SUPPLEMENTARY SUBMISSION TO MY PREVIOUS SUBMISSION ON 19.3.07 P1 OF 2.

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

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DEAR SIR/MADAM

RE: SENATE INQUIRY INTO TRAVESTON DAM 9.4.07

FINALLY THE PROTESTORS AND THE QUEENSLAND GOVT' AGREE ON SOMETHING ABOUT TRAVESTON DAM.

THE DEPUTY PREMIER ANNA BLIGH'S PRESS RELEASE CONCERNING THEIR 221 PAGE SUBMISSION TO THE SENATE ENQUIRY STATES " SENATORS OWE IT TO THE PEOPLE OF QUEENSLAND TO GET ACROSS THE DETAIL AND MAKE AN INFORMED DECISION. GET BEYOND THE POLITICS AND GET THE FACTS."

LETS US EXAMINE ONE OF THESE FACTS :-

GOVERNMENT FACT " THE DATA CLEARLY SHOWS THAT OUT OF THE 80 SITES CONSIDERED ACROSS SEQ, THE TRAVESTON CROSSING DAM WAS RANKED NO.1 IN TERMS OF YIELD AND STORAGE CAPACITY. IT WAS TWO AND A HALF TIMES BETTER THAN THE POTENTIAL YIELD OF THE SECOND RATED DAM."

(REFER GH&D TABLE 4.2 — P685)

THIS IS NOT A FACT IT IS "PURE FICTION"

AS THE DAM RANKED AS NO 1 BY GH&D ON THIS LIST IS IMPOSSIBLE TO CONSTRUCT.

IT EXCEEDS THE "HYDROLOGIC LIMIT" OF THE TRAVESTON DAM SITE BY 70%.

THE GH&D REPORT REFERS TO THE KNOWN "PRACTICAL LIMIT FOR THE DEVELOPMENT" (REFER P634, 637 & P638 GH&D DESK TOP STUDY.)

THIS "HYDROLOGIC LIMIT" WAS FIRST INVESTIGATED AND REPORTED IN MAR. 1977 — IRRIGATION AND WATER SUPPLY

COMMISSION QUEENSLAND ( REFER P13 TABLE IV DAM TO HYDROLOGIC LIMIT – 666,000 ML. )

IN 1994 THE TRAVESTON DAM WAS NOT CHOSEN FOR INVESTIGATION FURTHER, DUE TO THE STILL VALID REASONS WHICH SHOULD HAVE ALSO ELIMINATED TRAVESTON IN 2006. ( REFER DPI WATER RESOURCES – DECEMBER 1994. )

THEREFORE THE KEY FACT CONSTANTLY QUOTED BY THE QUEENSLAND DEPUTY PREMIER IS A COMPLETE FALLACY AND CASTS DOUBT OVER THE INTEGRITY OF THEIR 221 PAGE SUBMISSION.

IT IS VITAL THAT THE SENATE INQUIRY, IN VIEW OF THESE ANOMOLIES, SEEK CLARIFICATION FROM THE AUTHOR OF THE G,H & D DESK TOP REVIEW OF IDENTIFIED DAM & WEIR SITES DATED JUNE 2006.

FOLLOWING THIS THE DEPUTY PREMIER MUST ALSO BE CALLED TO EXPLAIN THESE ANOMOLIES.

ALSO IT WOULD BE PRUDENT FOR THE SENATE INQUIRY TO OBTAIN THE 27th. JAN. 2005 RWSS STEERING COMMITTEE WORKSHOP MINUTES, WHICH SHOULD REVEAL A PLETHORA OF HIDDEN AGENDAS.

YOURS SINCERELY

D. MILLIGAN

CERTIFICATE IN CIVIL ENGINEERING

DESIGN OFFICE TECHNICIAN M.I.D.

CONSULTANT DRAFTSMAN

# Bligh's 221 page submission

Sunday, April 8, 2007 at 10:37AM
stevem in Senate Inquiry

NOTE: THURSDAY WAS 5.4.07 AND THEREFORE LATE AS SUBMISSIONS CLOSED ON WED 4.4.07.

Gympie Times

7 APR 2007

THE State Government has lodged a 221-page submission to the Senate Inquiry setting out the overwhelming case for building the Trayeston Crossing Dam, Deputy Premier and Infrastructure Minister Anna Bligh said yesterday.

Ms Bligh said the submission lodged Thursday with 12 volumes of supporting data proved the dam was a crucial component in the inter-related network that made up the State Government's $7-$9 billion water grid.

She said detailed analysis included in the submission showed the Trayeston Crossing Dam was vital to meet a forecast shortfall of up to *490,000ML/year* in SEQ by 2051. This included provision for climate change.

"It's the only choice. This is the linchpin of our strategy that includes 'pumping water across SEQ where it is needed and using non-rainfall sources such as desalinated and purified recycled water," Ms Bligh said. 'The long-term benefits are obvious. By the time the Traveston system is completed td Stage 2, it will provide 31 per cent -45 per cent of the additional water we will require.

"Senators can't pick and choose like this is a smorgasbord. I urge them to read the submission so they properly understand the Traveston Crossing Dam's critical importance to Queensland.

"The submission sets out the thorough analysis of all available data that was considered by the Government when we formulated the water grid to battle the worst drought in the history of SEQ and plan for population growth.

"The data clearly shows that out of 80 sites considered across SEQ, the Traveston Crossing Dam was ranked No. 1 in terms of yield and storage capacity. It was two and a half times better than the potential yield of the second-rated dam.

"Senators owe it to the people of Queensland to get across the detail and make an informed decision. Get beyond the politics and get the facts.

Ms Bligh said the dam would provide vital flood mitigation to Gympie.

"Had it been in existence during the 1999 flood, it would have dropped flood levels by up to 4m in the town and saved a lot of heartache.

"The project will be an economic shot in the arm for the Gympie area, which is a poor-performing semi-rural shire. It will create more than 500 jobs, including approximately 150-200 for locals, and create opportunities for over 600 businesses, including about 240 local suppliers."

The report dispels many other misconceptions:

- Net evaporation is less than many major dams, including Wivenhoe and Borumba
- Geotechnical investigations have found that the site has solid foundations for a dam (Page133).
- Effect on the rural sector. Only 1.7 per cent of agricultural land in the Mary River Basin will be affected by Stage One. This represents 4.3 per cent of the state's dairy value and a meagre 0.1 per cent of beef, horticulture and other industries.

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## 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.

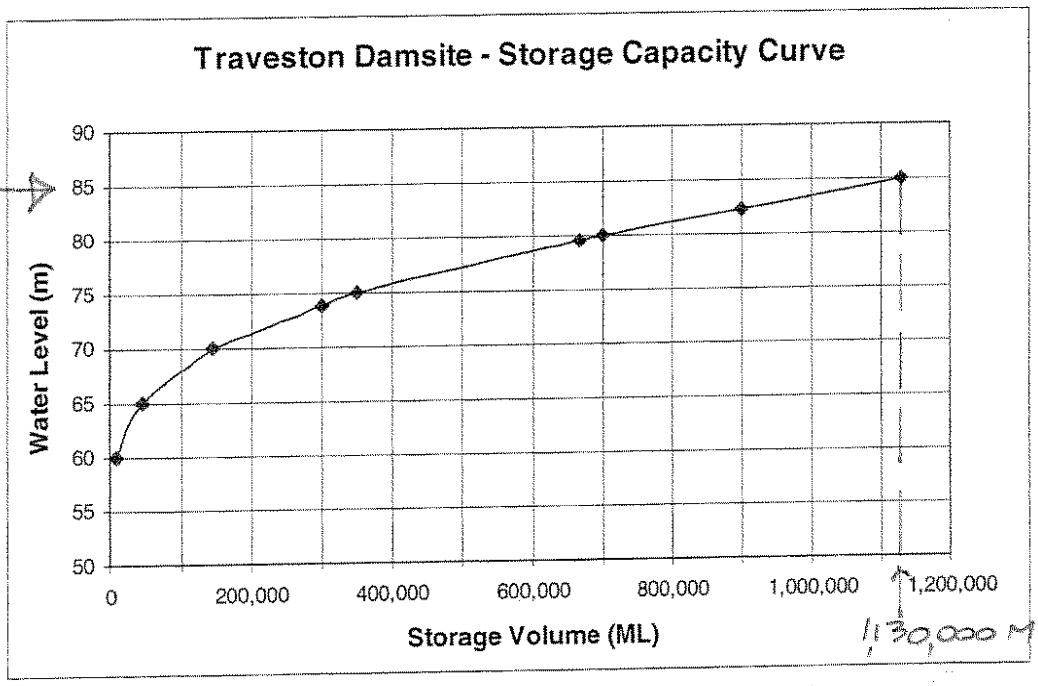
**Table 4.2 Bulk Water Supply Options Ranked by Potential yield**

| 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 |

### 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**




RANKED No 1
ON TABLE 4.2

constructed on rock foundations has been assumed for this cost estimate. Review of these assumptions will be necessary should this option be considered further.

Quantities were developed based on survey data from GIS mapping for contour intervals of 5m.

Stripping depths of 20m were assumed for flood plain areas, decreasing to 5m on each abutment where the abutment steepness suggests that there is only minimal or no alluvium cover over the normal weathered rock profile.

For the purposes of these cost estimates, it has been assumed that materials for the construction of the dam embankment would be available.

In the absence of flood hydrology or spillway flood routing for this site, assumptions regarding the peak outflow were made as follows:

- The peak outflow was assumed to be equal to the peak inflow; and,
- The maximum design flood value was assumed based on a catchment area of 2,110 $km^2$ with the maximum design inflow flood assumed to be 10 $m^3/s/km^2$ (Footnote [2]).

The concept design was therefore developed to pass a peak outflow for the maximum design flood of 21,100$m^3/s$.

A spillway, 600m long was assumed to discharge directly into the river via a dissipater. This length of spillway has been adopted to minimise the impact on Imbil and Kandanga. If full supply levels are adopted that result in flooding of Imbil or Kandanga cost savings associated with the spillway may be possible.

These hydrological and hydraulic assumptions, including spillway length and peak outflow, should be reviewed, should this project be taken further.

An amount equal to 3% of the total contract price for the work has been allowed to provide for implementation and management of environmental works. This includes provision for fish lifts, erosion control works etc.

The estimated costs of the dams for these full supply levels are indicated in Figure 3.14.4. The optimum development was not able to be determined within the range of storage capacity and yield information available and so this information was extrapolated a small amount to enable the optimum development to be assessed. This optimum far exceeds the practical limit for the development, which is about a full supply level of EL75m as discussed above. The extrapolation therefore has no impact on the project costs at the critical full supply level of about EL 75m.

[2] 10 $m^3/s/km^2$ was based on other catchments in similar climatic environments.

**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 |

## 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. |

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

IRRIGATION AND WATER SUPPLY COMMISSION — QUEENSLAND

MARCH 1977

For the purpose of the investigations, a rockfill embankment with an upstream concrete membrane has been adopted with the spillway on the left abutment. Table II gives details of the two storage sizes examined.

TABLE II

BOYNE RIVER 86.7 km DAMSITE

SUMMARY OF STORAGE DETAILS

| | Dam for Power Station Alone | Dam to Hydrologic Limit |
|---|---|---|
| Full Supply Level (metres) | 275.0 | 292.0 |
| Crest Level (metres) | 282.5 | 300.0 |
| Storage Capacity (megalitres) | 125 000 | 710 000 |
| Assured Yield/annum (megalitres) | 32 000 | 68 000 |
| Estimated Cost ($ Million) | 11 | 18 |
| Cost/megalitre of Yield ($) | 344 | 270 |

The details of the pumping/pipeline system for delivery to Tarong are as follows:-

| | |
|---|---|
| Length of pipeline | 88 km |
| Pipeline diameter (M.S.C.L.) | 900 mm |
| Power requirement | 5090 kW |
| Estimated Capital Cost | $42 M |
| Power Cost/annum (Sept. 1976 tariffs) | $790 000 |

Mary River

Two damsites, each capable of yielding in excess of 32 000 megalitres per annum, are located upstream of Gympie on the Mary River. The sites are at 270.0 kilometres (Kenilworth damsite) and 206.7 kilometres (Traverston Crossing damsite).

Mary River 270.0 km (Kenilworth Damsite)

The Kenilworth damsite is located 26 kilometres west of Nambour and is approximately 90 kilometres from Tarong; the catchment area is 480 square kilometres. The damsite has a steep right bank and a sloping left bank. Alluvium overlies the main

valley floor. The embankment considered most feasible is a zoned earthfill structure having an impervious central core section. Details of the two storage sizes examined are given in Table III.

TABLE III

MARY RIVER 270.0 km DAMSITE

SUMMARY OF STORAGE DETAILS

| | Design for Power Station Alone | Dam to Hydrologic Limit |
|---|---|---|
| Full Supply Level (metres) | 113.0 | 132.0 |
| Crest Level (metres) | 126.0 | 143.0 |
| Storage Capacity (megalitres) | 30 000 | 320 000 |
| Assured Yield/annum (megalitres) | 32 000 | 104 000 |
| Estimated Cost ($ Million) | 17 | 27 |
| Cost/megalitre of yield ($) | 519 | 260 |

The pipeline pumping details from the Kenilworth damsite to Tarong are as follows:-

| | |
|---|---|
| Pipeline Length | 90 km |
| Pipeline Diameter (M.S.C.L.) | 900 mm |
| Power Requirement | 7900 kW |
| Power Cost/annum (Sept. 1976 tariff) | $1 227 000 |

Mary River 206.7 km (Traverston Crossing Damsite)

The Traverston Crossing damsite is located 15 kilometres to the south of Gympie and is approximately 33 kilometres north of the Kenilworth damsite. The catchment area is 2 110 square kilometres.

The axis considered is across a wide alluvial flood plain. Both banks have rock outcropping, although on the left bank it appears to be weathered. A single zoned earth fill embankment is envisaged. No provision has been made for a positive cut-off and further foundation investigation is necessary to confirm this assumption.

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.

# 3. Identification and Collation of Sites/Projects

## 3.1 Sources of Information

A review of the following documents indicated that there have been a large number of dam and weir sites considered to supplement the raw water supply in the South East Queensland region. The documents reviewed included:

1. JWP, "Future Water Source Options for the Sunshine Coast" Table 16.1(draft), Aquagen, July 2005;
2. 27th January 2005 RWSS Steering Committee Workshop minutes;
3. Sunwater, "Water Supply Study of the Upper Mary Valley – Security of Supply", August 2004;
4. GHD/Kinhill, "South East Queensland Water and Waste Water Management and Infrastructure Study – Final Report for Phase 1 – Water Sources and Infrastructure Needs", Department of Natural Resources, April 1999;
5. Queensland DPI Water Resources, "An Appraisal Study of Water Supply Sources for The Sunshine Coast and The Mary River Valley", December 1994;
6. Queensland Water Resources Commission and Brisbane Area Water Board "Water Supply Sources in South East Queensland", January 1991;
7. A review of the information in the Department of Natural Resources and Mines library and the DPI library is underway, but has not as yet been collated and added to this report;
8. A review of the information held by each of the Councils and Water Authorities in the study area has commenced but has not yet reached a stage where information can be added to the Initial Scoping Report; and,
9. GHD, "South East Queensland Regional Water Supply Study, Stage 1 Report", 2004.
10. DNR, "Seismic Refraction Reconnaissance Survey On Bremer River 67.7 km and 70.0 km Damsites," work files, 1981, DNR reference 27207.
11. DNR, "Further progress report on Lockyer Valley water resources investigation," work files, 1982, DNR reference 26837.
12. DNR, "Reedy Creek scheme, preliminary report," work files, 1977, DNR reference 61079.
13. DNR, "Report on the water resources of Tinana Creek," work files, 1950, DNR reference 24021.
14. P.E. Mann, "Yabba Creek 19.3 km and Amamoor Creek 14.7 km dam sites, seismic refraction survey, Queensland," work files, 1959, DNR reference 64799.
15. DNR, "Geology and Mineral Resources: Damsites - Perserverence and Westbrook," work files, 2002 DNR reference 42848.