THE SECRETARY
SENATE RURAL & REGIONAL AFFAIRS & TRANSPORT
PARLIAMENT HOUSE
CANBERRA ACT. 2600

D. MILLIGAN
14 GODFREYS AVE.
BLI-BLI QLD. 4560
TEL.. 54 422 294
FAX.. 54 422 257
19.3.07

RE: INQUIRY INTO TRAVESTON DAM

DEAR SIR, MADAM

I WISH TO THANK YOU FOR THIS OPPORTUNITY TO PROVIDE THIS SUBMISSION TO YOUR ENQUIRY. UNFORTUNATELY THE QLD. GOVT HAS RUN ROUGHSHOD OVER THE PEOPLE BOTH DIRECTLY AFFECTED AS WELL AS ALL THE FAIR-MINDED PEOPLE WHO KNOW BUILDING ANOTHER SHALLOW DAM AT HUGE PUBLIC EXPENSE IN A LOW RAINFALL CATCHMENT IS A COMPLETE AND UTTER WASTE. HOWEVER THE PREMIER MR. BEATTIE SINCE ANNOUNCING THIS DECISION ON 27th. APRIL 2006 HAS STATED THAT HIS GOVT WILL PROCEED WITH TRAVESTON DAM WHETHER IT IS FEASIBLE OR NOT.

THERE WAS NO PUBLIC CONSULTATION PRIOR TO THE ANNOUNCEMENT OF THE GOVTS INTENTION TO BUILD TRAVESTON DAM ON 27th. APRIL 2006.

DUE TO THE PREDICTABLE HUGE PUBLIC OUTCRY MR. BEATTIE WAS FORCED TO HATCH ANOTHER SECRET SCHEME TO DIVIDE THE MARY VALLEY COMMUNITY, WHICH WAS VERY CLEARLY UNITED AGAINST THE DAM, SO HE ANNOUNCED THE STAGED CONST. OF TRAVESTON DAM ON 5th. JULY 2006.

MR BEATTIE AND HIS ADVISERS DID NOT ANTICIPATE THE ANGER AND FRUSTRATION THIS CYNICAL MANOEUVRE WOULD CAUSE WITHIN THE COMMUNITY.

SINCE THEN BEATTIE HAS USED EVERY TRICK IN THE BOOK TO WEAR DOWN THE OPPOSITION TO THE DAM — HE AND HIS MINISTERS HAVE FAILED. THEY HAVE FAILED TO CONVINCE ANY FAIR MINDED PERSONS AND THEY HAVE FAILED TO CONVINCE ALL THE INDEPENDENT EXPERTS WHO KNOW THE DIFFERENCE BETWEEN FACTS AND SPIN.

NOT ONE OF THE KEY GOVERNMENT REPORTS WHICH WOULD SHOW THE DETAILED COSTINGS FOR THIS PROJECT HAVE BEEN PUBLICLY RELEASED.

THE GH & D STUDY DATED JUNE 2006 WAS RELEASED BY MR. BEATTIE ONLY AFTER 5th. JULY 06 ANGRY PUBLIC MEETING.
HOWEVER THIS IS NOT THE DOCUMENT BEATTIE USED TO PROCEED WITH TRAVESTON DAM IN HIS ORIGINAL ANNOUNCEMENT 2 MONTHS EARLIER.

THE GH & D REPORT/STUDY RECOMMENDED A DAM CAPACITY OF 1,130,000 ML. (REF. TABLE 4.3)
WHEN MR. BEATTIE ANNOUNCED THE TRAVESTON DAM IT WAS 666,000 ML. CAPACITY. [THIS WAS ALWAYS THE HYDROLOGIC LIMIT FROM 1977 ONWARDS.]
THE SENATE ENQUIRY SHOULD " SUPOENA " THIS KEY DOCUMENT USED BY MR. BEATTIE AND HIS GOVT. (BOB MCCARTHY IS THE DIRECTOR)
THERE ALSO IS NO COST-BENEFIT ANALYSIS EVER PRODUCED TO JUSTIFY THIS ORIGINAL DECISION ON 27th APRIL 2006.

ANOTHER KEY DOCUMENT NEVER SEEN PUBLICLY IS THAT REPORT USED BY MR. BEATTIE ON THE 5th. JULY 2006 WHICH SUDDENLY INCREASED THE COST OF STAGE 1 OF TRAVESTON 180,000 ML. CAPACITY TO THE 1.7 BILLION DOLLARS.

THE SENATE ENQUIRY SHOULD PURSUE THIS DOCUMENT VIGOROUSLY AS AT THIS PUBLIC MEETING MR. BEATTIE WOULD NOT COUNTENANCE ANY OTHER ALTERNATIVES PROPOSED TO THE TRAVESTON DAM AS THEY WERE ALL "TOO COSTLY."

HE HAS SINCE HAD TO EAT HUMBLE PIE ON WATER RECYCLING AND DESALINATION OF SEA WATER, BUT HAS STEADFASTLY REFUSED TO ADMIT HIS ERROR ON TRAVESTON DAM.

A MAJORITY OF THE PUBLIC AFFECTED BY THIS DAM BELIEVE RIGHTLY OR WRONGLY THIS IS "PAY BACK" FOR THEIR EMOTIONAL OUTBURSTS AT THE PUBLIC MEETING ON 5TH JULY 2006, AND MR. BEATTIE IS DETERMINED TO DROWN THEM. "NOT HAPPY JAN"

DURING THE 6 MONTHS FOLLOWING THE ANNOUNCEMENT TO BUILD TRAVESTON DAM THE GOVT DRILLED THE PROPOSED DAM SITE AT 206.7 KM AND FAILED TO FIND ADEQUATE FOUNDATIONS TO CONSTRUCT THE WALL.

NORMALLY INADEQUATE & POOR FOUNDATIONS WOULD HAVE BEEN THE "SHOW STOPPER" THE PEOPLE DESPERATELY HOPED FOR, BUT ALAS FOR THEM BECAUSE BEATTIE & BUCH ARE DETERMINED TO BUILD A DAM ON THE MARY RIVER SO MUCH SO, THEY SECRETLY RELOCATED THEIR DAM WALL NEARLY A KILOMETRE UPSTREAM TO FIND SOME ROCK, IT DOES NOT MATTER HOW MUCH EXTRA THE DAM COSTS AS A RESULT BECAUSE THEY NOW CLAIM THEY HAVE THE FOUNDATIONS NECESSARY FOR THE WALL AT 207.6 KM.

I SAY PROVE IT, PRODUCE THE NEW ENGINEERING REPORT WITH THE DETAILED COSTING FOR THE CONSTRUCTION OF THE RELOCATED TRAVESTON DAM.

THE NEW PROPOSED CAPACITY HAS GONE DOWN BY 15% AND PROBABLY INCREASED IN COST BY 50% — BUT ALL THIS REMAINS A CLOSELY GUARDED SECRET. (66,000 ML → 570,000 ML. REF. ANNA BUCHS MINISTERIAL STATEMENT ON 31.10.2006.)

PLEASE OBTAIN THE FULL DETAILED COSTING FOR THE TRAVESTON DAM.

ANNA BUCH IN HER MINISTERIAL STATEMENT ON 31.10.2006 CLAIMED MASSIVE REDUCTIONS IN PROPERTIES AND HOUSES NOW REQ'D FOR THE PROJECT AS A RESULT OF DAM WALL REALIGNMENT AND DETAILED FLOOD MODELLING — THIS CANNOT BE THE TRUTH AS THEY HAVE DELIBERATELY DRAWN THEIR LINES ON THE MAP TO REDUCE THESE NUMBERS.

WE KNOW THAT ANNA BLIGH ADMITTED PUBLICLY ON 3.11.06 AT THE LARGE PUBLIC MEETING HELD IN GYMPIE THAT THE GOVT KNEW BACK IN MAY THAT THE LAND AREA REQD FOR TRAVESTON DAM ORIGINALLY WAS 13,700 HA. NOT THE PUBLICLY STATED 7,600 HA. IN ALL CORRESPONDENCE (REF ANNA BLIGH'S SENIOR POLICY ADVISER LETTER TO MY MOTHER DATED 4.12.2006 & ROB WHIBDON'S LETTER DATED 26.7.06 MR. BEATTIE'S CHIEF OF STAFF.) HOWEVER THIS GOVT LED BY BEATTIE & BLIGH JUST DO NOT CARE WHAT THEY SAY IN WRITING OR PUBLIC STATEMENTS — THE AUTOCRATIC & DICTATORIAL LEADERSHIP STYLE KNOWS NO BOUNDARIES.

THE PEOPLE MUST REGAIN OUR DEMOCRACY OTHERWISE WE HAVE LOST THE VERY FREEDOMS OUR FATHERS & GRANDFATHERS FOUGHT FOR, IN THE TWO WORLD WARS.

BEATTIE IN THE PAST 3 DAYS OF INTERVIEWS HAS NOW INCREASED HIS WATER GRID COST FROM 6 BILLION (REF. ROB WHIBDON'S LETTER TO 12.3.07.) DOLLARS TO 9 BILLION DOLLARS AND THE 20 YR. INFRASTRUCTURE COST HAS BLOWN OUT FROM 66 TO 80 BILLION DOLLARS IN A MATTER OF MONTHS (REF. C/MAIL 4.1.2007)

HE JUST DOES NOT HAVE A CLUE ABOUT THE TRUE COSTS AND MORE FRIGHTENINGLY HE DOES NOT CARE BECAUSE OF HIS POWER IN QUEENSLAND.

WELL I FOR ONE DO CARE AND WILL CONTINUE TO OPPOSE THIS MAN AND HIS HIRELINGS.

I RESPECTFULLY REQUEST THAT YOU ACCEPT THIS SUBMISSION TO YOUR ENQUIRY IN MY HANDWRITING AS I CONSIDER MYSELF "OLD SCHOOL" WITH A VERY LOW COMPUTER SKILLS BASE.

BUT I CAN READ AND WRITE SO I AM NOT ILLITERATE, JUST COMPUTER ILLITERATE, SO PLEASE ACCEPT MY SUBMISSION.

I HAVE ALSO ENCLOSED MY TWO SUBMISSIONS TO THE DRAFT TERMS OF REFERENCE FOR THE E.I.S. FOR THE PROPOSED TRAVESTON DAM.

SUBMISSION 1 ... DATED 7.2.07 DAM SAFETY

SUBMISSION 2 ... DATED 12.2.07 SOCIAL IMPACT.

ALSO IS ENCLOSED IS MY RESEARCH PAPER DATED 5.3.07 INTO 3 ALTERNATIVES TO THE TRAVESTON DAM

OPTION a) WIVENHOE DAM
b) GLENBOWER DAM
c) BORUMBA DAM

I HAVE SINCE ASCERTAINED THAT THE GOVT HAS EMPLOYED A CONSULTANT TO REPORT ON OPTION a) AND MY DISCUSSIONS WITH BARTON MAHER WIVENHOE OPERATIONS TEL.. 54 27 8100 THAT THE COST TO CARRY OUT OPTION a) WOULD BE A MAX. OF $ 250 M. NOT THE BILLIONS READ AT TRAVESTON.

I HAVE STUDIED THE GOVT REPORTS FROM 1977 TO 2006 THAT ARE AVAILABLE AND NOT ONE (EXCEPT THE GH & D DOCUMENT) EVER RECOMMENDED TRAVESTON DAM FOR WATER SUPPLY PURPOSES FOR S.E. QLD.

SINCERELY .... D. MILLIGAN

4.2 Comparison of Options

Each of the options in Table 4.1 were reviewed to identify the full supply level that results in the lowest unit cost (total capital cost /annual HNF yield) bulk water supply.

The project options in Table 4.2 have been ranked to indicate the projects with the maximum yield at the point of lowest unit cost.

Table 4.3 indicates the lowest unit cost project options sorted on the basis of unit cost of supply.

Table 4.2 Bulk Water Supply Options Ranked by Potential yield

Bulk Water Supply Project Option	Potential Yield (ML/a)	Storage Required (ML)	Full Supply Level (m)	Cost ($Million)	Unit Cost ($/ML/a)
Mary River Traveston Dam	215,340	1,130,000	85	1,011.1	4,695
Logan River/Cedar Grove Dam	78,346	295,136	40	768.9	9,814
Wyaralong 104,000 ML and Tilley's Bridge 110,000 ML Dams + Cedar Grove Weir	59,000	-	0	356.7	6,046
Mary River/Cambroon Dam	52,930	127,247	130	206.3	3,898
Wyaralong 104,000 ML and Tilley's Bridge 50,000 ML Dams + Cedar Grove Weir	50,000	-	0	301.3	6,025
Logan River/Tilley's Bridge near Rathdowney	42,714	100,000	110	223.1	5,223
Coomera River/Coomera Dam	42,688	110,678	64	503.9	11,804
Yabba Creek/Borumba Stage 3 with Coles Crossing Weir	39,236	475,581	170.5	266.7	6,797
Obi Obi Creek Kidaman Dam	36,883	172,898	130	172.5	4,677
Maroochy River/Raising Wappa Dam	30,004	81,230	77.5	238.0	7,932
Albert River/Glendower Dam acting in conjunction with a barrage on the Albert River	30,000	111,800	79.17	261.5	8,717
Wyaralong/Logan River Teviot Brook with Cedar Grove Weir	26,674	97,025	63	127.8	4,790
Amamoor Creek/Amamoor Dam	26,654	218,685	145	162.2	6,085

The state has a strong base from which to support its capital expansion plans going forward. In 2005-06 the state's net worth increased to $105 billion, for the first time going over the $1 billion mark. This is $8.6 billion higher than the forecast of $96 billion and is $8.6 billion higher than the net worth as at 30 June 2005.

Further, Queensland's net worth per capita is 54 per cent higher than the average of other states. In 2005-06 there has been a further strengthening of the general government sector's already strong net debt position, from an estimated negative $22.1 billion to a negative $23.2 billion. High levels of net debt impose a call on future revenue flows to service that debt and can limit government flexibility to adjust outlays. Again, Queensland is well ahead of the pack, with negative net debt increasing from $5,155 to $5,808 per capita compared with the average negative net debt of $290 per capita of the other states.

Pleasingly, these results have been achieved while Queensland has continued to maintain a very competitive tax environment, with each Queenslander in 2005-06 paying an average of $386 less in state tax than taxpayers in other states and territories. This is good for taxpayers. It is good for the economy. All in all, it amounts to an outstanding result for Queensland in the 2005-06 year.

Water Infrastructure

Hon. AM BLIGH (South Brisbane—ALP) (Deputy Premier, Treasurer and Minister for Infrastructure) (10.00 am): The Traveston Crossing Dam and the Wyaralong Dam are major projects and their importance to south-east Queensland's water future cannot be understated—and cannot be overstated. As major projects for south-east Queensland, they necessarily will have some impact on their localities. While this is unfortunate, the government has an obligation to deliver water security for the people and industry of the region.

We promised Mary Valley residents final plans and impacts before year's end, and I can advise the House that this week our government delivered on that promise. Yesterday I sent letters and information packs to all affected residents of the Traveston and Wyaralong dam sites. The information package includes individual impact maps for every affected landholder. It includes facts sheets on the dams' approval processes, timelines, sale and leaseback processes, road network changes, land controls, land uses and identifies how the dam will affect communities such as Kandanga, Imbil and Brooloo, Carter's Ridge, Federal and Gympie itself.

Additional to the extensive briefing material that they will receive this week, a 1800 hotline number has been established to ensure that affected residents have access to the information they seek. In addition, I have invited all landholders in the Traveston area to a public forum that I will be holding in Gympie on Friday. I am currently working to establish a suitable time and location for a similar forum in the Wyaralong area as soon as possible. To give landholders certainty, land required for both dams and all stages of Traveston will be acquired now. As is already known, we are offering very favourable leaseback packages for affected property owners impacted upon and associated road changes.

In relation to Traveston Dam, I can advise the House that geotechnical investigation has allowed the realignment of the dam wall, and more accurate flood modelling has reduced the overall land needed from 13,700 hectares to 9,800 hectares. Geotechnical investigation has identified the new alignment has desired solid rock foundations on both left and right abutments as well as the centre section. This quality of foundation has now confirmed that, from an engineering perspective, this is an excellent site for the dam's construction.

Mr Gibson: Rubbish!

Ms BLIGH: The engineers on the other side! The geotechnical wizards! Why didn't I take that advice?

Significantly, the realignment of the dam wall and the reduction in the dam area means that the number of homes and properties affected by the Traveston Dam has been reduced by 403. The final dam wall alignment and subsequent detailed flood modelling mean that a total of 597 properties—not the original 1,000—will be affected by dam inundation or road alignment changes. The preliminary estimate of 556 houses affected in both stages has also been reduced to 204. So the number is down to 204 from 556. Stage 1 of the dam will require 76 houses, and that is included in the 204.

The buyback process is already underway and 16 of the properties already purchased are now no longer required and will be offered back to the owner should they wish to reacquire them. Unfortunately, there are now 18 properties which were previously not identified as being needed. Of these 18, eight are partially affected by stage 1 road works—that is, by 2011—but no houses are required. If stage 2 proceeds, a further 10 properties—made up of seven houses and/or commercial properties and three other properties, including vacant land—could be impacted. In particular, I am pleased to say that the township of Imbil will not be affected by the dam and there will be no additional flooding as a result of the dam.

Queensland Government

Please quote: MCU

Office of the Premier

12 March 2007

Mr/Ms D Milligan
14 Godfreys Avenue
BLI BLI Q 4560

Dear Mr/Ms Milligan

Thank you for your recent correspondence concerning the use of purified recycled water as part of South East Queensland's ongoing water supply. I have been requested to reply to you on the Premier's behalf.

As you would be aware, the Premier has decided not to proceed with a plebiscite on the issue. This decision was based on advice from the Queensland Water Commission that we will have to rely on purified recycled water both in response to the current drought and to ensure the region's long-term water security. Knowing that there is no choice in the matter, and with overwhelming support for its use from experts, local governments and the community, it would not have been appropriate to continue with the plebiscite.

South East Queensland continues to experience the fastest growth rate of any urban region in Australia. By 2026, the population is expected to reach around 3.9 million people – an increase of more than one million. By 2056, it is expected to almost double to around 5.3 million people. Combined with increasing uncertainty over rainfall patterns due to climate change, this growth presents challenges for our water supply system.

The Queensland Government is investing over $6 billion in the South East Queensland water grid, which involves a range of new supply sources (including dams, desalination and the Western Corridor Recycled Water Scheme) and inter-connecting pipelines. Nevertheless, additional supply sources will still be required to ensure the region's water security. Purified recycled water provides an excellent new source of supply that is not rainfall dependent.

* #6 Billion 12.3.2007

The Government has committed to ensuring the Western Corridor Recycled Water Scheme is in place by December 2008 to provide recycled water to power stations and purified recycled water into the Wivenhoe system. This project will play a vital role in ensuring that South East Queensland does not run out of water due to the current drought, as well as contributing to the region's long-term supply security.

Purified recycled water is treated to the highest standard through a multi-barrier treatment system. This system involves going beyond current treatment standards by cleaning the water through micro-filtration, reverse osmosis and advanced oxidation. This high standard of drinking-quality water is then pumped into another water supply source such as a dam, river or aquifer where it is subject to sunlight and mixed with existing water. Finally, the blended water is then put through the usual treatment process which currently applies to drinking water.

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As well as substantially reducing the region's exposure to drought and climate change, purified recycled water can also improve water quality within Moreton Bay and make better use of this scarce regional resource.

The Government has asked the Queensland Water Commission to take a key role in providing information about the use of purified recycled water. As an independent statutory authority, the Commission will seek to ensure residents of South East Queensland have access to all the facts about purified recycled water, including issues about the technology, as well as health and safety controls. It will also examine and address, in a fair and impartial way, any questions and concerns raised by the community.

The Queensland Water Commission has established an international expert panel to provide advice on technical issues associated with purified recycled water. The panel members are world leaders in ecotoxicology, environmental science, microbiology and advanced water treatment. The panel's role will include assessing the proposed water quality monitoring requirements to ensure all health and safety requirements are met.

The Queensland Water Commission will supply a range of information through its website and media. The Commission's website (www.qwc.qld.gov.au) contains fact sheets and background material and will be updated regularly in the coming months.

If you would like further information, I encourage you to contact the Commission directly by calling 1300 789 906, by emailing qwcenquiries@qwc.qld.gov.au or by addressing a letter to PO Box 15086, City East QLD 4002.

Yours sincerely

Rob Whiddon
Chief of Staff

Queensland Government

Please quote: MCU

Office of the Premier

26 July 2006

Mrs J E Milligan
73 Pateena Street
STAFFORD Q 4053

Dear Joyce

Thank you for your recent correspondence concerning the Government's plan to construct a dam at Traveston on the Mary River. I have been requested to reply to you on the Premier's behalf. I apologise for the delay in responding to your correspondence.

As you may be aware, on 5 July 2006, the Premier confirmed that initial geotechnical investigations and other assessments of the Traveston Crossing Dam site have been completed and confirmed that the site is well placed to deliver substantial supplies of additional water. As a result, development of the proposed dam will proceed.

The Premier also announced that the dam will be constructed in stages. The first stage, to be completed by the end of 2011, will involve construction of a dam with a capacity of 180,000 million litres and a yield of up to 70,000 million litres per year. The area and associated buffer zone that will need to be resumed will be 2,900 hectares, which is significantly less than the 7,600 hectares that was initially proposed.

The second stage will involve the raising of the Borumba Dam, on Yabba Creek, west of Imbil, by 2025 to deliver an extra 40,000 million litres per annum when operated in conjunction with the operation of stage one of Traveston Crossing Dam. The third stage, should it proceed, would involve the completion of Traveston in 2035 to deliver an extra 40,000 million litres per annum. The need for this stage will be decided according to climatic factors, population growth and usage patterns.

While it is acknowledged that for many the decision on the dam will not be welcome, it is hoped that now some certainty as to the dam's location can help those directly affected to make decisions that will assist them to move forward.

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The Government will now begin a formal consultation process with the local landholders to purchase properties required for the first stage of the dam. Once the sale process for these properties is completed, the former landholders will have the option to remain on the property at heavily concessional rents until the dam is completed in five years' time. This will involve leasing back the property at either a set rate of 3 percent of the unimproved capital value, or $1,000 per annum, whichever is lower.

The Government will also continue to 'stand in the market' to buy properties that may be required should the second stage of the dam's development proceed. If landholders potentially affected by this second stage decide to sell their properties to the State, they will be allowed to remain on the properties for twenty years or possibly longer, until the second stage is needed. It is proposed that negotiations with these landholders would involve a leaseback arrangement set at 25 percent of the assessed market rental/lease rate. This would allow these landholders to reinvest their sale proceeds more freely and give them greater certainty and time to map out future plans for relocation of their home, work or business.

The Premier is aware of the local community's concerns about the Traveston Crossing Dam, and recognises the impact this issue has had on those directly affected by the dam, creating a time of emotional upheaval. The Premier is strongly concerned to ensure that all people affected by this project are treated fairly and with compassion. The Premier has appointed Major-General Peter Arnison a former Governor of Queensland; to independently gauge the impact on the community, advise the Government of the appropriate response, and to ensure that all members of the community receive the appropriate assistance in resolving their individual circumstances.

Major-General Peter Arnison will chair a taskforce that will review employment, business and lifestyle options for the affected region. The taskforce will work closely with local governments, community leaders, stakeholders and other government departments to develop and implement a medium and long-term plan to ensure community sustainability.

For community members affected by the Dam who may need support beyond their family and community networks, an independent and confidential support service has been made available. The telephone number for this service is 1300 667 791. In addition, the Department of Natural Resources, Mines and Water has established a hotline to address questions about the dam and to take advice from the community concerning issues that need to be addressed. The hotline's phone number is 1800 243 585.

To provide some background on why the decision to locate a dam on the Mary River has been made, I would like to convey the following information.

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Ensuring the region has adequate water supplies to support population growth and development in light of a changing climate is one of the greatest challenges the State has faced. The Government is working hard to meet this challenge in a number of ways and significant funding is being committed to a raft of new projects. The recently released State Budget for 2006-07 underscores a commitment to new water infrastructure with approximately $600 million allocated to water infrastructure projects that will target increasing supply and meeting demand for the South East Queensland region. Studies show we will need 750,000 million litres of water per year by 2050, which is an additional 302,000 million litres than existing supplies.

As outlined in the South East Queensland Regional Plan 2005-2026 and the draft South East Queensland Regional Water Supply Strategy, the Government is committed to fast tracking a range of water supply and demand management strategies across South East Queensland to tackle the impact of drought, climate change and a booming population. Dams are just one part of a broader strategy to address the supply and demand sides of the water balance equation, including better utilisation and conservation of the water already in existing dams, cutting waste and excess use and adopting new technologies including recycling and desalination.

Work currently underway to support the water supply strategy includes:

- Advancing the first stage of the Western Corridor Recycled Water Scheme to supply industry;
- Supporting investigations and design for a desalination plant at the Gold Coast;
- Construction of the Southern Regional Water Pipeline that will help to create a water grid, linking existing and future water supplies and distributing water across the region;
- Significant water efficiency subsidies and incentives for home owners and businesses to use less water and to capture their own supplies where possible. From 1 July, residents from Noosa to the Gold Coast can access substantial rebates for water tanks and water saving devices; and
- Subsidies to support Local Councils implementing measures to reduce water distribution system leakage.

Other strategies to increase supply and reduce demand in our region which are currently being implemented include:

- Managing demand (for example, targets for reducing consumption, water-sensitive urban design, targets for recycling, residential efficiency measures such as rainwater tanks);
- Managing wastage (for example, reducing mains pressure and fixing leaks);
- Additional storage infrastructure (new storages and/or raising existing storages); and
- Investigating potential groundwater sources.

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Population projections indicate that there could be more than one million extra people living in the South East Queensland region in the next 20 years, with further growth beyond this. This will place enormous pressure on our water supplies. Even with the adoption of stringent water demand management measures and the implementation of recycled water and other water supply initiatives, it will still be necessary to supplement our supplies with water from the new dams on the Mary and Logan rivers. Otherwise, we will quite simply not have enough supply to meet demand.

While initial geotechnical investigations that informed the decision to construct the dam at Traveston have been completed, further assessment of the project will include a rigorous environmental impact assessment and impact mitigation activities in accordance with Federal and State environmental protection legislation.

Other investigations likely to be ongoing over the next two to three years to assist detailed environmental, social and economic impact assessments will include social and landholder impacts; further geotechnical appraisals of the site; aquatic animal impacts; native vegetation impacts; cultural heritage impacts; economic evaluation; reliability and performance; alternative water supply options; and assessment of riverine conservation values.

Community consultation will be taking place throughout the project's ongoing assessment process. Letters are being sent to affected landholders advising them of options available to them and the government's commitment to ensuring fair and just process. You can view further information at the following website: www.nrm.qld.gov.au/water.

Thank you for your correspondence on this matter. The Premier wishes to stress that if there was a comparable alternative to the Traveston Crossing Dam that could ensure that South East Queensland residents' water supply was secured into the future with minimised social impacts, it would certainly be undertaken.

Yours sincerely

Rob Whiddon
Chief of Staff

Queensland Government

4th DEC. 2006

- 4 DEC 2006

Office of the
Deputy Premier,
Treasurer and
Minister for Infrastructure

Mrs Joyce Milligan
73 Pateena Street
STAFFORD QLD 4053

Dear Mrs Milligan

Thank you for your letter of 6 November 2006 concerning the Borumba Dam. I have been asked to respond on behalf of the Deputy Premier.

The Deputy Premier notes your comments with interest and appreciates the trouble you have gone to send detailed information.

As you are aware, on 5 July 2006, the Premier announced that initial geotechnical investigations and other assessments of the Traveston Crossing Dam site have been completed and confirmed that the site is well placed to deliver substantial supplies of additional water. As a result, development of the proposed dam will proceed.

The Premier also announced that the dam will be constructed in stages. The first stage, to be completed by the end of 2011, will involve construction of a dam with a capacity of 180,000 million litres and a yield of up to 70,000 million litres per year. The area and associated buffer zone that will need to be resumed will be 2,900 hectares, which is significantly less than the 7,600 hectares that was initially proposed.

The second stage will involve the raising of the Borumba Dam, on Yabba Creek, west of Imbil, by 2025 to deliver an extra 40,000 million litres per annum when operated in conjunction with the operation of stage one of Traveston Crossing Dam. The third stage, should it proceed, would involve the completion of Traveston in 2035 to deliver an extra 40,000 million litres per annum. The need for this stage will be decided according to climatic factors, population growth and usage patterns.

It is acknowledged that for many people, the decision on the dam is not welcome.

The Premier and Deputy Premier wish to stress that if there was a comparable alternative to the Traveston Crossing Dam that could ensure that the region's water supply was secured into the future with minimised social impacts, it would certainly be undertaken.

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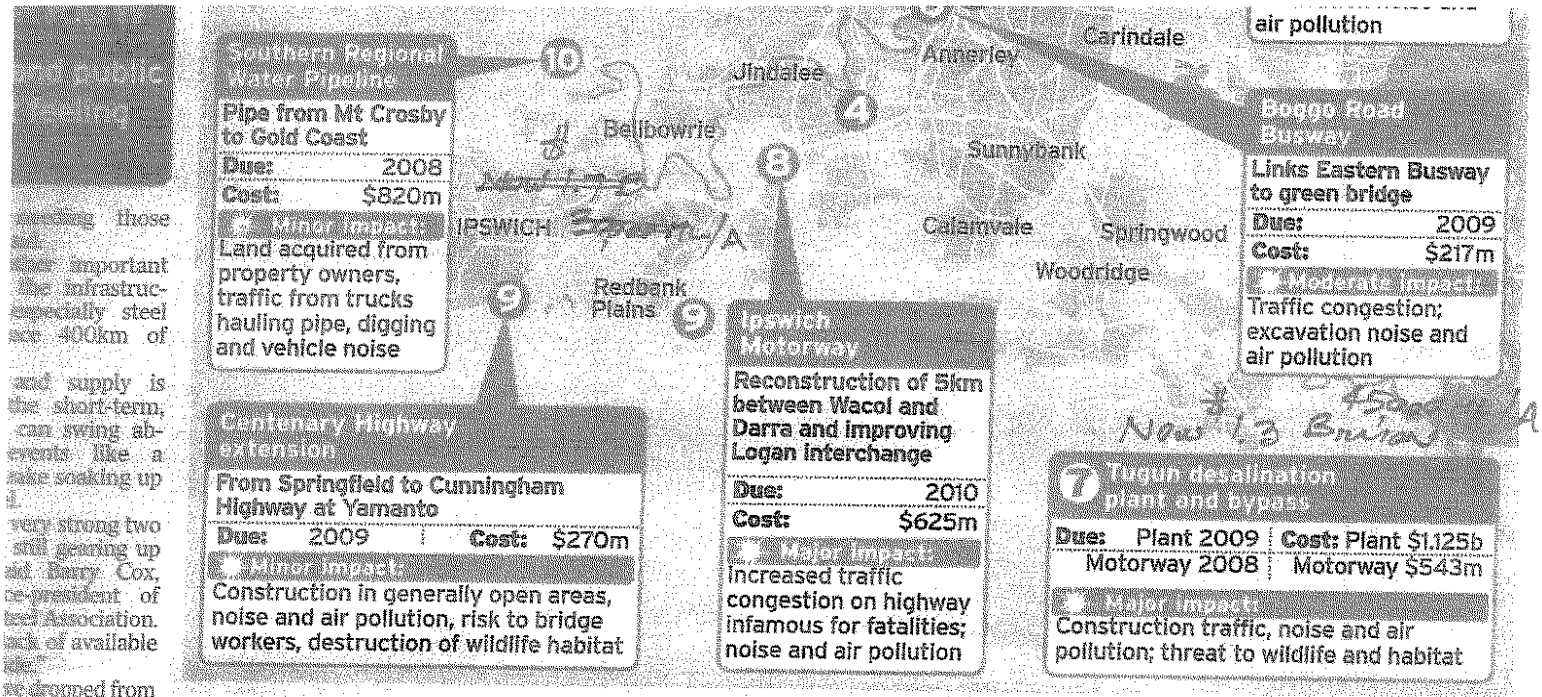
Thank you again for bringing your concerns to the attention of the Deputy Premier.

Yours sincerely

Don Wilson
Senior Policy Advisor
Office of the Deputy Premier,
Treasurer and
Minister for Infrastructure

Ref: TN104774

Mrs McLean, the Deputy Premier gave an undertaking to Mr McGrath that his proposal as communicated at the Jumpin meeting will be provided to independent analysts for assessment. The State will pay for this advice and make the report available for publication



Motorists face road works torture

» From P1

Brisbane City councillor Judy Magub said residents supported the bridge, but understood there would be a sacrifice.

"It's going to be tough going for a while. Constructing anything on Coronation Drive is going to be awkward," she said.

Transport Minister Paul Lucas said a $255 million upgrade to the interchange of the Logan and Ipswich motorways, starting next month, would include measures to minimise traffic disruption. Work will be done at night with noise barriers and message signs would be used to reduce congestion.

"When we have a construction boom like ours, there are always going to be times when people experience short-term pain for enormous long-term gain," Mr Lucas said.

Underground parking in Brisbane's King George Square will be lost with the construction of an inner city bus terminal and commuters will hit congestion at the portals of the North-South tunnel.

Tugan residents also face disruptions during the construction of a desalination plant and the Tugun bypass, which will link the Pacific Motorway with the Pacific Highway.

Projects to help ease the southeast's water crisis would also cause significant upheaval. The most vocal opposition to state water infrastructure has come from residents to be displaced by the proposed Traveston Crossing dam, near Gympie, and the Wyaralong dam, near Boonah. Due for completion in 2011, the dams will displace hundreds of families and destroy habitat.

Even communities spared from works have suffered. A Coorparoo bridge club lost 20 per cent of its membership when plans to resume club property were announced and later cancelled.

hold immense stakes

Leighton has also won the contract to build the $333 million Inner Northern Busway project and the upgrade of the Bruce Highway. Subsidiary company Thiess was part of an alliance which won the first stage to build the Boggo Rd to Buranda busway project.

A major study of such infrastructure projects across the country this year revealed significant stumbling blocks that create delays and cost blowouts.

While a critical shortage of skilled labour was identified as the most serious problem in a survey of 190 firms conducted jointly by the Australian Constructors Association and law firm Blake Dawson Waldron, there are also other problems.

The report found more than 40 per cent of projects are inadequately "scoped" before going to the market: in other words, the required objectives of the project are not adequately spelt out.

The report said that of the projects found to be inadequately scoped, 39 per cent were not completed on time and 55 per cent were completed over budget.

It also identified unrealistic time and cost objectives, inappropriate delivery methods and improper risk allocation between principals and constructors as major areas needing reform.

Securing our bright future to cost $66b

QUEENSLAND taxpayers will shoulder about 80 per cent of the cost of the state's $66 billion infrastructure package.

State Budget surpluses will cover most of the expense but borrowings may be necessary as long as they don't compromise Queensland's AAA credit rating.

First unveiled in April 2005, the scheme's original $55 billion bill has already blown out by $11 billion because of increased labour and material costs.

It envisages more than 230 projects to cope with the expected arrival of a million new residents over the next two decades. More than 320,000 new jobs are to be created in road and public transport building projects alone.

The State Government has vowed to consider using "public private partnerships", or PPPs, for some projects but only if there is demonstrable benefit to taxpayers.

So far the most significant PPP project in the state — the $3 billion North-South Bypass Tunnel under construction in Brisbane — is outside the scope of the Beattie growth blueprint.

But the much troubled Cross-City Tunnel in Sydney has fuelled a heated public debate over whether the PPPs create value for money and that they have enough transparency.

Anthony Marx

D. MILLIGAN
14 GODFREYS AVE
BU-BU. QLD.

5. 3. 07

RE: TRAVESTON DAM ALTERNATIVES

WIVENHOE DAM INCREASED DAM STORAGE CAPACITY

OPTION a)

IT IS QUITE POSSIBLE TO INCREASE THE CAPACITY FROM ITS PRESENT CAPACITY OF 1,150,000 ML. TO 1,647,000 ML [A 497,000 ML. INCREASE] WITHOUT ANY MAJOR COST. NO STRUCTURE UPGRADE, NO GATE MODIFICATIONS, NO ADDIT. LAND AQUISITION COSTS AT ZERO PUBLIC COST.

HOW ... BY REVISING THE FLOOD OPERATIONAL RULES TO ALLOW PART OF THE EXISTING FLOOD RESERVE TO BE USED FOR WATER STORAGE [REFER GH & D STUDY ATTACHED PAGES]

DAM SAFETY NEED NOT BE COMPROMISED IF THE THIRD SPILLWAY IS BROUGHT FORWARD AND CONSTRUCTED NOW TO CATER FOR THE PROBABLE MAX. FLOOD (P.M.F.) FOR WIVENHOE.

THIS IS CURRENTLY PLANNED TO BE CARRIED OUT WITHIN THE NEXT 20 YRS ANYWAY.
[REFER ROB DRURY... WIVENHOE OPERATIONS MANAGER]

THIS OPTION IS BY FAR THE CHEAPEST FOR ADDIT. WATER SUPPLY FOR S.E. QLD LOCATED IN THE CORRECT POSITION TO FEED BRISBANE & THE GROWTH PLANNED, SOUTH & WEST.

TWO SMALLER DAMS SHOULD THEN BE IMMEDIATELY FAST TRACKED WHICH WOULD GUARANTEE SUPPLY FOR THE GOLD COAST TO BRISBANE GROWTH AND THE SUNSHINE COAST.

a) GLENDOWER DAM ON THE ALBERT RIVER WHICH HAS BEEN PLANNED FOR SINCE 1991 AND b) RAISING BORUMBA DAM.
(BY A MIN. OF 60 M. NOT THE 25 M. PLANNED)

BOTH THESE SMALLER DAMS HAVE MUCH SMALLER ECONOMIC, SOCIAL AND ENVIRONMENTAL COSTS THAN THE CURRENT BEATTIE / BLIGH TWO DAM SCENARIO OF TRAVESTON & WYARALONG DAMS. THESE MONSTROSITIES BOTH OF WHICH HAVE ALMOST INSURMOUNTABLE COSTS ASSOCIATED WITH THEM, AND THEY ARE OF DUBIOUS RELIABILITY ANYWAY. [REFER 6H & 6 PAGES ATTACHED]

b) "GLENDOWER DAM" — 98% OF THE LAND REQ'D IS ALREADY OWNED BY THE GOVT SINCE 1996.
- MINOR SOCIAL COST — 3 FAMILIES REMAINING 75HA.

c) "BORUMBA DAM" — 100% OF THE LAND IS OWNED NOW OR IT STATE GOVT LAND.
- NO SOCIAL COST

WHY THESE TWO DAMS WERE NOT CONSTRUCTED IN THE 1990's IS BEYOND COMPREHENSION AS THEY ARE LOCATED CLOSE TO THEIR RESPECTIVE COMMUNITIES & FUTURE GROWTH. PUMPING WATER OVER LARGE DISTANCES IS EXPENSIVE AS WE ALL KNOW. THE LAND IS ALREADY OWNED FOR THE PROPOSED WEIR AT LUSCOMBE ON THE ALBERT RIVER FOR GLENDOWER DAM AND TREATMENT PLANT

TO SERVICE BSENLEIGH & SOUTHERN GROWTH AREAS THIS COMBINED WITH STAGE III OF HINZE AND IT IS A NO BRAINER.

THE PIPELINES AND PUMPING STATIONS FROM BORUMBA ALREADY EXIST SO NO ADDIT COSTS THERE EITHER. [EXCEPT IF YOU WANT TO TRANSFER SOUTH]

I FOR ONE DEMAND TO KNOW WHY NONE OF THE ABOVE HAS BEEN CONSIDERED SERIOUSLY BY THE BEATTIE / BLIGH GOVT AND WHY THEY HAVE DISRUPTED THOUSANDS OF PEOPLE AND THE ENVIRONMENT TO BUILD THE TWO POORLY LOCATED DAMS OF TRAVESTON & WYARALONG.

FINALLY PLEASE EXAMINE THE THREE OPTIONS PROPOSED

OPTION a) INCREASE IN WIVENHOE STORAGE
b) GLENDOWER DAM
c) BORUMBA DAM INCREASED STORAGE
WATER RECYCLING } ALREADY UNDERWAY BUT
DESALINATION } 16 YRS. TOO LATE 1991

	OPTION	CAPACITY ML.	SURFACE AREA HA.	AV. DEPTH M.	RANKING	REMARKS
	a) WIVENHOE	1,647,000	13,300	12.38 M		(3) NOT BAD
	b) GLENDOWER	112,000	1,272	8.79 M		(4) ONLY MARGINAL
	c) BORUMBA	1,000,000	3,100	32.26 M	BEST	(1) VERY GOOD
GOLD COAST ..	HINZE III	394,000	1,620	24.32 M.		(2) GOOD
BEATTIE / BLIGH	TRAVESTON STAGE I	153,000	2,900	5.27 M	WORST	(7) DUMBER
	TRAVESTON STAGE II	570,000	7,100	8.02 M		(6) DUMB
	WYARALONG	104,000	1,280	8.12 M		(5) POOR

AV. DEPTH OF A DAM CAN BE CALCULATED AS FOLLOWS

$$\frac{\text{VOLUME IN ML}}{\text{SURFACE AREA IN HA}} \div 10 = \text{AV. DEPTH IN M.}$$

I HAVE TRIED TO USE THE "KISS PRINCIPLE" "KEEP IT SIMPLE STOOPED" BUT IT IS HARD TO EXPLAIN EXCEPT — DO NOT CONSTRUCT A SHALLOW DAM IN AN ALLUVIAL FLOOD PLAIN WHICH REQUIRES ENORMOUS COSTS TO CONSTRUCT AND MAINTAIN UNLESS OF COURSE IT GETS 2,000 MM OR MORE AV. RAINFALL PER YEAR IN WHICH CASE IT PROBABLY DOES NOT MATTER IF IT BOTH EVAPORATES & LEAKS LIKE A SIEVE.

REGARDS DAVE MILLIGAN.

Water Resources

Water Resources Commission
Department of Primary Industries

January 1991

WATER SUPPLY SOURCES IN SOUTH-EAST QUEENSLAND

VOLUME 2

MAIN REPORT

7.3.5 The Logan/Albert Basin

The Logan River has a catchment area of 4 195 square kilometres and discharges into Redland Bay. The Albert River is a tributary of the Logan River.

Several storage options are available on each of the Albert and Logan Rivers.

7.3.5.1 Albert River Storage Sites

The Albert River has a catchment area of 790 square kilometres. Storage sites exist at Wolffdene AMTD 19.3 kilometres, Mundoolun AMTD 46.0 kilometres, Mancha Meadows AMTD 51.0 kilometres and Glendower AMTD 60.2 kilometres. The site at Glendower was chosen for more detailed investigation as it was close to the upper limit of the reservoir area of the proposal for a dam at Wolffdene. The sites at Mundoolun and Mancha Meadows were eliminated as they fell inside the major portion of the storage of the previously proposed Wolffdene Dam.

Canungra Creek joins the Albert River at AMTD 47 kilometres. A well confined dam site exists at AMTD 29.6 kilometres at Bega Hills on Canungra Creek and was chosen for more detailed investigation as preliminary hydrologic analysis indicated a storage of 94 000 megalitres would yield 27 000 megalitres per annum. The potential ponded area would inundate a small National Park and affect access to Lamington National Park.

The above two sites could be developed consecutively according to demand to ultimately form a system with each storage feeding down to a pumped storage and treatment plant on the Albert River at approximately AMTD 18.0 kilometres.

Cainbable Creek joins the Albert River at AMTD 71 kilometres. A storage site exists on Cainbable Creek at Nindooinbah AMTD 9.9 kilometres. However hydrologic studies indicated that a storage of 16 000 megalitres would yield 6 000 megalitres per annum and further investigations were considered unwarranted because of insufficient available supply.

7.3.5.2 Logan River Storage Sites

The catchment area of the Logan River above the confluence with the Albert River at AMTD 11.7 kilometres is 2 985 square kilometres.

The principal streams are the Logan River and Teviot Brook. The most significant dam sites on the Logan River are at Cedar Grove AMTD 81.8 kilometres and at Tilleys Bridge near Rathdowney at AMTD 153.4 kilometres. Investigations have been conducted for these sites.

- All the options were compared in terms of the cost to the community expressed in present value terms. Alternative water sources such as wastewater re-use, desalination of seawater, and rainwater tanks were also examined.

- The cost comparisons, in conjunction with engineering criteria and the preliminary environmental and social impact assessments were used to choose a preferred water supply development program.

13.5.2 Conclusions

Based on the above analysis, the following water resource development program was identified as the preferred option:

- The Sunshine Coast's future shortfalls should be met from the Mary River Drainage Basin.

- It is recommended that a dam site on the Mary River near Kenilworth, after review of the actual location and size, be preserved for the future needs of the Sunshine Coast and the Mary Valley. The review of the location and size of the dam site proposal on the Mary River is required because of the identified environmental and social impact of the existing site.

- The development program has identified three additional sources of water, along with the approximate timing of augmentation;

DESIGN UNDER WAY FEB 07

(i) Hinze Dam, Stage III around year 2000 onwards

OPTION b)

(ii) One dam at Glendower on the Albert River at 60.2 kilometres around year 2015 or later.

(iii) One dam at or near Braford Hills on Lower Teviot Brook at 18.0 kilometres around 2060 or later.

- As part of the program, weirs will need to be constructed (in conjunction with these dams) on the Logan River near Cedar Grove, and on the Albert River near Beenleigh. More detailed investigations will be necessary to determine the exact locations and feasibility of the final recommended dam and weir sites.

- The development program recommends that transfers from North Stradbroke Island to the mainland be restricted to around 11 000 megalitres per annum until further detailed study enables the impact of higher rates of transfer to be adequately assessed.

OPTION 9)

3.15 Augmentation of Wivenhoe Dam Storage Volume

Prelude

The review of information regarding the augmentation of Wivenhoe Dam is based on the following:

- SEQ Water, December 2005, A Discussion Paper on Raising Wivenhoe Dam – Preliminary Draft: and,
- Comment by NRM&W, Dam Safety (January 2006) on the SEQ Water Discussion Paper.
- Knowledge gained from work previously undertaken on Wivenhoe Dam by GHD.

3.15.1 General

Wivenhoe Dam is the largest dam in South East Queensland providing some 1,150,000 ML storage at full supply level and a further flood storage compartment of 1,450,000 ML. The dam wall is an earth and rockfill embankment on the Brisbane River and the Brisbane Valley Highway traverses the main embankment and spillway.

Table 3.15.1 General Parameters of Wivenhoe Dam

Feature	Description
Name of Project	Augmentation of Wivenhoe Dam Storage Volume
Other Names	N/A
Catchment	Brisbane River
Stream	Brisbane River
Local Government Area	Esk Shire
Location (AMTD)	149 km
Location (Latitude / Longitude)	83°54'05" S / 149°48"32" E (Map Grid of Australia (MGA), Zone 56. Datum = GDA94)
Type of Dam	Earth and Rockfill
Existing FSL	EL 67.0m
Crest Length of embankment	2300m
Dam Height (current)	56m
Dam Embankment Volume	4 million m^3
Spillway	Concrete gravity structure

Feature	Description
Auxiliary Spillway	Fuse plug structure
Gates	Five 12m wide x 16.6m high crest gates
Outlet works	Two 1.5m diameter discharge regulator valves
Saddle Dam type	Earthfill
Saddle Dam Crest Length	500m
Saddle Dam Height	15 m

The Full Supply Level of Wivenhoe could be increased to provide additional yield to the regional water supply system or to provide contingency storage. It is understood that the following options are being considered by the South East Queensland Water Corporation (SEQ Water):

PREFERRED OPTION

- An increase of the Full Supply Level by 1 or 2m;
- An increase of the Full Supply Level by 4m;
- An increase of the Full Supply Level by 6m;

Increasing the Full Supply Level of Wivenhoe Dam could be achieved in a number of ways, including:

- By physically increasing the height of the dam embankment and preserving the existing flood storage, or;
- By allowing an operational change of the storage level, whereby the flood capacity of the dam is decreased.

These options are discussed in Sections 3.15.1.1 and 3.15.1.2.

3.15.1.1 Raising Embankment Height

Increasing the Full Supply Level of Wivenhoe Dam could be achieved by:

- Increasing the dam crest level by undertaking a downstream raising of the existing dam;
- Maintaining the existing flood storage volume;
- Strengthening the existing spillway and increasing the size of the gates to cope with the additional storage and flood height;
- Changing the existing fuse plug spillway by constructing a saddle dam across the site or increasing the height of the fuse plugs; and,
- Diverting the highway off the crest of the dam to facilitate the raising of the embankment by constructing a new highway downstream of the dam and constructing a bridge across the river. This would have the added advantage of

removing the traffic from the dam crest and therefore reducing the risk to operating staff and potential of sabotage or terrorist activities at the dam wall.

Raising the FSL would:

- Result in increasing the extent of drowning of the lower parts of Somerset dam which would result in the need to undertake some upgrade works in the stilling basin and sluice outlets;
- Impact on the outlet works to the Brisbane River;
- Impact on the intake structure, pump station and pipeline transferring water to Tarong Power Station;
- Impact on the Splityard Creek power station. This may have impacts on the actual power station, the operation of the generators and the power output from the power station; and,
- May impact on the SEQ Water operating centre on the southwestern side of the dam.

High voltage power lines also run down the eastern side of the dam.

PREFERRED OPTION →

3.15.1.2 Change in Operating Rules Reducing the Flood Mitigation Capacity

It may be possible to increase the full supply level of Wivenhoe Dam without physically raising the dam wall by changing the operational rules.

Wivenhoe Dam currently provides a significant flood mitigation benefit to downstream communities as a result of its flood operating rules (currently detailed in the Flood Mitigation Manual), which are used to manage the operation of the gated spillway.

Currently, flood operating procedures allow mitigation to occur for water levels between EL 67.0 and EL 74.0m. For water levels above EL 74.0 the safety of the dam is a priority and operation of the gates takes this into consideration resulting in increased release rates and potentially damaging flows downstream. Reducing the flood storage of Wivenhoe Dam would increase the frequency when potentially damaging flows are released from the dam.

Decreasing the flood storage volume in order to provide an increased FSL would require the following considerations:

HAS THIS * BEEN DONE YET IF NOT WHY NOT ?.

- All structures and operational procedures at the dam would require detailed review for dam safety approval;
- The benefit of the increased water supply would need to be compared to the increased costs resulting from flood damage;
- The new fuse plug located on the right bank would have a greater potential of operating and once it had operated would drain the storage to EL 67.0m; and,
- Impact on the future Stage 2 augmentation to pass the PMF;

3.15.2 Storage Capacity

The storage capacity curves for Wivenhoe Dam are as shown in Figure 3.15.1 and Figure 3.15.2. This information is derived from Sunwater Drawing Number A3-110405.

Figure 3.15.1 Wivenhoe Dam–Storage Capacity Curve

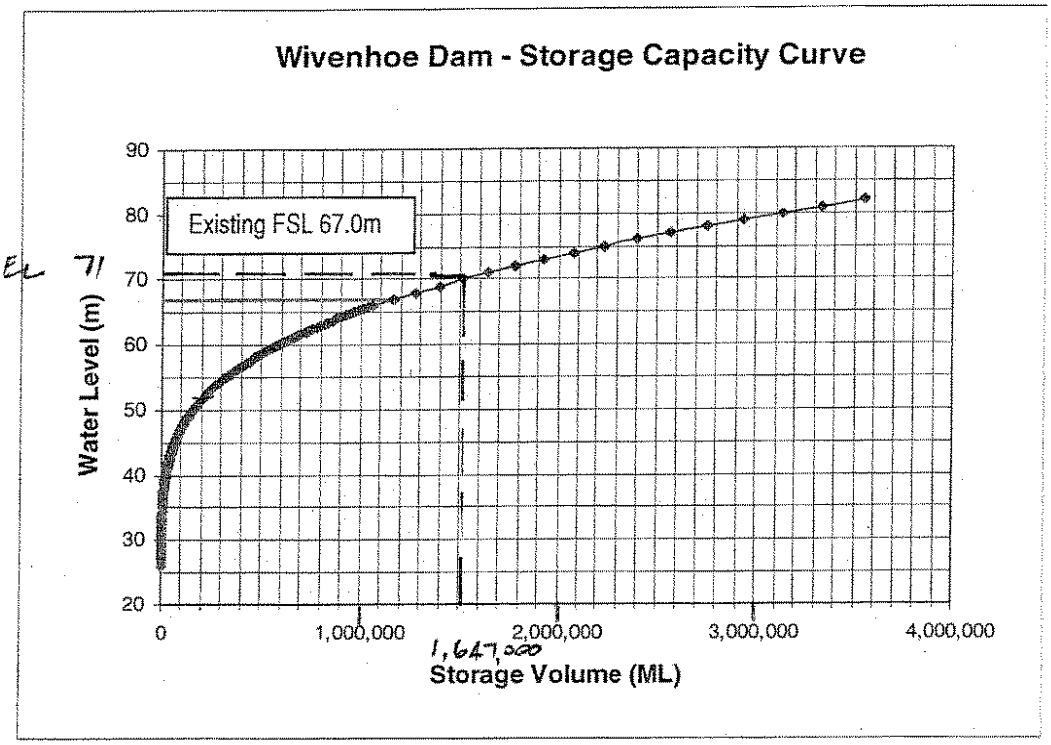
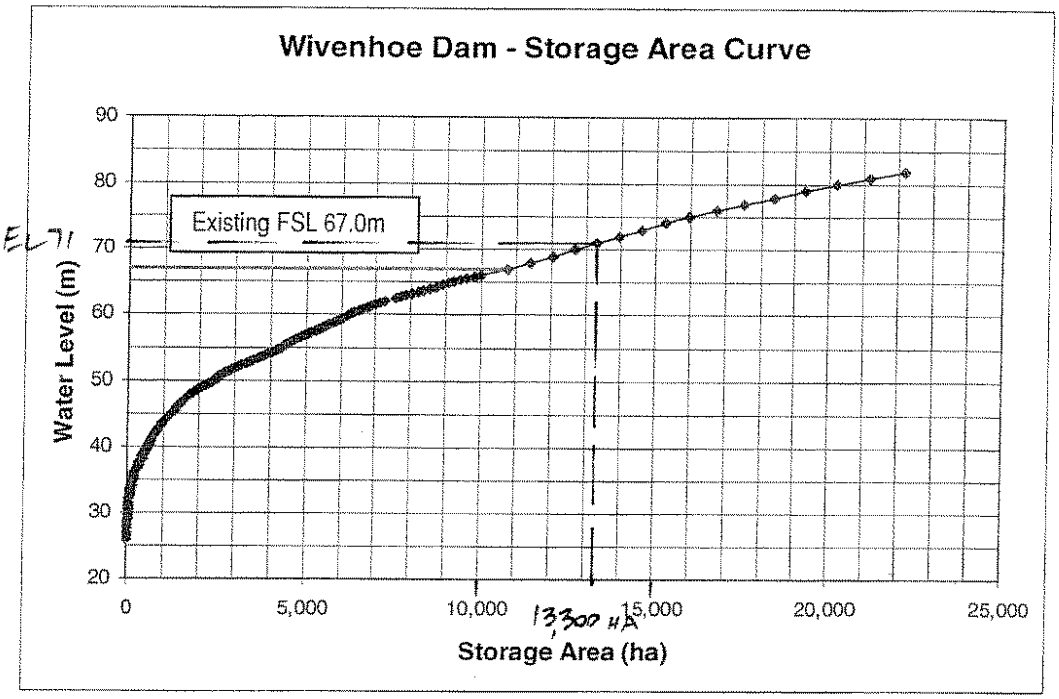


Figure 3.15.2 Wivenhoe Dam– Storage Area Curve



3.15.3 Potential Additional Supply

Estimates of historical no-failure yield (excluding consideration of environmental flow requirements) for Wivenhoe Dam were completed by NRM&W in December 2005.

The estimates were undertaken using the following assumptions:

- Simulation period was from January 1889 to June 2000;
- Somerset Dam maintains Wivenhoe Dam (operating level of Wivenhoe) at 700,000 ML;
- Wivenhoe Dam maintains Mt Crosby Weir at 2,200 ML;
- There is no buffer storage in Wivenhoe Dam;
- The HNFY is extracted from Mt Crosby Weir.

In addition:

- The operating rules for Somerset Dam/Wivenhoe Dam/Mt Crosby Weir system have not been optimised; and
- Releases from Wivenhoe Dam to meet demands at Mt Crosby Weir do not account for inefficiencies in system operation, that is, extra water is being released in reality.

The Historic No Failure Yield (HNFY) in Table 3.15.2 is the extraction at Mt Crosby and the total demand consists of this figure plus 12,317 ML/a, which comprises existing allocations at:

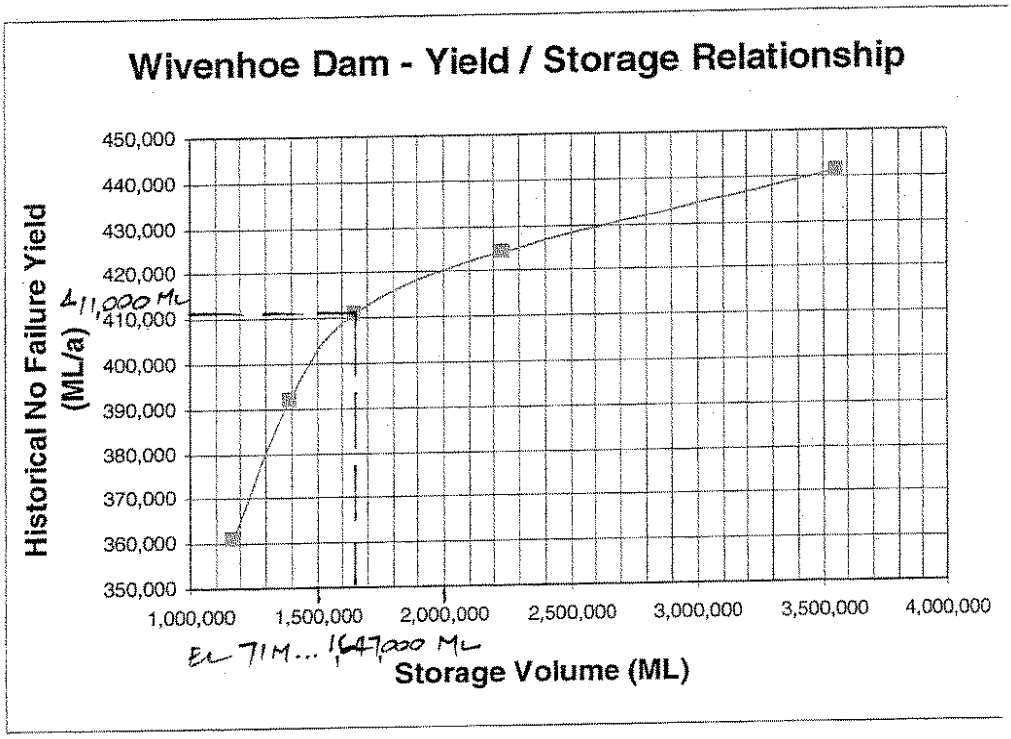
- The town of Esk (220 ML/a);
- The Esk-Gatton-Laidley Pipeline at Lowood (4847 ML/a);
- Glamorgan Vale WB (250 ML/a); and,
- For irrigation, Wivenhoe to Mt Crosby (7000 ML/a).

Table 3.15.2 Yield Estimates for Raising Wivenhoe Dam at Mt Crosby

Full Supply Level EL (m)	Full Storage Volume Wivenhoe (ML)	Inundation Area ha.	HNFY (ML/a)	Av. Depth in m.
67.0	1,165,000	10,800 ha.	361,000	10.79 m
69.0	1,393,000		392,000	
71.0	1,647,000	13,300 ha.	411,000	12.38 m
75.0	2,232,000		424,000	
82.0	3,555,000		441,000	

Preferred option →

Figure 3.15.3 Wivenhoe Dam– Yield / Storage Relationship



3.15.15 Investigations Proposed to Enable Assessment of the Augmentation of Wivenhoe Dam Storage Volume

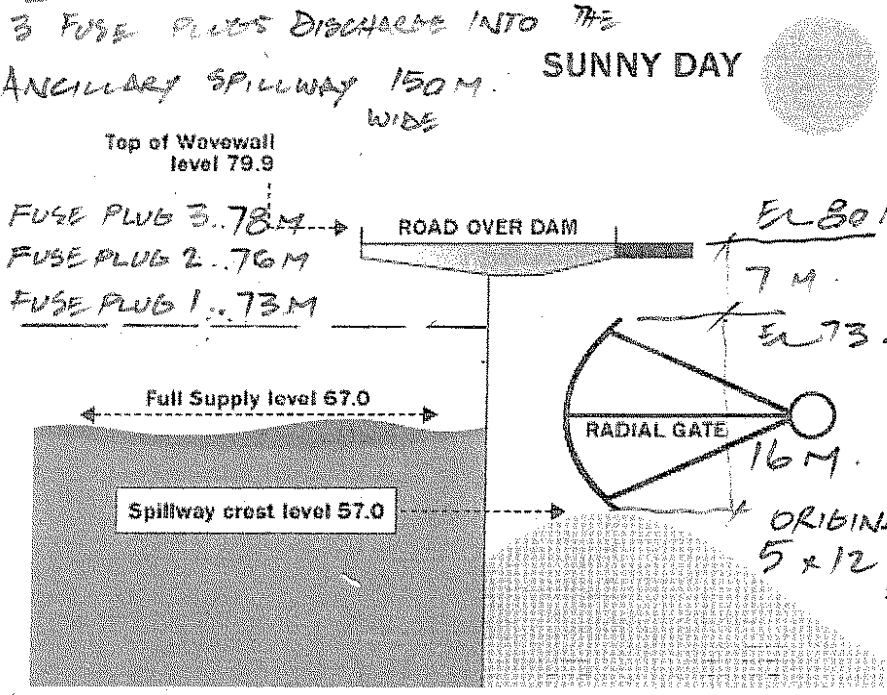
A number of key factors with a potential to jeopardise the viability of raising Wivenhoe Dam have been identified. Further and more detailed investigation of those factors is recommended as summarised below in Table 3.15.3.

Table 3.15.3 Proposed Investigations into the Viability of Raising Wivenhoe Dam

Investigation Proposed	Tasks Included
Hydrology/ hydraulics: flood routing	Routing of the design flood through the gated spillway for three increased levels of FSL, **maintaining** flood storage and current operating rules.
Hydrology/ hydraulics: flood routing	Routing of the design flood through the gated spillway for three increased levels of FSL, **changing** flood storage and current operating rules.
Hydrology/ hydraulics: flood routing	Routing of the design flood through the gated spillway for three increased levels of FSL, maintaining current dam wall height and increasing the length of the existing fuse plug spillway together with raising the fuse plug sill level to retain the water at the FSL level.
Natural environment – vegetation, wildlife, river	Assess the impact of the RAMSAR listing of Moreton Bay on the viability of this project.
Cultural / Heritage	Investigate the impacts of the project on heritage listed sites as outlined in Section 3.15.7.
Costing	Estimate cost of raising the existing dam and saddle dams as well as constructing a new saddle dam in the Coominya saddle, to the required levels for the three increased FSL levels. Estimate the cost of strengthening the existing spillway. Estimate cost of larger gates required to retain the raised FSL and flood storage and flood surcharge. Estimate the costs at the Splityard Creek Power Station and potential loss of energy and power generated as a result of the raised full supply level Estimate cost of additional works required at Somerset Dam Estimate the cost of additional works required at the Tarong pump station.

STAGE 1

3 FUSE PLUGS DISCHARGE INTO THE ANCILLARY SPILLWAY 150 M. WIDE



24 MM RAIN OVER WHOLE OF CATCHMENT ADDS 1.2 M. TO WIVENHOE

100 MM RAIN WOULD ADD 20% TO 8AM STORAGES.

350 MM 240 MM RAIN EVENT OVER WHOLE CATCHMENT WOULD FILL WIVENHOE.

= 60 M. + 12 = 72 M. WIDE MAIN SPILLWAY

ROB'S MOB. 0419 378 740

TEL 54 278 100

ROB DRURY MANAGER WIVENHOE OPERATIONS

STAGE 1 FUSE PLUGS BUILT INTO RIGHT BANK HAVE BEEN DESIGNED TO CRUMBLE ONCE WATER LEVEL RAISES ABOVE FUSE PLUG IN WALLS AND THE WATER ERODES THE PLUG. THERE ARE 3 FUSE PLUGS BUILT INTO THE WALL WITH ADDIT. SPILLWAY CAPACITY OF 150 METRES.

THIRD STAGE WOULD BE THIRD SPILLWAY IN 20 YRS.

BARTON MAHER ... OPERATIONS MANAGER

80 M. CREST HEIGHT ../. 80 M. PMF FLOOD

STAGE 1 ... WORKS FOR NEXT 20 YRS

STAGE 2 ... THIRD SPILLWAY PROPOSED IN 20 YRS. TIME

MOST EFFICIENT SPILLWAY IS A NARROW DEEP CROSS SECTION IE 60 MIN WIDTH 10 M DEEP OR MORE

EXPONENTIALLY PASSES MORE CUSECS THAN WIDE SHALLOW SPILLWAY

http://www.seqwater.com.au/graphics/images/flood_gate_ani_top.gif 29/08/2006

RECREATION PLANNING AT LAKE WIVENHOE

David J. Pitts and Dale R. Anderson, Directors, Environment Science & Services, Brisbane

INTRODUCTION

Comprehensive planning for Lake Wivenhoe and its environs commenced in 1971 when the Queensland Government decided that the next source of water supply for Brisbane and surrounding urban areas would be a dam on the Brisbane River at Wivenhoe. The dam site is located approximately 150 km upstream from the mouth of the Brisbane River and 80 km by road north-west of Brisbane.

Lake Wivenhoe has been planned as a multi-purpose storage with the following three primary functions:

Water Supply

Lake Wivenhoe will have a storage capacity at full supply level of 1,140,000 Ml. Water released from Lake Wivenhoe flows down the Brisbane River for a distance of approximately 60 km before it is drawn off at the Brisbane City Council's existing treatment works at Mt. Crosby. In terms of its water supply function Lake Wivenhoe is a regulating storage rather than a direct supply storage.

Flood Mitigation

An important factor in the choice of Lake Wivenhoe as south-east Queensland's next major water storage was the potential flood mitigation benefits it could bring to the City of Brisbane, the City of Ipswich and the Shire of Moreton. Lake Wivenhoe is designed to have a flood compartment storage of approximately 1,400,000 Ml.

Electricity Generation

In 1976 the Queensland Government decided to use Lake Wivenhoe as the lower storage for a pumped storage hydro-electric scheme. This scheme involved the construction of an upper storage at Split-Yard Creek (a small tributary of the Brisbane River) and an automated hydro-electric power station with a generating capacity of 500 MW.

The completed project will produce major changes in the landscape and scenery which will provide the potential for Lake Wivenhoe and its environs to be developed for a range of secondary functions such as recreation and outdoor education.

The Queensland Government has approved the provision of opportunities for recreation and outdoor education subject to stringent management controls and the restriction of activities that are incompatible with other storage functions.

Resumption of land for the Wivenhoe project commenced in 1973 and the first contract for the construction of permanent works was awarded in March 1977. The pumped storage hydroelectric scheme was commissioned in 1984, and works at the dam wall are expected to be completed in the first half of 1985. The first recreational facilities are also expected to be available for public use in the first half of 1985.

In terms of recreation planning, Lake Wivenhoe is of particular interest because it represents an example of comprehensive storage planning in which recreational needs have been considered at an early stage of the project and integrated into the overall decision making framework as it affects management of the catchment and water body. In this respect Lake Wivenhoe probably represents the exception rather than the rule in Australian water resources planning. There has been a conscious attempt on the part of responsible agencies to set overall objectives and standards for recreational use and management and to avoid ad-hoc, incremental and unco-ordinated responses to recreational demand pressures.

The aim of this paper is to briefly review the recreation planning process at Lake Wivenhoe and to highlight some particular issues and planning techniques that may be of interest to practitioners involved in the management of urban water storages.

STORAGE AND CATCHMENT CHARACTERISTICS

The Storage

Some important characteristics of the storage from a recreational point of view are:

• Full Supply Level (FSL)	EL 67 metres
• Maximum Water Level	EL 77 metres
• Limit of Flood Reserve around storage	EL 75 m with min. width 200 m.
• Maximum Depth at FSL	44 metres
• Inundated Area at FSL	10,820 ha
• Length of Shoreline at FSL	400 km

While Lake Wivenhoe will be an extremely large waterbody at full supply level, it will also be a relatively shallow storage. The Brisbane Valley above the dam wall is broad and gently sloping with extensive river terraces.

The combination of these factors means that even relatively minor reductions in water depth will result in rapidly receding shorelines and noticeable decreases in the ponded area. One of the difficulties from a catchment planning point of view is that water levels within the storage are expected to fluctuate considerably under the proposed operating procedures.

The extent of the changes in ponded area is illustrated in Table 1. In this table the maximum water depth, the inundated area and the area of mudflats exposed are presented for five different supply levels between Full Supply Level (EL 67) and the Minimum Operating Level for the pumped storage hydro-electric scheme (EL 49). The percentage of the time that the storage is expected to be at or above each of the supply levels is also presented.

In recognition of the flood mitigation role of the storage, a flood reserve has been declared above Full Supply Level. The flood reserve extends from EL 67 to EL 75 with a minimum width of 200 metres. The area of the flood reserve is 10,700 ha.

The storage characteristics affect recreational use of Lake Wivenhoe and environs in a number of important ways. For example:

- there are relatively few sites available where adequate water access is available over the full range of expected water levels,
- the shallow nature of the storage presents difficulties for certain types of boating activities,
- aesthetic and public health considerations restrict the levels and styles of recreation that can be accommodated adjacent to large periodically exposed mudflats, and
- only flood tolerant development is permitted between full supply level and flood level.

The Catchment

The physical catchment area of Lake Wivenhoe covers some 702,000 ha which represents approximately 50 per cent of the total Brisbane River catchment. The Lake Wivenhoe catchment has been extensively modified with the majority of land being used for non-intensive rural pursuits such as grazing and forestry. Limited areas are used for more intensive rural production such as dairying and agriculture. The towns of Kilcoy, Esk, Toogoolawah and Woodford lie within the catchment, together with a number of smaller centres servicing the local rural population. Remaining natural vegetation within the catchment primarily consists of eucalypt open forests.

All land within approximately 5 kilometres of Full Supply Level has been declared as the Wivenhoe Dam Catchment Area under the Irrigation Act 1922-1977 and the Water Act 1926-1979. The purpose of the Declared Catchment is to protect water quality and in this context provides for exercise of control over subdivision and land use.

As part of the Wivenhoe project all lands below Full Supply Level and within the flood reserve have been compulsorily acquired. An additional area of approximately 16,000 ha of mostly adjoining land was also acquired. This additional land consists of farmland that either became economically non-viable or was otherwise adversely affected by the scheme.

The flood reserve and additional acquired lands together formed the land holdings that were potentially available for recreation and outdoor education. Within these holdings there was only one area surrounding Split-Yard Creek Dam and the hydro-electric power station that was excluded from consideration as a possible public area on the grounds of safety and security.

Table 1: Predicted variations in waterbody

Supply Level (m)	Max. Water Depth (m)	Area Inundated (ha)	Area of mud flats Exposed (ha)	% of Time Storage at or Above this Level
EL 67	44	10,820	0	8%
EL 65	42	9,350	1,470	26%
EL 60	37	6,250	4,570	52%
EL 55	32	4,200	6,620	67%
EL 49	26	not available	not available	100%*

Source: Queensland Premier's Department
* Subject to policy

OPTION 5)

3.4 Albert River: Glendower Damsite

3.4.1 General

Glendower damsite is located near the homestead of Glendower, 12.6 km upstream of the junction of Canungra Creek on the Albert River. It commands a catchment of some 295 km^2. The area experiences a sub-tropical climate with the Mean Annual Rainfall (MAR) of approximately 1190 mm and the estimated mean annual flow at the site is 66,700 ML, (Reference 6).

The damsite has been assumed to operate in conjunction with a weir on the Albert River at AMTD 18.7 (km) near Beenleigh.

Table 3.4.1 General Parameters of Glendower Damsite

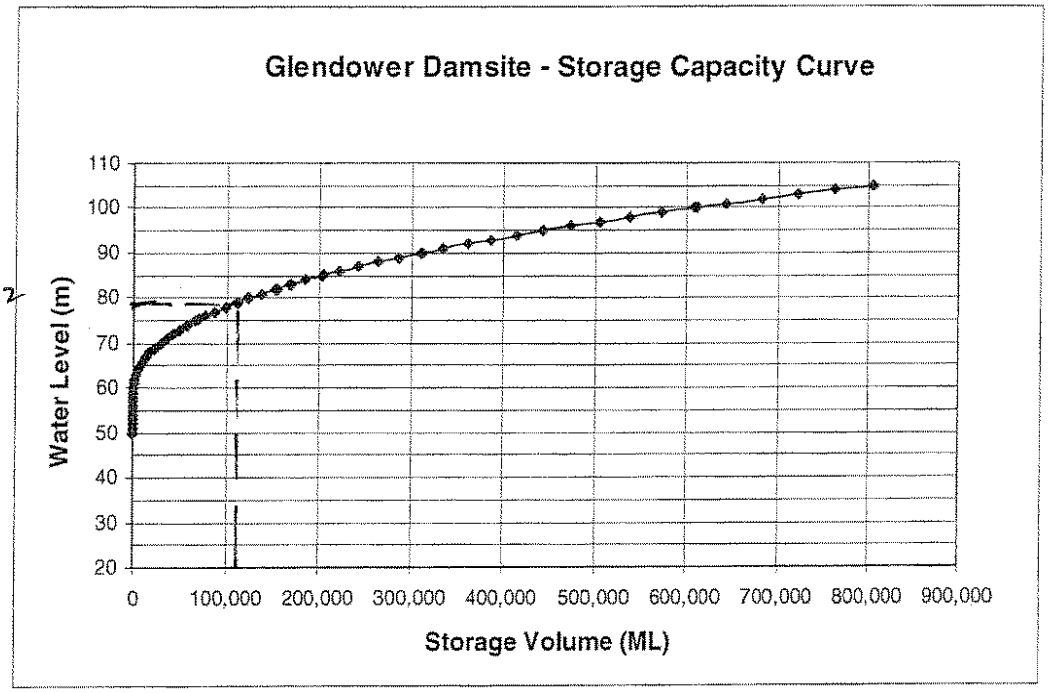
Item	Feature
Name of Project	Glendower damsite
Other Names	N/A
Catchment	Logan River
Stream	Albert River
Location (AMTD)	60.2 km
Location (Latitude / Longitude)	27°57'54" S / 153°04'39" E (Map Grid of Australia (MGA), Zone 56. Datum = GDA94)
Location (Easting/ Northing)	6906660 / 0507638 (Map Grid of Australia (MGA), Zone 56. Datum = GDA94)
Local Government Area	Beaudesert
Catchment Area	Approximately 295 km2
Dam Types Considered	Earth and Rockfill or Roller Compacted Concrete
Notes	This project assumes Glendower Dam is acting in conjunction with a 390 ML capacity barrage on the Albert River at AMTD 18.7km.

3.4.2 Storage Capacity

The storage capacity curves for Glendower damsite are as shown in Figure 3.4.1 and Figure 3.4.2.

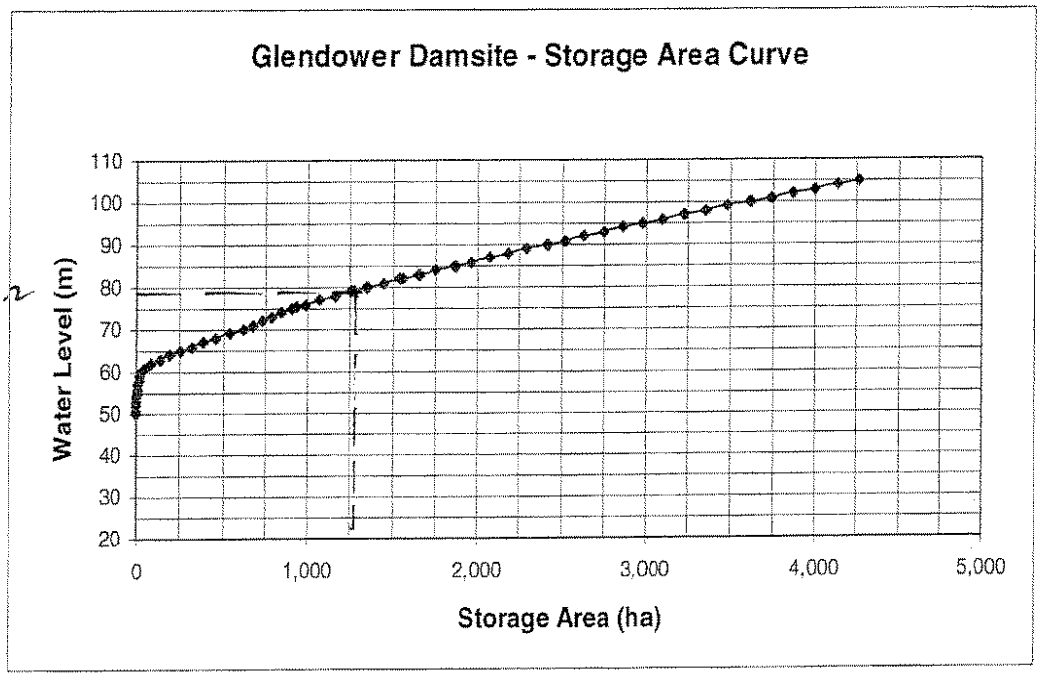
These curves were generated by NRM&W in October 2005 from 5 m contours with mathematically interpolated areas at 1 m increments.

Figure 3.4.1 Glendower Damsite: Storage Capacity Curve



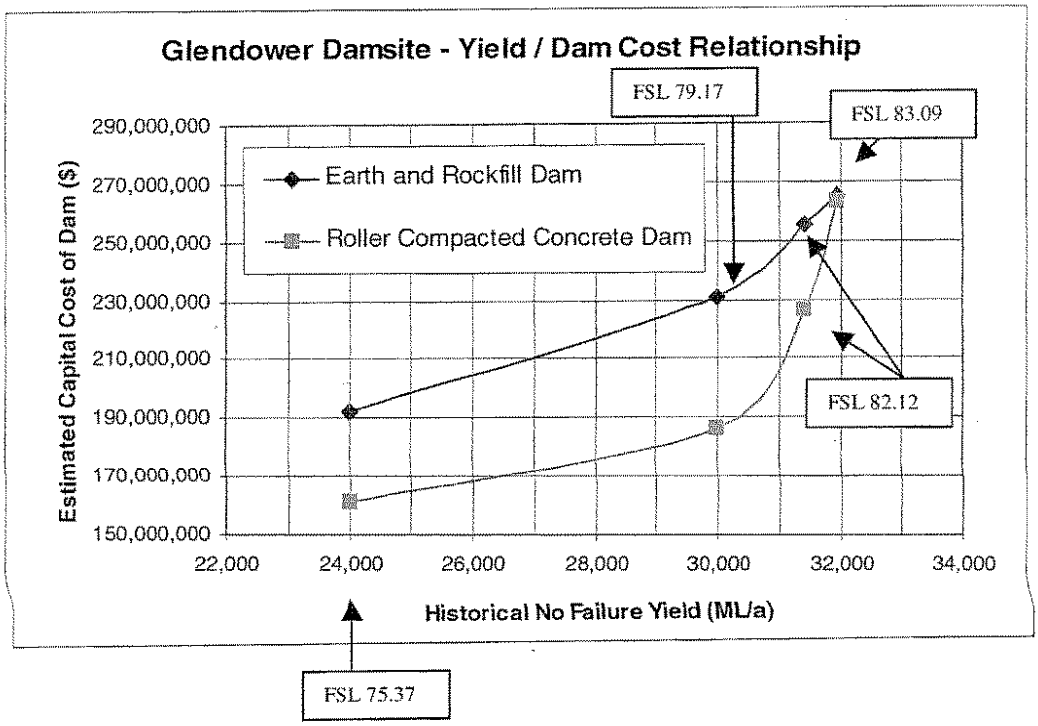
b) EL 79.2

Figure 3.4.2 Glendower Damsite: Storage Area Curve



b) EL 79.2

Figure 3.4.4 Glendower Damsite: Comparative Dam Cost Relationship



3.4.14.2 Estimated Cost of Land Acquisitions

As previously mentioned, some 2,580 hectares (being about 98 percent) of the privately owned land required has already been acquired for the proposed Glendower Dam at a cost of around $22.6 million. There is approximately 75 hectares of land yet to be acquired. An invitation remains for these landholders to sell the land needed for the Glendower Dam voluntarily.

For the purposes of this report, so that economic comparisons may be made across the various options, the project cost estimate assumes that no previous acquisitions have been made. ∴ INCORRECT LAND ACQUISITION COSTS

Therefore, the estimated cost of land acquisitions was developed by assuming the market value of land was $10,000 per ha with housing/buildings estimated at $500,000 for the newer houses and $350,000 for the older houses.

It has been assumed that land would be acquired to the extent defined by a 200m buffer area surrounding the full supply level for each option. The area within this buffer zone was obtained from GIS[3] datasets using contour information provided by NRM&W.

[3] GIS = Geographical Information Systems

No determination of the impacts of a flood margin has been considered, though it is anticipated that any additional land required beyond the 200m buffer zone, would not be significant.

In some instances, it may be necessary to acquire whole properties. The portions of these properties outside the buffer zone would, to the extent practical, be resold. An allowance of 50% has been added to the estimated cost to acquire the land only in order to cover:

- Legal fees, subdivision and transfer costs;
- Re-establishment of access to properties isolated by the storage; and,
- Retention of unsaleable portions of properties outside the buffer zone.

The estimated cost of acquisitions is summarised in Table 3.4.3.

Table 3.4.3 Summary of Land Acquisition Cost Estimate

Full Supply Level	Area (ha)	Estimate of Acquisitions (including buildings) $M	50% Allowance $M	Total Acquisition Cost $M	
75.37	1,605	20.3	10.1	30.4	75 HA...
79.17	1,883 75	25.9	13.0	38.9	2-3 Mill 20ha MAX.
82.12	2,356	32.1	16.1	48.2	
83.09	2,453	34.9	17.5	52.4	

OPTION 5) →

3.4.14.3 Estimated Cost of Main Roads

The relocation of Beaudesert Nerang Road, which crosses the Albert River just downstream of the dam, was estimated in 1991 to cost $7 million including acquisitions. The cost of this has been updated in accordance with construction cost escalation factors and is now estimated to be $14 million.

3.4.14.4 Estimated Cost of Telecom and Electrical Distribution Relocation

The 1991 report suggested that the cost of relocating telecommunications would be $1.1 million in 1991. The cost of this has been updated in accordance with the construction cost escalation factors to an estimated $2.2 million.

In addition, electrical distribution costs were reported as $0.795 million in 1991. The cost of this has been updated in accordance with the construction cost escalation factors to $1.6 million.

Given that the Mt Lindesay Highway is an important link between Queensland and New South Wales, there may be further infrastructure such as fibre optic cables, or

3.4.3 Potential Additional Supply

The yield estimates for the site were undertaken by NRM&W (November 2005) for the purpose of this study and are indicated in Table 3.4.2 and Figure 3.4.3

Table 3.4.2 Glendower Damsite: Estimated Storage Characteristics

Full Supply Level EL (m)	Storage Capacity (ML)	Surface Area (ha)	Yield (ML/a)	AV. DEPTH
75.4	70,000	938	24,000	
77.0	86,000	1,072	28,000	
79.2	111,800	1,272	30,000	8.79 M.
80.1	124,000	1,361	30,500	
85.1	205,172	1,875	33,000	
90.1	312,034	2,426	37,000	
100.1	611,838	3,625	46,000	

OPTION b)

Notes:

1) These yields are preliminary estimates of the additional historical no-failure system yield that could be extracted from a barrage on the Albert River at AMTD 18.7km.

2) **The yield estimates do not include consideration of environmental flow requirements.**

Table 3.4.4 Glendower Damsite: Estimated Cost Summary

Full Supply Level	Least Cost Dam (RCC) $M	Barrage at AMTD 18.7km $M	Land Acquisitions $M	Main Roads $M	Shire Facilities $M	Electrical distribution $M	Telecom $M	TOTAL Capital Cost $M	Unit Capital Cost of Water $/ML/a	Marginal Capital Cost of Water $/ML/a
75.37	161.0	8.0	30.4	14.0	10.4	1.6	2.2	227.6	9,483	
79.17	186.4	8.0	38.9	14.0	10.4	1.6	2.2	261.5	8,717	5,650
82.12	226.8	8.0	48.2	14.0	12.8	1.6	2.2	313.5	9,983	36,986
83.09	263.6	8.0	52.4	14.0	13.6	1.6	2.2	355.4	11,120	76,104

BORUMBA DAM - OPTION C)

3.12 Mary River (Yabba Creek): Borumba Dam Raising

3.12.1 General

EXIST. F.S.L. EL 135 M

Borumba Dam is located on Yabba Creek at AMTD 31.1 km in the Mary River Catchment. It was originally constructed to a full supply level of 132.28m with a capacity of 33,400 ML and was raised in 1997 to a Full Supply level of 135.01 with a storage volume of about 46,000 ML.

The proposed ultimate raising for Borumba Dam was that it be raised by up to 25m from the original full supply level to a level of 157.28 and to utilise additional yield from Coles Crossing Weir on the Mary River at AMTD 212.4 km. Yield analyses undertaken for this study included storage capacities up to 460,000 ML. However, higher levels of development up to 1,000,000 ML storage capacity have the potential to increase yield. A 1,000,000 ML storage would require construction of a dam to a level about 60m above the original full supply level.

OPTION C) EL 192 M

Table 3.12.1 General Parameters of Borumba Dam Raise

Feature	Description
Name of Project	Borumba Dam
Other Names	N/A
Catchment	Mary River
Catchment area ($km^{2)}$	466[1]
Stream	Yabba Creek
Local Government Area	Cooloola Shire
Location (AMTD)	31.1 km
Location (Latitude / Longitude)	26°30'24" S / 152°34'55" E (Map Grid of Australia (MGA), Zone 56. Datum = GDA94)
Location (Easting / Northing)	7068133 / 0458352 (Map Grid of Australia (MGA), Zone 56. Datum = GDA94)
Dam Types Considered	Concrete Faced Rockfill
Current Full Supply Level	135.01 m
Current Capacity	46,000 ML

[1] Sourced from Department of Natural Resources, Survey Group, Engineering Services Drawing A3-202668, dated 12/7/96 – "Yabba Creek – Basin 138 – Borumba Dam – AMTD 31.1 km – Storage Data".

3.12.3 Potential Additional Supply

Incremental historical no-failure yield estimates were completed for this study by NRM&W in February 2006 and are indicated in Table 3.12.2 and Figure 3.12.3.

For the purposes of these estimates, the capacity of Coles Crossing Weir has been assumed as 3,897 ML. An April 2000 report by State Water Projects, Department of Natural Resources (Reference 24) suggests this as an upper limit if afflux at bank-full flow is limited to around 300mm.

The yield estimates do not include consideration of environmental flow requirements.

Table 3.12.2 Borumba Dam Raising: Estimated Storage Characteristics

Case Description	Full Supply Level EL (m)	Storage Capacity (ML)	Surface area (Ha)	Incremental HNFY Yield[2] (ML/a)
Existing Base Case	135.0[1]	46,000	479	0[3]
Addition of Coles Crossing weir	135.0	46,000	479	7,500
Addition of Coles Crossing weir + Borumba Dam raising to FSL 158.0	158.0	260,000	1,455	23,500
Addition of Coles Crossing weir + Borumba Dam raising to FSL 169.6	169.6	460,000	2,007	38,000
OPTION C)	192.	1,000,000	3,100 HA	32.26 M

AV. DEP. M.

Notes

1. Existing Full Supply Level
2. These yields are preliminary estimates prepared by NR&M of the additional historical no-failure system yield that could be extracted from a weir at Coles Crossing, and do not include consideration of environmental flow requirements. The yields are quoted as incremental above the base case (existing Borumba Dam).
3. The yield of the existing Borumba Dam (prior to consideration of environmental flow requirements) is comprised of 21,800 ML/a of high priority water and 10,200 ML/a of medium priority water.

- Retention of unsaleable portions of properties outside the flood margin area.

A compensatory package would need to be negotiated with EPA in respect of areas required of State Forest and Forest Reserve (as discussed in Section 3.12.8), though no allowance has been made in this estimate above the assumed cost per ha for the purchase of land required.

The estimated costs of land acquisitions are summarised in Table 3.12.3.

Table 3.12.3 Summary of Land Acquisition Cost Estimate

Full Supply Level	Area (ha)	Estimate of Acquisitions (including buildings) $M	50% Allowance $M	Total Acquisition Cost $M
142.0	1,039	10.4	5.2	15.6
157.0	2,096	21.0	10.5	31.5
170.5	3,242	32.5	16.2	48.7
192.1	4,947	49.5	24.8	74.3

OPTION C) *

3.12.14.3 Road relocation

Access to Borumba Dam is currently via a sealed road from Imbil and includes six small bridge crossings of Yabba Creek. It is anticipated that in order to accommodate construction traffic for a raising of Borumba Dam, the bridges, which are currently timber structures, would require replacement.

Other minor access roads would require upgrading or relocation.

The estimated cost of road relocation and bridge and road upgrades is $3.0 million.

3.12.14.4 Telecommunications

There was no allowance made for upgrade of telecommunication facilities, however, some minor costs may be incurred.

3.12.14.5 Electricity Distribution

There was no allowance made for upgrade of electrical distribution facilities, however, some minor costs may be incurred.

3.12.14.6 Shire Facilities

The development of Coles Crossing Weir is likely to affect Noosa Council's pump station intake on the Mary River. This structure is located 1.5 km upstream from the proposed location of Coles Crossing Weir and is likely to be inundated to a level that

Figure 3.12.1 Borumba Dam: Storage Capacity Curve

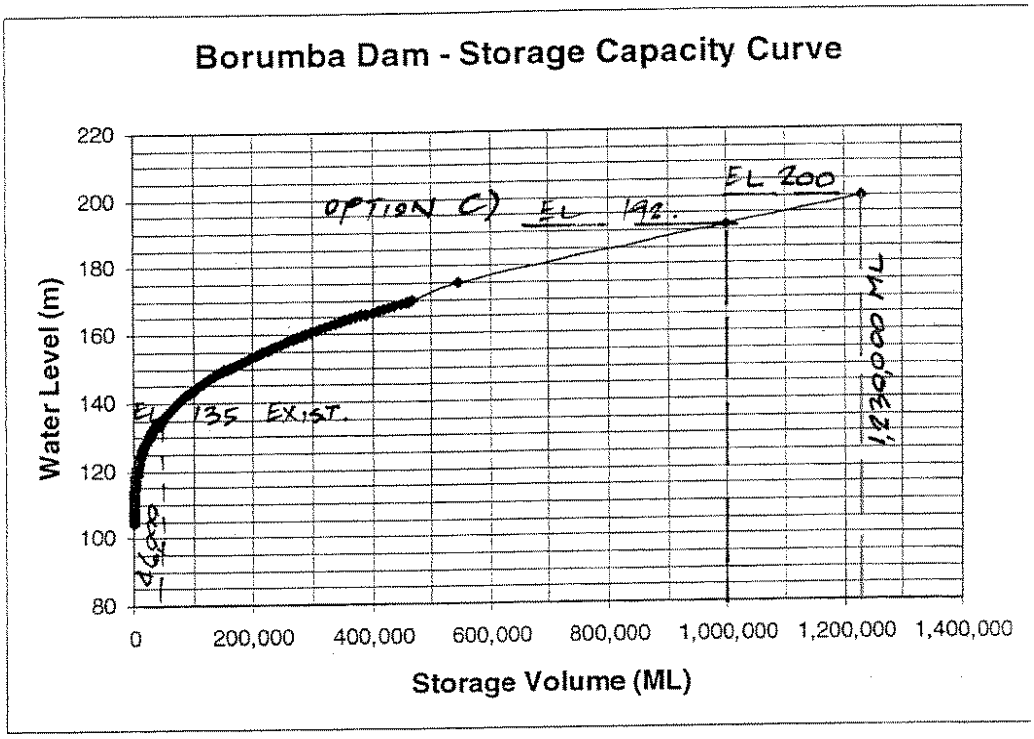


Figure 3.12.2 Borumba Dam: Storage Area Curve

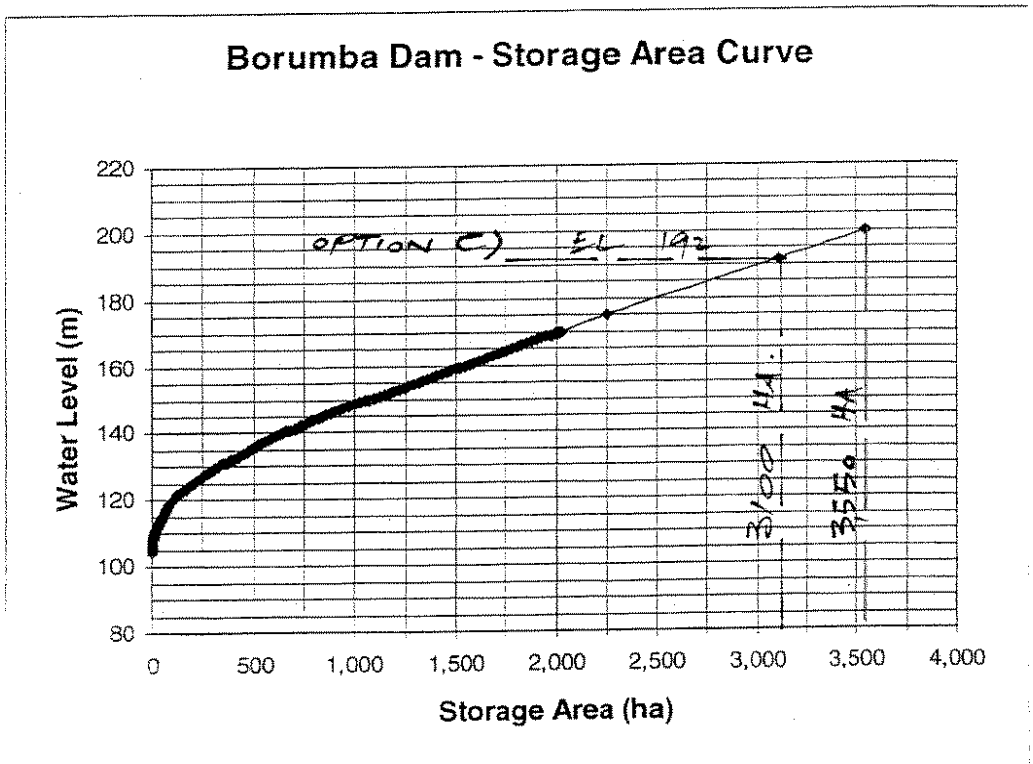
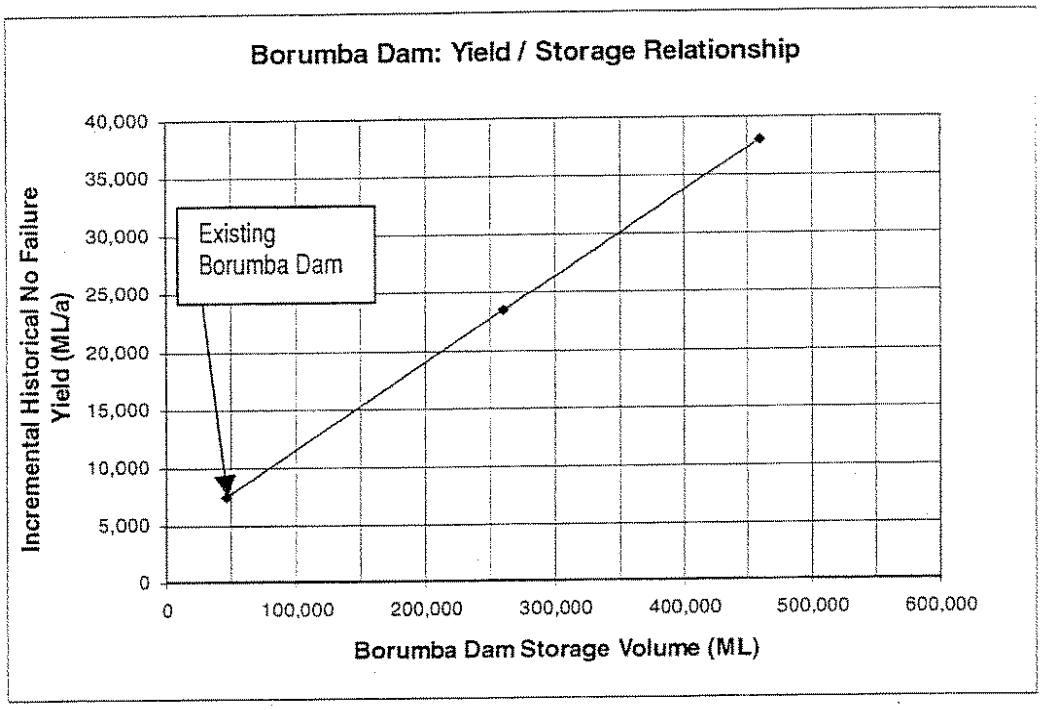


Figure 3.12.3 Borumba Dam: Yield / Storage Relationship



3.12.4 Geology and Geotechnical

Borumba Dam embankment is situated on Late Devonian-carboniferous Amamoor Beds overlain by Quaternary-aged flood plain alluvium (The Geological Survey of Queensland (SEQ Geoscience data set, 2003)). A deposit of Permian-Triassic-aged hornblende-biotite granodiorite occurs north west of the embankment.

The Quaternary-aged flood plain alluvium consisting of clay, silt, sand, and gravel is confined to the flow path of Borumba creek. The Amamoor Beds consist of mudstone, slate, basic metavolcanics, chert, schist, jasper, greywacke and are part of the Gympie Group. The Gympie Group is thought to have been formed in a deep oceanic, partly pelagic, depositional environment (R.W Day et al 1983). Folding and metamorphism has occurred through the region with two northwest trending faults occurring west of the embankment and one northeast trending fault located to the east.

3.12.5.5 Wild Rivers Act

The Queensland Government passed the Wild Rivers Act in 2005 to preserve the natural values of wild rivers, through regulation of future development activities within the declared wild river and its catchment areas. A wild river is defined as a river system that has all, or almost all, of its natural values intact. That is, the river system is virtually untouched and in almost pristine condition.

The Mary River has not been nominated for inclusion in the Wild Rivers Act; and although public submissions for nominations may be received at any time, the Mary River, due to the presence of the Mary River Barrage, may not be a candidate for such a submission.

The policy currently being developed as a result of the Act specifically prohibits the future development of new dams and weirs in the river or main tributaries of a wild river. This may have implications for any dam or weir project on the Mary River and its tributaries if the Mary River is nominated as a wild river.

3.12.6 Social and Recreation

The damsite is a popular recreational area with a campsite immediately downstream of the dam wall and boating facilities on the right bank of the ponded area. Obviously some interruption to these facilities would occur during the construction of a raise as well as affecting existing facilities at the current full supply level, (Reference 5).

All privately owned property required to raise the dam wall to provide a FSL of EL157.5m has been acquired by NRM&W.

The Borumba Pumped Storage project was previously considered by the Queensland Electricity Commission in the 1990's for the purpose of hydroelectric power and included the proposed raising of Borumba Dam. It is understood that this project has since been abandoned.

3.12.7 Cultural / Heritage

A review of relevant heritage databases as listed in Section 2 of this document indicates that there are no heritage-listed sites affected by this proposal.

No archaeologically significant sites have been identified however, there has been no thorough survey (Reference 5).

3.12.8 Strategic Land Use Planning

Little current land use planning information was available at the time of writing, however, the area affected by the proposed dam raising was listed as Special Use, Rural A, Public Open Space in 1994, (Reference 5).

Two parcels of land, part of which would be inundated, or affected by the buffer zone, are zoned 'Forest Reserve'. These parcels are Yabba Forest Reserve (467AP63380), Imbil State Forest (135PTY1638 and 467APB6338) and Yabba State Forest (986PTY1720).

Table 3.12.4 Borumba Dam Raising: Estimated Cost Summary

Full Supply Level	Concrete Faced Rockfill Dam Cost $M	Roller Compacted Concrete Dam Cost $M	Least Dam cost $M	Coles Crossing Weir $M	Land Acquisition $M	Road and Shire Facilities $M	Electrical distribution $M	Telecom $M	TOTAL Capital Cost $M	Unit Cost of Water ($/ML/a)	Marginal cost of Water ($/ML/a)
135.0			N/A	10.7	N/A	0.5	0.0	0.0	11.2	1,493	
142.3	59.96		60.0	10.7	16.6	3.50	0.0	0.0	90.8	8,433	
157.5	119.53	125.9	119.6	10.7	32.5	3.50	0.0	0.0	166.3	7,253	6,209
169.6 (1)		198.0	198.0	10.7	47.6	3.5	0.0	0.0	259.8	6,836	6,187
170.5		203.8	203.8	10.7	48.7	3.50	0.0	0.0	266.7	6,797[2]	5,606[2]
192.1		324.1	324.2	10.7	74.3	3.50	0.0	0.0	412.7	N/A	N/A

OPTION C) *

FL 192.1 M CAPACITY 1,000,000 ML YIELD ? SURFACE AREA 3,100 HA LAND ACQUISITION AREA 4,947 HA

N/A = Not applicable. The yield information for FSL 170.5 and 192.1 could not be reliably extrapolated from reported estimates by NRM&W, therefore, the unit capital cost of water and the marginal capital cost for this level are not reported.

Note:

1) Interpolated dam and land acquisition costs to obtain total capital costs, unit costs and marginal cost of water for FSL 169.6.

2) Extrapolated data.

PROJECT MANAGER TRAVESTON CROSSING DAM PROJECT
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THE CO-ORDINATOR GENERAL
P.O. BOX 15009
CITY EAST QLD. 4002

D. MILLIGAN
14 GODFREYS AVE.
BLI-BLI QLD. 4560

7.2.07

RE: DRAFT TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT STATEMENT - PROPOSED TRAVESTON CROSSING DAM

THE DRAFT TERMS OF REFERENCE FOR THIS PROJECT SHOULD INCLUDE "DAM SAFETY", PARTICULARLY BECAUSE OF THE EFFECTS OF CLIMATE CHANGE.
A.N.C.O.L.D. AND THE QLD. DAM SAFETY GUIDELINES ADEQUATELY SPELL OUT THE CRITERIA AND DESIGN RULES AND THEREFORE I CONSIDER IT UNNECESSARY TO DUPLICATE THAT INFORMATION IN MY SUBMISSION TODAY. (REFERENCE ... PETER ALLEN, QLD. DIRECTOR ANCOLD DAM SAFETY)
THE PEOPLE AT RISK (P.A.R.) BOTH UPSTREAM & DOWNSTREAM OF THE PROPOSED DAM WALL MEANS THAT THIS DAM IS THE "HIGHEST HAZARD" CATEGORY.

THE DESIGN OF THIS DAM WILL BE BASED ON POOR FOUNDATIONS, ON A KNOWN FAULT LINE AND WITH ENORMOUS SEEPAGE PROBLEMS THUS ENSURING THE RISK OF FAILURE IS HIGH, PARTICULARLY WITH THE PROBABLE MAX. FLOOD (P.M.F.)
THERE HAS BEEN NEGLIGIBLE PUBLIC INFORMATION ABOUT DAM SAFETY BY THE GOVERNMENT, THE Q.W.I. OR ITS OPERATIVES, AND THIS MUST NOT BE ALLOWED TO CONTINUE. I ENCLOSE WITH THIS SUBMISSION THE DEPUTY PREMIER'S LETTER DATED 18.12.06 ANSWERING MY QUESTIONS ABOUT THE P.M.F. FLOOD; WHICH THIS DAM MUST BE DESIGNED TO PASS SAFELY THROUGH ITS SPILLWAY.

I HAVE NOW REQUESTED FURTHER DATA BE RELEASED PUBLICLY ON THE PMF FOR TRAVESTON DAM, WHICH PROVES THAT THE COMPUTERISED MODELLING IN FACT IS FOR THE PEAK INFLOWS FOR THE PMF INTO THE CATCHMENT OF THE TRAVESTON DAM & ACTUALLY PASSES THROUGH THE SPILLWAY SAFELY WITHOUT OVERTOPPING THE DAM.

I HAVE ALSO REQUESTED THE FLOOD MODELLING BE RELEASED PUBLICLY WITH ASSOCIATED MAPS, SO THAT BOTH UPSTREAM RESIDENTS AND DOWNSTREAM COMMUNITIES CAN BE FULLY AWARE OF THEIR INCREASED RISKS DUE TO THE CONSTRUCTION OF THIS DAM AT TRAVESTON.

THE GOVERNMENT HAS MADE MUCH OF ITS INTENTION TO PROTECT THE COMMUNITIES OF BOTH KANDANGA & IMBIL FROM FLOODING. THE E.I.S. SHOULD FULLY EXPLORE THE FULL FLOODING EFFECTS ON THE PEOPLE UPSTREAM; NOT ONLY IN THE TWO TOWNS OF KANDANGA & IMBIL BUT ALSO KENILWORTH AND ALL OTHER PROPERTIES AND HOUSES BELOW THE P.M.F. FLOOD LEVEL OF EL 92.2 M A.H.D. /4,300 HA. OF INUNDATION.

ATTACHMENT 'C' P28 "DEVELOPMENT OF PMP ESTIMATES" ENUNCIATES CLEARLY THE INCREASE IN RAINFALL SINCE THE 1970'S DUE TO INTENSITY OF STORMS AND ALL THE EXPERTS NOW ARE PREDICTING MORE INTENSE TROPICAL EVENTS, WITH THE FURTHER CLIMATE CHANGES. I INTEND TO SUBMIT FURTHER ON THE TERMS OF REFERENCE FOR THE E.I.S. AS TIME PERMITS BEFORE THE CLOSING DEADLINE ON OTHER PERTINENT ISSUES.

YOURS FAITHFULLY

D MILLIGAN

Queensland Government

Please quote: TN104783
Contact officer: Peter Silvester
Contact telephone: 3224 4664

Office of the
Deputy Premier,
Treasurer and
Minister for Infrastructure

18 DEC 2006

Mr D Milligan
14 Godfreys Avenue
BLI-BLI QLD 4560

Dear Mr Milligan

Thank you for your email of 13 November 2006 to the Honourable Anna Bligh MP, Deputy Premier, Treasurer and Minister for Infrastructure, requesting flood data for the proposed Traveston Crossing Dam. The Deputy Premier has asked me to respond on her behalf.

The flood modelling for Traveston Crossing Dam has been based on a flood with a one percent Annual Exceedence Probability (AEP) to derive the area of land required for the dam. In other words, there is a less than one percent probability of the flood waters ever exceeding this height.

Specific flood modelling data for Traveston Crossing dam is provided for your information as *follows:*

Flood Height Stage 2 (1% AEP)	EL 82.75 metres AHD*
Capacity Megalitres at flood (1% AEP)	831,000 megalitres
Area (hectares) inundated at flood (1% AEP)	8,900 hectares
Area (hectares) for Stage 2 including buffer	9,815 hectares

*Australian Height Datum

For added safety, the dam will be designed to pass the Probable Maximum Flood (PMF), in accordance with the Australian National Committee on Large Dam Guidelines (ANCOLD) and Queensland Dam Safety Guidelines.

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ABN 65 959 415 158

To put this into context, such an event has never been experienced in Australia's recorded history and has an Annual Exceedence Probability of less than 0.0002% (i.e. less than a 1 in 500,000 likelihood of occurring). This notional 'armageddon' type of flood was modelled at approximately EL92.2 metres, with the potential area impacted approximately 14,300 hectares.

Thank you for your correspondence on this matter.

Yours sincerely

Murray Watt
Principal Policy Advisor
Office of the Deputy Premier,
Treasurer and
Minister for Infrastructure

Ref: TN104783

Development of PMP Estimates

The original Generalised Tropical Storm Method (GTSM) for estimating Probable Maximum Precipitation (PMP) was developed in the mid to late 1970s on the basis of the limited number of storms and a limited amount of storm data.

In the years since the basic GTSM methodology was originally developed, it was progressively updated. This resulted in a progressive updating of flood estimates. This development also coincided with developments in hydrological modelling which allowed better modelling of dam catchments. Overall, it resulted in dam spillways progressively needing to pass bigger and bigger design floods.

Most of the dams designed since the original GTSM methodology became available would have been designed taking the then estimates of the PMP into account.

NRM&E, together with the NSW Dam Safety Committee and the Western Australian Water Corporation recognised that it was in need of review in 1999 and jointly sponsored an extensive review. NRM&E provided 'in kind' and financial support for the project. It was also represented on the project steering committee and a supporting 'technical advisory' committee.

The entire Bureau of Meteorology rainfall record was systematically examined objectively for the largest rainfall events. A total of 122 storms were identified (as against the 7 used in the original model) and analysed to develop an upper estimate of the possible rainfall over different durations. Once the upper envelope was determined and the process refined, this information is used in conjunction with information about specific catchment in order to estimate Probable Maximum Precipitation over those catchments.

This GTSM-R review process was very rigorous and is considered to have resulted in far more reliable PMP estimates than were previously available. In many respects the methodology adopted was similar to that recently adopted in the Generalised Southern Australian Method (GSAM) for southern Australia.

The updated GTSM-R methodology was finalised and rainfall estimates started to become available to dam owners in September 2003. In Queensland, the Wivenhoe Dam catchment (near Brisbane) and the Ross River Dam catchment (near Townsville) were used as 'test catchments' for the methodology. The revised method was peer reviewed internally within Australia and it was internationally reviewed by Lou Schreiner, US Bureau of Reclamation.

Overall, the recent GTSM review resulted in increases in the flood estimates of about 15% in south-east Queensland and about 30% to 35% in north western Queensland. The greater increases in north western Queensland being primarily attributed to higher persistent dew point data becoming available in the area.

The overall effects of this growth seem to be variable across Queensland. The critical duration design floods for Wivenhoe Dam increased by about 3.5 times over the period and those for Ross River Dam doubled. Either way, the increases are significant.

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CITY EAST QLD. 4002

D. MILLIGAN
14 GODFREYS AVE.
BLI-BLI QLD. 4560
12.2.07

RE: DRAFT TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT STATEMENT - PROPOSED TRAVESTON CROSSING DAM

MY OBJECTIVE OF THIS LETTER IS TO ENSURE THE SOCIAL COST OF THIS PROPOSED DAM IS SERIOUSLY CONSIDERED IN THE TERMS OF REFERENCE.

THE COMPLETE LACK OF PUBLIC CONSULTATION WHICH PRECEDED THE PREMIER'S HELICOPTER FLIGHT OVER THE MARY RIVER ON THE 27th. APRIL 2006 AND HIS ANNOUNCEMENT ON THE NIGHTLY NEWS THAT, " THE GOVERNMENT INTENDED TO BUILD A DAM AT TRAVESTON, WHICH WOULD DROUGHT PROOF S.E.QLD AND FLOOD PROOF GYMPIE & MARYBOROUGH.

NO PUBLIC CONSULTATION, NO REPORTS RELEASED, NO JUSTIFICATION, AND NO CONCERN ON BEHALF OF THE MANY HUNDREDS DIRECTLY IMPACTED, NOR THE THOUSANDS OF PEOPLE INDIRECTLY EFFECTED BY THIS CALLOUS DECISION. EVEN THE COOLOOLA SHIRE COUNCIL WAS NOT INFORMED PRIOR TO THIS ANNOUNCEMENT ON 27.4.06. (EXCEPT THE DAY BEFORE.)

THE NRMW MARY BASIN DRAFT WATER RESOURCE PLAN IN 2005 DID NOT MENTION A DAM ON THE MARY RIVER, ONLY A WEIR AT COLES CROSSING.

IN ORDER TO FULLY ILLUSTRATE HOW DASTARDLY WAS THIS DECISION, WE NEED TO FULLY EXAMINE IT, USING THE PREVIOUS REPORTS WHICH CONSIDERED DAMS ON THE MARY RIVER. (OVER THE PREVIOUS 3 DECADES)

ONE OF THE EARLY REPORTS CARRIED OUT BY THE IRRIGATION & WATER SUPPLY COMMISSION - QUEENSLAND IN MARCH 1977, CONSIDERED A DAM AT 206.7 KM AS A POSSIBLE SUPPLY FOR TARONG POWER STATION

(REFERENCE TABLE IV ... P13 & TABLE V ... P14 COPY ENCLOSED)

THIS REPORT WAS FOR A DAM OF 666,000 ML. WITH AN ASSURED ANNUAL YIELD OF 286,000 ML. WITH THE PROVISO THAT THIS WAS AFTER THE PROVISION OF 54,000 ML./ANNUM TO THE LOWER MARY RIVER REGION, AT A COST OF $118/ML. [$40M ÷ 340,000 ML.]

AS DAMS IN THE 1970's WERE ALWAYS SELECTED ON THE BASIS OF CHEAPEST COST/ML. IT IS VERY CURIOUS THAT ONLY TWO (2) YEARS LATER, THAT A "REPORT ON WATER RESOURCES DEVELOPMENT POTENTIAL NEAR NORTH COAST STREAMS INTERIM REPORT BY Q.W.R.C. DATED NOV. 1979 SUDDENLY OMITS THE TRAVESTON DAM 206.7 KM ON THE MARY RIVER, AND REPORTS THE KENILWORTH DAMSITE AT 270 KM. INSTEAD. WHY?

MY BELIEF IS THAT AT SOME STAGE IN BETWEEN MARCH 1977 AND NOV. 1979 THAT IT WAS DECIDED THAT TRAVESTON DAM WAS TOO COSTLY (OTHER COSTS IN ADDIT. TO DAM CAPITAL COSTS)

∴ THIS INTERNAL DECISION SHOULD BE REQUESTED FROM THE GOVERNMENT AS PART OF THE *E.I.S.

MAR 1977 TRAVESTON DAM COST/ML = $118/ML TABLE IV
NOV. 1979 KENILWORTH DAM COST/ML = $210/ML TABLE 5

(*... FROM THE TABLES IN THE REPORTS COPIES ENCLOSED)

IN 1976 THE QLD. WATER SUPPLY & IRRIGATION COMMISSION A GEOLOGICAL ASSESSMENT OF THIS SITE (REF. 20 P629 GH&D STUDY) WHICH MAY CONFIRM WHY IT WAS NO LONGER CONSIDERED IN 1979. REPORT READ ??

A FURTHER REPORT TITLED "WATER SUPPLY FOR URBAN DEVELOPMENT IN S.E. QUEENSLAND" PRESENTED BY THE THEN COMMISSIONER T.D. FENWICK IN AUGUST 1986 EXAMINED THE NORTH-COAST AREA AND IN TABLE 5.1 P1.22 REPORTED BOTH THE ABOVE DAMS AND COSTED THEM AS FOLLOWS :-

KENILWORTH 270 km. AT $36M WITH AN ANNUAL YIELD OF 106,000 ML

TRAVESTON 206.7 km. AT 70M — " — " — " — 288,000 ML

THIS EXTRAPOLATES TO A COST / ML. OF :-

KENILWORTH .... $ 340.00 / ML

TRAVESTON .... $ 243.00 / ML

THIS REPORT STILL HAD TRAVESTON AS THE CHEAPER OPTION IN AUG. 1986 EVEN THOUGH BOTH COSTS HAD RISEN IN THE 9 YEARS SINCE 1977.

IN JANUARY 1991 WATER SUPPLY SOURCES IN SOUTH EAST QLD VOLUME 2 MAIN REPORT AGAIN RECOMMENDED THAT "THE KENILWORTH DAM 270 km. ON THE MARY RIVER BE PRESERVED FOR THE SUNSHINE COAST AND THE MARY VALLEY

(REFERENCE P168 13.5.2 CONCLUSIONS)

THE COSTING REPORTED IN TABLE 11.2 ON P89 HAD RISEN TO $1,200 / ML. SINCE 1986.

[$123M ÷ 104,500 ML = $1,177 / ML.]

INTERESTINGLY TRAVESTON DAM, WAS NOW OFF THE AGENDA COMPLETELY.

THIS WAS CONFIRMED IN THE 1994 D.P.I. REPORT TITLED "AN APPRAISAL STUDY OF WATER SUPPLY SOURCES FOR THE SUNSHINE COAST AND THE MARY RIVER VALLEY."

TABLE 8.2 P53 IN THIS REPORT STATES MARY RIVER 206.7 KM EXTENSIVE ALLUVIAL FLOOD PLAIN ON RIGHT BANK. COST FOR DAM UPDATED FROM 1977 TO $125 MILLION." DAMSITE CONSIDERED UNSUITABLE BECAUSE OF HIGH CAPITAL COST, INUNDATION OF PRIME AGRICULTURAL LAND AND DISPLACEMENT OF RURAL PEOPLE".

ON P83 OF THIS REPORT CL. 10.2.1 DAMS APPROACH STATES THIS STUDY HAS FOCUSSED ON SELECTING DAM OPTIONS ACCORDING TO THE FOLLOWING CRITERIA :

- LEAST SOCIAL & ENVIROMENT IMPACTS
- LOWEST ECONOMIC COST
- MINIMAL LOSS OF AGRICULTURAL LAND
- PROXIMITY TO THE AREA OF GREATEST DEMAND

SO BY 1994 TRAVESTON DAM 206.7 KM WAS OFFICIALLY DEAD IN THE WATER.

THE GH & D DESK TOP STUDY DATED JUNE 2006 TITLED "SOUTH EAST QUEENSLAND REGIONAL WATER SUPPLY STRATEGY DESK TOP REVIEW OF IDENTIFIED DAM AND WEIR SITES"

THIS REPORT CURIOUSLY DID NOT CONSIDER THE KENILWORTH DAM 270 KM. PREFERRED OPTION IN 1986 AND 1994 — AND ONLY DEALT WITH THE CAMBROON DAM AND THE TRAVESTON DAM ON THE MARY RIVER.
WHEN WAS THE KENILWORTH DAM ELIMATED FROM THE OPTIONS BEING EVALUATED ... REPORT REQUIRED !!

NOT ONLY DID IT **NOT** REPORT ON THE PREVIOUSLY PREFERRED OPTION OF "KENILWORTH" THE GH & D STUDY RECOMMENDED A LARGER DAM AT TRAVESTON CROSSING THAN THE 666,000 ML. CAPACITY AT IT'S HYDROLOGIC LIMIT

IN THE GH & D REPORT "TABLE 4.3 BULK WATER SUPPLY OPTIONS RANKED BY UNIT COST AT SOURCE" THIS LARGER THAN POSSIBLE TRAVESTON DAM WAS RANKED THE 4th. CHEAPEST OPTION AT $4,695 /ML FOR THE 1,130,000 ML STORAGE CAPACITY.

[70% LARGER STORAGE THAN THE HYDROLOGIC LIMIT.]

SUSPICIOUSLY IN TABLE 4.2 "BULK WATER SUPPLY OPTIONS RANKED BY POTENTIAL YIELD" IT WAS (TRAVESTON DAM) THE BEST PERFORMER AT 215,340 ML/ANNUM FROM THIS NOW "SUPERSIZED" 1,130,000 ML. STORAGE CAPACITY.

IT BEGGARS BELIEF AND ALL CREDIBILITY THAT SIX (6) YEARS INTO THE WORST DROUGHT IN 1000 YRS. THAT A 70% LARGER DAM THAT IT'S PREVIOUS STATED "HYDROLOGIC LIMIT" IS NOW GOING TO YIELD WATER AT THIS RATE.
WHO DECIDED THAT THIS DAM COULD BE INCREASED TO JUSTIFY IT'S SELECTION CRITERIA. ?

UNFORTUNATELY THIS GH & D REPORT WAS ONLY RELEASED PUBLICLY AFTER THE FIERY GYMPIE MEETING HELD BY THE PREMIER ON 5th. JULY 2006

SO THE 1500 to 2,000 PEOPLE IN ATTENDANCE WERE AMBUSHED BY THE PREMIERS STAGES 1, 2 & 3 ANNOUNCEMENTS WHEN HE "UNILATERALLY" DOWNSIZED THIS SUPA DAM TO A MINI VERSION WITH A MEGA COST.

AT THIS MEETING ON 5.7.06 PREMIER BEATTIE ANNOUNCED THAT TRAVESTON DAM WOULD NOW BE BUILT IN STAGES. (DIVIDE & CONQUER TACTIC)

STAGE 1 COST OF $1.7 BILLION DOLLARS TO BUILD A 180,000 ML. STORAGE CAPACITY FOR A SAFE ANNUAL YIELD OF 70,000 ML/A. (BY 2011.)

STAGE 2 BORUMBA DAM RAISING BY 25 M. TO EXIST DAM

STAGE 3 INCREASE TRAVESTON DAM TO ITS FULL POTENTIAL OF 660,000 ML. WITH A COMBINED SAFE ANNUAL YIELD OF 150,000 ML./A (WITH BORUMSA DAM STAGE 2) (BY 2035.)

THIS UNILATERAL DECISION BY THE PREMIER CATAPAULTED TRAVESTON TO THE MOST EXPENSIVE DAM (COST/ML.) IN QUEENSLAND'S HISTORY, AT $ 24,285/ML [OVER 5 TIMES THE GHD JUNE 2006 ONE MONTH EARLIER COSTING PER MEGALITRE]

AGAIN PRODUCE THE REPORT / CABINET BRIEFINGS WITCH THIS MEGA COST DECISION WAS BASED ON OR EXPLAIN HOW BILLIONS OF DOLLARS ARE WASTED OF THE QUEENSLAND TAX PAYERS SCARCE DOLLARS.

WHERE IS THE COST BENEFIT ANALYSIS FOR THE PROJECT.

THIS WHOLE SORRY TRAGIC EVENT IS BASED ON AN UNKNOWN REPORT OR DOCUMENTS STILL NOT AVAILABLE PUBLICLY TO EXPLAIN THE PREMIER'S ANNOUNCEMENT 2 MONTHS EARLIER ON 27th. APRIL 2006, WHEN HE FLEW OVER THE MARY VALLEY IN THAT HELICOPTER AND ANNOUNCED THAT THE GOVERNMENT WOULD BUILD A DAM AT TRAVESTON WHICH REQ'D 892 PROPERTIES & WHICH WOULD SPAN 7,600 HA. WHEN IT WAS COMPLETED IN 2012.

THE DAM WILL HAVE A 660000 ML CAPACITY AND COST $150 MILLION (SOURCE NEWSPAPER CLIPPING 28.2.06)

NO REPORTS, NO JUSTIFICATION AND NO DETAILED COSTINGS WERE EVER RELEASED FOR THIS DECISION BY THE PREMIER — STRANGELY ASSERTING THAT DAM WOULD BE BUILT TO ITS HYDROLICAL LIMIT OF 660,000 ML. BUT FOR A FRACTION OF THE COST.

PRODUCE THE REPORTS OR CANCEL THE PROJECT.

SINCE THE 5th. JULY 2006 THE PUBLIC OUTCRY HAS BEEN ENORMOUS, BUT THIS UNCARING & CALLOUS QLD. GOVERNMENT WAS AGAIN RETURNED TO POWER ON 9th. SEPT. 2006. SO THE GOV'T CONTINUED TO PURCHASE AS MANY OF THE RESIDENTS & LANDOWNERS AS POSSIBLE, WHILST STONE WALLING ALL ATTEMPTS TO OBTAIN THE MISSING REPORTS & DATA TO JUSTIFY ITS DECISION TO PROCEED WITH TRAVESTON DAM.

TO THIS END THE DEPUTY PREMIER ANNA BLIGH MADE A MINISTERIAL STATEMENT TO THE HOUSE ON 31.10.06 WHICH BASICLY SAID THEY HAD REDUCED THE IMPACT OF THE DAM ON THE EFFECTED LANDHOLDERS AS THE TOTAL AREA REQ'D FOR STAGE 2 WAS NOW 9,800 HA INSTEAD OF 13,700 HA. DUE TO THE REALIGNMENT OF THE DAM WALL & MORE ACCURATE FLOOD MODELLING. "WE HAVE REDUCED THE DAMS IMPACT BUT STILL GET THE SAME YIELD" THE NUMBER OF HOMES AND PROPERTIES AFFECTED HAS BEEN REDUCED BY 403.

THE DEPUTY PREMIER THEN INVITED LANDHOLDERS TO A PUBLIC MEETING TO BE HELD IN GYMPIE ON 3.11.06

THIS WAS ANOTHER FIERY PUBLIC MEETING IN WHICH OVER 1,500 PEOPLE VENTED THEIR RAGE AND FRUSTRATION ON THE DEPUTY PREMIER.

THIS WHOLE SORRY SAGA, HAS BEEN UNDERPINNED BY A LITTANY OF DECEPTION AND CLEVER PUBLIC RELATIONS, WITHOUT ANY SERIOUS ATTEMPTS TO JUSTIFY THE VARIOUS POLITICAL DECISIONS ANNOUNCED.

SINCE THIS APRIL 2006 ORIGINAL ANNOUNCEMENT TO BUILD TRAVESTON DAM, THE 5th. JULY MEETING OF THE PREMIERS DIVIDE & CONQUER APPROACH, THE FURTHER 3.11.06 MEETING BY THE DEPUTY PREMIER TO REDUCE THE DAMS IMPACT ON THE PEOPLE HAVE ALL FAILED.

THE GOVT, NRMW, THE Q.W.I. HAVE ALL FAILED MISERABLY TO ALLAY THE VERY REAL CONCERNS OF THE THOUSANDS OF PEOPLE AFFECTED DIRECTLY BY THIS DECISION AND THE TAX PAYERS OF QUEENSLAND WHO WILL HAVE TO PAY FOR THIS EXTRAORDINARILY HIGH COST DAM.

THE HIGH SOCIAL COSTS, THE ENVIRONMENT COST & THE VERY HIGH ECONOMIC COSTS OF THIS PROJECT DEMAND ANSWERS AND IF THEY ARE NOT PROVIDED SATISFACTORILY THEN THIS PROJECT SHOULD BE CANCELLED IMMEDIATELY BEFORE FURTHER IRREPARABLE DAMAGE IS WREAKED ON THE PEOPLE INVOLVED.

YOURS FAITHFULLY

D. MILLIGAN

4.2 Comparison of Options

Each of the options in Table 4.1 were reviewed to identify the full supply level that results in the lowest unit cost (total capital cost /annual HNF yield) bulk water supply.

The project options in Table 4.2 have been ranked to indicate the projects with the maximum yield at the point of lowest unit cost.

Table 4.3 indicates the lowest unit cost project options sorted on the basis of unit cost of supply.

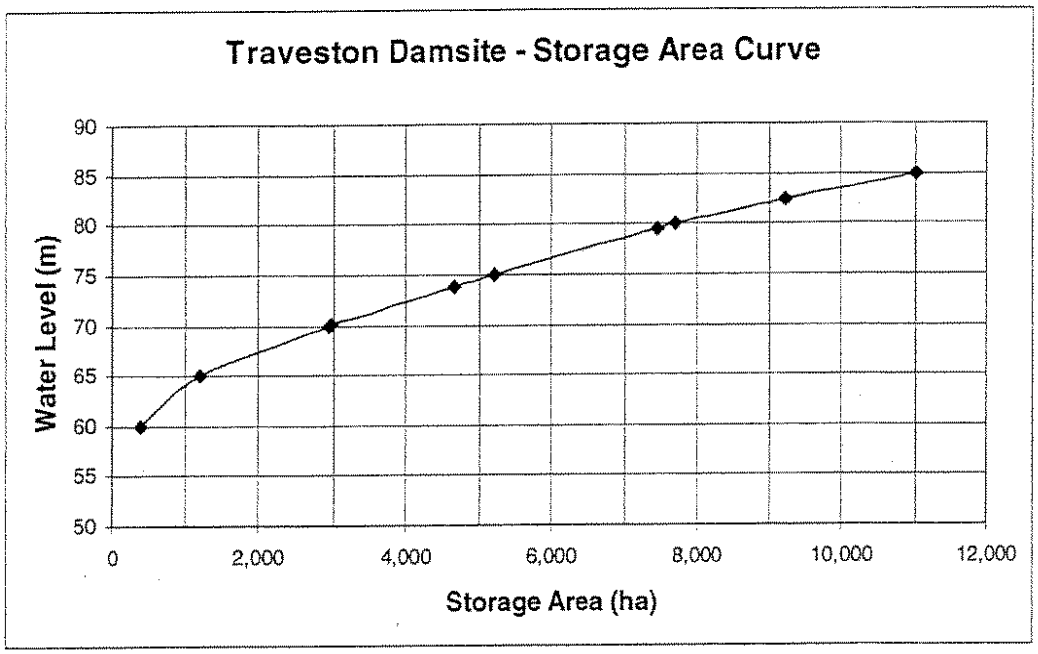
Table 4.2 Bulk Water Supply Options Ranked by Potential yield

Bulk Water Supply Project Option	Potential Yield (ML/a)	Storage Required (ML)	Full Supply Level (m)	Cost ($Million)	Unit Cost ($/ML/a)
Mary River Traveston Dam	215,340	1,130,000	85	1,011.1	4,695
Logan River/Cedar Grove Dam	78,346	295,136	40	768.9	9,814
Wyaralong 104,000 ML and Tilley's Bridge 110,000 ML Dams + Cedar Grove Weir	59,000	-	0	356.7	6,046
Mary River/Cambroon Dam	52,930	127,247	130	206.3	3,898
Wyaralong 104,000 ML and Tilley's Bridge 50,000 ML Dams + Cedar Grove Weir	50,000	-	0	301.3	6,025
Logan River/Tilley's Bridge near Rathdowney	42,714	100,000	110	223.1	5,223
Coomera River/Coomera Dam	42,688	110,678	64	503.9	11,804
Yabba Creek/Borumba Stage 3 with Coles Crossing Weir	39,236	475,581	170.5	266.7	6,797
Obi Obi Creek Kidaman Dam	36,883	172,898	130	172.5	4,677
Maroochy River/Raising Wappa Dam	30,004	81,230	77.5	238.0	7,932
Albert River/Glendower Dam acting in conjunction with a barrage on the Albert River	30,000	111,800	79.17	261.5	8,717
Wyaralong/Logan River Teviot Brook with Cedar Grove Weir	26,674	97,025	63	127.8	4,790
Amamoor Creek/Amamoor Dam	26,654	218,685	145	162.2	6,085

Table 3.14.4 Traveston Damsite: Estimated Cost Summary

Full Supply Level	RCC Dam cost $M	Land Acquisition and relocation of Imbil $M	Main Roads $M	Electrical distribution $M	Telecom $M	Shire Facilities $M	TOTAL Capital Cost $M	Unit Capital Cost of Water ($/ML/a)	Marginal Capital Cost of Water $/ML/a
75	277.7	339.2	73.0	5.0	5.0	40.0	739.9	6,670	
80	313.4	416.4	74.0	7.5	7.5	40.5	859.3	5,243	2,254
85	376.9	502.2	76.0	7.5	7.5	41.0	1,011.1	4,695	2,951
90	421.8	586.5	81.0	7.5	7.5	42.0	1,146.3	5,254	47,809

Figure 3.14.2 Traveston Damsite: Storage Capacity Area



3.14.3 Potential Additional Supply

Yield estimates for this site were undertaken by NRM&W in November 2005 for the purpose of this study and are indicated in Table 3.14.2 and Figure 3.14.3 for various levels of dam development.

The yields indicated are preliminary estimates of the historical no-failure yield that could be extracted directly from the dam.

Table 3.14.2 Traveston Damsite: Estimated Storage Characteristics

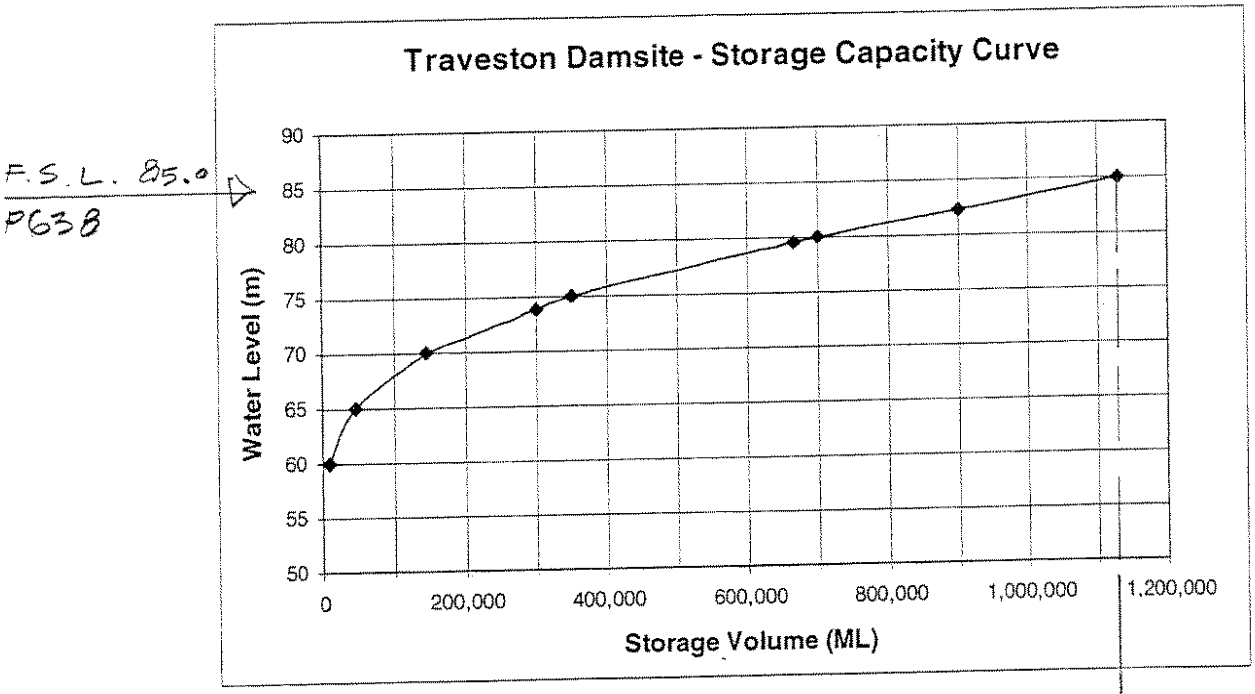
Full Supply Level EL (m)	Storage Capacity (ML)	Surface area (Ha)	Yield ML/a
70.0	146,000	2,961	55,000
73.8	300,000	4,651	103,000
79.5	666,000	7,457	161,000
82.3	900,000	9,235	181,000

Note: Environmental flow requirements have not yet been taken into account in determining the yields shown in Table 3.14.2 and in Figure 3.14.3.

3.14.2 Storage Capacity

The storage capacity curves for Traveston damsite are as shown in Figure 3.14.1 and Figure 3.14.2. This information is derived from Irrigation and Water Supply Commission Drawing Number S46766 – Mary River Damsite 206.7km Storage Curves dated 17/5/76 and amended 7/10/77.

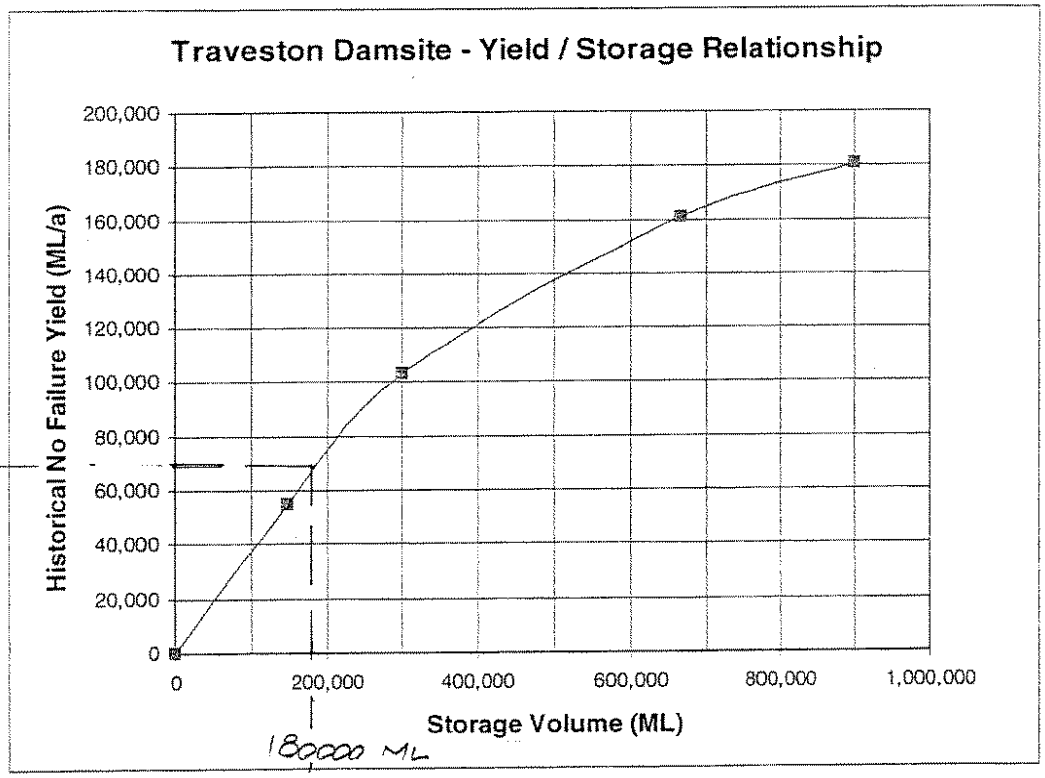
Figure 3.14.1 Traveston Damsite: Storage Capacity Curve



F.S.L. 85.0
P638

1,130,000 ML

Figure 3.14.3 Traveston Damsite: Yield/Storage Relationship



3.14.4 Geology and Geotechnical

The Queensland Irrigation and Water Supply Commission completed a geological assessment at this site in 1976 (Reference 20). The investigation comprised three auger drill holes and a review of geological maps. The following comment relates to that investigation.

The valley floor is alluvium of generally clayey soils with gravel content generally at the base of the auger holes (between 12m and 22m below the surface). Auger refusal was obtained at 22.57m and 13.57m in boreholes located on the right river terrace, however, alluvial materials were intersected up to 21.05m without refusal on the left upper river terrace.

The site is located primarily on chert on the lower left abutment and siliceous rhyolite and agglomerates on the lower part of the right abutment. In these areas, moderately to slightly weathered rock occurs at depths of approximately 1 to 2m below the surface in road cuts and small excavations.

Above approximately EL80m, only soil and rock fragments were found at the surface. A road cutting high on the left bank (above EL90m) indicates that weathered sedimentary rocks (possibly greywacke interbedded with chert and shale), strike NW-SE and dip approximately 70° SW, although the geological conditions below the surface are largely unknown. Large fault zones were also observed.

Deputy Premier, Treasurer and Minister for Infrastructure
The Honourable Anna Bligh

Tuesday, October 31, 2006

Extensive modelling reduces Traveston Dam impact: Bligh

The Traveston Crossing Dam's finalised plan has the number of homes and properties affected reduced by 403, Deputy Premier Anna Bligh told State Parliament this morning.

Ms Bligh said that the Traveston Crossing and Wyaralong Dams (separate release) are major projects and their importance to South East Queensland's water future cannot be overstated.

"Significantly, the realignment of the Dam wall and the reduction in the Traveston Crossing Dam area means that the number of homes and properties affected has been reduced **by 403**.

The final dam wall alignment and subsequent detailed flood modelling means that a total of 597 properties - not the original 1000 - will be affected by dam inundation or road alignment changes.

"We have a reduced the dam's impact, but we still get the same yield. This is a good outcome and we have made Gympie safer."

Geotechnical investigation has allowed the realignment of the dam wall and more accurate flood modelling has reduced the overall land needed from 13700 hectares to 9800 hectares.

Geotechnical investigation has identified the new alignment has desired solid rock foundations on both left and right abutments as well as the centre section.

This quality of foundation has now confirmed that, from an engineering perspective, this is an excellent site for the dams construction.

Traveston Crossing Stage 1, which is estimated to cost $1.7 billion, has a completion date of 2011 and Stage 2, if required, by 2035.

Stage 1's capacity is now 153,000 megalitres with a yield of 70,000 megalitres. The completed Stage 2, by 2035 will have a capacity of a massive 570,000 megalitres with a yield of up to 150,000 megalitres.

The Deputy Premier has invited landholders in the Traveston area to a public forum in Gympie on Friday.

	Stage 1	July 2006 Estimates Stage 1 (Premier's announcement)	Stage 2	July 2006 Estimate Stage 2 (Premier's announcement)
Total Properties affected	332	500	597 (includes stage 1 amount i.e. 265 more)	1000
Houses required for Dam and roads	76	NA	204 (includes stage 1 amount i.e. 128 more)	556 (excluding road requirements)

Hotline - 1800 225 384 Website: www.qldwi.com.au Media: Deputy Premier's Office 3224 6900

Traveston elements - From Deputy Premier's Ministerial Statement:

As major projects for South East Queensland, they necessarily will have some impact on their localities.

While this is unfortunate, the Government has an obligation to deliver water security for the people and industry of the region.

We promised MaryValley residents final plans and impacts before year's end and I can advise the House that this week our government delivers on that promise.

Yesterday I sent letters and information packs to all affected residents in the Traveston and Wyaralong Dam sites.

The information package include individual impact maps for every affected landholder, facts sheets on the dams approvals processes, timelines, sale and leaseback processes, **road network changes**, land controls, land uses and identify how the dam will affect communities – like Kandanga, Imbil and Brooloo, Carter's Ridge, Federal, and Gympie itself.

Additional to the extensive briefing material they receive this week a 1800 hotline – 1800 225 384 - has been established to ensure that affected residents have access to the information they seek.

In addition, I have invited landholders in the Traveston area to a public forum I will be holding in Gympie on Friday.

To give landholders certainty land required for both dams and all stages of Traveston Crossing will be acquired now.

As is already known - we are offering very favourable leaseback package

for affected property owners impacted and associated road changes.

Traveston

Geotechnical investigation has allowed the realignment of the dam wall and more accurate flood modelling has reduced the overall land needed from 13700 hectares to 9800 hectares.

Geotechnical investigation has identified the new alignment has desired solid rock foundations on both left and right abutments as well as the centre section.

This quality of foundation has now confirmed that, from an engineering perspective, this is an excellent site for the dams construction.

Traveston Crossing Stage 1, which is estimated to cost $1.7 billion, has a completion date of 2011 and Stage 2, if required, by 2035.

Stage 1's capacity is now 153,000 megalitres with a yield of 70,000 megalitres.

The completed Stage 2, by 2035 will have a capacity of a massive 570,000 megalitres with a yield of up to 150,000 megalitres.

Significantly, the realignment of the Dam wall and the reduction in the Dam area means that the number of homes and properties affected has been reduced **by 403**.

The final dam wall alignment and subsequent detailed flood modelling means that a total of 597 properties - not the original 1000 - will be affected by dam inundation or road alignment changes.

The preliminary 556 **houses estimate** on both stages has also been reduced down to 204. Stage 1 of the Dam will require 76 houses.

The buyback process is already underway and 16 of those properties already purchased are recognized as no longer required and will be offered back to the owners.

Unfortunately there are now **18 properties**, which were previously not identified as being needed.

Of these 18, eight are partially affected by Stage 1 road works - that is by 2011 – **but no houses are required**.

If Stage 2 proceeds a further 10 properties – made up of seven houses and or commercial properties, and three other properties, including vacant land, could be impacted.

In particular, I am pleased to say that the township of Imbil **will not** be affected by the dam and there will be no additional flooding as a result of the dam. With community support, a possible solution for dealing with remains at the KandangaCemetery can be considered.

If the Dam's Stage 2 is required an option for consideration is that the graves would remain undisturbed with their headstones and markers temporarily removed and then repositioned exactly (GPS shot) on a new elevated level above their existing position, after additional earth is added and shaped to ensure there will be no flooding of the area.

The cemetery would be relandscaped, grassed and fenced and restored to the current environment.

A new Kandanga Bowls Club, swimming pool, sports ground and hall would also be considered.

The number of impacts may reduce depending on the community consultation outcomes regarding the possible Stage 2 alignment of the Valley Rattler railway line in Kandanga.

Federal **School** is not affected by the Dam's Stage 1. It will continue to provide an essential community service in the area.

However its playing fields might be affected if Stage 2 proceeds, QWI has identified a suitable site should a move be needed, and they will be discussing the options with the school community.

The Federal **Hall** is not affected by Stage 1, but is likely to need relocation by the altered Bruce Highway. A relocated site will be identifed away from the Bruce Highway and above Stage 2 heights.

In relation to **road impacts** the Queensland Water Infrastructure company will work with the Department of Main Roads and the Cooloola, Noosa and Maroochy Shire Councils to replace or realign roads that will eventually be inundated, and to upgrade creek and river crossings, where required, to accommodate the higher water level.

We will work closely with landowners on road changes, but keeping in mind the timing of road requirements will vary according to construction schedules. Final road alignments will be subject to more detailed engineering and landholder discussions.

About 12 kilometres of the Bruce Highway will need to be realigned.

I can report to the House that both the Traveston and Wyaralong dams have been granted significant project status by the Coorindator-General.

This means they are subject to a full and thorough Environmental Impact Statements which will investigate the social, economic and environmental impacts of the project.

The projects will also be assessed under the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999.

The dam will include a range of measures to protect wildlife and habitat, including a fishway designed to world's best practice and suitable for Mary River Cod and the Lung fish.

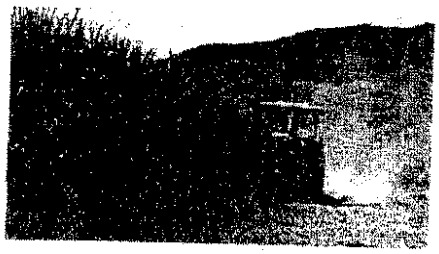
The Beattie Government has also put in place a multi million dollar package to support businesses and workers impacted by the construction of the two dams.

The Queensland Rural Adjustment Authority will administer the Business Adjustment Package and the Worker Assistance Package programs.

Hotline - 1800 225 384 Website: www.qldwi.com.au Media: Deputy Premier's Office 3224 6900

DPI
QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES
WATER RESOURCES

MAIN REPORT



AN APPRAISAL STUDY OF

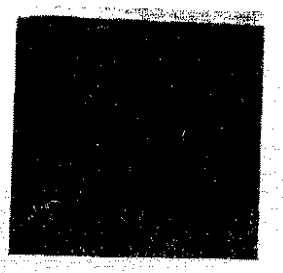
WATER SUPPLY SOURCES

FOR

THE SUNSHINE COAST

AND

THE MARY RIVER VALLEY



DECEMBER 1984

MAIN REPORT

AN APPRAISAL STUDY OF

WATER SUPPLY SOURCES

FOR

THE SUNSHINE COAST

AND

THE MARY RIVER VALLEY

QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

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TABLE 8.2
IDENTIFIED STORAGE SITE ALTERNATIVES FOR FUTURE WATER SUPPLY AUGMENTATION TO THE MARY RIVER VALLEY AND SUNSHINE COAST

STREAM LOCATION	AMTD (km)	CATCHMENT AREA (km^2)	MEAN ANNUAL DISCHARGE (ML/a)	PRELIMINARY HYDROLOGY ESTIMATE		CHOSEN FOR INVESTIGATION	REMARKS
				CAPACITY (ML)	YIELD (ML/a)		
Amamoor Creek	19.2	130	38 000	125 000	10 000	Yes	Good confinement at site. Strategically located to serve middle and lower Mary River in conjunction with raising Borumba Dam. Storage may inundate some environmentally sensitive areas.
Amamoor Creek	23.7	122	36 000	NA	NA	The site may need to be considered if 19.2 km site is unacceptable for environmental reasons.	Site confinement is not as good as 19.2 km site because of saddle in right abutment.
Mary River - Traverston	206.7	2 110	697 000	666 000	296 000	No	Extensive alluvial flood plain on right bank. Cost for dam updated from 1977 is $125 million. Damsite considered unsuitable because of high capital cost, inundation of prime agricultural land and displacement of rural population.
Mary River - Moy Pocket	244.1	830	399 000	NA	NA	Yes (weir site)	Well confined dam site although insufficient storage would be available without seriously affecting Kenilworth. Site chosen for potential weir to regulate natural flows from Upper Mary River.
Mary River - Kenilworth	270.0	480	188 000	320 000	106 000	Already evaluated	Appraisal study completed as part of the study Water Supply Sources in South-East Queensland.
Mary River - Cambroon	274.0	304	144 000	200 000	75 000	Excluded by Government from further consideration	Good confinement at site. Potential for a storage to satisfy Mary Valley and Sunshine Coast requirements. Conondale would be affected by larger developments.

TABLE 8.2 (CONTINUED)

STREAM LOCATION	AMTD (km)	CATCHMENT AREA (km^2)	MEAN ANNUAL DISCHARGE (ML/a)	PRELIMINARY HYDROLOGY ESTIMATE		CHOSEN FOR INVESTIGATION	REMARKS
				CAPACITY (ML)	YIELD (ML/a)		
Mary River - Conondale	291.0	106	50 000	100 000	30 000	Excluded by Government from further consideration	Good confinement at site. Potential for a storage to partially satisfy Mary Valley and Sunshine Coast requirements. Favourably located to augment supply from Baroon Pocket Dam.
Middle Creek	1.3	18	7 200	20 000	5 000	No	Insufficient supply available.
Munna Creek	22.2	1 410	290 000	385 000	46 700	No	Poor dam site, wide section, several saddle dams required on left bank.
Munna Creek - Merodian	32.5	1 205	248 000	150 000	25 000	Yes	Fair dam site. This site has potential to augment supply requirements in the lower Mary River.
Munna Creek -	36.0	1 100	226 000	NA	NA	No	Poor dam site, wide section
Kandanga Creek	12.2	184	36 000	NA	NA	No	Poor dam site, wide section
Kandanga Creek	21.4	147	29 000	NA	NA	No	Poor dam site, wide section
Kandanga Creek	28.5	119	23 500	NA	NA	No	Poor dam site, wide section
Obi Obi Creek	6.3	182	155 000	300 000	60 675	Excluded by Government from further consideration	Good confinement at site. Potential for a storage to satisfy Mary Valley and Sunshine Coast requirements. Ponded area for higher developments could encroach on National Park.
Skyring Creek	10.3	32	15 600	30 000	10 000	No	Insufficient supply available.
Wide Bay Creek	30.4	630	63 000	NA	NA	No	Poor dam site, wide section
Wide Bay Creek	36.2	580	58 000	100 000	25 000	Yes	Good confinement at site. High levels of development could effect Kilkivan.
Widgee Creek	5.0	370	NA	NA	NA	No	Poor dam site - no confinement.

10.1.8 Comment

All the foregoing information is a summary of views expressed in submissions and does not necessarily reflect the views of the Government.

The comments and views expressed in the submissions have been taken into account in determining the strategy to meet future water supply demands for the Sunshine Coast and the Mary River Valley.

10.2 DEPARTMENTAL RESPONSE TO COMMUNITY CONSULTATION PROGRAM

This section addresses Departmental views relating to the three approaches of dams, alternative supplies and demand management strategies, identified in the public submissions for future increases in water supply.

10.2.1 Dams Approach

Because of the magnitude of future supply requirements in the study area it was necessary to consider the options of raising existing storages and new storage developments as supply sources. Of the available options considered in the study, analysis has shown that it is more economical to provide water from dams.

This study has focused on selecting dam options according to the following criteria:

- least social and environmental impacts
- lowest economic cost
- minimal loss of agricultural land
- proximity to the area of greatest demand

A positive impact associated with construction of a dam is the recreational amenity provided by the storage as well as the ability to provide water supply for urban, industrial, irrigation and environmental use.

10.2.1.1 Response to Issues of Public Concern Relating to Dams

The Mary River Valley is adjacent to known seismic zones in the vicinity of Gayndah and Maryborough which suggests that there could be some risk of major earthquake. However modern dam design and construction standards are such that the risk of dam failure is insignificant and residents lives and property are not likely to be at risk. Nevertheless, appropriate emergency action plans have been prepared by the Department in consultation with the State Emergency Service for the existing Borumba Dam in accordance with the State Emergency Act. These plans will need to be revised for the option of raised Borumba Dam. An additional plan would be required for any other proposed new dam.

PART 2 SOCIAL COST

Water Resources

Water Resources Commission
Department of Primary Industries

January 1991

WATER SUPPLY SOURCES IN SOUTH-EAST QUEENSLAND

VOLUME 2

MAIN REPORT

LAND AREAS
SEE TABLE 12.9 .. P117

JAN. 1991

TABLE 11.2
SUMMARY OF DAM SITE DATA FOR STORAGE SUPPLY ALTERNATIVES

SITE			FSL (m)	DESIGN CAPACITY (ML)	NET YIELD (ML/a)		(2) CAPITAL COST	(2) ACQUISITION VALUATION	(2) RELOCATION OF INFRASTRUCTURE	(2) (4) TOTAL CAPITAL COST	COST/YIELD ($M/ML)		YIELD AT 98%
STREAM	AMTD (km)	NAME			HISTORICAL NO FAILURE	HISTORICAL 1% PMFR	($M)	LAND AREA (HA) ($M)	($M)	($M)	HISTORICAL NO FAILURE	HISTORICAL 1% PMFR	
Mary R	270.0	"Kenilworth"	127	205000	79710	88275	51	25	31	107	1342	1212	33%
			132	320000	98600	104500	57	35	31	123	1247	1177	
			135	410000	105500	110950	62	(6550) 46	31	139	1318	1253	27
Caboolture R	36.4	Zillmans Crossing	66	42500	9875	12150	41	16	6	63	6278	5103	
			70	57100	12215	13740	49	18	6	72	5976	5313	
			73	70000	13680	14500	55	19	6	80	5848	5517	
South Pine R	19.5	Greenwood	42	23600	9230	12820	26	122	15	164	17660	12715	
			46	41000	14710	16300	31	136	15	182	12373	11166	
			50	65900	15690	18220	37	176	15	228	14532	12514	
Stanley R (Case diversion to Caboolture, excludes loss to Brisbane system)	86.2	Peachester	147	57800	31300	33600	30	53	31	114	3642	3393	
			150	90500	36400	41400	33	56	31	120	3297	2899	
			153	132000	42400	45500	36	60	31	127	2995	2791	
Brisbane R (Incremental benefit of Linville in Wivenhoe-Somerset-Linville system)	282.1	Linville	140	57000	7000	3300	37	13	33	83	11857	25122	
			150	183000	26200	13200	60	16	33	109	4160	8258	
			160	416000	64400	28400	83	18	33	134	2081	4718	
Logan R	81.8	Cedar Grove	40	284000	110080	127760	135	138	36	309	2807	2419	
			41	344000	116400	133960	140	145	42	327	2809	2441	
			(42)	403000	122300	139270	150	(12030) 151	49	350	2862	2513	35
Logan R In conjunction with a downstream weir on Logan R	153.4	"Tilleys Bridge"	100	25000	23200	30650	32 (5)	13	15	60	2586	1958	
			110	100000	61500	71000	44	17	38	99	1610	1394	
			120	230000	70050	75200	61	20	38	119	1699	1582	33
Teviot Bk In conjunction with a downstream weir on Logan R	18.0	"Braford Hills" "WYARALONG"	56	21000	23530	30460	36 (5)	12	6	54	2295	1773	
			64	71000	48690	57480	40	14	7	61	1253	1061	
			72	176000	61340	66820 (1)	52	(1390) 18	18	88	1435	1317	38
Albert R In conjunction with a downstream weir on Albert R	60.2	"Glendower,"	73	51000	37580	43960	47 (5)	23	13	83	2209	1888	
			76	78000	45600	52360	53	27	14	94	2061	1795	
			79	112000	54270	58260	61	(2500) 29	14	104	1916	1785	52
ALBERT R	19.2	WOLFFORDE	59	1,080,500		132,600	125	140 (16000 Ha)	62	347		2617	12

SEE TABLE 13.14 P165.

Too Low ANYWAY
210 200 M AT SAME TO 250 M
COST AS CEDAR GROVE

TABLE 11.2 CONTINUED

SITE			FSL (m)	DESIGN CAPACITY (ML)	NET YIELD (ML/a)		(2) CAPITAL COST ($M)	(2) ACQUISITION VALUATION ($M)	(2) RELOCATION OF INFRASTRUCTURE ($M)	(2) (4) TOTAL CAPITAL COST ($M)	COST/YIELD ($M/ML)	
					HISTORICAL						HISTORICAL	
STREAM	AMTD (km)	NAME			NO FAILURE	1% PMFR					NO FAILURE	1% PMFR
Canungra Ck in conjunction with a downstream weir on Albert R	29.6	Bega Hills	140	26000	27290	30320	45 (5)	32	20	97	3554	3199
			150	53000	37130	41060	55	35	20	110	2963	2679
			160	92000	44600	46820	69	37	20	126	2825	2691
Coomera R	30.4		64	83000	43000	46000	99	52	33	184	4279	4000
			74	150000	59000	62500	132	60	33	225	3814	3600
			84	238000	65000	67000	174	70	33	277	4262	4134
Coomera R	41.4	Army Camp	118	101000	48300	51000	67	141	22	230	4762	4510
			126.3	171000	52300	54300	72	143	23	238	4551	4383
			133.3	248000	54600	56500	80	145	24	249	4560	4407
Nerang R (Incremental benefit above Hinze II)	36.4	Hinze Dam Stage III	99.2	394000 - 163500 = 230500	29380 ST. II	27740 ST. III INCREASE ONLY	67	3	2	72	2451	2596
Mudgeeraba Creek	21.1	Neranwood	80	25600	12860	13950	35	32	8	74	5754	5305
			95	60900	15720	16410	58	36	8	101	6489	6216
			110	117000	16910	17250	93	40	8	140	8338	8174
Tallebudgera Creek	14.0	Ingleside	45	40000	24010	27200	26	104	4	134	5581	4926
			60	111000	32810	34380	44	104	4	152	4633	4421
			75	231000	35210	36320	69	104	4	177	5027	4873
Currumbin Creek	12.7	Craigs Crossing	50	28600	16050	17810	36	35	9	80	4984	4492
			60	56400	19120	20180	52	39	9	100	5230	4955
			70	92900	20460	21200	70	45	9	124	6061	5849

Notes:

(1) Available yield after taking account of construction of a dam on Teviot Brook at AMTD 88.3 kilometres.

(2) Figures updated from those shown in Volume 1 Executive Summary prepared in November 1990 and rounded to the nearest million dollars.

(3) Resumption estimate revised for land acquisition to flood margin (EL 105.0).

(4) In some cases this total is at variance with the sum of the individual components of Capital Cost, Acquisition Valuation and Relocation of Infrastructure because of rounding of those components to the nearest million dollars.

(5) Includes an allowance of $4 million for a downstream weir.

TABLE 12.5
PRINCIPAL STATISTICS USED IN ASSESSING COMPARATIVE POTENTIAL IMPACTS ON RESIDENTS
For interpretation, see text

SITE			ESTIMATED NO. RESIDENTS	% OVER 60 YEARS OLD	% ALONE	P (1)	% LOCAL WORKERS	% OWNING HOME	MAJOR EMPLOYMENT SECTOR (> 20% WORKERS) (2)	OTHER SIGNIFICANT SECTOR (10 TO <20% WORKERS) (2)
STREAM	AMTD (km)	LOCATION								
Mary R	270.0	Kenilworth	144	13.4	18	49.5	62.6	47.7	Ag (61)	-
Caboolture R	36.4	Zillmans Crossing	96	9.2	11	49.7	36.4	50.1	Ag (35)	S, Comm
South Pine R	19.5	Greenwood	1 573 362 1 210	10.1 6.3	10 7	62.0 34.8	14.2 13.9	30.9 30.9	Comm, S (26) (23) Comm (22)	Bus S, Bus
Stanley R	86.2	Peachester	322	14.6	11	44.2	43.3	46.4	Ag (39)	S, M
Brisbane R	282.1	Linville	34	17.9	18	73.4	65.1	56.8	Ag (88)	-
Logan R	81.8	Cedar Grove	378	11.2	9	45.3	27.5	36.0	M & C (29)	Ag, Comm
Logan R	153.4	Tillevs Bridge	119	16.4	11	68.4	30.5	46.6	Ag	M, R
Teviot Bk	18.0	Braford Hills	98	19.0	14	71.5	43.8	52.8	Ag (48)	M
Albert R	60.2	Glendower	80	8.0	9	45.0	42.9	45.4	Ag (34)	C, M
Canungra Ck	29.6	Bega Hills	118	8.0	9	45.0	42.9	45.4	Ag	M, C
Coomera R	30.4	Coomera R	313	7.8	8	40.2	12.5	32.1	Comm & Bus	S, M, C
Coomera R	41.4	Army Camp	583 292	0.8 8.0	1 9	1.2 55.0	63.0 42.9	0.0 45.4	Defence (93) Ag (34)	- M, C
Nerang R	36.4	Hinze III	29	11.7	17	48.1	39.7	43.6	Ag (27)	S, Comm
Mudgeeraba Ck	21.1	Nerangwood	204	10.4	14	41.6	15.6	28.2	Comm (22)	M, S, R, C
Tallebudgera Ck	14.0	Ingleside	116	11.5	18	47.5	44.5	40.5	-	Ag, S, Comm, R, M
Currumbin Ck	12.7	Craigs Crossing	296	9.0	17	50.1	30.7	35.3	Ag (24)	S, M, Comm, R
QUEENSLAND			2 587 315	15.2	18	50.0	20.7	35.5	Comm (20)	S, M

Notes: (1) P = Percentage of residents who have lived at same address at least 5 years.
(2) Employment sectors: Ag = Agriculture/Forestry; Bus = Finance, Property & Business; C= Construction, Comm = Wholesale & Retail Commerce; M = Manufacturing, S = Community Services, R = Recreation and personal service. Number in (brackets) = percentage of workforce.

TABLE 12.9
AGRICULTURAL LAND CAPABILITY IN STORAGE AND BUFFER AREAS IN HECTARES

SITE			CAPABILITY CLASS								
STREAM	AMTD (km)	LOCATION	I	II	III	IV	V	VI	VII	VIII	TOTAL
Mary River	270.0	Kenilworth	-	-	-	-	-	4 490	2 060	-	6 550
Caboolture River	36.4	Zillmans Crossing	-	-	-	-	-	640	470	-	1 110
South Pine River	19.5	Greenwood	-	-	-	-	-	2 510	-	-	2 510
Stanley River	86.2	Peachester	-	-	-	1 100	-	3 260	180	-	4 540
Brisbane River	282.1	Linville	-	-	-	-	-	7 970	260	-	8 230
Logan River	81.8	Cedar Grove	-	6 310	-	3 250	-	2 470	-	-	12 030
Logan River	153.4	Tilleys Bridge	-	-	-	1 520	-	1 710	1 190	-	4 420
Teviot Brook	18.0	Braford Hills	-	-	210	2 260	-	1 590	330	-	4 390
Albert River	60.2	Glendower	-	-	-	940	-	1 560	-	-	2 500
Canungra Creek	29.6	Bega Hills	-	-	-	-	-	740	560	-	1 300
Coomera River	30.4	Coomera	-	-	-	-	-	850	2 480	-	3 330
Coomera River	41.4	Army Camp	-	-	-	50	-	1 110	2 300	-	3 460
Nerang River	36.4	Hinze III	-	-	-	-	-	690	1 020	-	1 710
Mudgeeraba Creek	21.1	Neranwood	-	-	-	-	-	27	148	-	175
Tallebudgera Creek	14.0	Inglesida	-	-	-	-	-	410	105	-	515
Currumbin Creek	12.7	Craigs Crossing	-	-	-	-	-	327	-	-	327

KEY TO TABLE 12.9

Class I	Land suitable for all agricultural and pastoral purposes.
Class II	Land suitable for all agricultural uses but with slight restrictions to use for cultivation.
Class III	Land suitable for all agricultural uses but with moderate restrictions to use for cultivation.
Class IV	Land primarily suited for pastoral use but which may be safely used for occasional cultivation with careful management.
Class V	Land which in all other characteristics would be arable but has limitations which, unless removed, make cultivation impractical and/or uneconomical.
Class VI	Land which is not suitable for cultivation but is well suited to pastoral use and on which pasture improvement involving the use of machinery is practicable.
Class VII	Land which is not suitable for cultivation but on which pastoral use is possible only with careful management. Pasture improvement involving the use of machinery is not practicable.
Class VIII	Land unsuitable for cultivation or grazing.

- The recommended development program involves substantial enhancement and extension of the major distribution system, in particular;

  (i) Trunk main(s) from Mt. Crosby to Aspley to enable water transfers to Caboolture Shire, Pine Rivers Shire, Redcliffe and Northern Brisbane.

  (ii) Trunk main(s) from Mt. Crosby to Kuraby and from Kuraby to Redland Shire.

  (iii) Trunk main(s) from the weirs on the Logan and Albert Rivers to Beenleigh and Nerang.

- Any new distribution network required on the Sunshine Coast will depend on the final choice of the water source(s) to meet its shortfall.

- The substantial movement of water between basins and Local Authorities indicated that the role of the Brisbane and Area Water Board may need some adjustment. This is dealt with in more detail in Section 15.

- If South-East Queensland's future water needs are to be met, preservation of the recommended sites for that purpose is essential. Analysis indicates that failure to protect the proposed sites would involve significant additional public expenditure, both for land acquisition and public infrastructure. Preservation of the sites for water supply purposes is essential, but that preservation must recognise the social problems that will accompany that preservation. The issue of site preservation is dealt with in more detail in Section 15.

EXAMPLE WOLFFDENE →

- If the future population fails to grow as rapidly as predicted, future construction can be delayed. If the future population closely matches the high projection, demand management will become obligatory. Demand management should be implemented in any case to avoid unnecessary water treatment, pumping and sewage treatment. The Water Resources Commission will need to engage in active promotion of demand management.

*

More detailed investigations will be required in future to finalise elements of the recommended water resource development program. These will need to address the issues already raised and any other issues that may emerge following public discussion of the recommended program. Some of the issues to be covered in due course are;

- More detailed investigation into the choice, location and feasibility of the recommended dam sites.
- Further investigations of the environmental and social impacts discussed in Section 12, and preparation of environmental and social impact management programs.
- Mechanisms to limit cost escalation of lands required.
- Confirmation of Buffer zone boundaries.
- Environmental and social impact of the major distribution/trunk mains required.
- Detailed policy on land acquisition.
- Any associated works that might benefit from an early commencement, for example, extraction of mineral and other valuable resources, establishment of nature strips, etc. in the buffer zone and controlled clearing, if necessary, of the inundated areas.

For purposes of comparison, and to act as a reference point for the prepared strategy, a number of options involving development of the previously proposed Wolffdene Dam as the next source of water supply were also examined. All strategies involving Wolffdene Dam were significantly less economical than both the preferred strategy and many other alternatives. The preferred strategy also has far greater flexibility in the timing and rate of development and far less social impact than the previous Wolffdene Dam proposal.

An integral part of the development program involves an effective public consultation program, particularly with respect to those people adversely affected by the proposed developments. It is therefore essential that the Water Resources Commission and other interested parties provide every reasonable avenue for public consultation. This program could also lead to the formulation of policies or design modifications to minimise adverse impacts.

An early determination will be possible of the limits of lands required for each of the storages identified as components of the preferred development strategy. Of necessity, these will be conservative so that future variations which may occur in design issues, environmental factors or other as yet unknown influences, are able to be accommodated.

WATER SUPPLY FOR URBAN DEVELOPMENT IN S.E. QUEENSLAND

Today's Research - Tomorrow's Practice

WATER RESEARCH FOUNDATION OF AUSTRALIA

QUEENSLAND STATE COMMITTEE

GOLD COAST

QUEENSLAND AUSTRALIA

AUGUST 1986

SYMPOSIUM

WATER SUPPLY FOR URBAN DEVELOPMENT IN SOUTH-EAST QUEENSLAND

PAPERS

WATER RESOURCES OF SOUTH EAST QUEENSLAND

by

T.D. Fenwick, B.E. Civil, M.I.E. Aust., L.G.E.

Commissioner of Water Resources, Queensland

(August 1986)

1.0 INTRODUCTION

Continuing growth in population, agriculture and industry in South East Queensland requires ongoing planning of water resources development to meet the increasing water needs of the area.

This paper briefly describes the existing water resources development and summarizes the present consumption for all purposes. The potential for further development of the surface water and groundwater resources of the area is examined, and the more likely options for future water supplies are summarized.

The area described consists of the coastal river basins from the Mary River in the north to the Queensland/New South Wales border in the south and the eastern portion of the Condamine River basin. This area has the largest population density and urban water consumption in South East Queensland.

For ease of discussion, the area has been divided into four sub-areas (shown in Figure 1) which are:-

(1) North Coast Area - Mary River, Noosa River and Maroochy River basins as well as Fraser and Bribie Islands.

(2) Brisbane Area - Brisbane River and Pine River basins.

(3) South Coast Area - Logan - Albert Rivers and South Coast basins as well as the sand islands of Moreton and Stradbroke.

(4) Condamine Area - That part of Condamine River basin east of 151° longitude.

5.0 FUTURE WATER RESOURCES DEVELOPMENT POTENTIAL

The largest potential for further surface water resource development exists in the Mary and the Logan and Albert River basins. The development of storage sites in these basins could provide a further 776 000 megalitres per annum.

The largely undeveloped groundwater resource of the sand islands have the greatest potential for further groundwater development. In total, these islands could provide some 703 000 megalitres per annum.

5.1 North Coast Area

5.1.1 Surface Water

Potential exists within the North Coast Area for the development of major supplies from surface water resources. Significant potential exists in the Mary River basin with a total of eight storage sites being identified, with another three storage sites being identified in the North Coast Streams basins of Maroochy River and Noosa River.

No potential exists for the development of surface water storages on Fraser Island.

Details of the sites are summarised in Table 5.1.

TABLE 5.1
NORTH COAST AREA
POTENTIAL STORAGE SITES

STREAM	AMTD (km)	SITE NAME	STORAGE CAPACITY (ML)	ANNUAL YIELD (1) (ML)	ESTIMATED COST (2) ($M)
MARY RIVER BASIN					
Mary River	270.0	Kenilworth (3)	320 000	106 000 (4)	36
Mary River	206.7	Traveston Crossing	666 000	288 000 (4)	70
Middle Creek	1.3	–	20 000	5 000	30
Tuna Creek	22.2	–	385 000	46 700	34
Obi Obi Creek	6.3	Kidamin	300 000	99 000 (4)	41
Obi Obi Creek	26.4	Baroon Pocket	43 000	28 000 (4)	17
Amamoor Creek	19.2	–	125 000	24 000	32
Tarong Creek	10.3	–	30 000	10 000	38
MAROOCHY RIVER BASIN					
Towns Creek	4.1	–	24 000	7 300	29
Peeloolah River	41.7	–	4 000	4 200	12
South Maroochy River	34.2	Kiamba	7 200	3 200 (5)	15

NOTES: (1) Annual yields of storages within the same basin are not necessarily additive.
(2) Cost at December 1985
(3) Site is located within a scenic area and there may be objections to this development on environmental grounds.
(4) After allowing for requirements in Lower Mary River.
(5) Additional supply available to augment South Maroochy River Storage System.

REPORT
ON

WATER RESOURCES DEVELOPMENT POTENTIAL

NEAR NORTH COAST STREAMS

INTERIM REPORT

QUEENSLAND WATER RESOURCES COMMISSION

NOVEMBER 1979

TABLE 4

HYDROLOGIC CHARACTERISTICS OF STORAGE SITES

SOURCE OF SUPPLY	HEIGHT TO F.S.L. (m)	OPTIMUM STORAGE CAPACITY (ML)	ESTIMATED AVERAGE ANNUAL DISCHARGE (ML)	ESTIMATED ANNUAL ASSURED SUPPLY (ML)
DAMSITES				
Browns Ck. 4.1 km	45	24 000	13 000	7 300
Mooloolah R. 41.7 km	28	4 000	20 000	4 200
South Maroochy R. - Kiamba	35	7 200	28 800	5 000 (1)
Obi Obi Ck. 6.3 km	43	300 000(3)	122 850	84 000
Obi Obi Ck. Baroon Pocket	48	34 500	63 400	20 000
Mary R. 270.0 km	44	515 000(3)	174 200	117 000
DIVERSION SCHEMES				
Mary R. at Bergins Pocket	-	-	(5)	(4)
Mary R. at Moy Pocket	11	3 000	373 500	9 000 (2)

NOTES: (1) Additional supply available from the storage system.

(2) Estimated assured supply available based on an assumed critical period 1968/69.

(3) Represents full hydrologic development of site.

(4) Water supply regulated from Borumba Dam.

(5) This section of the Mary River is regulated by Borumba Dam.

BROWNS CREEK - 4.1 KM DAMSITE

The Browns Creek site is located approximately 4.5 kilometres north-west of Yandina. The site commands a catchment area of some 18.5 square kilometres of which a major portion of the area is situated in State Forest. Annual rainfall over the catchment area is relatively high, averaging about 1 800 mm.

The local gradient of the stream at the site is fairly steep and this feature would require the construction of a relatively high structure to develop adequate storage capacity.

MARY RIVER - 270.0 KM (KENILWORTH) DAMSITE

The Kenilworth damsite is located on the Mary River approximately 6 kilometres south-west of Kenilworth. The site commands a catchment area of some 480 square kilometres, the upper reaches of which are located in State Forest.

A structure some 49 metres high constructed at the site, would have a total storage capacity of 515 000 megalitres which represents full hydrologic development of the site. The storage would be capable of yielding 117 000 megalitres annually based on an approximate hydrologic assessment of the site.

A pump station and 21 kilometre long pipeline would be required to divert water from the dam to the South Maroochy River.

MARY RIVER - DIVERSION FROM BERGINS POCKET

Flow in the Mary River at Bergins Pocket is regulated by releases from Borumba Dam. Currently there is a spare supply available from the Dam and a possible supply option considered in this study involves the diversion of regulated flows in the Mary River at Bergins Pocket to Cooloolabin Dam.

A possible scheme would comprise a small weir on the Mary River to provide further regulation of releases from Borumba Dam, a pumping station at the weir, and a 21 kilometre long pipeline to divert water from the weir over the Blackall Range to Cooloolabin Dam through a static head of some 265 metres.

In addition to the cost of these civil works, it is likely that there would be a capital charge for the allocation of supply from Borumba Dam and associated annual costs of operation and maintenance of the dam. Allowance for the cost of allocation of supply from the Mary River has been included in preliminary cost estimates later in this report.

TABLE 5

WATER SUPPLY OPTIONS - ESTIMATE OF CAPITAL COST

SOURCE OF SUPPLY	STORAGE CAPACITY (ML)	ANNUAL ASSURED SUPPLY (ML)	ESTIMATED CAPITAL COST $M	UNIT COST OF SUPPLY $/ML
DAMSITES (1)				
Browns Ck. 4.1 km	24 000	7 300	16.7	2 287
Mooloolah R. 41.7 km	4 000	4 200	7.0	1 667
South Maroochy R. Kiamba	7 200	5 000	8.9	1 780
Obi Obi Ck. 6.3 km	300 000	84 000	22.7	270
Obi Obi Ck. Baroon Pocket	34 500	20 000	9.9	495
Mary R. 270.0 km	515 000	117 000	24.6	210
DIVERSION SCHEMES (2)				
Mary R. Bergins Pocket	-	5 000	5.6	1 114
	-	7 500	6.6	883
	-	10 000	7.6	757
Mary R. Moy Pocket	3 000	9 000	6.5	722

NOTE: (1) Estimated costs for damsites include cost of site development only and do not include cost of a pipeline from the storage to existing treatment works.

(2) Estimated costs for diversion schemes include cost of weir, pipeline and pump station costs.

MAXIMUM DEVELOPMENT OF STORAGE SITES

For the two damsites on Obi Obi Creek and the site on the Mary River at 270.0 km, the storage capacities shown in Table 5 represent full hydrologic development of the site and as such would most likely be outside the range of option likely to be considered for an urban supply within the foreseeable future.

While a smaller development at each of these sites would better match the likely future urban requirements at a more acceptable level of cost, consideration would have to be given to the development of the sites to their full potential initially

WATER SUPPLY FOR POWER STATIONS AT TARONG MILLMERRAN WANDOAN THEODORE AND TAROOM

IRRIGATION AND WATER SUPPLY COMMISSION — QUEENSLAND

MARCH 1977

Yield studies were carried out on the basis that the storage would be operated in conjunction with Borumba Dam on Yabba Creek. Provision has also been made, as a prior commitment on the system, for the present and estimated future requirements for urban, industrial and irrigation purposes in the lower Mary River region of some 54 000 megalitres per annum.

Details of two such storages are shown in Table IV. Studies have also indicated that larger storages and yields may be feasible, but in the absence of adequate survey data, this cannot be verified at this stage.

TABLE IV

MARY RIVER 206.7 km DAMSITE

SUMMARY OF STORAGE DETAILS

	Design for Power Station Alone	Dam to Hydrologic Limit
Full Supply Level (metres)	65.5	80.0
Crest Level (metres)	75.0	93.0
Storage Capacity (megalitres)	50 000	666 000
Assured Yield/annum (megalitres)	32 000 (1)	286 000 (1)
Estimated Cost ($ Million)	11	40
Cost/megalitre of Yield ($)	122	118

Note: (1) - After provision of supply of 54 000 megalitres/annum to the Lower Mary River region.

The pipeline to Tarong (900 mm M.S.C.L.) is 100 kilometres long and is estimated to cost $50 million. The annual power cost on September, 1976 tariffs is $1 394 000.

TABLE V

WATER SUPPLY FOR TARONG

SUMMARY AND ESTIMATE OF COST

MID 1977

DAMSITE	CATCHMENT AREA km^2	CAPACITY Ml	ANNUAL YIELD Ml/annum	PIPELINE LENGTH km	CAPITAL COST DAM $M	CAPITAL COST PIPELINE $M	CAPITAL COST TOTAL $M	ANNUAL COST $M
Mary River 270.0 km	480	28 000	32 000	90	17	44	61	7.4
(Kenilworth)		320 000	104 000	90	27	44	71	8.3
Mary River 206.7 km	2 110	50 000	32 000 (1)	100	11	50	61	7.6
(Traverston Crossing)		666 000	286 000 (1)	100	40	50	90	10.3
Boyne River 86.7 km	4 200	125 000	32 000	88	11	42	53	6.2
		710 000	68 000	88	18	42	60	6.9

NOTE (1) After provision of supply of 54 000 Ml/annum to the Lower Mary Region.

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REPORTS ON KENILWORTH / TRAVESTON DAMS OVER 3 DECADES.

IN SUMMARY

MAR. 1977 BOTH TRAVESTON & KENILWORTH WERE CONSIDERED SERIOUSLY WITH TRAVESTON THE CHEAPER OF THE 2 DAMS

REASON REQ'D INTERNAL FILE MEMO 2.

NOV. 1979 ONLY KENILWORTH REMAINED UNDER CONSIDERATION (TRAVESTON WAS OMITTED FROM THIS REPORT.)

AUG. 1986 BOTH TRAVESTON & KENILWORTH REPORTED WITH KENILWORTH NOW CHEAPER OPTION

OCT. 1987 KENILWORTH WAS NOW "PREFERRED SITE"

NO TRAVESTON.

JAN. 1991 KENILWORTH STILL THE "PREFERRED OPTION"

GOVT DECISIONS REQ'D TO EXCLUDE DAM SITES GOSS WAS PREMIER

↳ DEC. 1994 KENILWORTH STILL THE ONLY ONE LEFT STANDING TRAVESTON ELIMINATED ONCE & FOR ALL

GOVT. DECISIONS / REPORTS REQ'D

↳ JUNE 2006 KENILWORTH NOT CONSIDERED BY GHCD
TRAVESTON RANKED HIGHEST BY INFLATING DAM SIZE TO 1.7 TIMES ITS HYDROLOGIC LIMIT. 113,000 ML.

REQUEST THE FOLLOWING

FULL DETAILED COSTING REQ'D FOR TRAVESTON DAM ANNOUNCED BY THE PREMIER ON 27.2.2006 FOR 666,000 ML. HYDROLOGIC LIMIT

FULL DETAILED COSTING REQ'D FOR $1.7 BILLION COST TO BUILD STAGE 1 OF TRAVESTON ANNOUNCED BY THE PREMIER ON 5.7.2006.

JAN. 1991 — WATER SUPPLY SOURCES IN SOUTH-EAST QLD

VOLUME 2 MAIN REPORT

P168 13.5.2 CONCLUSIONS

IT IS RECOMMENDED THAT A DAM SITE ON THE MARY RIVER (NEAR KENILWORTH) WITH A REVIEW OF THE LOCATION & SIZE TO BE CARRIED OUT :—

P117 TABLES 12.9
P105 TABLE 12.5
} ALL SHOW KENILWORTH DAM STATS

P84 TABLE 8.2

	NAME	LOCATION	CAPACITY	CAPITAL COST	UNIT COST
a)	MARY RIVER	270 KM.	320,000 ML	$ 123M	$ 1177/ML

DEC. 1994 — AN APPRAISAL STUDY OF WATER SUPPLY SOURCES FOR THE SUNSHINE COAST AND THE MARY RIVER VALLEY

P78 ... STATES .... "BECAUSE OF THE DECISION BY THE GOVERNMENT TO EXCLUDE THE UPPER MARY RIVER VALLEY DAMSITES CAMBROON & CONONDALE AND KIDAMIN ON OBI-OBI CK. FROM THE STUDY ...."

P83 ... "DAMS APPROACH" — IMPORTANT SELECTION CRITERIA

	NAME	LOCATION	CAPACITY	REMARKS
SEE P53 TABLE 8.2 a)	MARY RIVER KENILWORTH	270 KM.	320,000 ML	ALREADY EVALUATED IN 1991
b)	MARY RIVER TRAVESTON	206.7 KM	666,000 ML.	NO NOT CHOSEN FOR INVESTIGATION
c)	MARY RIVER CAMBROON	274 KM.	200,000 ML.	EXCLUDED BY GOV'T. ← SEE REMARKS
P54 d)	OBI-OBI CK. KIDAMIN	6.3 KM.	300,000 ML.	EXCLUDED BY GOVT

NOTE: TRAVESTON WAS ELIMINATED AGAIN IN 1994 !

Aug. 1986 — WATER SUPPLY FOR URBAN DEVELOPMENT IN S.E. QUEENSLAND

WATER RESEARCH FOUNDATION OF AUSTRALIA
QLD STATE COMMITTEE. GOLD COAST. QLD.
SYMPOSIUM
PAPER BY COMMISSIONER OF WATER RESOURCES. QLD
MR. T.D. FENWICK

NEAR NORTH COAST AREA

	NAME	LOCATION	CAPACITY	COST
a)	MARY RIVER KENILWORTH	270 KM	324,000 ML	$ 36M.
b)	MARY RIVER TRAVESTON	206.7 KM	666,000 ML	$ 70 M

Oct. 1987 — PROGRESS REPORT ON WATER SUPPLIES IN SOUTH EAST QUEENLAND
By QWRC

DID NOT CONSIDER NORTH COAST AS PART OF S.E. QLD WATER SUPPLIES DUE TO COST OF PIPELINES & PUMPING COSTS FROM MARY RIVER BASIN TO SOMERSET DAM (SEE P5 OF REPORT)

ALSO SEE CONCLUSIONS ON PG 6 & 7

KENILWORTH DAMSITE ON MARY RIVER WHILST OUTSIDE STUDY AREA WAS LISTED AS 4TH. MOST FAVORABLE SITE

NOTE: TRAVESTON NOT CONSIDERED IN 1987

MAR. 1977 - WATER SUPPLY FOR POWER STATIONS AT TARONG MILLMERRAN WANDOAN THEODORE & TARCOOM.

By IRRIGATION & WATER SUPPLY COMM. QLD.

	NAME	LOCATION	CAPACITY	UNIT COST
a)	MARY RIVER KENILWORTH	270 KM.	320000 ML.	$ 260/ML.
b)	MARY RIVER TRAVESTON	206.7 KM.	666,000 ML FULL HYDROLOGIC LIMIT	$ 118/ML.

NOV 1979 - WATER RESOURCES DEVELOPMENT POTENTIAL NEAR NORTH-COAST STREAMS INTERIM REPORT

By QLD. WATER RESOURCES COMM

a) MARY RIVER KENILWORTH 270 KM. 515,000 ML. FULL HYDROLOGIC LIMIT $ 210/ML

b) MARY RIVER TRAVESTON " NOT CONSIDERED IN THIS REPORT "

CONCLUSION

SO WATER SUPPLY FOR NORTH-COAST DURING THIS PERIOD OF 2 YEARS DECIDED IN FAVOUR OF THE KENILWORTH DAM AT 270 KM. ON THE MARY RIVER

∴ REQUEST CLARIFICATION & DOCUMENTS PRIOR TO NOV. 1979 FROM Q.W.R.C. RECORDS / LIBRARY