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REVIEW OF GLADSTONE AREA WATER BOARD PREPARATORY COSTS FOR THE FITZROY RIVER-GLADSTONE PIPELINE

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Queensland Competition Authority

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EXECUTIVE SUMMARY

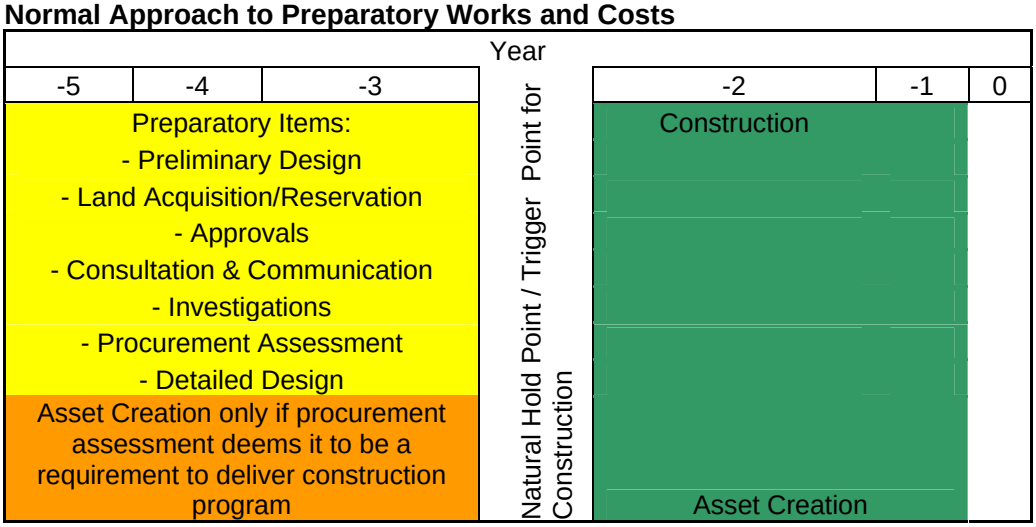
Cardno has prepared draft guidelines and a framework for preparatory works for typical water supply construction projects (excluding major dams).

Items that can be considered preparatory works are:

- Defining scope of the project;
- Establishing sources and timing of project funding;
- Selection of all routes and sites;
- Investigations and surveys necessary for approval and design completed. These include environmental, Indigenous Heritage and Native Title, topographical and geotechnical surveys;
- Consultation and most communication completed with stakeholders;
- Approvals from all levels of Government;
- Land and easements acquired or reserved and/or arrangements made for shared infrastructure corridor usage;
- Negotiations with utility providers about their existing and planned infrastructure and any required realignments;
- Negotiations with utility providers about supplying infrastructure for the project, such as power, telecommunications, roads etc;
- Preliminary design;
- Detailed design;
- Procurement documentation for Principal Supplied long lead time materials and equipment;
- Construction contract documentation; and
- Possibly, expressions of interest sought and received for procurement and construction contracts.

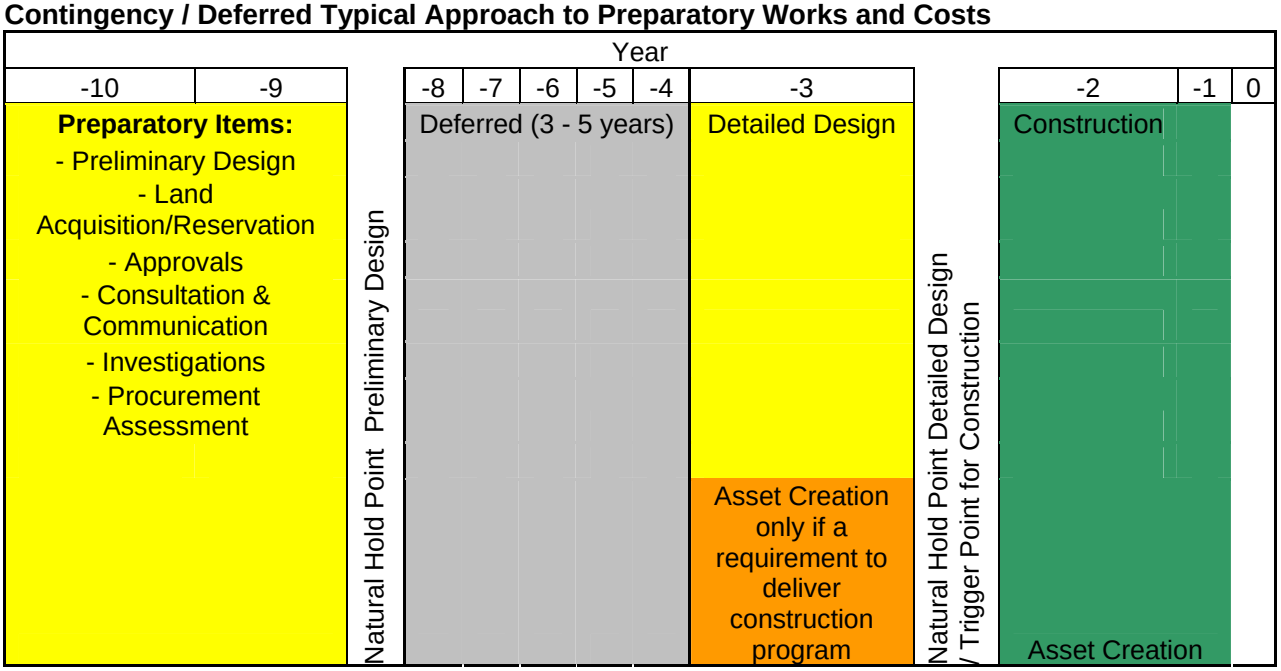
As part of the framework, a detailed project schedule and program should accompany all applications for approval of preparatory expenditure on water supply construction projects. This schedule should differentiate between preparatory and construction activities.

Normal Approach to Preparatory Works and Costs



Where a project schedule is for a contingent strategy project, it is possible to identify "hold points" for deferment of subsequent activities.

Contingency / Deferred Typical Approach to Preparatory Works and Costs



It can typically take up to 3 years to complete preparatory works. However, critical or emergency projects (e.g. drought relief projects) in Queensland can be declared to be Significant Projects by the State Government. This approach ensures a robust assessment process involving whole-of-government coordination and can significantly reduce the lead time for the approval processes and land acquisition/reservation.

There exists a potential "Natural Hold Point" for water supply construction projects after Preliminary Design and Detailed Design that apply to preparatory works items.

Depending on the project scope, it is reasonable to assume that most well-managed water supply construction projects (excluding major dams) can be completed within about two years of achieving the natural hold point after Detailed Design, even when the construction market is tight. However, a cost premium may have to be paid to achieve the construction times during a heated market.

If the "Trigger for Construction Point" is about 3 - 5 years beyond the natural hold point for a project then a lesser state of preparedness may be appropriate. It would be difficult to formulate general guidelines for preparatory works for such projects and each will need to be considered on a case by case basis. For these projects the assessment is more of an assessment of the proposed timetable.

Approvals, land acquisition/reservation, consultation, communication, engineering and investigations should still be finalised in such cases, but it is likely that this would only need to be completed to a preliminary design level. A "Trigger for Detailed Design Point" would then be required about a year before the "Trigger for Construction Point".

Cardno has reviewed the Gladstone Area Water Board's (GAWB) proposal for preparatory expenditure components to enable the proposed Fitzroy River - Gladstone pipeline to proceed to completion within a 24 month construction programme. The Trigger for Construction Point is 30 April 2008 when GAWB will need to make a decision on whether to go ahead or defer the project.

The $345 million project comprises an off-take at the Lower Fitzroy River, three pump stations, four storages including the 80 ML Aldoga Reservoir near Gladstone, a Water Treatment Plant near either Gracemere or close to the existing intake on the Fitzroy River and approximately 105 km of pipeline depending on the final route to transfer 30,000 ML/year of water per annum.

Whilst Cardno sought further information, insufficient details have been provided to undertake a detailed review of specific cost estimate items in the GAWB Forecast Capital Expenditure for Preparatory Works in the below table.

Forecast Capital Expenditure

Forecast Capital Expenditure ($m)	2006/07	2007/08	Total
Project Management	0.9	2.6	3.5
Approvals	0.9	1.0	1.9
Land Acquisition	0.0	5.1	5.1
Consultation / Communication	0.3	1.3	1.5
Engineering and Investigations	0.9	6.0	6.9
Asset Creation	0.0	5.0	5.0
Totals	2.9	20.9	23.8

Excluding GAWB's forecast expenditure on tangible assets such as Land Acquisition ($5.1 m) and Asset Creation ($5.0 m), the forecast expenditure on Approvals, Consultation, Communications, Engineering, Investigations and Project Management to get ready for construction of this project is $13.8 million (after rounding). Cardno suggests that 3% - 4% of total project cost ($10 m - $14 m) is the likely range for such a project (which includes a complex water treatment plant).

More detail is required to determine whether $3.5 million is reasonable for Project Management of the preparatory works phase. The estimate should be split-up between the other items (Approvals, Land Acquisition/Reservation, Consultation etc) to be managed in accordance with the proposed framework.

Land acquired or reserved during the preparatory works is unlikely to lose its value or become a stranded investment, as it can be resold should the project never proceed. Cardno recommends the land acquisition/reservation be completed, even if the project is deferred as it provides certainty for the design. The design is central to the preparatory works and cost expenditure and without the certainty of land acquisition/reservation there is potential for write down of these costs.

Based on the Draft Construction Programme (dated 3 August 2007) and informal discussions with key suppliers, Cardno believes that no Asset Creation expenditure on critical long lead equipment and materials will be required as preparatory costs. Based on the advice received, lead times are expected to be up to 6 months for pipes and up to 12 months for pumps, valves and other long-lead items. A rolling program of delivery can be used for the pipes.

The maximum shelf life, or currency, of the intangible assets (approvals, agreements, reports, design drawings, specifications, contract documents, procurement lists, management plans, quotations etc.) which have been created by the preparatory works is probably less than ten years. Some components (such as quotations and delivery times) may only be valid for one month.

There will be a gradual decline in the value of these intangible assets over their useful lives with greater re-work necessary as time goes by (requiring "amortisation"). Additionally there will be occasional larger "impairment steps" due to expiry of periods of currency of various approvals, introduction of new regulatory requirements, changes of project scope, technological change, changes in relative costs and availability of materials and equipment etc. These will require revaluations (downwards) of some components of the intangible assets and write-offs being expensed in the relevant financial years.

Decisions will also need to be made on when to carry-out "maintenance" or re-work on these intangible assets so that when the trigger point is reached for construction there will not be undue delays.

Since the Trigger for Construction Point for the GAWB project is within the current financial year, the shelf life of intangible assets only becomes a problem if the project is deferred for a number of years. The useful lives of the major components will need to be assessed and methods devised for amortising their costs over the number of financial years that the Fitzroy River - Gladstone pipeline remains the favoured contingent water source option.

If construction of the project is triggered on the 30 April 2008 then all preparatory expenditure before and after that date becomes normal capital works expenditure. It would be added to construction expenditure and amortised over the useful lives of the major project components from the date of commencement of operation of the completed project.

If there is a major inflow into Awoonga Dam in the next few months, GAWB may decide to defer the project. This could happen earlier than 30 April 2008, requiring decisions on whether any of the preparatory work in progress should be slowed or stopped.

In such a case Cardno suggests that proceeding beyond the preliminary design stage for components which are not on the critical path (pump stations, reservoirs and pipeline) should be reconsidered. However, only if the project deferral is for longer than 5-7 years would it be worth considering halting environmental and other surveys, investigations and approvals, once they have been initiated and substantially complete.

It will be difficult to incur the estimated amount of expenditure in the available time and a sizeable carryover into 2008/09 period is likely.

Insufficient details have been provided to undertake a detailed review of specific costs associated with the $1 m estimate for the feasibility and detailed assessment of costs of the desalination plant. Specifically no breakdown against the individual items in the scope of work was available to make an assessment. If the tasks outlined in section 13.4.2(f) in the GAWB submission, being a siting study including a more detailed cost estimate which includes:

- Proximity to power, industry, utilities and services;
- Environmental, land tenure, heritage and community constraints;
- Review of access and flooding constraints; and
- Marine considerations including criteria relating to the intake and outfall, and might require studies into water quality, dispersion modelling and conceptual outfall design.

The proposed $1 million in expenditure which represents between 0.28% and 0.32% of the estimated capital cost of between $314 and $361 million for the desalination plant may be reasonable. This figure will depend on the accuracy of the cost estimate to be achieved by the proposed work, the $1 million estimate could be significantly lower or higher depending on the level of preliminary design work for the cost estimate. A more detailed breakdown including the proposed scope would be required to make a further assessment.

REVIEW OF GLADSTONE AREA WATER BOARD PREPARATORY COSTS FOR THE FITZROY RIVER- GLADSTONE PIPELINE REVIEW

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1. INTRODUCTION

Cardno was commissioned by the Queensland Competition Authority (QCA) to review the Gladstone Area Water Board's (GAWB) Preparatory Costs for the Fitzroy River – Gladstone pipeline. The original QCA Terms of Reference are given in Appendix A.

Due to the time available and the lack of detailed estimates from GAWB and Arup, the amended brief was for Cardno to prepare for the QCA draft guidelines for reasonable and prudent preparatory expenditure on critical water supply construction works with a high probability of commencement in the next few years to meet deployment targets.

Having prepared those general guidelines, Cardno was to assess and comment on the proposal from GAWB to undertake certain preparatory expenditure on the Fitzroy River - Gladstone pipeline project and the Seawater Desalination project.

2. DEFINITIONS OF PREPARATORY WORK AND PREPARATORY EXPENDITURE FROM AN ACCOUNTING PERSPECTIVE

The cost of preparatory works for specific water supply construction projects during their development phase, following high-level planning and short-listing of options, but prior to the asset creation phase, can be termed preparatory expenditure, or preparatory costs.

An excerpt from the Australian Government, Australian Accounting Standards Board (AASB), Accounting Standards, Intangible Assets (pp.7-8, AASB 138, July 2004) gives the Accounting context for this review (pertinent phrases have been highlighted):

> *This Standard:*
> *(a) defines an intangible asset as an identifiable non-monetary asset without physical substance;*
> *(b) requires an asset to be treated as meeting the identifiability criterion in the definition of an intangible asset when it:*
> > *(i) is separable, that is, capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, asset or liability; or*
> > *(ii) arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations;*
> *(c) requires an intangible asset to be recognised if, and only if:*
> > *(i) it is probable that the future economic benefits that are attributable to the asset will flow to the entity; and*
> > *(ii) the cost of the asset can be measured reliably;*
> *(d) requires an intangible asset to be measured initially at cost;*
> *(e) requires expenditure on research (or on the research phase of an internal project) to be recognised as an expense when it is incurred;*
> *(f) requires an intangible asset arising from development (or from the development phase of an internal project) to be recognised if, and only if, certain criteria are met;*
> *(g) prohibits internally generated brands, mastheads, publishing titles, customer lists and items similar in substance from being recognised as intangible assets;*
> *(h) requires an intangible asset to be measured after initial recognition:*
> > *(i) at its cost less any accumulated amortisation and any accumulated losses (cost model); or*
> > *(ii) at a revalued amount, being its fair value at the date of the revaluation less any subsequent accumulated amortisation and any subsequent accumulated impairment losses, but only where fair value can be determined by reference to an active market (revaluation model);*
> *(i) requires an intangible asset with a finite useful life to be amortised over its useful life (such intangible assets are tested for impairment whenever there is an indication that the intangible asset may be impaired);*
> *(j) prohibits the amortisation of an intangible asset with an indefinite useful life (instead, such intangible assets are tested for impairment annually and whenever there is an indication that the intangible asset may be impaired); and*
> *(k) requires disclosure of information about an entity's intangible assets.*

2.1 Research Expenditure

An amount for high-level planning and investigation work, such as Regional Water Supply Planning, Strategic Water Planning and Drought Management Planning, is included in the operating budgets of Water Authorities in Queensland. The cost of this high-level planning which may, or may not, lead to a decision to proceed with a specific water supply construction project, is expensed when it is incurred in each financial year.

From clause (e), p.7, AASB 138, July 2004 (above), it can be inferred that high-level planning is effectively "Research" from an Accounting perspective.

If the Water Authority exceeds its budgeted amount for high level planning or research activities in any year, for whatever reason, its operating profit or loss will be impacted upon, affecting its reserves or annual return to the State Government.

2.2 Preparatory Expenditure as an Intangible Asset

By contrast, when a Water Authority carries out project-specific planning, investigation and design work on one (or two) favoured projects with a high probability of construction, it is creating an asset that may be capitalised and amortised over several years.

AASB 138 (above) indicates that reliably-measured preparatory expenditure on identifiable, non-monetary assets, without physical substance, (such as Project Management, Approvals, Consultation / Communications, Engineering and Investigations) for one (or two) favoured identifiable water supply construction projects, where it is probable that the future economic benefits will flow to the entity, can be treated as an Intangible Asset, capitalised and amortised over the finite useful life and tested for impairment each year.

The deliverables from preparatory expenditure (approvals, licences, agreements, reports, design drawings, specifications, contract documents, procurement lists, management plans, quotations etc.) are without physical substance except for the paper and computer storage on which they reside.

The costs of preparatory expenditure on Intangible Assets can be reasonable estimated based on similar consultancy works.

Preparatory costs to progress a major water supply construction project to the stage of having detailed design documents ready and fully approved for construction are likely to be an order of magnitude higher than high-level planning cost or research expenditure done each year. If such major costs had to be expensed during the first 3 years of such preparatory work, it would be a severe disincentive for Water Authorities to carry out contingency planning on behalf of their customers. The costs and ramifications of not being prepared are potentially higher than the costs of being prepared.

2.3 Preparatory Expenditure as a Tangible Asset

However, the above quotation from AASB indicates that identifiable non-monetary assets with physical substance such as Land Acquisition and Asset Creation (Procurement of Critical Materials and Equipment), by contrast, would be subject to accounting treatment as a normal acquisition of assets, subject to normal periodic revaluation and/or depreciation.

2.4 Useful Life of Components of Intangible Assets

Each major component of the Intangible Assets created by the preparatory expenditure will have a useful life up to the number of financial years that the Fitzroy River - Gladstone pipeline remains the favoured contingent water source option.

The finite useful lives of the designs of the proposed physical assets will differ between the major asset categories (e.g. Water Treatment Plants, Pump Stations, Pipeline, Reservoirs).

Water treatment technology is evolving very quickly at present, with many new treatment processes being introduced (reverse osmosis, microfiltration, magnetic ion exchange etc.). With changes in technology and higher water quality standards there is potential for significant changes in design scope for projects. Technological obsolescence has the potential to reduce the useful life of a detailed design of a WTP to only a few years. Procurement lists of equipment and materials for the treatment plants are similarly likely to date quickly.

Pump stations are a more mature and stable technology than treatment works, but detailed designs are still subject to scope changes, technological obsolescence and changes in recommended products and brands for pumps, motors and SCADA (Supervisory Control And Data Acquisition) systems. The useful life of pump station designs generally may only be about 5 years.

A major part of pipeline detailed design is locating other assets such as roads, footpaths, railways, gas pipelines, power lines, telecommunications, private buildings, mines, quarries, uncleared bush, natural ecosystems etc and eliminating clashes and conflicts as much as possible. New developments, subdivisions and infrastructure have the potential to impact on the pipeline design. A change of scope requiring a changed pipe size may also lead to an impairment step necessitating a large write-off expense in the year the decision is made. The useful life of pipeline designs generally may only be 5 – 10 years.

By contrast a storage (or PS, or WTP) is designed for a specific parcel of land which this report recommends be acquired or reserved in the preparatory stages. Therefore the detailed design is unlikely to be made obsolescent by other nearby developments as long as adequate buffer zones for noise, odour or visual amenity are effectively set aside at the same time. The useful life of reservoir designs may be ten years or more for concrete and steel storages, but only 3-5 years for membrane lined and covered earth storages.

The following is a guide to the useful lives of components of preparatory expenditure.

Table 2-1 Guide to Useful Lives of Components of Preparatory Expenditure

Description	Shelf Life or Currency	Comments
Project Management	Less than 1 yr	Only valuable during the preparatory work. Once detailed design work is completed and all approvals obtained, the project scope, time, cost and quality is fixed and there is no further value.
Approvals	Variable	EIS has a life around 5-7 years; Under the Integrated Development Assessment System (IDAS) the lives varies with approval type: Material change of use is 4 years from date of approval; Operational Works is 2 year from date of approval;

Description	Shelf Life or Currency	Comments
Land Acquisition		Vulnerable to change of favoured option – but may produce capital gains when sold. Proposed land use must comply with zoning and adequate protection of buffer zones for noise, odour or visual amenity must be protected at time of purchase.
Consultation / Communication	2-4 years	Only valuable during preparatory work. Once detailed design work is completed and all approvals obtained, the project scope, time, cost and quality is fixed and there is no further value. If a project is deferred too long the requirement for further consultation and communication increases, with the same likelihood of impacting on the detailed design and approvals.
Engineering and Investigations	2-10 years	Life of designs for major components depending on change in scope may only be: Water Treatment Plant less than a few years; Pump Station 5 years; Pipeline 5 - 10 years; Reservoirs – concrete 10 years.
Asset Creation	Variable	Principal-Supplied Assets (pumps, valves, pipes etc) procured for projects which are subsequently deferred will depreciate.

The major threat to the value of Intangible Assets such as designs and approvals created by the preparatory expenditure is a change in the favoured option. For the Fitzroy River – Gladstone pipeline should GAWB's favoured option change to the Seawater Desalination prior to the trigger for construction, then the entire residual value of the preparatory expenditure on Intangible Assets for the Fitzroy River – Gladstone pipeline would have to be expensed.

2.5 Maintenance of Intangible Assets

Whilst intangible assets created by the preparatory works for water supply construction projects have a "shelf life" their state of preparedness can be maintained by undertaking "maintenance. For example, approval of a Material Change of Use for a WTP under the Council's Planning Scheme may only be current for 4 years. However, an extension may be applied for, and the amount of re-work necessary to support the extension application can be viewed as "maintenance", to be expensed when it is incurred.

From the time of any project deferral, until such time as the trigger for construction, the shelf lives or currency of designs and approvals need continual monitoring and review. Occasionally decisions will need to be made to carry out new investigations, apply for extensions to approvals and licences, or revise equipment lists for pump stations or WTP processes. To avoid undue delay to construction of a deferred project these Intangible Assets will need to be maintained.

2.6 Hold Point

There exists a “Natural Hold Point” for Water Supply Construction Projects after Preliminary Design and Detailed Design when the preparatory works detailed in Section 3 (below) have been completed.

2.7 Trigger Point for Construction

The “Trigger Point for Construction” for water supply construction projects is unlikely to coincide with the “Natural Hold Point”. For example it may be:

- When storage is depleted to a pre-defined minimum capacity; or
- When 2-3 years notice of a large new demand for water is confirmed, such as a commitment for a major new industrial development.

2.8 Deferral due to Significant Inflow to Existing Storages

A water supply construction project is unlikely to be triggered prior to the “Trigger for Construction” date unless a new large demand for water is confirmed. However, it may be deferred beforehand if a major inflow event occurs into existing dams or if a large existing customer advises of a significant permanent decrease in future water demand.

2.9 Preparatory Expenditure Ends when Construction Triggered

When construction has been triggered, any subsequent expenditure (whether accrued before or after the decision to proceed with construction) can no longer be defined as preparatory expenditure and becomes normal project expenditure.

Furthermore any expenditure allocated to Preparatory Expense Accounts before construction is triggered would be transferred to normal Capital Works Project Accounts soon after triggering.

3. GUIDELINES FOR PREPARATORY WORK FOR WATER SUPPLY CONSTRUCTION PROJECTS

3.1 Preparatory Works Items

Cardno proposes that expenditure on the preparatory works items listed below would be reasonable and appropriate for critical water supply construction projects with a high probability of commencement in the next few years:

- Defining scope of the project;
- Establishing sources and timing of project funding;
- Selection of all routes and sites;
- Investigations and surveys necessary for approval and design completed. These include environmental, Indigenous Heritage and Native Title, topographical and geotechnical surveys;
- Consultation and most communication completed with stakeholders. It is expected that communication will be required beyond the preparatory phase and continue throughout the life of the project;
- Approvals from all levels of Government;
- Land and easements acquired or reserved and/or arrangements made for shared infrastructure corridor usage;
- Negotiations with utility providers about their existing and planned infrastructure and any required realignments;
- Negotiations with utility providers about supplying infrastructure for the project, such as power, telecommunications, roads etc;
- Preliminary design;
- Detailed design;
- Procurement documentation for Principal Supplied long lead time materials and equipment;
- Construction contract documentation including drawings and specifications; and
- Possibly, expressions of interest sought and received for procurement and construction contracts.

3.2 Framework

An evaluation framework has been developed based around the items above being considered as appropriate preparatory expenditure. The items can be broadly summarised under the following key items:

- Preliminary Design;
- Land Acquisition/Reservation;
- Approvals;
- Consultation & Communication;
- Investigations;
- Procurement Assessment
- Detailed Design; and
- Asset Creation.

The evaluation framework is about an assessment of the project schedule and programme. As part of the framework, applications for approval of preparatory expenditure on water supply construction projects are therefore required to be accompanied by a detailed programme for each of the above tasks and subtasks.

There exists “Natural Hold Points” for Water Supply Construction Projects after Preliminary Design and the other work items (i.e. before Detailed Design) and after Detailed Design.

The normal approach to delivering the infrastructure “just in time” is indicated by Figure 3–1 below. This involves all preparatory items being delivered before the trigger point for construction. It is anticipated that preparatory works can typically be delivered within three years. Detailed environmental approvals could take longer and if this is anticipated it should be supported in the submitted documentation.

Depending on the procurement assessment and construction programme, long lead materials and equipment may or may not be required as a preparatory expenditure. If long lead materials and equipment are proposed as a preparatory expenditure this should be supported by a procurement assessment which includes supporting advice from the suppliers to the lead times. This assessment should split into the key components of pipes, pumps and specialist equipment for treatment plants and telemetry. Typically in the current market, lead times are typically up to 6 months for pipes and up to 12 months for pumps, valves and other equipment. However, pipe can be delivered under a rolling programme. If long lead materials and equipment are proposed as a preparatory expenditure the construction programme should demonstrate that other civil works can not be programmed to accommodate the delay in delivery long lead items.

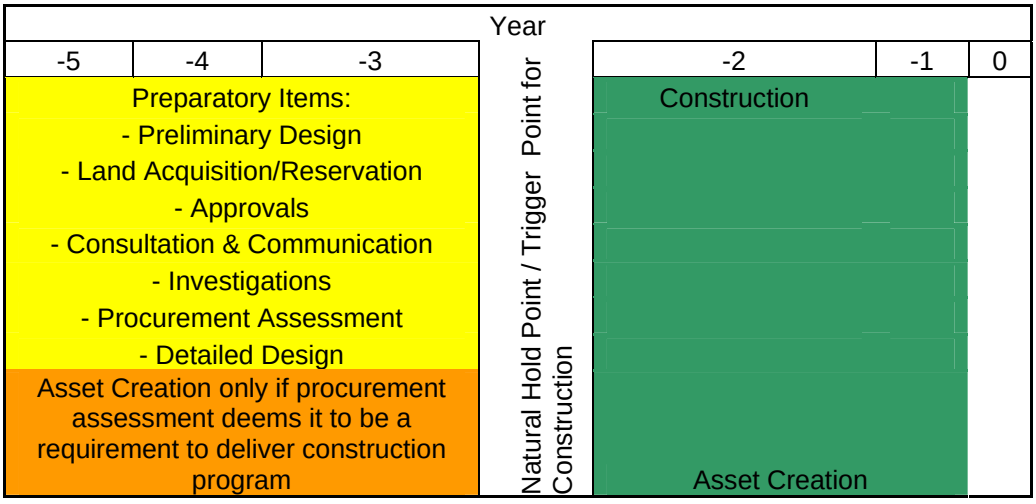

Figure 3–1 Normal Approach to Preparatory Works and Costs

Where there is a need to plan in advance for contingent strategy projects an alternative approach which allows for deferments in the programme due to a change in circumstances such as a replenishment of the water source (e.g. dam) or reduction in demands is indicated by Figure 3–2. The programme allows for deferment of the detailed design after preliminary design. Typically, once the preparatory items in Figure 3–2 have substantially commenced the works should be allowed to be completed. However, for any project with a deferral expected to be longer than 5 – 7 years consideration should be given to halting or suspending the environmental and other surveys, investigations and approvals because of limitations with their useful (i.e. “shelf) life. Securing of land through acquisition and reservation should be completed to provide future certainty.

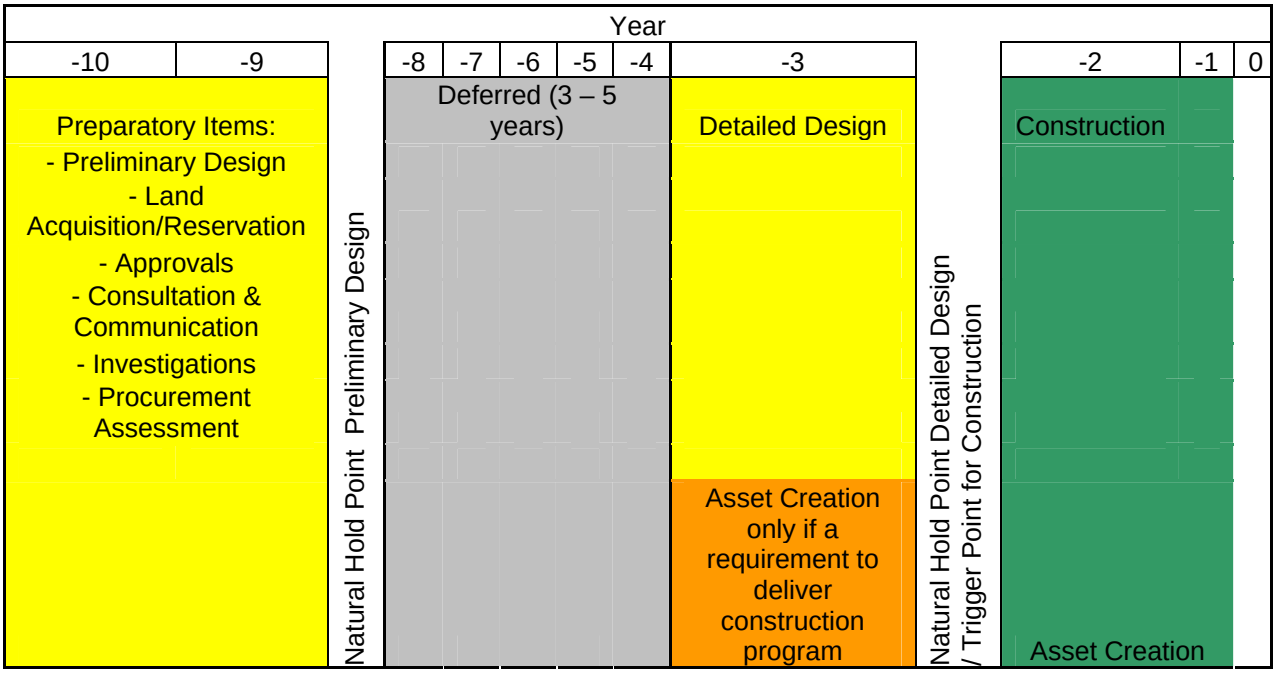

Figure 3–2 Contingency / Deferred Typical Approach to Preparatory Works and Costs

Project management is not considered as its own separate preparatory item. For both approaches considered the preparatory expenditure for project management should be itemised under each of the key preparatory headings.

A draft checklist/template which summarises key detail to be provided with submissions for an assessment of preparatory works has been developed and is included in Appendix C. The draft checklist should be refined based on further consultation with the Queensland Competition Authority.

3.3 Preliminary Design

Preliminary Design can be considered a preparatory item and may need to be completed even if the project is subsequently deferred to allow land acquisition or reservation works to be completed. By completing this task it also provides certainty for the future design and other preparatory works. The preparatory expenditure estimate should be based on actual or similar consultancies. If the proposed expenditure is to be split into more than one consultancy this should be documented. If possible, the expenditure should be summarised against the anticipated number of hours and hourly rates of proposed staff.

3.4 Land Acquisition / Reservation

The securing of land based on the chosen option should be completed under most circumstances as preparatory work to provide future certainty. The estimate of land acquisition or reservation should identify if land or an easement is to be acquired or if another means of reservation is proposed. The land required should be identified on map/s and a break down of the area/parcels required and the approach or assumptions in their valuation also included. If land is to be shared with other agencies and potential commercial terms are known, these should be included.

The anticipated duration for the land acquisition or reservation task should be included in the programme.

3.5 Approvals

Approvals will be critical to the duration of the preparatory works and to meeting the trigger for construction requirements. Any submissions should list the likely approvals to be required and the duration. An example of this is the review undertaken for this report of the Fitzroy River – Gladstone pipeline which is included in Appendix B. The submission should also indicate if the project is being sought to be declared a significant project under the *State Development and Public Works Organisation Act 1971*. Each approval required should be listed in a detailed programme to be provided with the submission.

3.6 Consultation & Communication

Consultation and communication will be required with stakeholders during preparatory works. The submission should outline the communication plan required and include an estimated programme and break down of number of hours or days against each of the stakeholders or components. This may also require confirmation of commercial arrangements with customers. There may be a need to establish customer and community consultation groups.

3.7 Investigations

This broad item is considered to be necessary preparatory works however, submissions should provide details (i.e. duration and cost) on each of the separate investigations required to make an assessment, such as:

- Environmental (e.g. EIS);
- Indigenous Heritage and Native Title;
- Topographical and land surveys;
- Geotechnical surveys;
- Aerial Surveys;
- Noise and visual amenity surveys;
- Economic assessment; and
- Business Case analysis.

The preparatory expenditure estimate should be based on actual or similar consultancies. If the proposed expenditure is to be split into more than one consultancy, this should be documented. If possible, the expenditure should be summarised against the anticipated number of hours and hourly rates of proposed staff.

3.8 Procurement Assessment

As part of the preparatory work a procurement assessment should also be completed including a break down of lead times for each of the key components of pipe, pumps and specialist equipment for treatment plants and telemetry. The assessment should include supporting advice from each of the suppliers as to the anticipated delivery times and should be used to influence the delivery programme. If during the preparatory works the procurement assessment identifies revisions to long lead materials and equipment which would impact the trigger point for construction this mechanism should be sufficient for a revision to preparatory expenditure to include asset creation.

3.9 Asset Creation

If long lead materials and equipment are proposed as a preparatory expenditure the construction programme should demonstrate that other civil works can not be programmed to accommodate the delay in delivery long lead items and that early procurement represents the least – cost option. In the absence of information supplied on lead times for materials and equipment the assessment should be based on typical lead times of up to 6 months for pipes and up to 12 months for pumps, valves and other equipment. The assessment should assume pipe is delivered in the period under a rolling programme.

3.10 Detailed Design

Detailed design should be included in preparatory expenditure just prior to the trigger point for construction. Typically if construction is due to start within three years detailed design will commence following the preliminary design. If there was a deferment of the project the approach is to stop at the natural hold point before detailed design as outlined in Figure 3–2.

4. REVIEW OF GAWB PROPOSED PREPARATORY WORK FOR THE FITZROY RIVER - GLADSTONE PIPELINE PROJECT

Gladstone Area Water Board (GAWB) defines preparatory costs as: "expenditure necessary to achieve a 24 month construction time target (with such expenditure to exclude any unnecessary or over-designed works)".

GAWB notes that preparatory costs are not fixed but are subject to revision. GAWB states it will: ". . . conduct rolling reviews of both the components and quantum of these costs as it develops a better understanding of the design and construction programmes and work elements."

Whilst Cardno sought further information, insufficient details have been provided to undertake a detailed review of specific cost estimate items in the GAWB Forecast Capital Expenditure for Preparatory Works in Table 4-1.

Table 4-1 Forecast Capital Expenditure

Forecast Capital Expenditure ($m)	2006/07	2007/08	Total
Project Management	0.9	2.6	3.5
Approvals	0.9	1.0	1.9
Land Acquisition	0.0	5.1	5.1
Consultation / Communication	0.3	1.3	1.5
Engineering and Investigations	0.9	6.0	6.9
Asset Creation	0.0	5.0	5.0
Totals	2.9	20.9	23.8

Excluding GAWB's forecast expenditure on tangible assets such as Land Acquisition ($5.1 m) and Asset Creation ($5.0 m), the forecast expenditure on Approvals, Consultation, Communications, Engineering, Investigations and Project Management to get ready for construction of this project is $13.8 million (after rounding). Cardno suggests that 3% - 4% of total project cost ($10 m - $14 m) is the likely range for such a project (which includes a complex water treatment plant).

More detail is required to determine whether $3.5 million is reasonable for Project Management of the preparatory works phase. The estimate should be split-up between the other items (Approvals, Land Acquisition/Reservation, Consultation etc) to be managed in accordance with the proposed framework.

Cardno makes the following additional comments on GAWB's proposed preparatory expenditure for the Fitzroy River - Gladstone pipeline project on specific items:

4.1 Approvals

A review of the approvals has been undertaken and included in Appendix B.

4.2 Lower Fitzroy Weirs

Any up-front contributions towards major infrastructure items to gain access to the water in the Lower Fitzroy River may be considered reasonable and prudent preparatory expenditure. For example, any capital contributions to works associated with raising the barrages, the Eden Bann Weir, or construction of the Rockwood Weir would be reasonable. Note, the $345 million total estimate includes the Lower Fitzroy weir and preparatory costs.

4.3 Water Treatment Plant

The installation of the Water Treatment Plant in the *Draft Preliminary Results Construction Programme* (3rd August 2007) occurs over 23 months. This task sets the critical path for completion of the project within the 24 months. Should the pipeline subsequently be deferred because of inflows into the Awoonga Dam or changes to demands, the detailed design of the Water Treatment Plant is the item most likely to become obsolete. Nevertheless, at this stage it is critical to proceed to the detailed design stage for the Water Treatment Plant as part of the preparatory works.

4.4 Programme

The *Draft Preliminary Results Construction Programme* (3rd August 2007) indicates infrastructure tasks other than the Water Treatment Plant such as the pipeline, pumps and reservoirs could be deferred up to 6 months without affecting the critical path and the 24 month completion. This will need to be considered during scheduling of the construction phase. Any deferment will need to maintain a float in the program for unexpected delays and ensure that the items are not placed on the critical path.

4.5 Pump Stations

The design and construction of the pump stations is the second longest task. At this stage it is critical to proceed to detailed design stage for all the pump stations as part of the preparatory works.

4.6 Pipeline

Advice from a leading pipeline supplier is that they can manufacture and deliver the required pipe in 25 weeks from receipt of order under a rolling programme of delivery.

Since the completion of the *Preliminary System Description and Indicative Costing Report* (Arup October 2006) the Pipe Procurement Centre of the Coordinator-General's Department has standardised on three pipe specifications for other regional government works in a range of diameters of interest for the Fitzroy River - Gladstone pipeline:

Table 4-2 Pipe Diameters

Outside Diameter of Steel Shell	Steel Shell Thickness	Cement Mortar Lining Thickness	Sintakote External Coating Thickness	Inside Diameter	Internal Cross-Sectional Area	Average Velocity Pumping 20 hr/day
OD	**T**	**T**	**t_s**	**Bore**	**A**	**V_{20}**
(mm)	**(mm)**	**(mm)**	**(mm)**	**(mm)**	**(Sq. m)**	**(m/s)**
960	8	16	2.3	912	0.6533	1.75
1086	8	16	2.3	1038	0.8462	1.35
1290	10	19	2.3	1232	1.1921	0.96

Note:
The standard length is approximately 13.3 m (effective length after making joints)

It would be reasonable to adopt one of these standard pipe sizes, rather than the 1035 mm OD as indicated in the *Preliminary System Description and Indicative Costing Report* (Arup, October 2006) or approximately 1200 mm OD as indicated in the Initial Advice Statement (10 July 2007). There may also be cost and timing advantages in the procurement of one of these standard sizes.

4.7 Power Supply

If the lead times for some of the required power upgrades are up to three years from the date of application as indicated then these applications need to be made to Ergon Energy as soon as possible, if not already. The lead time for this item should be reviewed as a matter of urgency.

Negotiations should also be concluded on any penalties applying upon cancellation or deferral of the project by GAWB before various milestone dates in the power supply project schedule.

4.8 Procurement of Critical Materials

Based on the *Draft Preliminary Results Construction Programme* (3rd August 2007) and informal discussions with key suppliers, major expenditure on critical long lead equipment and materials as part of the Asset Creation is not expected to be a necessary preparatory costs.

Based on the advice from suppliers, lead times are expected to be up to 12 months for pumps, valves and other long-lead items, pipes however could be delivered under a rolling programme over 6 months. Given the state of the current construction and procurement markets this should be monitored during the preparatory phase for any changes.

There is scope in the draft programme for adjustments to accommodate these lead times from suppliers of pipe, pumps and valves. The Water Treatment Plant with installation over 23 months is on the critical path and it appears possible to defer the other infrastructure tasks.

4.9 Internally-Generated Preparatory Work

If external consultants are used it is inevitable that some GAWB staff and resources will be diverted from their normal operational, administrative or research tasks into managing, liaising with, and assisting with the preparatory work for the Fitzroy River - Gladstone pipeline project and/or the Seawater Desalination Plant. Together with a pro rata share of GAWB overheads, it is appropriate for the costs of this internally-generated preparatory work to be capitalised in the same way as externally-generated preparatory costs.

These costs may be harder to measure reliably than the costs of consultancy contracts and determining their fair-value by reference to an active market is impractical. However, while they may be significant in terms of the operating budget, they are likely to represent only a small percentage of total preparatory costs for the capital works project, so the total cost of internally-generated and externally-generated preparatory work would still be determined to an acceptable level of accuracy, fulfilling a criterion for Intangible Assets [AASB 138 Preface Clause (c)(ii) p.7].

It may only be worthwhile capitalising internally-generated preparatory costs for the project if they were foreseen and excluded from current water price setting; or if they were unforeseen and are large enough to affect both current and future water pricing.

4.10 Minimising Stranded Investment in Preparatory Costs

The project may be deferred for a few years or indefinitely prior to 30 April 2008 if a major inflow event occurs into existing dams, or because of changes in water demand such as an existing large customer advising of a significant permanent decrease in future water demand.

Provided all contracts are conditioned with appropriate escape clauses, it should be possible for GAWB to terminate selected consultancy contracts and preparatory work to mitigate the capital losses and stranded investment from project deferral to an amount much lower than the proposed $23.8 million expenditure on Preparatory Expenditure.

There is very little time available between now and 30 April 2008 for such a large amount to be actually spent, even if orders for that amount are issued. For consultancy services such as environmental studies, indigenous heritage and native title, geotechnical surveys, aerial and land surveys, engineering definition and design and contract documentation these will be largely based on hourly rates and significant levels of input would be required to achieve this expenditure.

If the project was deferred in some cases the consultancy contracts and preparatory work will be well-advanced and sensibly should be completed. In other cases it may be prudent to terminate work, pay any penalties involved plus the cost of work completed to date. This would particularly apply to detailed design of the Water Treatment Plant, pump stations and SCADA system, which are the most sensitive items to technological advance and changes of scope. Completing contracts and works or terminating would need to be considered on a case by case basis.

Where land has been acquired for the project, it may be possible to lease it back to the sellers or to adjacent farmers to produce an income to help offset land holding costs.

5. REVIEW OF GAWB PROPOSED PREPARATORY WORK FOR SEAWATER DESALINATION

In relation to the Seawater Desalination project, significant savings can be achieved if any future plant is located immediately adjacent to the source water, thereby reducing potential major inlet and brine outlet costs. A site suitable for a Seawater Desalination Plant should be selected, acquired or reserved and rezoned as close to the coast as soon as possible. Coastal land is typically in short supply and in demand. Investment now could potentially save on significant land acquisition costs in the future. Depending upon the trigger for the Desalination option, the preliminary expenditure could be limited at this stage to those works required to identify and reserve a suitable site.

For the desalination plant in Western Australian only about 12 months of baseline studies on marine water quality, currents, tides, waves, weather data, dominant mixing processes, bathymetry, littoral drift, coastal processes, aquatic organisms etc were needed once options for the location of the outfall diffuser had been determined. However, the duration of the studies required will need to be determined on a case by case and has the potential to affect the timelines and trigger points.

There are step-changes in capital cost, operating costs and greenhouse gas emissions of Seawater Desalination Plants being constructed around Australia and the world. Together with Land Acquisition costs, these are important factors which have the potential to alter the future rankings of the two options. It is anticipated that detailed studies of likely sites for extraction of seawater and disposal of brine; water quality of seawater and mixing processes; environmental issues; land acquisition and connection to the water network are unlikely to change the relative rankings of augmentation options, as reasonable cost estimates can be made by reference to many similar projects around the world.

If the Fitzroy River – Gladstone pipeline project were to be deferred by more than few years then the evaluation and ranking of the two options may need to be reconsidered particularly because of potential technological and cost advances with desalination.

Insufficient details have been provided to undertake a detailed review of specific costs associated with the $1 m estimate for the feasibility and detailed assessment of costs of the desalination plant. Specifically no breakdown against the individual items in the scope of work was available to make an assessment. If the tasks outlined in section 13.4.2(f) in the GAWB submission, being a siting study including a more detailed cost estimate and includes:

- Proximity to power, industry, utilities and services;
- Environmental, land tenure, heritage and community constraints;
- Review of access and flooding constraints; and
- Marine considerations including criteria relating to the intake and outfall, and might require studies into water quality, dispersion modelling and conceptual outfall design.

Then $1 million in expenditure which represents between 0.28% and 0.32% of the estimated capital cost of between $314 and $361 million of the desalination plant may be reasonable. This figure will depend on the accuracy of the cost estimate to be achieved by the proposed work, the $1 million estimate could be significantly lower or higher depending on the level of preliminary design work for the cost estimate. A more detailed breakdown including the proposed scope would be required to make a further assessment.

6. CONCLUSIONS

6.1 Guidelines for Preparatory Works for Water Supply Construction Works

Items that can be considered preparatory works are:

- Defining scope of the project;
- Establishing sources and timing of project funding;
- Selection of all routes and sites;
- Investigations and surveys necessary for approval and design completed. These include environmental, Indigenous Heritage and Native Title, topographical and geotechnical surveys;
- Consultation and most communication completed with stakeholders;
- Approvals from all levels of Government;
- Land and easements acquired or reserved and/or arrangements made for shared infrastructure corridor usage;
- Negotiations with utility providers about their existing and planned infrastructure and any required realignments;
- Negotiations with utility providers about supplying infrastructure for the project, such as power, telecommunications, roads etc;
- Preliminary design;
- Detailed design;
- Procurement documentation for Principal Supplied long lead time materials and equipment;
- Construction contract documentation; and
- Possibly, expressions of interest sought and received for procurement and construction contracts.

As part of the framework a detailed project schedule and program should accompany all applications for approval of preparatory expenditure on water supply construction projects in order to undertake the evaluation. The evaluation approach to the framework for assessment of Preparatory works is summarised by Figure 6–1 and Figure 6–2.

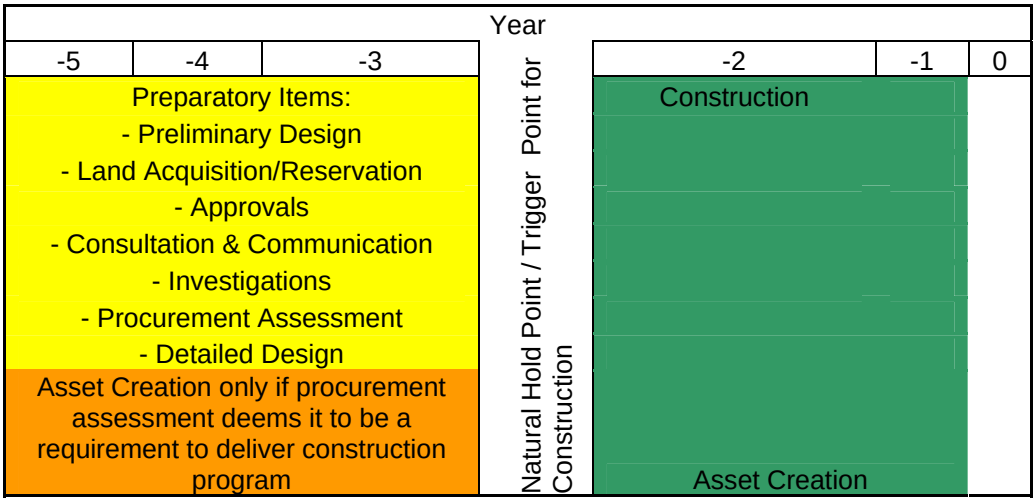

Figure 6–1 Normal Approach to Preparatory Works and Costs

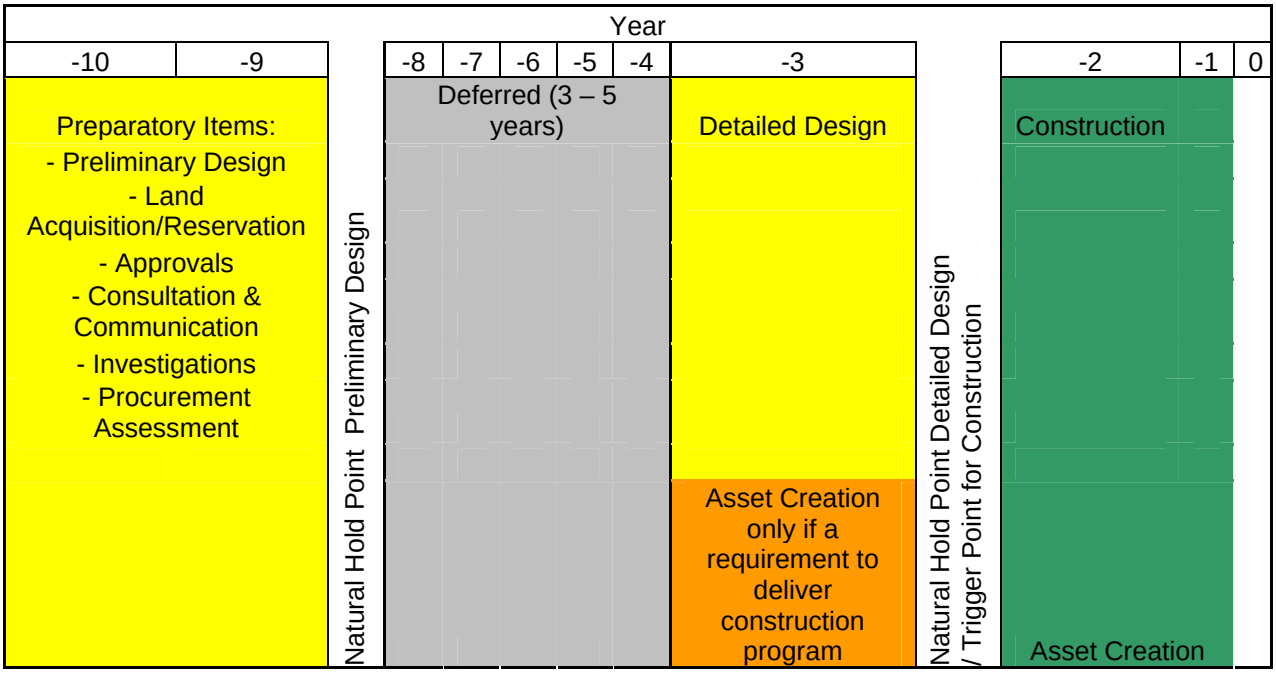

Figure 6–2 Contingency / Deferred Typical Approach to Preparatory Works and Costs

6.2 Review of GAWB's Proposal for Preparatory Expenditure on the Fitzroy River - Gladstone Pipeline & Desalination Projects

Whilst Cardno sought further information, insufficient details have been provided to undertake a detailed review of specific cost estimate items in the GAWB Forecast Capital Expenditure for Preparatory Works. However, at the high level the components have been reviewed and most items with the exception of the asset creation have been considered to be required to enable the Fitzroy River – Gladstone pipeline to proceed to completion within a 24 month lead-time.

Based on adjustments to the *Draft Preliminary Results Construction Programme* (3rd August 2007) and informal discussions with key suppliers, major expenditure on critical long lead equipment and materials as part of the Asset Creation item of $5m are not expected to be a necessary preparatory costs.

More detail is required to determine whether $3.5 million is reasonable for Project Management of the preparatory works phase. For this to be assessed in accordance with the framework the estimate would need to be split-up between the other items (Approvals, Land Acquisition/Reservation, Consultation etc).

In relation to the Seawater Desalination project, significant savings can be achieved if any future plant is located immediately adjacent to the source water, thereby reducing potential major inlet and brine outlet costs. A site suitable for a Seawater Desalination Plant should be selected, acquired or reserved and rezoned as close to the coast as soon as possible to potentially save on significant land acquisition costs in the future.

Insufficient details have been provided to undertake a detailed review of specific costs associated with the $1 m estimate for the feasibility and detailed assessment of costs of the desalination plant. The $1 million in expenditure which represents between 0.28% and 0.32% of the estimated capital cost of between $314 and $361 million may be reasonable. This will depend on the accuracy of the cost estimate to be achieved by the proposed work and the $1 million estimate could be significantly lower or higher depending of the level of preliminary design work for the cost estimate. A more detailed breakdown including the proposed scope would be required to make any further assessment.

7. REFERENCES

Queensland Competition Authority, *Terms of Reference, Gladstone Area Water Board: Review of Preparatory Expenditure*, 8 June 2007, Unpublished.

Gladstone Area Water Board, *Drought Management Plan*, 30 September 2006.

Arup, *Fitzroy River – Gladstone Regional Water Pipeline – Preliminary System Description and Indicative Costing*, (Restricted), 29 October 2006.

Gladstone Area Water Board, *Submission to the Queensland Competition Authority Fitzroy River Contingency Infrastructure,* (Undated copy).

Gladstone Area Water Board, *Gladstone – Fitzroy Pipeline Initial Advice Statement Department of Infrastructure*, July 2007.

Central Queensland Water Balance and Level of Service Task Group, *Minutes of Meeting on 6 December 2006*, Unpublished.

Australian Accounting Standards Board, *AASB 138 Intangible Assets*, July 2004.

Resource and Land Management Services (RLMS) *Rockhampton to Gladstone Corridor – Infrastructure Corridor Investigation*, 2006.

8. DEFINITIONS

'Dead Storage' is the volume of water (and often sediment) remaining behind dams and barrages below the level of the lowest off-take level, which cannot be used without extra mobile pumps or other means to extract it.

'GAWB' means the Gladstone Area Water Board.

'OD' means Outside Diameter.

'PS' means Pump Station (or Pumping Station).

'QCA' means Queensland Competition Authority.

'RLMS' means Resource and Land Management Services.

'SCADA' means Supervisory Control And Data Acquisition system

'SGIC' means Stanwell – Gladstone Infrastructure Corridor (not yet declared).

'Time Frame from Failure' means the number of months that Contracted Supply can be maintained until Dead Storage is reached as calculated by the Model.

'Trigger Levels' are expressed in terms of Time Frame from Failure and are milestones that represent a prediction of remaining volume in storage for a period of supply using a model based on an assumed level of inflow and supply.

'WTP' means Water Treatment Plant.

APPENDIX A

Terms of Reference

Terms of Reference

Gladstone Area Water Board:

Review of Preparatory Expenditure

8 June 2007

1. Project Background

Queensland Competition Authority

The Queensland Competition Authority (the Authority) is an independent statutory body responsible for assisting with the implementation of competition policy for government owned business entities in Queensland.

On 23 February 2007 the Premier and the Treasurer referred the declared monopoly business activities of the Gladstone Area Water Board (GAWB) to the Authority for an investigation of pricing practices related to GAWB's contingent source supply strategy. The investigation comprises three stages;

(a) the recovery of preparatory expenditures;

(b) triggers for construction; and

(c) recovery of costs arising from the implementation of the preferred option.

This follows previous investigations of GAWB's pricing practices completed by the Authority in September 2002 and March 2005.

Gladstone Area Water Board

GAWB is responsible for the supply of both untreated and treated water to industrial and local government consumers in the Gladstone area and also supplies water from Awoonga Dam for power generation at the Callide Power Station near Biloela. It operates a network of pipelines, pump stations, terminal reservoirs and treatment plants to supply water to its customers.

Following the development of its revised Drought Management Plan and its Strategic Water Plan, GAWB has proposed to undertake preparatory expenditure to investigate contingency water supply sources. The objective of GAWB's contingent source strategy is to shorten the lead time of the most suitable new water source to a period of 24 months.

GAWB has identified that the preferred contingent source option is to access a supply of high reliability water from the Lower Fitzroy River. This involves a weir on the Fitzroy River and connecting pipeline to the Aldoga Reservoir north of Gladstone. The second preferred option is a desalination plant.

GAWB has sought the Authority's approval of proposed categories of preparatory expenditure, including project management, approvals, land acquisition, consultation, engineering investigations and specific assets. While GAWB has not sought the Authority's view on the value of the expenditure, it provided an indicative estimate of $23.8 million for the Lower

Fitzroy pipeline option and $1 million for investigations into the feasibility of desalination. These costs are to be incurred during 2006-07 and 2007-08.

GAWB is seeking approval from the Authority to capitalise the costs as they are incurred and incorporate them in the asset base for pricing purposes from July 2010. GAWB proposes that the actual level of costs would be assessed on an ex post basis by the Authority.

2. Purpose/outline of Consultancy

The purpose of the consultancy is to review the expenditure items proposed by GAWB (and its advisers) as part of its preparatory expenditure and provide an independent assessment of whether they are reasonable and appropriate.

Key elements of the consultancy are to:

- review GAWB's proposed preparatory expenditure components and advise whether it is reasonable for these costs to be incurred by GAWB to enable the Fitzroy pipeline to proceed to completion within a 24 month lead time. In particular, the consultant should:
  - clarify the elements of project management proposed by GAWB;
  - provide details of necessary approvals;
  - review the need for land and easement acquisition, including licences from the State;
  - outline the extent of preliminary engineering investigations; and
  - indicate the types of assets that would need to be acquired.
- recommend whether any of the cost components could be reasonably deferred until the decision is made to proceed with the pipeline project;
- identify any other cost components that have been overlooked but might prudently be incurred by GAWB to ensure that its target lead time of 24 months is achieved;
- provide an indicative cost estimate in current dollars for the items considered to be reasonable preparatory expenditure. This could include recommending any variations to the approaches being proposed for project management, approvals, engineering investigations and asset acquisition;
- provide an indication of the shelf-life of the preparatory expenditure items, for depreciation purposes; and
- review the proposed expenditures for the feasibility of desalination and advise whether the scope of the study and estimated costs are reasonable.

The consultant should also provide some indicative benchmarking of key parameters, including time required for key preparatory processes such as engineering investigations, the key approvals and asset acquisition, and preparatory costs as a proportion of total capital costs.

3. Resources/Data Provided

The principal resource document is the '*Fitzroy River – Gladstone Regional Water Pipeline, Preliminary System Description and Indicative Costing*' report prepared for GAWB by its

engineering consultant ARUP. The consultant will be required to source further information from GAWB and ARUP, and other stakeholders as appropriate.

Additional information relevant to this consultancy may be found in the Authority's publications, available from the Authority or for downloading from its website at www.qca.org.au:

4. Project Time Frame

The consultancy will commence in mid June, with a completion date to be determined.

Dates for completion will be confirmed at the time of appointment.

5. Proposal Specifications and Fees

The proposal should:

- include the name, address and legal status of the tenderer;
- provide the proposed methods and approach to be applied;
- provide a fixed price quote for the provision of the services detailed herein; and
- nominate the key personnel who will be engaged on the assignment together with the following information:
  - name;
  - professional qualifications;
  - general experience and experience which is directly relevant to this assignment;
  - expected time each consultant will work on the project; and
  - standard fee rates for any contract variations.

The fee quoted is to be inclusive of all expenses and disbursements. A full breakdown of consultancy costs is required with staff costs reconciled to the consultancy workplan.

Total payment will be made within 28 days of receiving an invoice at the conclusion of the consultancy.

6. Contractual Arrangements

This consultancy will be offered in accordance with the Authority's standard contractual agreement.

This agreement can be viewed at http://www.qca.org.au/about/consultancyagreement.php

7. Reporting

At the conclusion of the consultancy, the consultant will be required to provide the Authority with a personal presentation on the findings of the analysis in addition to presenting three (3) copies of a written report. An electronic version of the final report is also required, saved in Microsoft© Word with any numeric data in Microsoft© Excel.

8. Confidentiality

Under no circumstance is the selected consultant to divulge any information obtained from any DNSP or the Authority for the purposes of this consultancy to any party other than with the express permission of the DNSP concerned and the Authority.

9. Conflicts of Interest

For the purpose of this consultancy, the consultant is required to affirm that there is no, and will not be any, conflict of interest as a result of this consultancy.

10. Authority Assessment of Proposal

The proposal will be assessed against the following criteria:

- understanding of the project;
- skills and experience of the firm and team;
- the proposed methods and approach;
- capacity to fulfil the project's timing requirements; and
- value for money.

In making its assessment against the criteria, the Authority will place most weight on relevant experience of the team members involved and the proposed method for the completion of the task.

11. Insurance

The consultant must hold all necessary workcover and professional indemnity insurance.

12. Quality Assurance

The consultant is required to include details of quality assurance procedures to be applied to all information and outputs provided to the Authority.

13. Lodgement of Proposals

Proposals are to be lodged with the Authority by **5 pm 20 June 2007**.

For further information concerning this consultancy, please contact Paul Smith on 3222 0562.

Proposals should be submitted to:

The Chief Executive Officer

Queensland Competition Authority
GPO Box 2257
Brisbane Qld 4001

Phone: (07) 3222 0555
Fax: (07) 3222 0599
Email: paul.smith@qca.org.au

APPENDIX B

Review of Approvals Report

FITZROY RIVER - GLADSTONE PIPELINE

Review of Approvals

17 September 2007
Job No.7636/02

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Document Control

Version	Date	Author		Reviewer	
		Name	Initials	Name	Initials
1	17 September 2007	A. McLaughlin		C. Smith	

FITZROY RIVER - GLADSTONE PIPELINE

REVIEW OF APPROVALS

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Gladstone Area Water Board (GAWB) has commenced planning the construction of a water pipeline from Fitzroy River to meet the future water demands of the Gladstone water supply area.

A preliminary system description and indicative costing has been provided by GAWB as part of the project planning process. Cardno has been commissioned to review the expenditure items proposed by GAWB (and its advisors) as part of its preparatory expenditure and provide an independent assessment of whether they are reasonable and appropriate. Costing of the project includes the cost of obtaining the approvals required for the pipelines construction and operation.

An assessment of information regarding approvals has shown that only few of the required approvals have to date been identified within the existing documentation although there is not currently enough information to make a definitive determination on all precise approvals required.

The potential impacts on necessary environmental approvals associated with any delay in the project could be either positive or negative. Generally, mechanisms exist within legislation that allow for extensions of the currency period of any approvals that have been issued by State and Commonwealth agencies. This would minimise any rework required if the project was delayed, provided that there are no significant changes to the project over a period of time.

1. INTRODUCTION

This report has been developed based on the following information:

- *Fitzroy River-Gladstone Regional Water Pipeline Preliminary System Description and indicative Costing*, Arup, October 2006.

- Initial Advice Statement provided for the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999*. A copy of which can be found on the Queensland Department of Development and Innovation web site.

- *Queensland Competition Authority Fitzroy River Contingency Infrastructure Response to questions from Cardno*, Gladstone Area Water Board, 3 August 2007.

While these documents provide information on the proposed development, no detailed studies and investigations have yet been undertaken that would provide a high level of certainty of what the required approvals would be.

2. APPROVAL PROCESS

The Gladstone Area Water Board (GAWB) proposes to build a 105 km pipeline to enable the transfer of 30 gigalitres of water per annum from the southern bank of the lower Fitzroy River to Gladstone.

The pipeline is intended to run within the Stanwell – Gladstone Infrastructure Corridor for the majority of its length and then connect with existing Gladstone water infrastructure within the Gladstone State Development Area.

The approval process has already commenced at both Commonwealth and State levels.

On the 11 July 2007, the Australian Government Minister for the Department of the Environment and Water Resources determined that the project is a 'controlled action' under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). The Part 3, Division 1, controlling provisions are "listed threatened species and communities (sections 18 & 18A)".

On 26 July 2007, the Coordinator-General declared the Gladstone – Fitzroy Pipeline project to be a "significant project for which an Environmental Impact Statement (EIS) is required" in accordance with Part 4 of the State Development and Public Works Act 1971 (Qld).

It is understood that the Department of Infrastructure is managing the EIS process on behalf of the Coordinator-General. The EIS process, accredited under a bilateral agreement, will address matters on behalf of both the Queensland and Australian governments.

The Stanwell Gladstone Infrastructure Corridor (SGIC) is a declared a State Development Area under the State Development and Public Works Organisation Act 1971 (SDPWOA). Once a development plan is approved for the corridor, then Local government planning schemes will not be applicable for any development within that corridor. Any part of the pipeline or other infrastructure outside the corridor will be subject to the Local Government's Planning Scheme.

It is understood that steps have commenced in regard to acquiring the necessary water allocation for the project. As part of this process, other works will be necessary including the raising of the Eden Bann weir and/or Fitzroy Barrage and/or construction of a new weir at Rookwood to increase storage. In addition it will be necessary to amend statutory provisions with regard to water allocations and planning. It is not known whether approvals for such other works would be forthcoming or how far advanced the acquisition process is.

To establish the currency of approvals required, it was necessary to make a summation of the expected approvals required for the construction, and this is contained in Table 1 below. Table 1 may not be exhaustive, and additional approvals such as required by Council local laws may also be necessary. Owner's consent or land acquisition may also require negotiation.

Table 1 – Summary of the Approvals Required

Legislation	Reasons for approval	Specific trigger	timing
Commonwealth			
Environmental Protection & Biodiversity Conservation Act 1999	Project has been declared a controlled action. The Part 3, Division 1, controlling provisions are: • Listed threatened species and communities (sections 18 & 18A).	Section 67A of the Act requires action not taken unless approval given.	Bilateral agreement exists between State and Commonwealth in respect of the process for EIS production & approval. EIS process is outlined in *State Development and Public Organisation Act 1971* Public consultation process required on setting terms of reference and draft EIS. Terms of reference will address issues controlled by EPBC Act. Data gathering to address terms of reference can extend to over a year to take in account of seasonal variation for such matters as faunal habitat and water quality of ephemeral waterways if data is otherwise unavailable. Long term trends such as water quality may require even longer periods of data collection depending on level of certainty required. EIS is required to be delivered to Coordinator General within 2 years of issue of terms of reference under *State Development and Public Organisation Act 1971* although this may be extended (s. 32)

Native Title Act 1993	Works on land subject to native title require an indigenous land use agreement. Native title is considered to be extinguished on land that is freehold or subject to a pastoral lease.	The Project corridor passes through two registered native title claims, namely the Port Curtis Coral Coast claim between Gladstone and Raglan, and the Darumbal claim between about Raglan and the Fitzroy River	
State			
Integrated Planning Act 1997	Resource entitlement is required for: • leasehold land, roads, electricity easements and other areas outside tenure of freehold land. • works on a State controlled road • through railway corridor resource entitlement is required by the appropriate department, eg Department of Natural Resources and Water (DNRW), Department of Main Roads (DMR)	Section 12 of the *Integrated Planning Regulation 1998* Resource entitlement replaces "owners consent" for certain operational works approval required by the *Integrated Planning Act 1997.*	Any issues which may prevent the issue of resource entitlement should be determined in EIS process.
Integrated Planning Act 1997	Material Change of Use (MCU) under the Council's Planning Scheme if required for infrastructure, water treatment plant,	Planning scheme provides the level of assessment. If a plan of development is approved under the Planning Scheme, then this will provide the basis for subsequent material change of use applications.	Not applicable for areas where plan of development for a declared State Development area exists. Unless otherwise specified by the Assessment Manager the currency period for approvals for Material Change of Use (MCU) is 4 years, and Operational Works is 2 years. An extension to the currency period of approvals may be applied for.
	Operational works	Planning scheme provides the level of assessment.	

State Development and Public Works Organisation Act 1971	Project declared a significant project	Section 26 of the Act allows declaration of a significant project where EIS appropriate.	Office of Coordinator General to provide a report based on this EIS. That will provide a response for IPAct approval. Declaration of Significant project remains current but EIS must be given to Coordinator General 2 years after the finalisation of the Terms of Reference (s. 32(4)) although an extension is possible. The Coordinator Generals report lapses after 4 years or other stated period and written extension is possible. (s. 35A) Coordinator General's report provides conditions for MCU for approvals under the IPAct. Project can be prescribed under Part 5A and 76E. If this occurs a 2 year currency of the declaration could remain - this can be extended.
Environmental Protection Act 1994	MCU for the commencement of Environmentally Relevant Activity (ERA) 16 Water treatment	Treating 20ML or more of water a day Item 1, table 2 schedule 2 *Integrated Planning Regulation 1998*	IPAct approval Currency as per development approval under IPAct EIS required to address and condition if necessary.
	MCU for the commencement of ERA 19 Dredging- only if more than 250 m3 of material to be removed from the bed or banks of watercourses.	Dredging in waters. Item 1, table 2 schedule 2 *Integrated Planning Regulation 1998*	IPAct approval Currency as per development approval under IPAct EIS required to address and condition if necessary.
	MCU for the commencement of ERA 11a for the storage of fuel	Fuel storage Item 1 of table 2 of schedule 2 of *Integrated Planning Regulation 1998* Maybe applicable to temporary storage during construction	This ERA is normally devolved to local government IPAct approval Currency as per development approval under IPAct EIS required to address.

	MCU for the commencement of ERA Concrete batching	Concrete batching Item 1 of table 2 of schedule 2 of *Integrated Planning Regulation 1998* Maybe applicable to mobile plant during construction	IPAct approval Currency as per development approval under IPAct EIS required to address.
	MCU for the commencement of ERA 15 sewage treatment plant	Sewage treatment Item 1 of table 2 of schedule 2 of *Integrated Planning Regulation 1998* Maybe applicable for construction camps.	IPAct approval Currency as per development approval under IPAct EIS required to address.
	MCU for the commencement of ERA 28 motor vehicle workshop	Motor vehicle workshop Item 1 of table 2 of schedule 2 of *Integrated Planning Regulation 1998* Maybe applicable for construction camps. (or could be mobile activity)	IPAct approval Currency as per development approval under IPAct EIS required to address.
	MCU for the commencement of ERA Extraction Initial advice statement indicates extraction from borrow pits. EIS will be required to address.	Extractions Item 1 of table 2 of schedule 2 of *Integrated Planning Regulation 1998* Maybe applicable to extraction of materials from borrow pits during construction	IPAct approval Currency as per development approval under IPAct EIS required to address

Nature Conservation Act 1992	Approval required for removal or damage of listed flora and fauna.	Non IPA process.	Permit can be issued for a stated period. New permit would be required should permit expire. Information necessary for any permit issue should arise from EIS.
Coastal Protection and Management Act 1995	Resource Allocation or Dredge Management Plan required for dredging (for removal of material) Provisions exist in the *State Development and Organisation Act 1971* (s. 140) for authorisation under that section being applicable to section 101 of *Coastal Protection and Management Act 1995* relating to resource allocation	Part 5 Div 1 of *Coastal Protection and Management Act 1995 (*Non *IP Act*)	Resource allocation maybe required for removal of material only. Currency can be provided up to 6 years.
	Operational works - tidal works, Prescribed tidal works proposed crossing of Raglan creek is identified as being in the Curtis Coast coastal management district. Any other works in, over or under tidal waters.	Item 12 of table 2 of schedule 2 of *Integrated Planning Regulation 1998*	IPAct approval Currency as per development approval under IPAct Issues should be addressed through EIS process.
	Operational works within a coastal management district, for example interfering with quarry material above the high water mark on state coastal land.	Item 12 of table 2 of schedule 2 of *Integrated Planning Regulation 1998*	IPAct approval Currency as per development approval under IPAct Issues should be addressed through EIS process.
Transport Operations (Marine Safety) Act 1994	Operational works that is tidal works	Item 14 of table 2 of schedule 2 of *Integrated Planning Regulation 1998*	IPAct approval Currency as per development approval under IPAct Issues should be addressed through EIS process.

Water Act 2000	Taking of water from Fitzroy River	Allocation – water licence in accordance with Div. 2 of the Act. Cannot be issued if not consistent with a water plan (Fitzroy basin resource operation plan)	Critical for pipeline to proceed. Amendment to Fitzroy basin resource operation plan will be potentially required (or other legislative means). Water licence issued for a stated period which is renewable.
	Creek crossings, non tidal	Removal or vegetation/quarry material. S.269 of *Water Act 2000* (section 49, 50, 51 of the *Water Regulation 2002*)	Approval remains current unless it is cancelled (s 272 of the *Water Act 2000*) Requires adjoining land owners consent
Fisheries Act 1994	Disturbance or removal marine plants	Dredging or building works that removes or damages marine plants Item 29 of table 2 of schedule 2 of *Integrated Planning Regulation 1998*	Currency as per development approval under IPAct Approval issued for operational works stage. Major issued identified in EIS.
	Raising barrier works Where not considered temporary	Item 28 table 2 schedule 2 of *Integrated Planning Regulation 1998*	Currency as per development approval under IPAct
Electricity Supply Act 1994 and Electrical Safety Act 2002	Operational works Where works in electricity easement	Item 10 table 3 schedule 2 of *Integrated Planning Regulation 1998*	Currency as per development approval under IPAct Issues should be addressed through EIS process.
Transport Infrastructure Act 1994	Also applies for operational work, contiguous to state controlled road Main Roads Concurrence Agency	Item 1 table 3 Schedule 2 of *Integrated Planning Regulation 1998*	IPA approval Currency as per development approval under IPAct Issues should be addressed through EIS process
	Development on or near railway line	Item 15 table 3 schedule 2 of *Integrated Planning Regulation 1998*	IPA approval Currency as per development approval under IPAct Issues should be addressed through EIS process

Dangerous Goods and Safety Management Act 2001	Approval for the storage of flammable and combustible materials,	Licencing for storage of flammable and combustible liquids. Non *IP Act*	Local Government. annual fees applicable
	Storage of Chlorine gas at water treatment plant may constitute a major hazardous facility	Development approval required Item 7 table 2 schedule 2 of *Integrated Planning Regulation 1998*	Currency as per development approval under IPAct Issues should be addressed through EIS process.
Vegetation Management Act 1999	Vegetation removal. Approvals will be required. Vegetation clearing approval is dependant on the zoning of the land under planning schemes, or whether work is within a state development area.	Op works - Item 5 of table 2 of schedule 2 of *Integrated Planning Regulation 1998* MCU - item 11 of table 3 of schedule 2 of *Integrated Planning Regulation 1998* may be applicable where MCU required.	Currency as per development approval under IPAct Issues should be addressed through EIS process.
Native Title Assessment Native title Act (Qld) 1993	For works outside freehold or leasehold property where native title has not been extinguished.	Notification to be made	Surveys competed may reveal items of indigenous cultural heritage value.
Aboriginal Cultural Heritage Act 2003		Cultural Heritage Management Plan (CHMP) pursuant to part 7 of the *Aboriginal Cultural Heritage Act 2003* will be undertaken during the EIS	
SPP 2/02 Planning and Managing development involving acid sulfate soils Land Act 1994	Excavation or dredging in amounts exceeding specified volumes	Item 4 table 3 schedule 2 *Integrated Planning Regulation 1998* Also a requirement of Council's Planning Schemes.	Currency as per development approval under IPAct Issues should be addressed through EIS process.

Building Act 1975	For buildings eg water treatment plant, pump station		IPA approval- Local Government. Currency as per development approval under IPAct

3. DELAYS OBTAINING APPROVALS

The EIS required under the State Development and Organisation Act 1971 may take a considerable time to complete but will provide the basis for all approvals associated with the project. The Coordinator General's report produced as a result will provide the conditions for any Material Change of Use required under the provisions of the Integrated Planning Act 1997 (IPA).

Delays may be experienced in data collection for the EIS, issues discovered during the EIS studies or following decisions made on the EIS from either State or Federal Governments.

Such delays have been costed as a Risk Register (6 Sept 2006, risk adjusted costs workshop) which is contained in Appendix A of the *Preliminary System Description and Indicative Costing* (Arup, Oct 2006) but are generally limited to native title claims, EPA and DEH (now DEWR). There is a potential for other delays to be caused through the requirement to obtain approvals from a number of different agencies involvement, not just those acknowledged.

The approvals listed in the initial advice statement is limited compared to the number of approvals that may actually be required. It should be noted that should the State Government legislate specifically for the pipeline as critical infrastructure, then many other state approvals may not be needed.

4. CURRENCY

The currency for approvals assessed in this report is listed in Table 1. The Coordinator General's report produced as a result of the EIS is current for a period of four years and will form the basis for IPA approvals by replacing notification and information stages of the application process of the IPA. IPA approvals for Material Change of Use have a currency of 4 years unless otherwise specified by the Assessment Manager. Operational works approvals have a currency of 2 years, however generally cannot be granted until other approvals have been issued.

Any significant changes to the project may result in further approvals or amendments to approvals which have already been granted. For example, should the route of the pipeline be altered at a late stage in the process, further studies and associated approvals may be necessary. A supplementary EIS may also be required.

There can be positive or negative impacts associated with delaying obtaining approvals in general. New legislation may arise should the project be delayed, having the potential to either increase or decrease the approvals required. For example, there is currently no Regional Coastal Management Plan for the Capricorn Coast. The implementation of a Capricorn Coast Regional Coastal Management Plan may have an impact on either the infrastructure or the taking of water from the Fitzroy River. In addition, amalgamation of the local government areas will impact on planning matters over a period of years.

Should the approval process continue as described in the chart contained in the *Preliminary System Description and Indicative Costing* (Arup, October 2006), then the Coordinator General's report and MCU approvals will remain current until 2012.

5. CONCLUSION

While it is noted that the Initial Advice Statement does not list many of the approvals that will actually be required for the project, a number of approvals are rolled into the EIS process. Delaying the project should not adversely affect the normal currency periods attached to approvals. Extension to the currency periods of approvals can be made provided that there are no significant changes to the project. Project alterations may be the major risk associated with approval currency.

APPENDIX C

Draft Preparatory Works Assessment Checklist

Table - DRAFT Preparatory Works Submission Checklist

Description	Part of Preparatory Submission Circle	Works to be undertaken Circle	Duration of Works (weeks)	Estimated Cost Total ($)	Cost as % of Estimated Captial Cost (%)	Based on (total no. of hours)	Based on (average rate $/hour)	Other	Circle	Provided Tick	Comment
Preliminary Design	y / n	Internally / Externally									
Land Acquisition/Reservation	y / n	Internally / Externally						Area identified	y / n		
								Map included	y / n		
								If shared - potential arrangements identified	y / n		
								Approach documented (i.e. acquisition/reservation/rezoning)	y / n		
								Breakdown of parcels documented	y / n		
								Land valuation estimate & approach documented	y / n		
Approvals											
- List required approvals											
- ……	y / n	Internally / Externally						……			
- ……	y / n	Internally / Externally						……			
Consultation & Communication	y / n	Internally / Externally						Communication Plan submitted listing stakeholders, approach, no. of meetings, customer/community consultation groups required etc.	y / n		
								Commercial arrangements confirmed with customers	y / n		
Investigations											
- Environmental (e.g. EIS)	y / n	Internally / Externally									
- Indigenous Heritage and Native Title	y / n	Internally / Externally									
- Topographical and land surveys	y / n	Internally / Externally									
- Geotechnical survey	y / n	Internally / Externally									
- Aerial survey	y / n	Internally / Externally									
- Noise survey	y / n	Internally / Externally									
- Visual Amenity	y / n	Internally / Externally									
- Economic Assessment	y / n	Internally / Externally									
- Business Case Analysis	y / n	Internally / Externally									
- Other List											
- ……	y / n	Internally / Externally						……			
- ……	y / n	Internally / Externally						……			
Procurement Assessment	y / n	Internally / Externally						List lead times by Item based on Supplier Information relied upon			
								- Pipe	y / n		
								- Pump	y / n		
								- Valve	y / n		
								- Telemetry / SCADA	y / n		
								- Electricity supply / connection	y / n		
								- Specialist (i.e. treatment plant, mechincal, electrical)	y / n		
								- Other			
								……	y / n		
								……	y / n		
Asset Creation	y / n	Internally / Externally						List by Item			
								- Pipe Qty (material, diameter and length) & Asset Life	y / n		
								- Pump Qty (no. & kW) & Asset Life	y / n		
								- Valve Qty (type, no. & diameter) & Asset Life	y / n		
								- Other			
								……	y / n		
								……	y / n		
Detailed Design	y / n	Internally / Externally									
Project Management of:											
Preliminary Design	y / n	Internally / Externally									
Land Acquisition/Reservation	y / n	Internally / Externally									
Approvals											
- List required approvals											
- ……	y / n	Internally / Externally									
Consultation & Communication	y / n	Internally / Externally									
Investigations											
- Environmental (e.g. EIS)	y / n	Internally / Externally									
- Indigenous Heritage and Native Tit	y / n	Internally / Externally									
- Topographical and land surveys	y / n	Internally / Externally									
- Geotechnical survey	y / n	Internally / Externally									
- Aerial survey	y / n	Internally / Externally									
- Noise survey	y / n	Internally / Externally									
- Visual Amenity	y / n	Internally / Externally									
- Economic Assessment	y / n	Internally / Externally									
- Business Case Analysis	y / n	Internally / Externally									
- Other List											
- ……	y / n	Internally / Externally									
Procurement Assessment	y / n	Internally / Externally									
Asset Creation	y / n	Internally / Externally									
Detailed Design	y / n	Internally / Externally									
Project Program/Schedule (Gant Chart):											
Critical Path Identified	y / n										
Hold Point after Preliminary Design Identified	y / n										
Hold Point after Detailed Design Identified	y / n										
Trigger Point for Construction Identified	y / n										
Preliminary Design	y / n										
Land Acquisition/Reservation	y / n										
Approvals											
- List required approvals											
- ……	y / n										
Consultation & Communication	y / n										
Investigations											
- Environmental (e.g. EIS)	y / n										
- Indigenous Heritage and Native Tit	y / n										
- Topographical and land surveys	y / n										
- Geotechnical survey	y / n										
- Aerial survey	y / n										
- Noise survey	y / n										
- Visual Amenity	y / n										
- Economic Assessment	y / n										
- Business Case Analysis	y / n										
- Other List											
- ……	y / n										
Procurement Assessment	y / n										
- Pipe	y / n										
- Pump	y / n										
- Valve	y / n										
- Telemetry / SCADA	y / n										
- Electricity supply / connection	y / n										
- Specialist (i.e. treatment plant, mechincal, electrical)	y / n										
- Other											
……											
Asset Creation	y / n										
- Pipe	y / n										
- Pump	y / n										
- Valve	y / n										
- Other											
……	y / n										
Detailed Design	y / n										

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