

13th February, 2007

The Coordinator General
Project Manager
SEQ Infrastructure (Water) - Traveston Crossing Dam Stage 1
P.O Box 15009
City East, 4002

Dear Sir,

RE: DRAFT TERMS OF REFERENCE FOR THE ENVIRONMENTAL IMPACT STATEMENT - TRAVESTON CROSSING DAM PROJECT.

The purpose of this letter and submission, is to provide feedback and comment on the, *Draft Terms Of Reference For An Environmental Impact Statement: Traveston Crossing Dam Project Stage 1 - Mary Valley, QLD, dated December 2006.*

The following document is a submission compiled by two affected local landholders of the proposed *Traveston Crossing Dam* area. We felt compelled to put to you our thoughts and remarks concerning the Draft TOR as there are some areas within the draft document that, we feel, need consideration and further development. We would appreciate it if our submission, and the points made within it, were given serious attention by yourself and all those responsible for the completion of a *Final Terms of Reference*.

Thankyou for your time,

Yours Sincerely,
Mr David Bade,
Moy Pocket, QLD 4570

Mrs T. Asmus
Frayne Rd,
Amamoor, QLD 4570

SUBMISSION ON THE DRAFT TERMS OF REFERENCE

FOR THE

ENVIRONMENTAL IMPACT STATEMENT:

THE TRAVESTON CROSSING DAM PROJECT STAGE 1

MARY VALLEY, QLD

DECEMBER 2006

COMPILED BY

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PREAMBLE

Guaranteed supply of water from an ever increasing population is a major problem facing SEQ and indeed the whole of Australia. Much has been made of water storages as a significant part of the long term security and due consideration needs to be given to all options.

With the major impacts of large water storages on the immediate environment where sited, due consideration needs to be given to the catchments ability to deliver enough water at a high quality standard.

Changed weather patterns will play a major part in the ability of responsible government bodies to ensure water quality is maintained at the highest standard possible in the state interest. Implications for endangered species of flora and fauna both aquatic and terrestrial must be handled in view of Australian interest, if not the world community. Habitat protection and regeneration can and must be accommodated in any long term commitment to water strategy for the future.

Community issues and involvement in decision making processes, both locally and indeed at state level, form an integral part of the discussion making process.

As a further insight into the project aboriginal peoples traditional and contemporary uses of the land need due consideration in relation to the project.

With comprehensive and balanced consideration of all elements of this project, the EIS to be compiled from these Terms of Reference will produce an accurate picture of how this project will fit into the overall and ultimate objective of guaranteed water supply into the future.

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PART A

SECTION SPECIFIC COMMENTS ON DRAFT TOR: *PART B - SPECIFIC REQUIREMENTS - CONTENTS ON THE EIS*

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Please note: All text that is underlined in this section are comments by the authors of this submission.

PART B: SPECIFIC REQUIREMENTS - CONTENTS OF THE EIS

1. INTRODUCTION

SECTION 1.4 *Alternatives to the Project*

Page 17

This section should describe feasible alternatives within the proposed Project, including the option of taking no action i.e. of not building the dam. Alternatives should be discussed in sufficient detail to enable an understanding of reasons for preferring certain options and courses of action and rejecting others. Reasons for selecting preferred options should be delineated in terms of technical, commercial, social and natural environment aspects.

***NB: This section should state also that to evaluate the option of 'not building the dam'; it must be considered that a combination of ALL or SOME of the alternatives developed and operating in conjunction with each other can supply the equivalent water/or more, than the proposed Traveston Crossing Dam can.**

Descriptions should include the option of a number of alternatives being assessed together/implemented together as opposed to only assessing each alternative on their individual merits, and on an individual case against the Traveston Crossing Dam option.

SECTION 1.4 *Alternatives to the Project*

Page 17

The alternatives considered should include:

- Demand reduction techniques;
- Other water supply methods, including:

Recycling

New pipelines forming a water grid between storages;

*Desalination *NB: All forms not only RO, and all alternate Plant energy supply*

options, with value adding of byproduct considered in the cost and efficiency calculations/comparisons; and

Groundwater.

***NB: I ask that the below methods/techniques be included in this list as all are valid and well researched alternatives and should be considered as not only stand alone alternatives, but**

considered in combination with each other when evaluating the option of 'not building a dam'.

- Cogenerative Power/Desalination Plants (and the potential of retrofitting to existing power stations)
- Dry Cooling Technology to replace existing Evaporative Cooling on Power Plants (and the potential of retrofitting to existing wet cooling power stations)
- Stormwater Harvesting
- All methods of:
 1. Water Reclamation
 2. Water Conservation
 3. Water Reuse
- WSUD-Water Sensitive Urban Design
- IWCM-Integrated Water Cycle Management

***NB: WSUD, IWCM must be considered and the idea of it's inception on a large scale posed as an alternative, in conjunction with other alternatives, to the proposed Traveston Crossing Dam.**

2. DESCRIPTION OF THE PROJECT

SECTION 2.2 *Description of the Water Storage Construction and Operation*

Page 21

2.2.3 *Pre-construction Activities*

A description of the pre-construction activities should be set out in this section, including;

NB: The following should be included in the list;

- Relocation where possible of EPBC and EPA protected species of flora and fauna, and their colonies, (including not only the ponded area but anywhere that vegetation is to be removed).

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2.2.5 *Proposed Water Storage Operation*

Full details on the proposed on-going management of the dam, inundation area and buffer zone should be provided including:

***NB: I believe the following should be included in the list. So people know what land around them will be 'out of bounds'.**

- Areas of Public Access and No Public Access, Areas of Restricted Access. (When dam is operational)

3. ENVIRONMENTAL VALUES AND MANAGEMENT OF IMPACTS

SECTION 3.1 *Natural Disasters and Extreme Weather Conditions*

Page 28

This section should describe historic weather patterns in the Project area and seasonal conditions (e.g., cyclones, thunderstorms, floods and storms) that may influence timing and/or construction methods and how this would be managed. The vulnerability of the area to natural or induced hazards, such as floods, bush fires and earthquakes should also be addressed. Details should be provided of earthquake fault lines or past earthquake activity in the vicinity of the Project area and the implications for the Project. This section should include a discussion on how weather would be monitored to minimise the risk of adverse impacts to the Project area during the construction period.

***NB: Section should describe historic weather patterns in the Project Area AND:**

- **Consider extreme, intensified weather patterns/predictions based on and associated with Globally acknowledged Climate Change scenarios (super storms, intense Cyclones that are as yet unrated etc.). These Climate Change weather scenario's need to be evaluated and described in a seperate study to historic weather pattern influences.**
- **Outline effects of large mudslides/landslips into and around the Water Storage as a result of the above Natural Disasters, or as a result of the dam being built (water saturation, dam creating water back ups and forging new gullies and watercourses etc...can cause slips, small and vast) All of these may cause properties to be in harms way when they previously were not.**
- **Natural disasters and extreme weather affecting Borumba Dam, should be incorporated into this Section of the TOR as Traveston Crossing Dams FSL could effect Imbil and the Dam surrounds in the case of a Borumba emergency release or wall break.**

SECTION 3.2.1 *Land Use and Infrastructure*

Page 29***Potential Impacts and Mitigation Measures***

A description of the following should be included;

***NB: The below three that I believe must be considered for listing here:**

- **Ways of replacing lost water supply to properties that have lost their source by having dams, creeks, pump holes, bore holes, wells etc... lost to the dam storage area. (As some properties will be left high and dry when their main, or sole water source (most especially household and livestock watering supplies) goes under the dam. It is also hard for these people to be offered water from the Dam as the dam will most likely, on average, only be 60% full which will cause the waterline to recede a long way from their property front)**
- **Possibility (in association with helping people to relocate within the Mary Valley and, for example, into new developments) remove, in their entirety, any homes such as Timber Queenslanders and have them gathered on a site where they can be purchased for relocation to new house blocks. This would provide an alternative for some people to save them having to wait long time frames for a new home to be built, or they may prefer an older timber house. This would surely be a preferred option to destroying the many beautiful Queenslanders in the path of this proposed dam. Better (psychologically and emotionally) for the community to see their timber homes reused instead of demolished or all sold off to a house removal company.**

- Some landholders being resumed/acquired, may be offered reduced rates and/or assistance of some kind (or free, but that's not likely) to move their dwelling if they wanted to relocate their current dwelling to a new property or up onto any land that was cut off during resumption.

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3.9.1 Transport Methods and Routes

"The EIS should describe the current existing road network and intersections of the surrounding region specifying current traffic volumes, notably on Bruce Highway, Gympie-Brooloo Road, Kenilworth-Skyring Road, Tuchekoi Road and associated access points"

Please refer to comments on Moy Pocket Road in **PART B of our Submission:-**

SECTION 2. ASSOCIATED INFRASTRUCTURE

2.5 Traffic Implications

*

PART B

OVERALL COMMENTS ON THE DRAFT TERMS OF REFERENCE FOR THE EIS: TRAVESTON CROSSING DAM PROJECT STAGE 1

*

1. DECLARED CATCHMENT

1.1 Expected Declared Catchment

I refer to:-

Cooloola Shire Council Minutes of the General Meeting; Tuesday 5th September 2006 at 9.00am. Page 43 to 45. Report By Director of Planning and Development, MJ Ball, Received . RE: State Government Policy for Preserving Water Quality in Declared catchment Areas.

'4.0 *It is expected that the Traveston Crossing Dam will become a declared catchment and as such development applications will trigger referral to the Department of Natural Resources, Mines and Water and the Guideline (F10) will assist their staff to respond to those applications.'*

'7.0 *Obvious implications of the Guidelines are:*

- 1. Amendment to the Cooloola Planning Scheme and increased development assessment requirements.*
- 2. Significantly reduced development requirements.*
- 3. Increased Capital and Operational Costs of all development and infrastructure in the catchment.*
- 4. No compensation payable to landowners as a result of diminished opportunity and increased costs.'*

This report clearly defines the fact that the State Government is '*expected*' to make the Traveston Crossing Dam a '*declared catchment*'.

This would give certain Government agencies, and their contractors, the power to control what happens in and around the ponded area of the dam, and also externally to the whole catchment area.

- As a consequence, comprehensive detail and explanation of these measures needs to be provided.
- Comprehensive maps and worded documents outlining details of the declared catchment boundary and it's implications on property size (e.g 16hec), existing roads, proposed roads,

property access, service roads, landholders and businesses, including;

1. Maps of the declared catchment boundary and the areas and practices of the properties and businesses within that boundary that will be targeted for restrictions, or be included for ongoing monitoring and assessment.
 2. Cadastral maps must be included and landholders and business owners should be officially notified of ALL restrictions as part of the *Traveston Crossing Dam EIS*.
 3. Maps of all roads, infrastructure, access roads, service roads etc.. that will be affected.
- Will the declared catchment area status be enacted when the Dam is commissioned or enacted at some time in the future?
 - Outline what access government agencies, or their contractors, will have to properties in order to do assessments or conduct ongoing monitoring under *declared catchment area* guidelines and their restrictions? This would also include outlining a landholders rights regarding government employees accessing their property.
 - The Governments intention to make Traveston Crossing dam a *declared catchment area* also needs to be positively confirmed within the EIS.
 - Outline what will all government departments with '*jurisdiction as a concurrence agency*' (Guideline F10 DNR handbook of Resource Planning Guidelines) intend to pursue to guarantee water quality is maintained and possibly improved in the '*State Interest*'.

Several relevant parts in relation to the dam proposal need to be strongly considered in relation to the *Traveston Crossing Dam Environmental Impact Study*.

I refer to the below quote from the DNR's F10 Guidelines:-

(Policy & Code For Preserving Water Quality in Declared Catchment Areas; Guideline F10)
Quote from Section 2.1 Explanation

"Preserving the quality of water in a catchment area is more about managing the effects of land use on the environment than the sustainable management of water resources. Planning for preserving the quality of water in a catchment area must seek to achieve sustainable land use outcomes which are characterised as having no unsustainable impacts on land and water resources."

- Outline whether or not it is implied that in the context of non urban development that development is not to occur to within;
 1. 100 metres of the high bank of a designated watercourse;or

10.

2. 400 metres of the FSL (or planned FSL-is this Stage 2?) or flood margin reserve, whichever will provide the greatest distance from the water edge of the lake;
 3. 25metres of each bank of other watercourses.
- Outline whether or not it is implied that in the context of urban development that development is not to occur within;
 1. 100metres of the high bank of a designated watercourse, or FSL (or planned FSL-is this Stage 2?) or flood margin reserve, whichever will provide the greatest distance from the water edge of the lake;
 2. 25metres of each bank of other watercourses.
 - Comprehensive detail and explanation should be undertaken to outline the effects of a *Traveston Crossing Dam Declared Catchment Area* on;
 1. Land tenure in the catchments
 2. Existing infrastructure and enterprise:- including Primary Production, Extractive Industries and Property Subdivision in the *declared catchment*.
 3. Future landuse options, including full detail of restriction to be applied to this zone and it's relationship to the entire *declared catchment* area.
 4. 100 metre exclusion zone on each bank of all watercourses in the *declared catchment* area and 25 metres around each bank of other watercourses.
 5. Other courses that don't run all year, such as seasonal creeks, running gullies and dry gullies. (Anywhere where it is recognised that significant run off will discharge into the *declared catchments* ponded area).
 6. Landholders and businesses within the declared catchment. What are ALL the declared catchment restrictions they will face and who will bare the monetary costs as a result of implementing those restrictions? e.g fencing or revegetation of riparian zones.

1.2 Septic Systems

- Identify, including detailed map, all those affected by restrictions on Septic Systems in the declared catchment. e.g;
 1. Private in Household

2. Public Areas e.g
 - Parks, Reserves etc..
 3. Community sewerage treatment plants with discharge into the river e.g
 - Kandanga
 - Imbil
 - Kenilworth
- Describe ongoing costs and infrastructure to further purify water before discharging to the river and local catchment.
 - Clearly describe who will bare the cost of replacing systems with Eco friendly ones. At the very least, within the 400m no development zone (as outlined in the *DNR's Policy & Code For Preserving Water Quality in Declared Catchment Areas; Guideline F10*) surrounding the ponded area.

1.3 Economic Analysis

- Compensation to existing landholders for constraints on their ability to grow crops (broadacre and intensive horticulture) resulting from restrictions or use of fertilisers, crop protection and herbicide chemicals.
 1. Detail of what agricultural chemicals and fertilisers are going to be allowed in the *declared catchment* areas.
 2. Details of the types of horticulture and zones (with maps) where these enterprises will be allowed.

1.4 Dairy Farming

Pasture areas and indeed significant areas of Dairy farms are on the floodplain of the Mary River and Creek systems in the catchment area. *Declared catchment* status will, I believe, negatively impact on dairy farms as far as Maleny, as they may practise incompatible land uses as set out in the *Water Act 2000*.

- Comprehensively detail what Dairy farming practices are going to be allowed outside of the buffer zone but within the *declared catchment*.
 - e.g Fertilising pastures with nitrogenous and phosphate fertilisers leaching directly and indirectly through subsoil will impact on water quality in the ponded area.

12.

- Comprehensively detail all additional costs to the proposed Traveston Crossing Dam Project for compensation or even buy out of these enterprises which are going to be significantly impacted by the proposal.

*

2. ASSOCIATED INFRASTRUCTURE

2.1 Sewerage Works at Imbil

Placement of the treatment facilities are very close to the height of the buffer zone. Overflow from the facilities impoundments ponds could in a high rainfall period directly enter untreated into Yabba Creek.

- Costs involved to rebuild to higher elevation (buffer zone) for a new facility not even completed at the time of writing this submission. They should be included and outlined in the EIS.

2.2 Roads

Question suitability of some road realignments and bridges;

Walkers Road -

- A serious problem becomes obvious when considering the design for connection of properties on the eastern side of Walkers Road considering this is the only access. If designed for Stage 1 at what height will the bridge be built?
- Bridge will be under water in Stage 1 approx 4 metres.
- Upgrade to road leading to bridge will have to be lifted by my estimate of 6 metres to handle Stage 2.
- From Stage 2 a solid fill road access with a new bridge would form a dam across the river by restriction of water flow to bridge proper.
- An elevated concrete structure would be too exposed.

Pickerings Bridge -

- Not indicated as being affected. This bridge is approx 5 metres above river bed.

Road access to many areas will be made much more indirect than present. Assess the people that will be affected by;

- Inconvenience
- Risk of isolation in times of flood which becomes a safety issue.

- Additional cost in fuel and time that is to be borne by those affected.
- Diversion of power transmission lines, low and high voltage, will in areas involve clearing and cause further disruption to landholders.

Generally the cost of construction/rerouting and elevating to handle Stage 1 and potentially Stage 2 needs to be comprehensively addressed from the whole catchment area on the basis of cost benefit analysis.

2.3 Effect of Poned Area on Mary Valley Railway

- Include the substantial costs to rebuild and possibly realign sections of the railway network.
- Need to undertake geotechnical studies into stability of railway footings along the entire length of the railway line in the ponded area and buffer in order to take in influences on it by increased water table and flood surges.

2.4 Land Clearing and the Vegetation Management Act

- Avoiding threatened flora and fauna habitat.
- Incorporation of cost benefit analysis basis for the necessary realignments of;
 1. Powerlines
 2. Roads and road infrastructure e.g; bridges need to be raised, culverts, road margins, drainage etc...
 3. Private access connections
 4. Sewerage works from affected towns of Imbil, Kandanga and Kenilworth

It will be necessary to remove large areas of remnant vegetation (DNR mapping) to maintain water quality in the ponded area. This disruption to the ground will cause major disruption in the short term.

- Discuss the implications of the broad scale clearing including;
 1. Erosion and control measures
 2. Stickraking and other methods of clearing vegetation
 3. Methods of timber harvesting

4. Site clearing and disposal (including whether burning or chipping) and where sound, traffic, and emissions (such as smoke from burning) will impede local roads and local landholders.
 5. Removal of byproduct, waste and rubbish
 6. Potential sale of timber byproducts (wood chip, logs, posts, mulch, slabs etc..)
- Outline what steps will be taken to control nutrient leaching as a result of ash from burning, and site clearing.
 - Pollution created from burning rubbish and timber should be monitored and addressed in the total Greenhouse emission projections for the Dam.
 - What steps will be taken to minimise the affects of approximately 90% of the grass being removed and 100mm of the soil surface being disturbed during clearing.
 - no effective ground cover; causing erosions in heavy rain and storms until recovered by grass. Need for reseeded.
 - there will be excessive weed germination on all bare ground causing further maintenance issues.
 - Discuss the consequences and solutions to the significant problem of regrowth below the waterline when water levels are lower than FSL. What action is going to be taken within the first 2 years with germinated seed and suckering, particularly of pioneer species such as wattle with growth one to two metres. If left within ten years will become 70% of full canopy height which will make it remnant vegetation under DNR Vegetation Management Act guidelines.
 - What are the *water quality* implications in regrowth areas in relation to the ongoing maintenance necessary for control of this regrowth?
 - e.g Chemical control
 - Manual control
 - Discuss weed and noxious weed control options in ponded area and adjacent areas. If weeds are left to go to seed in Government owned land then private property adjacent will have increased out of pocket maintenance costs dealing with the weed contamination;
 - e.g common weeds; thistles, cobblers pegs, billy goat weed etc...
 - declared weeds; groundsel, rats tail grasses, parramatta grasses, parthenium, nagora burr etc..

2.5 Traffic Implications

Increased traffic movement both to and from the construction site will dramatically increase with major implications for local community as well as all those using the same network.

- Give details of feasibility study for existing network to handle the increased volume movement.
- Summarise upgrade to network envisaged to handle the heavy vehicle movement which will be focused on the construction site.
- Will State Government also pay for the upgrade more importantly maintenance contribution generated by the project.
- Moy Pocket Road not mentioned in the TOR but it is the site of a major quarry which will no doubt be supplying construction aggregates for this project. The road is grossly inadequate at present for handling a major increase in truck movement both to and from the quarry in relation to this project. Investigate these factors.

2.6 Development in the Catchment

- Outline changes and/or modifications to existing Cooloola Shire Subdivision Regulations. In relation to future subdivision and subdivision involved in Traveston Crossing Dam Project acquisitions of part properties.

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3. THE DAM ENVIRONMENT

3.1 Fluctuating Water Levels Affecting Aquatic Fauna

Considering inconsistent rainfall and pan evaporation figures, the resultant fluctuating water levels in the shallow edges of the ponded area will periodically cause dieback of aquatic vegetation e.g; waterlilies, aquatic grasses such as valisenaria, introduced aquatic weeds etc... resulting in a significant drop in dissolved oxygen and an increase in excessive nutrient load caused by microbial activity in decomposing matter. This has severe consequences for much of the aquatic fauna present. A direct result of this is large fish kills, particularly in the summer months in conjunction with an inversion layer, as seen and documented in the Paradise Dam.

- What measures are going to be put in place to manage these effects?

3.2 Shallowness of the Dam

Massive breeding of Cane Toads, Biting Midges, Mosquitoes etc..

- What steps are to be undertaken to control the serious increase in these populations?
 1. Cost benefit analysis of options for control/eradication
 2. Use of Organochlorine or equally potent chemicals
 3. Pesticides directly to ponded area for mosquito control. Source of major concern for declared catchment status in relation to water quality and '*state interest*'.

3.3 Cane Toads

Populations will, at certain times of the year, be very difficult if not impossible to control. These population explosions could create a potential catastrophic effect on Native wildlife and endangered, vulnerable or protected species.

- Determine impact on Native fauna and their food chain.
 - e.g; Endangered Native fish and frog species have to compete directly with cane toads and their tadpoles for food. These Native species can also become a food source themselves. The Cane Toad will also compete with terrestrial fauna for food.

- Population explosions of Cane Toads, will occur outside of Stage 1 and will encroach upon fauna, flora, waterways and ecosystems that are endangered or '*of concern*'. These areas are not being included in the Stage 1 EIS, but they should be.
Large Cane Toad population increases brought about by Stage 1 of the Traveston Crossing Dam, will affect areas in Stage 2 and beyond. Therefore a directive should be included in the Stage 1 Terms of Reference to outline and study the impact of Cane Toads on these species, protected within the EPBC Act, that have habitats beyond Stage 1 and it's buffer.

3.4 Fish Ladder

- How will problems associated with the *Paradise Dam Fish Ladder* be overcome?

*

4. FLOODING

4.1 Flooding

Flooding of the valley is an essential element in the natural cycle and performs a vital function in nutrient replacement of flood plain and flushing out of general health of stream proper.

The dam wall will place an effective barrier to the flow of water and the resulting body of water will have a significant consequence on the nature of flooding in the catchment areas as well as upstream and downstream of the wall.

4.2 Flooding at Imbil and other Townships.

Imbil township and it's rural residential environs is predominantly built on the Yabba Creek floodplain and will be very susceptible to inundation by rising waters backing up into Yabba Creek. Borumba Dam may have some regulatory effect and may actually prolong the duration, if not the magnitude, of localised flooding.

Flood waters already coming slowly down the Mary River and resting in the main ponded area of the dam proper will form a barrier to the flow of Yabba Creek. There will also be, as a result, a rise in the 'ponded area' caused by the magnitude of this flow. Flood water coming from Yabba Creek will rise very rapidly because it has nowhere to go, compounding flood effects and rendering them much greater than would be the case without the presence of the dam.

The buffer zone along Yabba Creek at Imbil is totally inadequate to handle a large flood event. More studies need to be done on how Imbil can be protected.

- Studies must be done and made publicly available in the EIS (expressly following a direction to do so from the Final Terms of Reference) on the possibility that water may breach the Stage 1 boundary at Imbil township.

NB: A significant part of Imbil including houses, schools, businesses are within the inundation level for a flood event of the magnitude of 1999 with the Dam in place.

- Earthen barriers have been proposed to keep flood waters out of the township. Consideration also needs to be given to the fact that flooding in a major rainfall event will occur in the town behind the barrier because of the topography of the area. Studies should also be done on protecting Imbil from this.
- If there is any discrepancy in the *QWI* and the *Queensland State Governments* current FSL Flood Height figures relating to either *Stage 1 or 2: Traveston Crossing Dam* at Imbil township, then this could eventuate in damage of property and have potential for loss of life. There is no room for error when calculating flood heights around Imbil nor should there be around Kandanga, Kenilworth or any other towns.

- Show data and methods (including hydrodynamic modelling) used to arrive at flood height figures, around Imbil, Kandanga, Kenilworth and other communities, include flood modeling for an extreme climate/rainfall/natural disaster event. (such as an emergency breach or release at Borumba Dam into a part filled or already flooding Traveston Crossing Dam ponded area and it's tributaries).
- Water may breach the Stage 1 and Stage 2 boundary in the case of an emergency discharge or breach at Borumba Dam up stream. This scenario should also be considered within the realms of the *TOR SECTION 3.1 Natural Disasters and Extreme Weather Conditions*.

4.3 Sedimentation and Debris Modelling

Significant changes to the river environment will take place along the entire length of the river both upstream and downstream as well as the ponded area itself.

Consideration of the following points need to be considered;

1. Large volumes of sand, gravel and general logs and debris, travel downstream in flood waters.
2. When water flow slows or changes direction, sand and gravel is deposited because there is not enough energy to keep it moving.
3. With reference to flood modelling, slower flowing areas at the edges behind the main flow will build with sediment deposited in large quantities. Sand, gravel debris obstructions and blockages will form.
4. The river channel will fill with sediment as the river flow slows. I believe deposits will, when dam is initially filled and before a major flood event, cause very undesirable siltation of the main river channel as far back as Kenilworth.
5. Major siltation deposits will occur in all streams e.g Moy Pocket area.
6. Riparian Zones will be badly damaged by scouring and sediment deposits.
7. Deep sections of the river in the ponded area will be filled in. This may cause total or some important loss of habitat for endangered species even when the dam levels fluctuate after this event.
8. Trees, logs and other large debris will be deposited all along the river.
9. Aquatic flora, e.g lilies, reeds, hyacinth etc.. populations will be scoured from edges (eddies) and potentially be carried towards the wall, particularly in the immediate area of the dam all.

10. All sedimentation and debris settling into the ponded area will affect the total water yield figures of the *Traveston Crossing Dam* in time.

- A study of the above points and related issues needs to be undertaken in the EIS.

Downstream implications of sedimentation;

1. Significant flows will only occur in times of flooding to move material down stream.
2. Nature of soils in the immediate environment e.g floodplain, are very
3. unstable when saturated and will move by landslide and suspension in floodwater moving into the main channel.
4. Flood event magnitude will govern how far this material will move downstream. A consequence of this is that large desposits of sand, gravel and debris with larger material included such as trees and logs, will effectively fill the river immediately downstream and possibly for some kilometres.
5. The immediate downstream environment from the dam will be so severely modified and I believe no longer functional as a habitat for fauna and flora species.

Possible drainage and interference with the working spillway and floodgates by debris being carried to the dam wall by floodwaters;

1. Large trees, logs and general debris will be forced to spillway.
 2. Aquatic flora such as lilies, hyacinth, reeds etc.. will be forced to the spillway.
- Will this interfere with the ability of the spillway to adequately discharge water and will it increase the effects of flooding?

Consequences for Great Sandy Strait and Ramsar;

Fine suspended particles (muddy water) will reach the ocean and these particles will be deposited causing an increase in nutrient availability upsetting the balance of flora and fauna.

1. Particles suspended in water will reduce light in the upper water layer and will effectively choke and inhibit food chain flora that is important to he Ramsar and Strait, such as;
-plankton, seaweeds, grass beds etc..

- The affects on the Great Sandy Strait and Ramsar Wetland as a result of this excessively muddied water, must be analysed and included in the TOR and EIS.

4.4 Flooding of Roads

Compounded by the slow flowing water (effected by dam wall), the floodwater level will be higher behind the dam wall until it abates (i.e settle to FSL). Sand and gravel, logs and debris will be dumped with greater frequency on road crossings all around the dam area increasing maintenance costs.

Damage to roads will be magnified by changes to flow patterns during flood water. There will be much undermining of asphalt and road surface as well.

- Detail calculations and allowances for increased maintenance costs during construction and thereafter.

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5. STAGES 1 & 2

5.1 Dam wall

The construction of the dam wall to the height of 90.9 AHD Stage 1 and 92.8m AHD for Stage 2 (*QWI Geotechnical Report & Diagram of Dam Wall 'Preliminary Geological Model'*) and the spillway had effectively the same height for stage 1 & 2, is a source of major concern.

The striking similarities between the wall that's being constructed now and its operation for Stage 2 need to be distinguished because I interpret it to only a difference of the flood gates between Stages 1 & 2. i.e adding the floodgates to the current construction will give stage 2 capability.

- A thorough and comprehensive explanation of the distinction, if any needs to be made, between the proposed stage 1 to be assessed in the EIS to be compiled here and stage 2 which if needed will take place by 2035.
- A definitive answer needs to be given in the EIS compiled here on whether there is a stage 1 with a stage 2 to follow.
- Details of spillway and floodgate operation need to be incorporated in the TOR.
- Attention should be given to operation conditions and safety issues.

5.2 Split Referral

Only Stage 1 of the proposed Traveston Crossing Dam has been referred to the Federal Minister under the Environment Protection and Biodiversity Conservation Act (EPBC) yet the State Government is proposing to build the dam to full in Stage 1 and acquire all the properties for Stages 1 and 2 in Stage 1. This constitutes a Split referral under Section 78 of the EPBC Act. The State Government should assess the full impact of Traveston Stages 1 and 2 (including pipeline, distribution and water treatment) in the EIS, advise the Federal Minister that the referral was made in error and refer the full proposal for assessment under the EPBC Act.

6. OTHER

6.1 Effects of Short Term Work Force

Social and economic contributions from short term workforce employed during construction phase will have significant effects on local communities particularly Cooloola Shire. While there are some positive outcomes such as increased spending at local businesses, these may well be offset by the negative implications;

1. Shortages of skilled labour may occur for local businesses because of labour demands for skilled, semi skilled and trainee/apprenticeship workers on construction site.
 2. Increased traffic congestion on local roads network.
 3. Increased rent for even basic housing in the area of dam.
- Outline what is to be done to minimise these negative impacts.

6.2 False Economy

A short boom economy is not sustainable in the long term. Beyond the completion of the dam.

- Planning must be put in place in the initial planning of the *Traveston Crossing Dam* and it's *EIS* so that new businesses or businesses who have expanded as a result of increased turnover during Dam construction, do not suddenly become unviable.

Increased supply and demand could also lead to higher costs for some goods at local businesses; Gympie & Mary Valley towns.

6.3 Water Distribution and Treatment Systems.

I have a major concern with section *Section 2.3.5* of the *Draft Terms of Reference* .

"It is noted however, that consideration, assessment and approval for these systems will be sought under appropriate seperate processes, and they do not form part of this EIS process"

The distribution and treatment systems to be used to distribute water from the proposed project is effectively the reason for having the dam in the first place.

The economic viability of the project is directly related to how and where the water harvested from the dam is used.

There is a direct correlation between end user and supply and that will have a direct consequence on the infrastructure.

- It is our view that this outlook that "*consideration, assessment and approval for these systems will be sought under appropriate separate processes, and they do not form part of this EIS process*" should be reconsidered and readdressed.
- Justify why consideration, assessment and approval of the effective end users will be sought under '*appropriate separate processes*' and why they should not form part of the *Traveston Crossing Dam* cost benefit analysis.

6.4 Water Entitlements

- Details of irrigation and industrial water entitlements need to be outlined in relation to both up and down stream users;
 1. Security of entitlements.
 2. Scope for further allocating being made available with dam completed.
 3. Will the quantity of water for downstream entitlements be encompassed in the Environmental Flows or will they be separate; will they allow for Environmental flows as well as requirements for flows needed to fulfill Water Entitlements downstream.
 4. Easements through buffer zone to access water.
 5. Requirements and limitations to be summarised and infrastructure to 'divert the flow of water'.

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WATER ACT 2000

COOLOOLA SHIRE COUNCIL MINUTES OF GENERAL MEETING-Tuesday 5th September, 2006 at 9.00am. *REPORT BY DIRECTOR OF PLANNING AND DEVELOPMENT, MJ BALL. PAGE 43-45*

QWI GEOTECHNICAL REPORT.