP costs, to result in the total costs of water to GAWB's clients. This decision will not be made prior to mid 2010.

4.4 LFRIP and GAWB's Contingent Plan

In brief the GFP cannot draw the GAWB water allocation from the Fitzroy River without construction of (all or part) the LFRIP.

To try and ensure adequate water is available the LFRIP weirs need to be completed prior to the wet season before the GFP is commissioned. This does not necessarily mean that GAWB would be restrained from drawing water immediately prior to the new weir(s) storing water.

GHD's submission includes a schedule which is summarised below.

This Table 13 compares with the GFP time schedule with the LFRIP schedule.

Table 13

	GFP	LFRIP
Complete all initial Preparatory Works	June 2010	
Complete Phase I and II Prelim Works		August 2010
Commence Early Works	June 2010	
Commence Phase III Work Complete Phase III Work		February 2010 June 2010
Commence Phase IV Work		June 2010
Complete Phase IV Work		January 2011
Commit to Construction		January 2011
Commit to Construction	January 2011	
Water Storage Commences		December 2012
Commence Pumping Water	January 2013	

Note: June 2010 based as a start date for the schedule to demonstrate a comparison. The actual date for commencement of Early Works is dependant on demand (or drought) and is unknown.

This report summarises:

(1) GFP initial preparatory work is completed by (or before) June 2010.

(2) From June 2010 the GFP project is “ON HOLD” and can be restarted at any time.

(3) The GFP project needs approximately 9 months from Trigger Restart of the early Works to Commitment to Construct. The actual construction would start three months after the Commitment to Construct.

(4) The LFRIP needs approximately 12 months from a Trigger Restart to commencement of construction i.e. the same time as required by the GFP.

(5) Construction for both GFP and LFRIP could commence on or about the same time. The weir(s) may or may not store water prior to the GFP being ready to draw water from the Fitzroy.

(6) At this stage, there are no commitments requiring additional water availability to GAWB or other service providers.

4.5 Analysis of Scope and Cost of Phase I and II

The Lower Fitzroy River Infrastructure Project (LFRIP) consists of the following scope:

- Eden Bann Weir - Raising of Wall;
- Rookwood Weir - Construct new weir to RL44; and
- Rookwood Weir - Weir Gates to RL49.

GAWB and SunWater have made an agreement to complete Phase I and II to complete a Business Case. The detailed scope of work for each phase is described in the GHD Submission ***"Lower Fitzroy River Infrastructure Project – Scope of Work for the Eden Bann Weir Raise and Rookwood Weir – Phase I& II Services -20736-PM-SWE-001 June 2009".***

The work involved is:

- Phase I - Strategic Options Development; and
- Phase II - Business Case and Environmental Impact.

GAWB and SunWater have agreed to appoint GHD to undertake the work, jointly manage the project, and share the costs of the GHD contract equally. GHD were required to:

Identify the most efficient asset solution (i.e. construction of Weirs) to ultimately access all unallocated but allocatable water from the lower Fitzroy River; and

Provide flexibility to allow staging of the construction of the Weirs to facilitate optimal alignment with emergent demand at the time construction commences.

GHD have supplied the following budget to ultimately access all unallocated but allocatable water from the lower Fitzroy River;

Phase I and II	(Definitive Estimate)	$	12.6m
Phase III and IV	(Preliminary Estimate)	$	35.3m
Construction (very Preliminary Estimates)	- Eden Bann Weir	$	121.4m
	- Rookwood Weir to top of RCC (44m)	$	177.0m
	- Rookwood Weir Gates to 39m	$	22.4m
TOTAL	**(in 2008 $'s)**	**$**	**368.7m**

This budget excludes SunWater and GAWB costs.

If the GFP was built but the medium term demand was less than the capacity of the pipeline, it would be possible to reduce the scope of the LFRIP by deleting one or more of the scope items.

However, the specifics of any scope reduction would require a very careful analysis to ensure the best flexibility was retained whilst maintaining alignment with the predicted demand changes.

GHD submission to GAWB and SunWater in June 2009 provided a comprehensive scope and definitive budget for Phase I and II:Phase I - includes handover, preliminary scoping, workshops for options assessment and strategic options.

Phase II - Business Case, Environmental Impact Assessment (EIA) Sufficient Approvals and Land Acquisition preparation to not adversely affect the Project progress.

GHD budget excluded for the actual cost of land acquisition.

GHD total estimate for this work is $12.8m.

The budget was agreed with GHD after GHD discounted their current rates (under an ongoing contract with GAWB) by an average of 16%. This report notes that this is good procurement by GAWB.

The latest capital cost estimate of the LFRIP is in $2009 and quite possibly underpriced when we consider the recent increase in costs of capital projects. The preliminary costing by its nature is not accurate and costs can increase beyond any allowed contingency as detailed site investigation and design is developed.

With reference to the discussion and assessment in Clause 3.6.2 of this report it was reasonably demonstrated that the engineering costs for the LFRIP are considerably higher % of the capital costs than for an equivalent scope for the GFP.

This report highlights that the capital cost for the GFP may be understated which would lower the %.cost of the engineering. The costs are not excessive but are on the upper limit of what could be reasonably expected. .

4.6 Summary of Review of LFRIP

This expert report has used the Authority's criteria:

- *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
- *the cost of the work is reasonable, that is, it is economically efficient."*

to review the LFRIP Preparatory Works and this review included:

- The role of the FRIP as part of GAWB's contingent plan;
- Scope and Standard of the Works: and
- Cost of the Works.

The expert report concludes:

- The standard of work is appropriate and does not involve unnecessary work. However to fully co-ordinate with the GFP and GAWB's contingent supply strategy it would be necessary to:
  - Commit to additional early works (GHD Report - Phase III) at the same time as committing to the final early works for the GFP; and
  - The relationship between storage of water in the LFRIP weirs and commencement of the GFP supplying water into Gladstone needs to be clarified.
- The cost of the preparatory work for the LFRIP is *"reasonable, that is, economically efficient."*

5.0 Desalination Plant

5.1 Introduction

GAWB identified, and QCA agreed, that for their work (up to June 2010) should be undertaken to investigate the construction and operation of a desalination plant in the general area of Gladstone.

GAWB's submission to the Authority proposed that:

> *"Investigations for a desalination plant continue to identify key technical aspects and more fully determine its potential feasibility. A more detailed and costed desalination option provides a simple means to benchmark the Lower Fitzroy and other options into the future, in the event of any changes to circumstances;"*

GAWB's Submission to the Authority states:

> *"Despite desalination's lower ranking in the 2004 SWP, it is the only other option (over which GAWB has control) which can be delivered in the required timeframes.*
>
> *Hence, it was considered prudent to re-assess the costs of the desalination option as a check against whether the decision to proceed with the Lower Fitzroy option should be revisited.*
>
> *The outcome of this review was an estimated capital cost for a 30,000ML/annum desalination plant of between $314m to $361m (including 25% contingency) in $2006. For the purposes of this document the mid-point, $338m has been adopted as the estimate."*

The same submission included an estimate for the Lower Fitzroy option which includes the full cost of the GFP and a $28m contribution to the LFRIP (Weirs):

> *"The estimate for the pipeline and associated infrastructure (excluding storage on the Lower Fitzroy) has increased to $317m."*

Plus a contribution to the Weirs equals $345m. The GAWB submission went on to summarise the comparison:

> *"Whilst this (desalination plant) is comparable to the updated capital cost for the Lower Fitzroy ($345m), desalination has far higher operating costs due to the energy costs associated with processing seawater through the plant.*
>
> *It is also important to note that there is considerably greater confidence in the estimate for the Fitzroy Option due to the work performed to date. Conversely, the desalination estimate has greater scope for error given is purpose was to provide a check against the directions set in 2004, rather than as a detailed comparison."*

The scope proposed by GAWB was described in principle by:

"GAWB also plans to spend in the order of $1m to assess the feasibility of a local desalination plant and provide a more detailed assessment of likely costs. The major component of this work would be a siting study, since the plant siting is fundamental to estimates of marine works costs, power supply costs, plant site costs, water quality and therefore process plant costs, and network integration costs.

The Authority in their Final Report of Dec 2007 considered that:

"Following consideration of the relevant issues and taking account of stakeholder submissions, the Authority considers that:

(a) It is prudent for GAWB to continue working towards implementing the Fitzroy Pipeline option as there is a possibility of an unexpected event, such as one or more years of even lower inflows or a failure in inflows in the coming wet season. Under this scenario, the Fitzroy Pipeline would be the prudent option;

(a) GAWB should ensure that the necessary arrangements have been entered into to ensure a right of access to supplies of water from the Fitzroy River from mid-2012 should they be required;

(b) GAWB should continue to work on options such as desalination, air and sea water cooling and alternative supply restrictions; and

(c) GAWB should ensure that there is a significant level of customer support for its preferred contingent strategy option before proceeding with significant asset creation expenditure. It should provide indicative pricing implications for the alternative options based on alternative demand scenarios. This would provide the information to enable all parties to compare the financial risks of the alternative contingent supply strategies. It is possible that, once the pricing implications of the Fitzroy Pipeline are known, customers may find by-pass opportunities or demand management strategies which reduce their water requirements of GAWB."

5.2 Potential Role of the Desalination Plant Option within GAWB's Contingent Plan

GAWB's contingent plan covers two discreet situations namely:

(1) Increase in demand - over and above the capacity of Awoonga Dam; and

(2) Alternate water source in case of drought.

Section 8.4 of GAWB's submission:

" 8.4 Responding to Increases in demand

GAWB can currently contract up to approximately 70,000ML/annum based on its existing water allocations. This compares to contracted demand of around 55,000ML/annum.

The relatively recent raising of Awoonga Dam to AHD 40m notionally makes available a further 8,000ML, which suggests an available supply from the Dam of some 23,000ML. However this is only available once the dam fills to

pre-defined trigger points.

This compares with the estimated demand of 20,000ML from projects considered to have a reasonable likelihood of proceeding. These demands could emerge as early as 2011.

This balance is summarised below:

(a) Supply availability:

- *currently available: 15,000ML*
- *potentially available: 23,000ML (depending on inflows)*

(b) Demand: up to 20,000ML

A number of scenarios could unfold over the coming years with respect to supply availability and demand. However, GAWB faces a reasonable prospect that it will be required to supply an additional 20,000ML in 2011, but then at that time may not hold the required water entitlements to underpin supply to these new demands - for example if the 40m AHD Awoonga Dam does not fill over this period.

It is prudent for GAWB to plan for this scenario given the impacts on the Gladstone region if it fails to do so, and viable projects do not proceed as a result. Moreover, it is reasonable to expect that GAWB will face a supply augmentation at some point in the medium term future as industry continues to develop in the GSDA.

GAWB also note that the industrial base creating this extra demand could require the water to be delivered within a 2 to 3 year window.

A small incremental increase in demand, over and above the capacity of Awoonga Dam, could be supplied by a desalination plant, as the most economical solution.

However in the case of drought the 30,000 Ml /year supply is the best option and this could be supplied by either the:

- Lower Fitzroy Solution;

OR

- Equivalent capacity desalination plant.

In relation to smaller demand growth < 10GL/yr it is reasonable to expect that the increase in demand could be satisfied by the development of a desalination plant within an acceptable time frame.

Since 2007 the following has occurred:

(1) A more definitive price of the GFP (in $2008) is being developed through the RAP validation process and review of GAWB costs.

(2) The amount of contribution GAWB will be required to make for the LFRIP (Weirs) is not precisely known, but an estimate to bring into existence its 30,000Ml pa allocation (from the yields for the infrastructure options available) will be included in the work GAWB is currently completing on potential customer water prices Ref Q&A no 2.

(3) The level of confidence of the LFRIP estimate is lower than for GFP. This because the engineering and estimating is not as advanced. Based on the experience with the GFP it is not unreasonable to expect that the total cost, and therefore GAWB's share, of the LFRIP may increase significantly. The current GHD assignment will provide an up to date estimate of the LFRIP. This can be used in the Real Comparison.

(4) The estimate for the Desalination Plant was upgraded by Arup in March 2009. Arup highlight that there estimate is based on concept design and broad approach to the estimate, so not in the same order of accuracy as the GFP estimated cost.

(5) The "Real Options" approach is to upgrade comparison prior to end-2010 after the Preparatory work on all options is completed.

GAWB's submission states:

> *"This analysis concludes that GAWB is following their contingent plan and the findings of the QCA 2007 Final Report."*

5.3 Review of Scope of Work for Desalination Plan

The Scope includes:

- Roadmap to develop a desalination plan;
- Up to June 2008:
  - Analysis to choose a shortlist of potential sites.
- June 2008 to June 2009:
  - Further site analysis to select a preferred site.
- Up to June 2010:
  - Investigation of water quality;
  - Upgrade and improve capital cost estimates; and
  - Investigating co-locations with industrial partners.

This scope would appear to the minimum reasonable scope to allow the "Real Options" strategy to be successful in retaining a current comparison of the alternate projects (Lower Fitzroy Solution and Desalination).

This report concludes that in relation to the desalination plan that *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not area designed*".

5.4 Review of Costs of Desalination Plant

The costs for the desalination plan consist of (Ref. Q&A No.25).

Table 16

Period	Scope	Cost
Up to June 2008	▪ Road map to develop a desalination	$484,000

Period	Scope	Cost
	plant ▪ Analysis of 35km of coast to narrow down the best sites to 20 potential locations ▪ initial cost budget	
Up to January 2009	▪ Analysis of sites (above) to arrive at preferred site ▪ Further cost budget	$351,000
Up to June 2010	▪ Improve accuracy of cost budgets including design of the “one off” components such as water intake. ▪ Investigate co- location with Industrial partners ▪ Further investigation into water quality (output) requirements	$300,000
	Total	**$1,135,000**

To analyse the costs, it is apparent that the scope and detail is unique to this project and is not able to be compared with either of:

- general industry standards; and
- other works by GAWB.

Therefore, the analysis has to be based on:

- method of procurement; and
- broad overview.

No specific details have been provided for the desalination plant work, however, this report has satisfied itself that elsewhere GAWB has undertaken reasonable procurement processes. There is no reason to believe that the desalination plant work would be different.

The costs do not appear unreasonable for the different scopes of work.

Therefore, this report concludes that “*the cost of the work is reasonable, that is, economically efficient”.*

6.0 Regulatory Submission

6.1 Introduction

The cost of preparing and submitting Regulatory Submissions was not included in the 2007 Budget submitted to the QCA.

This omission can only be regarded as an oversight by GAWB when identifying all the areas of cost involved in progressing the GFP.

The primary scope of work was:

Submission of a business case to the Minister; and

Submissions to the Queensland Competition Authority (QCA).

6.2 Review of Scope of Regulatory Submissions

GAWB's responsibilities are defined in its Charter and various Acts.

This provides GAWB with no flexibility to change their scope of work and therefore this report concludes that:

> *"The standard of work is appropriate in that the works do not involve any unnecessary works ad are not over-designed."*

6.3 Review of Cost of Regulatory Submission

The costs consist of:

Table 17

Cost to 30/6/08	$0.7m
Cost from 30/6/08-30/6/10	$0.3m
	$1.0m

A review of GAWB's documentation reveals that the regulatory submissions are considerable documents and contain considerable detail. Some of this detail, particularly estimated capital costs of projects, will have been completed as part of "Engineering". However, most of the content of the submissions, and answers to questions arising out of the submissions, will be work unique to the preparation of the Regulatory Submissions.

This report highlights that it is difficult to identify any particular methodology of providing a detailed review of the costs.

There is no "general market" cost to measure against.

There is no record in GAWB of different consultants providing competitive tenders for this class of work.

Much of the work has been undertaken by GAWB personnel with assistance from various consultants to prepare or provide specific details. The author of this report has read most of the regulatory submissions and comments that they appear to be of good quality.

This report concludes that there is no evidence that the submissions have been other than efficiently produced, by people with the right skill level and dedication to the task.

On this basis, this report concludes that the cost of preparing the Regulatory Submissions *"the cost of the work is reasonable, that is, economically efficient".*

6.4 Review of Scope and Cost of "Real Options"

"Real Options" is the process whereby GAWB undertakes and upgrades comparisons between GFP (with or without the cost of the LFRIP) and Desalination (Refer Q&A No.3).

GAWB's 2007 submission to the Authority states:

> *"Hence, it was considered prudent to re-assess the costs of desalination option as a check whether the decision to proceed with the Lower Fitzroy option should be revisited"*

This report believes that there is an ongoing requirement to have reasonably up to date comparisons of the two options so that in the case of a "trigger" to augment the supply from Awoonga Dam – it will be possible to quickly assess the preferred option.

This report highlights following variables can significantly affect comparisons between the two options:

(1) The actual level of augmentation required (i.e. from 10 to 30GL);

(2) Rate of cost escalation for the different options; and

(3) Potential scope change to GFP with inclusion of all or significant component of the LFRIP costs (previously limited to $28m in the 2007 comparison).

This report concludes that unless regular upgrades of cost (and other issues) comparisons are carried out, the contingent plan for water delivery within two years would be put at risk.

This report notes that there is an obvious interface between this cost centre of "Real Options" and "Engineering" so it cannot be concluded that the cost of "Real Options" was excluded from the 2007 Budget, rather that in this 2009 submission to the Authority, they have been specifically identified in their own right.

Therefore, this report concludes that the cost of Real Options was included as part of a general cost increase of Engineering Costs between 2007 and 2009.

The estimated costs of the Real Options are made up as follows in Table 18 (Ref Q&A No.3):

Table 18

CDUJV	$254,000
Arup – Engineering consultants	$155,000
Wedgewood White Ltd	$132,000
Ferrier Swier Consulting	$12,000
Synergy Consulting	$2,000
GAWB Disbursements	$45,000
TOTAL	**$600,000**

This report does note that as time passes and the three main variables change, more work (and therefore cost) is required to maintain an up to date comparison of the different options to augment the Awoonga Dam.

We refer to the assessment of "Engineering" costs in section 3.6.2 of this report which concludes that the Engineering costs of the GFP were reasonable.

The "Real Option" costs have to cover work on the GFP/LFRIP and desalination.

Even if the full $0.6m was added to the GFP Engineering costs, the % increase would be negligible increase.

This report concludes that creating this new cost centre of "Real Options" is reasonable and indeed identifies a vital component of the GAWB contingent plan.

As a result of the share analysis in relation to "Real Options" this report concludes:

> *"the standard of work is appropriate in that the works do not involve any unnecessary works and are not over designed; and*
>
> *the cost of the work is reasonable, that is, it is economically efficient."*

Attachment 1: Bibliography

The Expert Report is based on the following documents supplied by GAWB to the author of the Expert Report.

- Questions to and answers from GAWB- Attachment 2 to this report
- GHD Proposal – "Gladstone Area Water Board and SunWater – Lower Fitzroy River Infrastructure Project – Scope of Work for Eden Bann Weir Raise and Rookwood Weir – Phase 1 and 2 Services – 20736-PM-SW-001-June 2009".
- GAWB Business Case – Major Project for Lower Fitzroy River Infrastructure Project – Phase 1 and 2 – 19 July 2009.
- Queensland Competition Authority – Final Report – March 2005 – Gladstone Area Water Board: Investigation of Pricing Practices.
- GAWB – Submission to the Queensland Competition Authority – Fitzroy River Contingency Infrastructure – Undated – 117 pages.
- GAWB – Further Submission to the Queensland Competition Authority – Fitzroy River Contingency Infrastructure – Response to Shareholders' submissions – 20 July 2007.
- Cardno report for QCA – Review of Gladstone Area Water Board – Preparatory Costs for the Fitzroy River – Gladstone Pipeline – 8 October 2007.
- GAWB – Response to Questions from Cordno – 3 August 2007.
- GAWB – Response to the QCA – Draft Report Gladstone Area Water Board: 2007 Investigation of contingency Water Supply Strategy Pricing Practices Stage A – 2 November 2007.
- QCA – Final Report – Gladstone Area Water Board: 2007 Investigation of Contingent Water Supply Strategy Pricing Practice – Stage A – December 2007.
- GAWB – Business Case for Gladstone Fitzroy Pipeline Project Transition and Maintenance Stage – 28 May 2009.
- GAWB – Business Case for Desalination Project Definition – Stage 1(b) – June 2004.
- ARUP – Real options analysis desalination cost estimate –April 2009
- Wedgewood White Ltd – Pricing implications of a second water source – Dec 2007

Attachment 2: Questions to and answers from GAWB

To be supplied as a separate electronic document

Q No.	Harrington Constructions Consultants' Questions	GAWB Answers
1.	Re GFP -Do the costs in the submission include the costs associated with identifying the 13 Options and arriving of the short list of options to go forward with? If not, why not? If so, why?	GAWB investigated these options for its *Strategic Water Plan* in 2004. These costs were in a prior regulatory period and outside the scope of the current price reset.
2.	Please provide GAWB latest estimate of the forecast cost of the Fitzroy-Gladstone Pipeline (in 2009 $s). Please provide breakdown as follows: ▪ Preparatory Works ▪ Pipe and Other GAWB Supply Plan ▪ Head Contractor Contract Value ▪ Other Costs ▪ Contingency held by GAWB	GAWB is presently finalising a comprehensive review of the total expected project costs for inclusion in an update to a report that it circulated to customers in January 2008 outlining possible price impacts associated with the introduction of a second water source. Notwithstanding that this report will not be finalised until February 2010, GAWB expects the estimated project cost to rise substantially, in part as a consequence of its improved knowledge of the project and the associated development of the project's scope. For the immediate purposes of this report, a nominal construction cost in the order of $500m to $600m is assumed at present.
3.	Re GFP -Provided a comparison between 2007 Budget submitted to QCA and Current Costs to Date plus 2009/ 2010 Budget. Note – this should be the cost plan which will form the basis of your submission to QCA Could you please: 1. Split Stage I and Stage II back into their component parts; 2. The 2010 Budget has sections not included in the 2007 Budget, namely: – Real Options – Water Rights – Contingency – Regulatory Submissions Please provide brief details of each of the above for; • Scope of works included. • Why these were not included I the 2007 submission to the Authority • Split of costs against the scope items • Description as to who carried out the work. • Actions by GAWB to obtain "value for money" for the work carried out.	*Statutory approvals and Regulatory Submissions* – response to qu. 11 below. *Real Options*: - In 2008, as a development of its contingent supply strategy, GAWB introduced a real options methodology to create a transparent and robust decision making framework for assessing options when faced with a potential supply failure. This framework will analyse a range of supply and demand management options. Its purpose being to allow GAWB to identify the least cost option available at the time. The work undertaken was a combination of a range of external expertise: ▪ CDU as contracted designer on the GFP Project, $254k ▪ Arup - $155k ▪ Wedgewood White Ltd - $132k ▪ Farrier Swier Consulting $12k ▪ Synergies - $2k *Water Rights:* see response to qu.13 below. Initial costs for securing the access to water were incorporated as a cost centre under the GFP Project called Water Rights. This consisted of the costs associated with GAWB's ongoing involvement in the Lower Fitzroy Water Planning Group and negotiations with the other designated parties to the Lower Fitzroy Joint

Q No.	Harrington Constructions Consultants' Questions	GAWB Answers
		Venture (SunWater and the former Rockhampton City and Livingstone Councils). To assist GAWB during these negotiations Minter Ellison, GAWB's external legal advisor, and Arup were involved. *Contingency:* in 2009/10 there are two contingent amounts: ▪ Approx $0.3M contingency for all expenditures on the transition and maintenance phase of the GFP Project. The CEO has Board approved delegation of authority for this expenditure; and ▪ Approx $0.5M contingency for variations to GHD's Scope of Work for Phase II of LFIP that is yet to be approved by SunWater and GAWB. This amount is GAWB's 50% share of costs relating to cultural heritage surveys and additional preliminary investigations for design purposes. For all expenditures on the CSS, GAWB's internal procurement processes were (and will be) followed. In particular, the services to be provided by consultants were scoped and service agreements were entered into. Any activities undertaken by the CDU (contracted designer on the GFP Project) were in accordance with their *Project Delivery Proposal Agreement* to 1 July 2008 and subsequent to this, in accordance with the variation to this agreement.
4.	Re GFP -Please provide a split of forecast total costs (based on the description of items finalised above) from commencement to mid 2008 (original timeframe given to QCA) and mid 2008 to mid 2010.	Supplied and attached to this document. Please note for the purpose of the review we have used and order of accuracy of 0.1M.
5.	Briefly explain reasons and any conditions that applied to the Federal Funding - in particular if any particular scope of works/ services was tied to the funding.	The funding deed was linked to preparatory works GAWB had undertaken and the proposed construction in the near future through direct reference to the Project Delivery Proposal Agreement with CDU and (if and when executed) the Project Delivery Agreement (construction contract). Payments were to occur in three instalments with Payment One being linked to GAWB undertaking preparatory works which included feasibility study, project management planning, gain approvals, engineering planning, land acquisition, asset creation planning and communication planning. Payment one ($10M) was triggered by GAWB reaching Milestone One "*Signing of this funding agreement*". Payment Two ($9.5M) is payable on GAWB reaching Milestone Two -

Q No.	Harrington Constructions Consultants' Questions	GAWB Answers
		"*Commencement of construction of the pipeline and a plan for completion accepted by the Department*". Payment Three ($0.5M) is payable on GAWB reaching Milestone Three – "*Satisfactory completion of a final progress report for the project*". Under the Funding Deed, DEWHA has the right to terminate the deed (and associated obligations for additional funding) if construction is not commenced by March 2012.
6.	Briefly describe (and provide budget allowed) for any additional works that were selected and undertaken to comply with the conditions for Federal Funding.	The funding received from the federal government for milestone one was based on preparatory works already undertaken by GAWB and did not require any additional new works to be undertaken.
7.	Re GFP – Is there any additional survey, geotechnical investigation or other works planned to be carried out prior to June 2010	The review of the program of work in March 2008 identified activities that could be deferred under GAWB's principle of prudence, given the uncertain construction date. Survey and Site investigation activities originally planned for 2008 are now planned for the early works stage (post- trigger to construct but 6 months prior to commencing construction).
8.	Re GFP - The GAWB Contingent Plan is "to ensure that water is available within two years of a decision to construct the pipeline". The construction period in the proposed contract is two years. The current plan involves (in the order of six months) work prior to commitment to construction (ref. Flow Chart). If the decision to proceed to construction is made prior to mid 2010, are the costs described above included in this submission (if so, please describe) or would these costs be included in the construction costs and included in GAWB asset base at some later date? OR Is the budget based on that the project will not proceed to construction prior to 2011 (mid 2010 plus 6 months)?	The budget is based on the assumption that the Project will not be triggered before June 2010, hence will not proceed to construction in early 2011. It is premised upon a nominal 2 year construction program plus a reasonable early works period (of no less than 6 months).
9.	Re GFP - GAWB Contingent Plan is "ensure water is available within two years of a decision to construct the pipeline". There will be additional preparatory works (called" early works") required prior to commencement of construction.	In line with findings of the QCA, the trigger for construction will be: *To trigger construction of the appropriate augmentation when GAWB has entered into contracts with customers that exceed the capacity of its water sources, after allowing for distribution losses*

Q No.	Harrington Constructions Consultants' Questions	GAWB Answers
	The construction period in the proposed contract is two years and there are some rights for the Contractor to be granted an Extension of Time. Please briefly describe; ▪ Triggers to commence the additional preparatory works ▪ Based on current planning how long before the commencement of construction would the preparatory works commence? ▪ Are any extensions of time to the construction period critical to the strategic plan?	*and contingency.* GAWB has a defined process in its water sales agreement that it will follow whereby it will enter into a consultation process with customers to ascertain whether there are demand management options that preclude it having to augment. This process is intended to be the subject of a further submission to the Authority to enhance clarity around the process that GAWB is required to comply to receive regulatory and commercial approval prior to making the decision to finally commit to any augmentation (or investment in a demand reduction proposal). At present, this process is intended to commence about 12 months before construction would be required to be commenced. Although unlikely to last 12 moths, early construction works (eg final design, mobilisation activities) will be required to be undertaken on a parallel program during this period to ensure that construction can commence by the forecast date. The 24 month construction program is considered nominal and reasonable extension could be accommodated by GAWB without material adverse impact upon its strategic objectives.
10.	Briefly describe if the cost of Regulatory Submissions was included in the 2007 Budget. If so, where were the costs allowed. If not, why not?	The costs of regulatory submissions were not included in the submission. The budget in the submission related to the costs that related directly to the GFP Project only.
11.	Briefly describe why the cost of Regulatory Submissions is a Project Cost and not part of GAWB normal operating costs.	The costs of the regulatory submissions relate to the contingent supply strategy, therefore, cover costs involved in investigating all options for a potential augmentation scenario. Costs of the CSS were not included in the OPEX costs used in the 2005 pricing model when prices were set to 2010, so any expenditure made on the CSS during this timeframe were not be included in prices. In 2007 GAWB submitted a business case to its Minister for approval to spend $20.9M (in excess of $5M) on the GFP Project which is a requirement under the *Water Act 2000*. That same year, GAWB made a submission to QCA to be allowed to recoup preparatory works of the CSS, specifically the GFP Project. The QCA

Q No.	Harrington Constructions Consultants' Questions	GAWB Answers
		provided endorsement of the Project subject to ex-post review of efficiency.
12.	Briefly describe the scope and purpose of the regulatory submissions and how GAWB managed the preparation and presentation of the submissions. Please include who/ why the actual cost was "value for money".	In order to compile the business case submitted to its Minister, and the submission to QCA, GAWB employed the services of consultants and utilised some internal resources. In line with GAWB's internal governance processes, the procurement processes used on the GFP Project were in accordance with *State Purchasing Policy*. Consultants were appointed based on the General Approach, however, there was the provision for single select appointments, that required the approval of GAWB CEO, where technical or programme priorities dictated and value for money could be demonstrated. Scopes of services to be provided were compiled and service agreements entered into with the appropriate authorisations as per GAWB's internal *Delegations and Authorities Manual.* The initial project management activity on the GFP Project was undertaken by Arup. This included providing the preliminary indicative costing that was used in both the financial modelling that underpinned the business case submitted to GAWB's Minister and the QCA submission. The expertise of Synergies (economic consultants) and Wedgewood White Ltd (who, at the time, maintained GAWB's water pricing model) were used by LGIS (on behalf of GAWB) to compile the full business case for the Minister. In addition, QTC performed a review of the financial modelling on behalf of LGIS. In relation to the QCA submissions, a range of expertise from a number of sources has been necessary. Approximate costs of each of the consultants for the purposes of the regulatory submissions are: ▪ Wedgewood White Ltd - $300k ▪ Synergies - $260k ▪ Minters - $177k ▪ LGIS - $120k ▪ Arup - $70k

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		▪ Nera - $60k ▪ SAHA International - $14k ▪ KPMG - $4k ▪ Connell Wagner -$3k Information was also sourced from the then government department, the then DNRW, for the business case that cost $15k.
13.	Re LFRIP - Briefly describe why GAWB have added the Lower Fitzroy Infrastructure Project to their submission for inclusion in the 2010 Price Reset.	The purpose of GAWB's contingent supply strategy (CSS) is to have the capability be able to supply water to current and prospective customers when required. For this purpose GAWB's investigations have identified a pipeline from the Fitzroy River as the most appropriate large scale augmentation option. The development of the GFP Project to a state of preparedness is the initial stage of gaining this capability through having the ability to construct a delivery system from the River to GAWB's network. The second stage is to ensure GAWB's access to water in the river. In relation to securing access to water, GAWB has been involved in a Lower Fitzroy Water Planning Group in its various formulations since 2002. Following the release of the *CQRWSS* in December 2006 (which included a reservation of water from the Fitzroy River for GAWB) the group, in early 2007, indicated its interest to government as being the proponents for the construction of the additional water storage infrastructure in the lower Fitzroy identified by the *CQRWSS*. For the purposes of GAWB's initial submission to the QCA, estimates of the costs for the construction of the additional water storage infrastructure in the lower Fitzroy identified by the *CQRWSS* were based upon data contained in the *CQRWSS*. Until such time as GAWB became a joint proponent it had limited ability to assess the quality of the data upon which these estimates were made. Subsequent to making the submission to the QCA, in July 2007, GAWB was declared a joint proponent of the LFRIP. In response to GAWB's initial submission to the QCA in 2007, the QCA stated: *GAWB should ensure that necessary arrangements have been*

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		entered into to ensure a right of access to supplies of water from the Fitzroy River mid-2012 should they be required. *GAWB should continue to work on other options such as desalination, air and sea water cooling and alternative supply restrictions.* The activities listed in the attached table and the costs estimated to June 2010 include amounts for both LFRIP and Desalination as well as real options (the methodology GAWB has introduced to assess the most efficient investment in supply and demand management options should circumstances arise that indicate contracted demand will exceed supply).
14.	Refer GFP Briefly describe the approvals that: 1. have been granted to date 2. are planned to be obtained by mid 2010. 3. are planned to be obtained after the works included in this preparatory works submission. Note: The Cardno Report provides a summary of required approvals as a template to provide an answer to this question.	In July 2007 the project was declared by the Coordinator General to have a significant project status, therefore pursuant to the *State Development and Public Works Organisation Act 1971* a full environmental impact study (EIS) was required. To date the Approvals cost centre has consisted of: ▪ All investigations and costs for the compilation and publication of an EIS including a public consultation process; ▪ Costs of responding to 27 public submissions regarding the EIS, including additional studies regarding a species of importance, the yellow chat bird, to respond to concerns raised by DEWHA (federal Dept of Environment, Water, Heritage and the Arts); ▪ All land access costs for investigations and studies for both approvals and engineering purposes; ▪ All costs for the creation of a cultural heritage management plan (CHMP); ▪ Investigating a community infrastructure designation option for the project; ▪ Preliminary investigating Vegetation clearing permit and other approvals (e.g. QR and Powerlink access) that are required to be finalised in early works; ▪ Investigation requirements of Native title; and ▪ All costs of compiling and publishing a supplementary EIS including compiling four additional responses to concerns raised by the public.

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		By June 2010, GAWB intends to have received approval for its EIS and have finalised its cultural heritage plan. In summary, the total estimated cost to 30 June 2010 is broken down to: ▪ EIS - $2,590K ▪ CHMP - $672K ▪ Land access - $545K ▪ Preliminary investigations into vegetation clearing, QR, Powerlink and other approvals - $221K ▪ Investigation into the appropriateness of a community infrastructure designation - $90K ▪ Native title - $25K
15.	Re GFP - The cost areas include - "Technical Support, Consultants, and Communication". Please describe the actual work items included in this cost area. As opposed to who would execute those work items e.g. Technical Support and Consultants.	Cost code amended to be Technical Support – the work undertaken will include; ▪ investigations into sludge, water quality, Aldoga reservoir, solar drying, hydrological study, THM formation & PAC dosing, Fitzroy intake, WTP, reversibility study; ▪ value engineering workshops; ▪ formulation of a procurement strategy for pipe material; and ▪ engineering management & reports.
16.	Re: GFP Land Acquisition Please provide a brief summary of the land that will need to be acquired for the GFP and what level of acquisition is included in the forecast costs.	The initial estimate for land of $5.1M was compiled prior to final site and route selection and included an allowance for obtaining a licence with Dept of Infrastructure and Planning (DIP) for use of the then proposed Stanwell Gladstone Infrastructure corridor (SGIC) and the Gladstone state development area. The change of program in March 2008 (due to the significant inflows to the Awoonga Dam) removed the urgency to acquire land. This allowed the deferral of the finalisation of the land acquisition program to the TAM forecast for 2009/10. Prior to 30 June 2010 Land costs will include: ▪ Intake lease from SunWater - $34k;

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		▪ Pipeline easements in Alton downs (28 lots) - $1,197k; ▪ Water treatment plant purchase of five lots - $361k; ▪ Land agents costs, landholder consultations and general legal fees - $256k; ▪ Aldoga reservoir - $140k; ▪ Allowance of compulsory acquisition action, if required - $100k; and ▪ Raglan pump station ownership of one lot and access - $77k. Given the change in programme in April 2008, GAWB has modified its approach to the negotiations with the State regarding the licence for the two state development areas in the GFP Project's area. GAWB is negotiating an option with government in relation to access to the SGIC and a defined route alignment within the SGIC and the Gladstone SDA. The timing of and scale of the applicable licence fee is yet to be determined.
17.	Re: GFP Asset Creation Please provide brief details of the item(s) included in the 2009 cost forecast.	Securing an energy supply contract with Ergon
18.	Re GFP - Please briefly describe current status of the EIS, further work planned under the Preparatory Works.	The supplementary EIS (SEIS) was submitted to DIP in June 2009. Four further submissions requiring clarification have been received and GAWB is currently compiling responses to these submissions. It should be noted that DEWHA was satisfied with the information in the SEIS.
19.	Re GFP - Which cost area is work on the EIS charged to? Briefly describe the planned status of the EIS at June 2010	The costs of the EIS are included in the Approvals cost centre. Currently GAWB is finalising the four responses to public comments received on the supplementary EIS that was submitted to DIP in June 2009. DEWHA's concerns raised in the public consultation of the full EIS were addressed in the supplementary EIS. It is envisaged that GAWB will receive approval for its EIS before the end of 2009.
20.	Re: Coordination of GFP and LFRIP (Revised 25th August) The GHD submission is for Stage I & II and the GAWB business plan is aligned with these details. The GHD submission Appendix D Project Program outlines and schedule for Stage III and IV for LFRIP.	GAWB has a reservation of 30,000ML of water under the *Fitzroy Basin ROP* and it is noted that construction is required to be completed of the water storage assets (the Weirs), as distinct from all associated infrastructure works, for the allocation to be enlivened.

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	This schedule shows that; ▪ Stage I and II will not be completed until August 2010. ▪ That after completion of Stage I and II it would take approx 11 months from commencement of Stage III and IV to award of a construction contract compared with approx 6 months for GFP final preparatory works to be completed prior to construction. ▪ That (on the assumption that the weirs need two full dry seasons for construction) storage of water (during a wet season) may not commence prior to the GFP being completed and ready to deliver water. The questions are; ▪ Does water need to be stored in the LFRIP weirs prior to GAWB being able to draw water from the Fitzroy River? ▪ If yes, how does the plan for the LFRIP comply with the GAWB contingent plan? ▪ If no, what are the conditions that apply to allow the GFP to commence drawing water from the Fitzroy River? ▪ Is there a likelihood that the GFP final preparatory works will need to be committed to, because of drought or extra demand prior to August 2010? ▪ How does the deferment (until a trigger event) of Phase III of the LFRIP preparatory comply with the GAWB contingent plan? ▪ What is the trigger to commit to outstanding Preparatory Work for both GFP and LFPIP (Phase III and IV)? ▪ Please confirm that these final Preparatory Works are not to be included in the June 2010 price reset?	The programmed construction completion date for the LFRIP is aligned with the GFP Project if construction commences in the dry season, which is consistent with when it would be required for purposes of drought mitigation (i.e. immediately following a failed wet season). At present, if triggered at the commencement of a wet season, the program forecast that construction of all assets may not be completed before (in the extreme) 30 months. The potential misalignment, whilst not optimal, is not considered a critical issue at this stage in the development of the LFRIP preparatory works, having regard to GAWB's strategic objectives. As preparatory works on the LFRIP progresses, greater clarity will be obtained around the construction program upon which more informed decisions can ultimately be made upon the optimal delineation of activities in the various phases (i.e. preparatory works, early works and construction works). In addition, GAWB has had preliminary discussions with Rockhampton Regional Council concerning GAWB's ability to access water under its allocation from the Fitzroy Barrage for a short period. At present RRC uses about 22,000Ml of a 50,000 Ml pa allocation. Whilst the timing of the project is uncertain, these discussions are unlikely to be finalised. Based on current demand projections from customers the earliest date GAWB may need to access additional water is January 2014 therefore there is no likelihood that the GFP Project's early works will be triggered before August 2010. The deferment of Phase III of the LFRIP complies with GAWB's contingent plan in that: ▪ the completion of Phases I and II will provide greater clarity for assessing the appropriate strategic option should an imminent supply failure scenario appear; ▪ GAWB's approach to the CSS is to gain the capability to augment, should it be required; and ▪ Deferring Phase III meets GAWB's requirement of prudence by delaying expenditure until it is required and there is more certainty as to a potential

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		trigger for constructing an augmentation. Emergent demand in central Queensland that will utilise the unallocated water that could be stored by the strategic infrastructure options of the project will trigger the LFRIP. This could include the emergent demand that triggers the GFP Project, therefore also the LFRIP. In relation to the GFP Project that emergent demand could be either the impact of ongoing drought or increments in contracted demand from GAWB's customers. The costs of Phases III to IV are not included in the table below.
21.	Re: LFRIP GAWB's submission to QCA page 86 states that GAWB' contribution to the capital costs of LFRIP is $28 M. Question Please advise the latest agreement/understandings as to whether all, part or any of the following works will be at GAWB's cost and require the Authorities approval to include in price resets: ▪ Phase 3 ▪ Phase 4 ▪ Phase 5 ▪ Phase 6 All Phases as described in GHD submission of January 2009.	At the time that GAWB made the submission to the QCA in 2007, it was estimated that GAWB's contribution to the infrastructure on the Fitzroy River would be a capital contribution of $28M. This reference in GAWB's submission was based on the indicative costing information contained in the *CQRWSS*. When the Lower Fitzroy Joint Venture was announced as the proponent of the Lower Fitzroy Infrastructure projects by the Coordinator General, it was dependent on the parties involved (SunWater, GAWB and the former Rockhampton City and Livingstone Shire councils) forming a joint venture. When Rockhampton Regional Council withdrew from the JV in November 2008, SunWater and GAWB elected to work jointly to complete the business case that was required by government under the relevant *Program of Works* as the remaining proponents (and accordingly to share the costs for Phases I and II). Currently GAWB is working with SunWater to complete phases 1 and 2 as per the GHD's *Scope of Works*. Estimated costs associated with the LFRIP incurred to 30 June 2010 will be included in GAWB's water price calculations for the 2010 price review. Costs associated with the early works in Phases 3 to 4 will not be included in the 2010 prices review. Should the construction of a strategic option of the LFRIP be triggered by GAWB's emergent demand, all costs of a future augmentation (preparatory where appropriate, early works and construction)

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		that have not been incurred prior to 30 June 2010 will be included in the water prices that result from a price review *subsequent* to commencing construction. In a separate body of work, outside the scope of this review, GAWB is compiling costs for maintaining a state of preparedness for each of the 3 projects of the CSS. The purpose of this is to include these maintenance costs in the 2010 price review. This will include some costs for maintaining what GAWB attained from phases I and II.
22.	Re: LFRIP Please provide breakdown of current and forecast costs to June 2010	The breakdown of the LFIP costs estimated to June 2010 include: ▪ Share of GHD costs $6.414M (Phases I & II); ▪ Share of SunWater costs $1.128M; ▪ GAWB labour component $75k (2009/10); ▪ Other disbursement costs ~ $99k; and ▪ GAWB Internal audit $50k.
23.	Re: LFRIP GHD have presented a budget for Phase 3 and 4 of $35.2M. To match the schedule this has to be completed in 10 months. Is this a realistic schedule for this amount of work?	GAWB believes this is a realistic schedule, based upon data currently available and the advice that's it has received from GHD.
24	Re LFRIP If the answer to Q21is that the GAWB contribution to LFRIP is in excess of $28M; Question: 1. How did GAWB calculate this contribution? 2. Has this estimate been updated since 2007? 3. If not why not? 4. If yes where is this allowed in the estimated costs?	1. Prior to undertaking expenditure upon the LFRIP (i.e. before 2008) – at the time of making its submission to the Authority upon Part (a) of the CSS Referral Notice, the best information that GAWB had access, were the costs included in the CQRWSS (i.e. $27M). GAWB based its $28M estimate on the costings included in this report (pg 179) whereby the raising of Eden Bann weir would provide 30,300ML for a cost of $27M. GAWB's reservation under the CQRWSS was 30,000ML. 2. Yes. Pursuant to a brief from the Department of Infrastructure, PB revised the estimate contained in the CQRWSS to about $76M for constructing Rookwood and $80M for raising Eden Bann in 2007. This information was incorporated into a comprehensive assessment of the

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		indicative prices of various augmentation options (including desalination) and scenarios undertaken by an economic consultant to GAWB (Wedgewood White) that was circulated to customers in early 2008. After undertaking expenditure upon the LFRIP – GAWB has received advice from GHD that it is likely that its share of the construction cost to bring into existence its allocation is about $110M to $145M. This is based on three possible strategic options: (a) Raising Eden Bann weir 18.2m to provide a yield of 30,000ML at an additional cost of $143M (Phases 3 to 6);or (b) Constructing Rookwood weir to RCC 44.0m to provide a yield of at least 40,000 at an additional cost of $146M (Phases 3 to 6 of which GAWB is assumed to be responsible for 75% (30,000/40,000ML), however, the underlying assumption is that the surplus capacity not taken up by GAWB is used by another customer). (c) Constructing Rookwood weir to 49.0m to provide a yield of at least 60,000 at an additional cost of $111M (Phases 3 to 6 of which GAWB is assumed to be responsible for 50% (30,000/60,000ML), however, the underlying assumption is that the surplus capacity not taken up by GAWB is used by another customer). 3. As a party to phases I and II of the LFRIP, GAWB will have gained better clarity as to estimates of the strategic options for the storage infrastructure on the lower Fitzroy River by the completion of these phases. Under the Fitzroy Basin ROP GAWB has an entitlement to 30,000Ml per annum, therefore, GAWB's share of the capital cost will be dependent on the storage capacity of the selected strategic option, which is yet to be determined. If a supply failure is imminent (from drought or additional demand) these estimates along with those for the GFP Project, desalination and any demand reduction options evident at the time will be assessed through real options modelling prior to making the decision to invest in

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		the least cost and most efficient response for circumstances at the time.
25	Desalination Plant Please provide brief scope of works for the desalination plant, and a break of the actual costs to date and planned costs for each major scope item.	The amounts expended on feasibility studies into desalination include: ▪ $484k to June 2008. This included creating a roadmap for the construction of a desalination plant and an analysis of 35km of coastline to narrow down the best site to six zones. ▪ $351K to June 2009. This included multi-criteria analysis of various site locations for a desalination plant within the Gladstone region. This study indicated that co-location of a desalination plant with the existing Yarwun water treatment plant site would be preferable. Critically, these works facilitated the preparation of a high level concept plant of a desalination plant upon the preferred site (YWTP) to bring better definition to planning and costing activities. ▪ $300K to June 2010. By reference to the preferred site these activities involve improving the accuracy of the estimates methodology surrounding the construction of the marine infrastructure and pre-treatment works; investigating water quality analysis needs, investigating the potential savings for co-location with industrial partners and progressing tasks necessary to a point of readiness for construction.
26	Comparison of GFP and Desalination Option The GAWB various plans and submissions state that Desalination would be used for up to 10GL demand and thereafter the solution would be the GFP. The trigger to increase water supply can be either ▪ Drought ▪ Additional demand ▪ Combination of above The current and short term projection of demand for GAWB water is in the order of 50 to 60 GL/ with the capacity of Awoonga in excess of 70GL a year.(depending on inflow records) Therefore in the case of needing to guarantee water in the case of drought another major source of water is required, currently identified as the GFP and	As mentioned above, based on current demand projections the earliest GAWB may require additional water is January 2014. However, to maintain the capability to address future supply failure scenarios, GAWB will continue to develop, update and maintain its knowledge of the potential costs of the augmentation options including options to address a range of capacity requirements. Currently, the comprehensive indicative price analysis document that was circulated to customers in January 2008 (referenced at Q24), is being updated with a view to circulation to customers in late 2009/early 2010 and addresses the issues you have raised. GAWB has allowed $120k in the 2009/10 budget for these activities along with its budget for Desalination of $300k which will provide further clarity to the costings.

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	associated LFRIP. Questions. ▪ If the trigger is for incremental increase in demand, in the range of >10Gl/Yr and less than say 20 to 25GL/yr how is the preferred solution determined? ▪ As further work is done on both desalination and GFP (with or without the LFRIP) the level of confidence in the likely cost of the projects improves. Is there adequate allowance in the budgets to provide upgrades in likely final costs of each option? ▪ Is there sufficient allowance in the budgets to compare the costs and risks of the various options for different demand scenarios? OR ▪ Is this work (as detailed in the 3 questions above) only expected to be required post the current price reset in June 2010?	
27	<u>Comparison of LFP (pipeline and weirs) and Desalination (30GL/Yr)</u> GAWB submission to QCA provides a comparison which has equivalent in capital costs, but with higher operating costs for the desalination plant. Since then the estimated cost of the LFP has increased faster than inflation as a result of further engineering etc. GAWB have stated in their submission to the Authority that "the desalination option provides a simple means to benchmark the Lower Fitzroy....." <u>Question</u> 1. Do GAWB intend upgrade the cost comparison prior to June 2010. 2. If not why not? 3. If yes where is this allowed in the estimated costs?	See response to Qu. 26. Early in 2009 GAWB commissioned Arup to provide an advice as to indicative costings for a range of desalination options based on a known site and concept design (which is more accurate than previous estimates). This advice outlined the indicative OPEX and indicative CAPEX associated with a 5GL p.a., 15 GL p.a. and 30 GL pa desalination plant that was based on: ▪ a selected site; ▪ a concept design; and ▪ commonality with the GFP Project. The ongoing investigations into a desalination plant during 2009/10 and 2010/11 will provide better clarity and certainty to these indicative estimates.
28	<u>Re – GFP – Community Infrastructure Designation</u> Please briefly describe 1. What is "Community Infrastructure Designation" and who is the approving Authority? 2. Is this designation optional; or compulsory?	1. The community infrastructure designation (CID) is a designation under the *Integrated Planning Act 1997*. The Minister for Natural Resources, Mines and Energy will approve the designation. 2. Optional 3. The designation means the community infrastructure is exempt from any further planning assessment and will be noted in the relevant local

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	3. If optional, what are the advantages to the project? 4. Will GAWB achieve this designation by June 2010? 5. If not what is GAWB's plan going forward?	governments' planning schemes. The rationale behind the identification of land for various types of community infrastructure is to ensure there is no conflict between infrastructure planning and land use planning. This will assist in ensuring that the proposed pipeline and infrastructure that comprises the GFP Project can be protected from encroachment by incompatible new uses or works and adjacent development can be managed in regard to issues potentially affecting either party. 4. GAWB is currently assessing the impact of the application for a CID which can be made subsequent to receiving the approval of the EIS, planned to be received by end of 2009. 5. Planned to be achieved prior to 30 June 2010 if GAWB decides to pursue the application for a CID.
29	Re – LFRIP GAWB negotiated a reduction in the rates supplied by GHD prior to awarding them the work for Stage I and II of the LFRIP. Please describe the average % reduction in the GHD rates, or some other measure of how GAWB achieved value for money?	To attain value for money, GAWB negotiated rate discounts with GHD that culminated in an overall reduction in the GHD fee for Phases I and II of 16% - $1,745,191. Costs associated with variations to scope must be approved by the project control committee which meets every 4 to 6 weeks which consist of the both the SunWater and GAWB CEOs and project managers and a representative from DIP. For governance purposes, the project technical committee meets every fortnight to discuss progress, review risk and monitor outcomes. GHD provides a full report each month that is tabled to the GAWB board.
30	Re GFP GAWB has proposed to include a new stage of the GFP Project, Early Works. Please provide the breakdown for each of the following cost areas during Early works; ▪ Project Management ▪ Approvals ▪ Land Acquisition ▪ Communication and consultation	Total estimated spend for early works $12.2M made up of: ▪ Project Management - CDU's project management costs for early works are estimated to be $6.435M ▪ Approvals is estimated to cost GAWB $174k ▪ Land acquisitions for infrastructure will be completed in 2009/10. During early works $900k to be spent on site office. ▪ Communication & consultation prior to construction is estimated to be $120k (GAWB developed a full communication plan and public execution plan for the entire project in Stage 2).

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	▪ Engineering and Technical support ▪ Asset creation	▪ Engineering & technical support estimated $4.58M ▪ Asset creation – GAWB assumes that these costs will be incurred during construction with commitments to significant items not occurring until the latest possible time (after commercial close, 3 months prior to commencing construction).
31	Re CSS The GFP, LFRIP and desal are at different stages of development. How does this affect GAWB's contingent supply strategy?	By June 2010 GAWB will have achieved the following stages of development of its main components of the CSS: ▪ GFP Project – a state of preparedness that would allow a nominal two year construction program after the completion of a 13 month timeframe from trigger to complete the necessary early works (approvals, mobilisation, detailed design etc) and the necessary commercial and regulatory approvals. ▪ LFRIP – predominantly completed Phases I and II, therefore, clarified and identified the appropriate strategic options for infrastructure that will ensure the access to the reservation of water on the Fitzroy River. By August 2010 it is planned that the LFRIP will be at a state of preparedness that allows an "on hold" phase until a trigger is imminent. ▪ Further investigated the feasibility studies of the construction of a desalination plant in Gladstone. These investigations are planned to be completed in April 2011 at which point it is planned that the project will be at a state of preparedness that meets the objectives of the CSS. ▪ Further developed the real options model to be capable of assessing a range of supply and demand responses to a range of potential supply failure scenarios.

GAWB – Answers approved by;

Signature;

Name; Jim Grayson

Title; CEO

Harrington Construction Consultants-Questions issued by;

Signature;

Name; Ian HARRINGTON

Title; PRINCIPAL.

CSS Cost Centre	Initial Forecast to mid 2008 $M	Expenditure to 30 June 2010		
		Actual Cost to 30/06/08 $M	Forecast 01/07/08 to 30/06/10 $M	Total $M
Project Management	3.5	2.7	2.6	5.3
Approvals	1.9	2.5	1.7	4.2
Land Acquisition	5.1	0.1	2.1	2.2
Communication & Consultation	1.5	0.4	0.2	0.6
Engineering /Technical Support	6.9	11.2	8.2	19.4
Asset Creation	5.0	0.0	0.1	0.1
Contingency		0.0	0.3	0.3
Sub-total GFP Project	23.9	16.9	15.2	32.1
Federal Funding		-10.0		-10.0
Net Overall Cost of GFP Project	23.9	6.9	15.2	22.1
Desalination	1.0	0.5	0.7	1.2
Water Rights		0.2	0.1	0.3
Lower Fitzroy		0.0	7.7	7.7
Contingency			0.5	0.5
Total Cost of Securing Water		0.2	8.3	8.5
Regulatory Submission				
Regulatory Submission		0.7	0.3	1.0

Real Options		0.0	0.6	0.6
Total Regulatory Submissions		**0.7**	**0.9**	**1.6**
Total CSS Preparatory Works:	24.9	8.3	25.1	33.4