

Submission for Senate enquiry



The Secretary
Senate rural and regional affairs and transport
Parliament House
Canberra ACT 2600

March 24th. 2007

Dear Sir/Madame,

Re: Inquiry into additional water supplies for south east Queensland - Traveston crossing mega-dam on the Mary river.

The purpose of this letter is to provide input for the Senate inquiry to consider.

Mr. Beattie and his government have shown a **callous disregard** for environmental and **human rights** issues using a **dictatorial approach** in pushing for a dam at Traveston. Beattie's Government have (before a federal government decision on the mega-dam proposal) gone ahead in an ad-hock manner to destroy a large rural community, buying up part or all of various properties as if flooding were imminent. By all accounts the Beattie government initially declared that a Traveston dam would be build no matter that the proposed site was unsuitable and the environmental and social issues as well as federal government consent had not been addressed!!

To the casual observer that look rather suspicious, and the question must be asked as to **why**.

What ulterior motive prompted this action? The current Brisbane water crisis is not the reason as the proposed dam would need to be build, then it would need some serious rainfall, that itself only happen infrequently, certainly not every year.

Then hundred of kilometers of large diameter high pressure pipes and pumping facilities would need to be installed.

Solar, wind and ocean water movement can be used to power huge desalinating water systems by various proven methods. Ground water is also a viable alternative. Some of those measures would be cost competitive and significantly less destructive of the environment and productive rural land and communities, while providing a more reliable water supply much sooner. (We know after all that dams are not much use if it does not rain!)

Then perhaps "someone" don't want to strut about on top of desalination plants and artesian bores as he/she might be inclined to do on a mega-dam!

However this should all be about finding the most sensible water supply measures, not election stunts, or ego trips.

I have a small farm in the proposed flood area, and interestingly I was only informed about Beattie's mega-dam proposal just two month after a protracted application to the department of natural resources for permission to replace a log bridge on Scrubby creek that cut across my road.



Now it took the department of natural resources a good nine month for them to grant me the permit! also I was told **not** to put in a large diameter concrete pipe as that would cause the water to rotate as it flowed through and so cause erosion to the creek! however I could use a concrete culvert of large size or a concrete slab bridge. Now a officer from the DNR came out to inspect the crossing and I was not to disturb the riparian vegetation outside a very confined area, also I had to replant to a maximum of 500mm between plants!

OK, so here we are talking save the environment measures, I don't mind, after all the small waterhole I got permission to excavate on the creek some years ago which is only a stone throw down stream has many turtles and occasionally a platypus and various other wild things. Also in the vicinity live a number of lizards, birds also come and go, one interesting one I once saw was some sort of miniature kingfisher.

Anyway If the dam goes ahead and it ever fill up that little corner of the Mary valley including my bridge with its surrounding previously precious riparian vegetation will be flooded!

Also one could presume that trees and shrubs in the proposed flood area will be clear-felled and made into boards, woodchips and piles of ash.

That then begs the question: what sane person would condone such destruction without first seriously evaluating all available alternatives?

My property will loose more than half a kilometer of assess road. The wallabies, scrub turkeys and echidnas, koalas, pythons and snakes (that I am less enthusiastic about) as well as of-cause the various lizards they are all going to loose much of their habitat. All of the creatures just mentioned are found at various times on my little farm.

I feel the Traveston mega dam on the Mary river is a bad idea and that is even before considering the damage it would do to the river downstream!

A dry riverbed is not conducive to the survival of species like the **endangered lung fish and Mary river cod**, they can't walk up a dry riverbed to get to a fish ladder or elevator that might de designed to facilitate their up or down-stream migration! (It has been declared by a Queensland government representative that river flow could not be assured).

Also, as estuary marine life have a symbiotic relationship to river aquatic life and nutrient input, one can see a domino effect there with more adverse problems created, after all the river, valley and all associated eco-systems have evolved over millions of years!

So why not look at the big picture!

Why let short team expediency, and (bragging right) influence the decision to build a **very expensive dam** in an supposedly earthquake prone region and on a suspect foundation while creating the other problems? Would it not make more sense to stop this silly dam and look at better alternatives which have been put forward by people with a more comprehensive understanding of water supplies and dams than Mr. Beattie?



I do not refer to the idea of putting treated sewerage into drinking water supplies as that idea, while theoretically plausible, is in the real world more than likely to create contamination of various types including by hormones and various toxins. Ours is a world where a pandemic is a distinct possibility as are the genetic mutations of reproductive cells and cancers caused by exposure to any number of substances, (and that is before radiation exposure come into the picture) why take that chance?

So, recycle for some industry if needed, but not for human consumption.

If dams are absolutely necessary let us put them in a location with the best natural deep storage area where it will have minimum environmental and social impact. Such sites already exist within approximately 30 km of the proposed dam, and those sites reportedly has land already set aside for that purpose. One of the sites (Borumba) as we know already have a dam which some month ago was overflowing, and by all accounts a higher dam can be constructed between tall rock walls in that area.

I have included some photos which give a indication of some of the flaws in the Traveston dam proposal, and among those are the shallowness of the proposed flood area, which combined with high evaporation rates create a predisposition for blue-green algae growth, especially when aggravated by high nutrient levels due to moderately intense agriculture use over decades. Also the sand deposit quarried for years from the vicinity of the proposed dam site is not a positive sign.

Now some of the other unseen negatives is that the valley have a fair amount of toxins from various sources including old cattle dips, 24D and other hormone based herbicide sprays as well as residues from all manner of insecticides and soil sterilizers used over decades and some of which will undoubtedly find its way out of the ground if it is flooded.

There is also the water carried fungal root pathogen known as Phytophthora which I am told spread easily (I know it has taken its toll on many an avocado orchard) and it cause die-back of many types of trees.

With **bore** and **desalinated** water one would not have these issues to consider, and even dams in some more suitable areas would have less of the mentioned drawbacks.

I include some copies of DPI documents showing how important from a conservation standpoint my little corner of the Mary valley is (was) and my place is only a fraction of one percent of the proposed dam affected area.

I do not wish to attend a Senate Enquiry, but hope that the issues raised here is given serious consideration. Thank you.

Yours sincerely
Niels K. Madsen

Niels K. Madsen



Stream bank vegetation is VALUABLE

Vegetation on stream banks is **VALUABLE** for many more reasons than you may first think.

Why is stream bank vegetation valuable?

The root systems of trees, shrubs, and grasses bind and hold the banks together much in the same way that reinforcement improves the strength of concrete.

After heavy rain, when creeks and rivers are flowing fast, vegetation helps absorb the force of the flow and reduce the water's capacity to erode the banks.

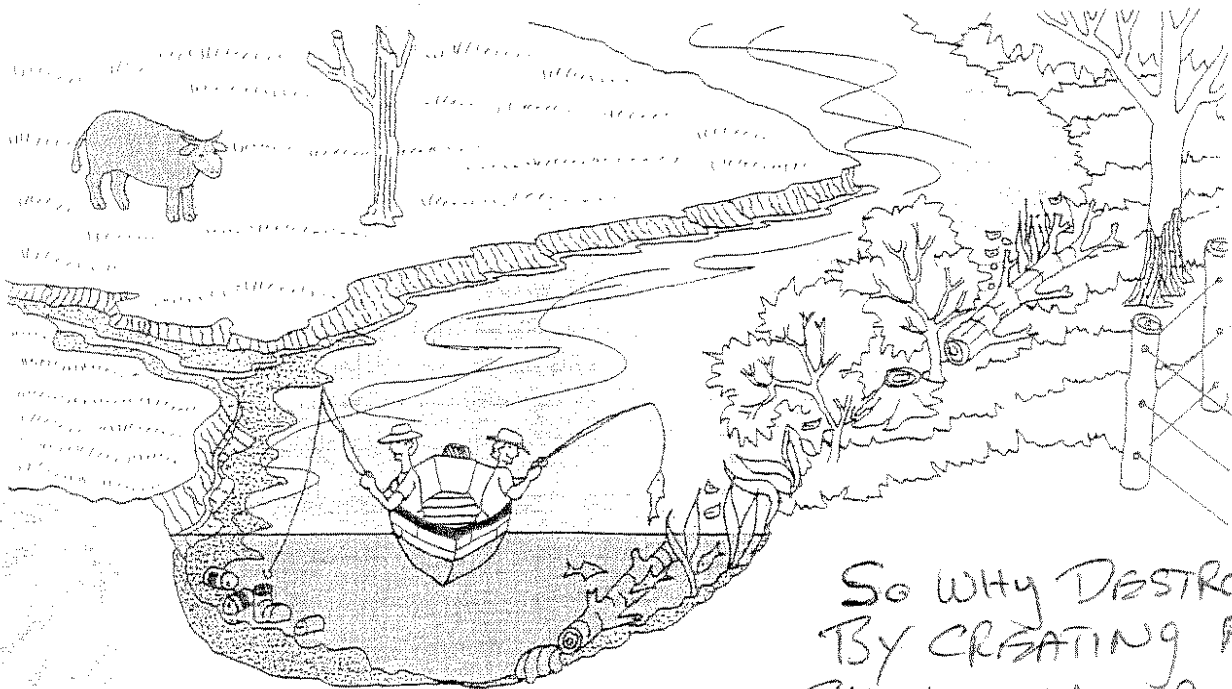
Trees and shrubs on the banks and within the stream provide shade and shelter for aquatic and terrestrial fauna. Fish and other aquatic organisms need moderate temperatures to live and breed successfully.

Grasses and other groundcover plants help filter sediments, nutrients and pollutants from run-off before they enter the stream. By acting as a buffer in this way, vegetation helps maintain good quality water in our streams and reduce problems with algal blooms and toxins.

Bank vegetation provides food for fish and other aquatic life in the form of leaf litter, plant debris and insects falling from the trees.

Submerged logs and the overhanging roots of trees and shrubs provide places for fish and other water organisms to rest, live, breed and hide. Keen fishermen know that the best places to fish are around the old logs in the water.

When it comes to property values, there is increasing recognition of the important functions of stream bank vegetation and of its aesthetic appeal.



Vegetation on stream banks holds the banks together, helps maintain clean water, and provides shade, food and shelter for stream life.

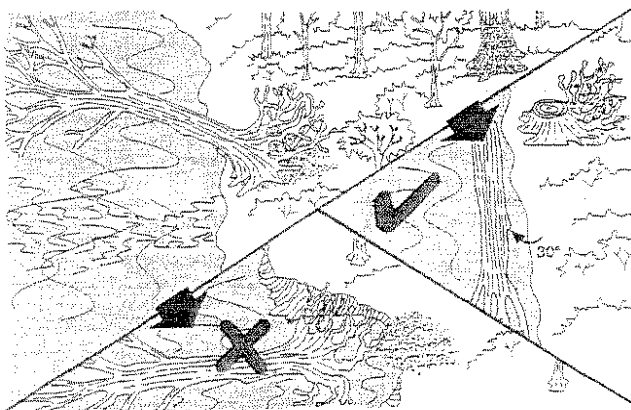
So why DESTROY IT
BY CREATING A
SHALLOW WATER MEGA-
DAM AT TRAVISSTON. ??
AND CLEARING TREES
IN THE FLOOD AREA?

Can trees cause problems in streams?

While the benefits of having vegetation on stream banks are considerable, trees can in some situations cause localised problems for land managers or the community. Generally, these problems are of a minor nature and can be controlled with a small amount of effort or maintenance.

Problem trees

Large gum trees and river oaks have been known to topple over during periods of heavy rain, strong wind or high flow, taking part of the river bank with them. Sometimes they are undermined as a result of natural erosion processes. Problem trees can be trimmed and the stump and roots left in the ground to continue their important function of holding the banks together. Remember that some riverbank trees naturally overhang the watercourse and are not a threat to bank stability.



Problem trees can be lopped. Leave roots in the ground and align the trunk against the bank toe to help stability. Trim the crown to reduce debris build-up during floods.

Channel regrowth

Sometimes, when there has been a prolonged period of low flow or where sand or gravel bars have built up, vegetation can establish within the channel of the watercourse. In some cases, selective clearing of this regrowth is desirable for river management purposes. Clearing too much vegetation can trigger bed lowering and bank erosion. Advice and permits can be sought from your local office of the Department of Natural Resources.

Weeds

Weeds will sometimes grow on stream banks, particularly where there has been disturbance. If they are a problem they should be controlled at the same

time as the adjacent paddocks. Control the weeds selectively to maintain the valuable functions of the native plants. If a large area of stream bank is infested with weeds, consider controlling the weeds in stages.

Woody debris

Large woody debris such as branches and logs serve an important ecological function in river systems. In general they are best left where they are for beneficial insects to live on and fish to breed in. However, occasionally large logs in the watercourse are considered a safety hazard in areas with high recreational use, or may be contributing to localised bank erosion. Advice and permits to remove dangerous debris from a watercourse can be obtained from your local Department of Natural Resources office.

What if there are no trees on the bank?

If the vegetation on your stream bank is sparse or in poor condition (see *R34 Assessing your stream bank vegetation* in the RiverFact series), you may wish to restore vegetation to regain some of the benefits that good quality vegetation provides.

You can restore vegetation on your stream bank by:

- planting local native seedlings.
- promoting natural regeneration by controlling stock access and weeds.
- controlling weeds and spreading seed from local native stream plants.

Further information

For more information on stream bank vegetation, or for permits to destroy or remove native vegetation or woody debris from a stream, contact your local office of the Department of Natural Resources.

See also in this series

- R31 Stream bank planting guidelines and hints
- R33 Managing stock in and around waterways
- R34 How healthy is your watercourse?
Assessing stream bank vegetation



This fact sheet was produced with the assistance of the National Landcare Program under the Riverine Strategies for South East Queensland project.

Information Notice

Application For Riverine Protection Permit: Reference 187952 Application 99476

STATEMENT OF REASONS

BACKGROUND MATTERS

Details of Decision

The above Permit Application was received at the Gympie office 12th May 2005. The Departmental officer who investigated this application was Technical Officer - Kim Williams.

Riverine Protection Permit application (99476) is to authorise the excavation and placement of fill, and the destruction of vegetation within the bed and banks of Scrubby Creek; for the purpose of replacing a vehicle crossing and cleaning out a waterhole, 134 Knobby Glen Road, Kandanga. Located on Lot 1 RP209 480.

After consideration of your application, it has been decided to grant your permit application, with conditions, for the proposed works within Scrubby Creek. The reasons for the decision are included below. If you have any queries in relation to the decision, please contact Kim Williams (54 822555) at the Gympie Office of the Department of Natural Resources, Mines and Water.

Section of the Act Authorising the Making of the Decision

Decision was made in pursuant to Section 269 of the *Water Act 2000*. Section 269 provides for the chief executive to decide the application and either issue the permit, with or without conditions, or refuse the application.

EVIDENCE OR OTHER MATERIAL ON WHICH FINDINGS OF FACT WERE BASED

In arriving at a decision, the following material was considered:

- (a) *the effects of the proposed activity on water quality;*
- (b) *the quantity of vegetation to be destroyed or material to be excavated or placed;*
- (c) *the type of vegetation to be destroyed or material to be excavated or placed;*
- (d) *the seasonal factors influencing the watercourse, lake or spring from time to time;*
- (e) *the position in the watercourse, lake or spring of the vegetation to be destroyed or the proposed excavation or placing of fill;*

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Locked Bag 383 GYMPIE
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Telephone + 61 7 (07) 5482 2555
Facsimile + 61 7 (07) 5482 9278
Website www.nrm.qld.gov.au
Client Ref: 180931

- (f) the reasons given by the applicant for wishing to carry out the activity;
- (g) whether, and to what extent, the activity that the permit would allow may have an adverse effect on the physical integrity of the watercourse, lake or spring;
- (h) the implications of granting the permit for the long-term sustainable use of the river systems of Australia, and especially the cumulative effect of granting the application and likely similar applications;
- (i) any other matters the chief executive considers to be relevant.

FINDING ON MATERIAL QUESTION OF FACT

The following findings of fact:

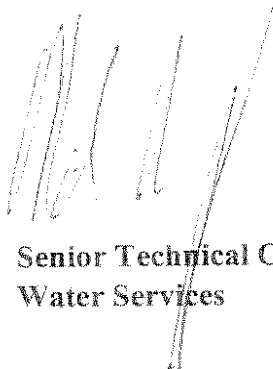
- Proposed works are located within the bed and banks of Scrubby Creek, located at 134 Knobby Glen Road, Kandanga on Lot 1 RP209480.
- The applicant is the owner of the property.

REASONS FOR THE DECISION

Decision was made for the following reasons:

- Works will be contained within the bed and banks of Scrubby Creek.
- Works should not adversely impact on water quality and physical integrity of this section of Scrubby Creek.
- The proposed activity is of a temporary nature only.
- Once the works are completed, there should be no ongoing impact from the works, taking into account the provisions of Section 269 of the *Water Act 2000*

If you are dissatisfied, you may apply for a review of the decision. This application must be in accordance with sections 851, 861 to 864, 877 and 878 of the *Water Act 2000*. Copies of these sections of the Act are enclosed. The application form must be supported by enough information to enable the reviewer to decide the application. An application for an internal review must be received at this office within 30 business days from the date you receive this notice.



Senior Technical Officer
Water Services



Author : Kathy Kello
File: GYM-GL1668
Phone: (07) 5482 2555

6 April 2006

N K MADSEN
PO BOX 41
KANDANGA QLD 4570

Dear Sir/Madam

**Application For Riverine Protection Permit: Reference 187952 Application
99476**

Attached is an information notice, which is advice of the decision and the reasons for the decision for the abovementioned application and a Riverine Protection Permit granted with conditions in accordance with the provisions of the *Water Act 2000*.

As your Riverine Protection Permit is an important document, care should be taken to preserve it.

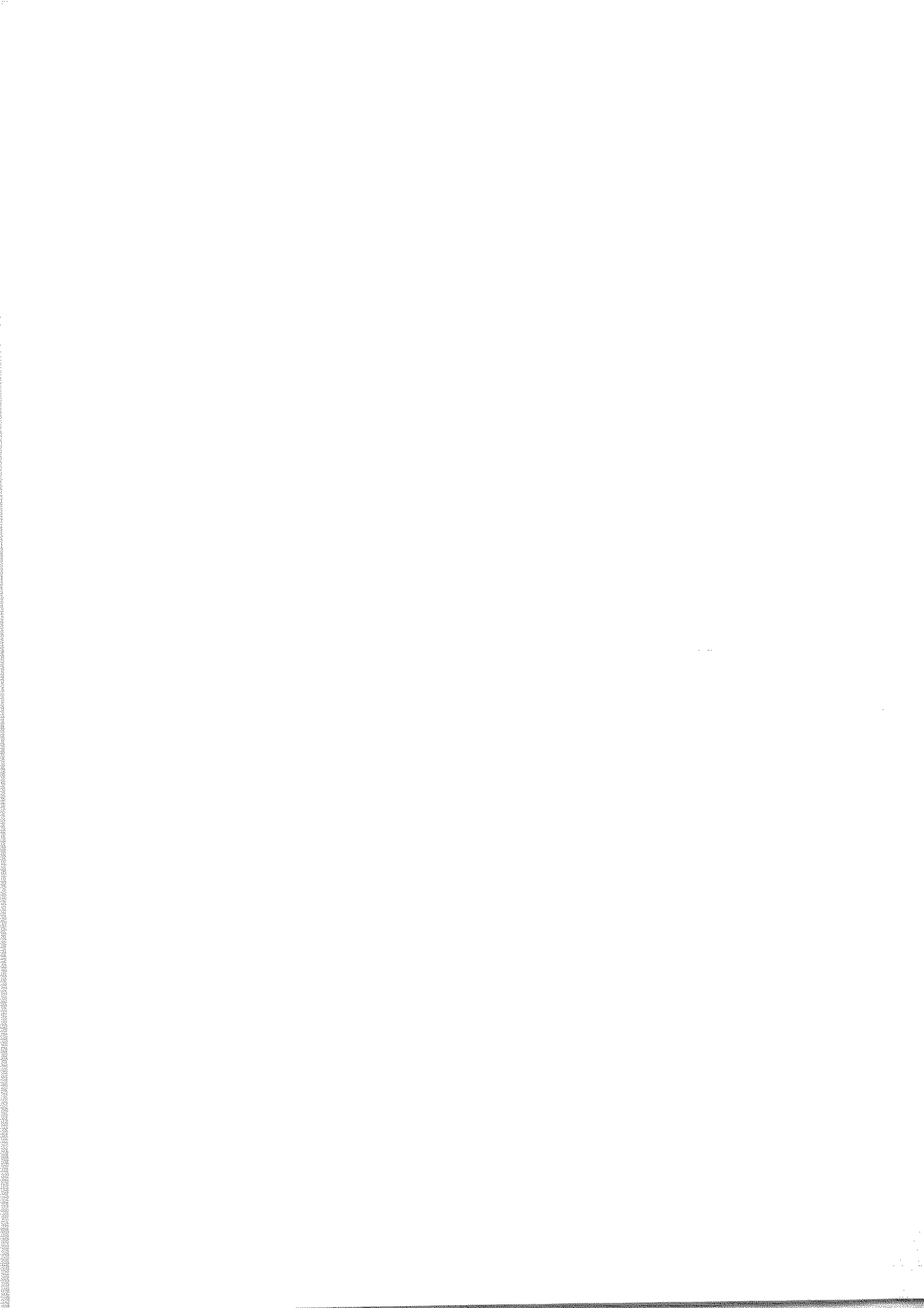
Please note that this Riverine Protection Permit does not negate the requirement to obtain any other approvals or to enter into other statutory arrangements, such as those relating to Aboriginal cultural heritage, which may be required. In particular, the *Aboriginal Cultural Heritage Act 2003*, which commenced on 16 April 2004, places a duty of care on anyone undertaking an activity to protect Aboriginal Cultural Heritage. Please refer to the attached information sheet for further information on this new piece of legislation.

If you have any questions please call (07) 5482 2555.

Yours sincerely

**Senior Technical Officer
Water Services**

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RIVERINE PROTECTION PERMIT

Water Act 2000



**Queensland
Government**
Natural Resources,
Mines and Water

Reference 187952

Expiry Date 31/03/2007

Permittee NIELS KAARE MADSEN

In accordance with the provisions of the *Water Act 2000*, authority is hereby given for the destruction of vegetation, excavation or placing of fill in the watercourse described herein.

Authorised Activity Destroy vegetation or fill or excavate in SCRUBBY CREEK. The type of work to be undertaken and the approved dimensions are described below:
Destroy Vegetation: Length 25.0m Width 15.0m Total Area 0.2ha
Excavate: Length 4.0m Width 2.0m Depth 1.5m Total Volume 12m³
Place Fill: Length 4.0m Width 2.0m Depth 0.5m Total Volume 4m³
Operation: Machinery
Location of Activity: Lot 1 on RP209480
This Permit authorises the destruction of vegetation, excavation and placement of fill in Scrubby Creek. Extent of works is further defined in the attached schedule of terms.

Authorised Purpose Excavate, Place Fill, Destroy Vegetation

Given at Gympie this SIXTH day of APRIL 2006.

Bob McCarthy
DIRECTOR-GENERAL
DEPARTMENT OF NATURAL RESOURCES, MINES AND WATER

Riverine Protection Permit 187952
Expiry Date 31/03/2007



**Queensland
Government**
Natural Resources,
Mines and Water

Conditions: Schedule A

7.11

The permittee shall give the approving officer 2 days notice before commencement of the approved works.

7.13

The approving officer is to be notified within 10 days of completion of the works authorised by this permit.

7.21

Controls that create natural waterholes in the bed of the watercourse must not be lowered.

7.37

No wheeled or tracked machinery is to be operated within the watercourse.

7.66

All vegetation destroyed under the authority of this permit must be removed from the watercourse and stockpiled or otherwise lawfully disposed of.

7.78

Works must be undertaken in accordance with the Soil Erosion and Sediment Control Guidelines published by the Institute of Engineers, Australia, Queensland Division.

7.82

All revegetation must be maintained until self-sustaining.

7.92A

Branches from adjacent vegetation overhanging the permit or access area can be removed if necessary but must be lopped by sawing and not broken or pushed.

D025

The permittee must provide a copy of the permit to any person contracted to construct the works approved by this permit.

Riverine Protection Permit 187952

Expiry Date 31/03/2007



**Queensland
Government**

**Natural Resources,
Mines and Water**

Conditions: Schedule B

1. Culverts installed as part of the crossing must be placed at the bed level of Scrubby Creek.
2. All disturbed areas must be revegetated with local endemic native species, with spacings no greater than 0.5 metres.
3. Excavation of Scrubby Creek is as follows:
 - 4 metres square area on both banks, either side of the existing crossing.
 - within the banks of the existing excavated waterhole located downstream of the vehicle crossing. Excavation of the banks of this waterhole is not authorised under this Permit.





Aboriginal Cultural Heritage – Your Duty of Care!

If you'd like to finish your water development without unnecessary delays or cost, then this might be the most important notice you'll ever read.

The *Aboriginal Cultural Heritage Act 2003*, which commenced 16 April 2004, seeks to protect artefacts and cultural sites that are of significance to Aboriginal people. In addition to protecting objects, features and archaeological sites, this legislation protects certain areas important to Aboriginal people because of traditions, customs, beliefs or history.

The Act requires anyone who carries out an activity to exercise a Duty of Care, that is they must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage. This applies to any activity, including the taking of or interference with water, that is undertaken on any land, including freehold, which may involve the excavation, harm, removal or relocation of cultural heritage. Duty of Care guidelines have been established to provide guidance on identifying features likely to contain or constitute cultural heritage and provide reasonable and practical measures to be undertaken in order to protect cultural heritage.

Fines of up to \$75,000 for an individual and \$750,000 for a corporation apply when Duty of Care is not undertaken or cultural heritage is unlawfully harmed... And sometimes you just don't know if there are cultural heritage values. The sites may be secret or sacred, incorporated into the landscape or under the soil surface.

The Department of Natural Resources, Mines and Water is responsible for administering the legislation and you should seek their assistance. Contact the Cultural Heritage Coordination Unit on (07) 3238 3838 or fax (07) 3238 3842. The Cultural Heritage Coordination Unit can provide you with a copy of the Duty of Care guidelines and put you in contact with the Aboriginal Party in your area.

How it affects you

Prior to undertaking any activity, you can contact the Department to undertake a **free search** of the database and register of cultural heritage to ensure the activity will not excavate, harm, remove or relocate known cultural heritage. If, in the course of undertaking an activity you discover a cultural heritage find, you must notify the Aboriginal Party immediately and exercise your Duty of Care. Where the activity will excavate, relocate, remove or harm Aboriginal cultural heritage, the activity should not proceed without a Cultural Heritage Management Plan or an agreement from the Aboriginal Party for the area.

Where the activity doesn't involve any additional surface disturbance (e.g. ongoing cultivation of an area) or if the activity occurs in a developed area, it is generally unlikely to harm cultural heritage. Surface disturbance includes any activity that causes a lasting impact to the land or waters. It includes any activity that disturbs the topsoil or surface rock layer of ground either by machinery (e.g. drilling or ploughing) or by removal of native vegetation.

If the activity will cause additional surface disturbance, a cultural heritage assessment should be undertaken. Advice should be sought from the relevant Aboriginal Party as to whether the activity affects Aboriginal cultural heritage and, if it does, how to best manage the activity to avoid or minimise harm to Aboriginal cultural heritage. *Ask First – A Guide to respecting Indigenous heritage places and values*, released by the Australian Heritage Commission, provides guidance on consulting and negotiating with Aboriginal people and is available from the publications menu of the Australian Heritage Commission website: <http://www.ahc.gov.au>.

Cultural heritage may not be an issue in many areas, particularly those areas that are already developed. However, as you have the Duty of Care placed upon you not to harm cultural heritage, take the necessary precautions upfront and it will benefit the progress of your development. Compliance with the cultural heritage Duty of Care guidelines is taken as fulfilling your Duty of Care.

Fulfill your Duty of Care and you will:

- Not incur a fine
- Know what to do if you encounter cultural heritage
- Have greater project certainty
- Protect Queensland's cultural heritage

Why do we have such legislation?

The following quote from Stephen Robertson, the former Minister for Natural Resources and Mines best sums up why we have such legislation:

"...Consider for a moment if a less than thoughtful Turkish government was to consider putting a resort at Anzac Cove. what would be our response? Anzac Cove is nothing special. It is a beach and some cliffs, but I would suggest that it has a place in each and every one of our hearts. It adds to our spirituality as Australians. ...Why is it so difficult when you have such a hard heart to soften it? Why is it so difficult when you have such a closed mind to open it and to be consistent when you celebrate your own spirituality, when you celebrate your own history, to give something of yourself to others who claim a slightly different experience and give the right to those people to celebrate, to protect, to commemorate and to mourn? That is what this legislation is all about."

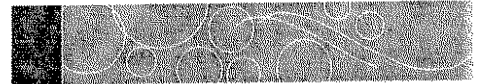


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Newsletter Traveston Crossing

Natural Resources
Mines and Water

MANAGING Queensland's natural resources ... for today and tomorrow



June 2006

This is the first newsletter from the Department of Natural Resources, Mines and Water (NRMW) to the Mary Valley community regarding the investigations of the Traveston dam site. This newsletter builds on information previously sent to landholders.

This newsletter will be published regularly and be available to landholders to provide up-to-date information on progress regarding the proposed dam at Traveston Crossing.

The department has also established a toll free call centre which is being updated with information as it comes to hand. Staff at the call centre – 1800 243 585 – can assist with general enquiries and direct calls of a more specific nature to relevant staff.

So what's new?

- Drilling has commenced at the Traveston Crossing site. The drilling program is designed to build a geological picture of the site and will test the bedrock and soil in the proposed area for the dam wall. These geotechnical results will help to decide the best way to construct the dam wall. The drilling is expected to take four weeks, but this may be extended if preliminary results need further investigation. Definitive results will not be known until after the analysis is completed. However, early results indicate a solid bedrock foundation.
- The community information centre at Kandanga has been provided with a new computer, printer and whiteboard to assist the community. Large posters of the proposed dam site area and studies required are also in the centre.
- Emotional and counselling support is available for affected landholders. This independent free counselling service is available on 1300 667 791, 24 hours a day, seven days a week. All enquires will be treated with the strictest confidence.
- Information sheets on a range of topics are available on www.nrm.qld.gov.au/water. These include:
 - Water for south east Queensland's future
 - Balancing water supply and demand
 - What about recycling and desalination?
 - Why build dams?
 - Why Traveston Dam?
 - Why Tilley's Bridge Dam?
 - Process and timelines for building a dam
 - Land acquisitions for new water infrastructure in south east Queensland

Frequently Asked Questions

Why this dam site?

Impacts of the worst drought on record, climate change and a booming population require a regional approach to long-term water security. Projections predict our population will nearly double over the next 50 years and large quantities of additional supplies will be required. Studies suggest we will need at least 680 000 megalitres of water per year by 2050 – that's an additional 230 000 megalitres than what we already have.

Traveston Crossing on the Mary River has been identified as a possible dam site in the Mary Valley region. As a part of its long-term water supply planning, the Queensland Government has considered all dam site options in the region. These studies indicate Traveston is the only site left capable of accommodating a large water storage to secure the region's water supply. To achieve a similar supply, it would be necessary to raise Borumba Dam and construct at least three additional dams. Detailed investigations, including geotechnical works, are underway to determine if the site will deliver the best overall results.

The dam will address the longer term growth of the region and is not designed to address the current drought. It is necessary to commence work now, as a long lead time is required to investigate, design and construct a dam, as well as allow time for it to fill.

The local Community Action Group has been kept informed of the drilling program. The department will advise the group's spokesperson of the results of the drilling program as soon as practical after completion.



What about the alternatives?

A range of options are being investigated as a part of the region's water supply strategy. These include ongoing water conservation; reducing mains pressure and fixing leaky pipes; desalination of seawater; and recycling water for industry.

Programs have already commenced to reduce household water use. New laws allow local governments to mandate rainwater tanks and water efficient products in new housing developments. Rainwater tanks are likely to be supported where they are cost effective and provide reasonable quantities of water – tanks are like dams, they only fill when it rains.

The Queensland Government is also working with Gold Coast Water on a possible desalination plant at Tugun to deliver water to the region.

What is the history of this project?

Traveston Crossing was announced by Premier Peter Beattie as part of an infrastructure program to secure long term water supplies for the State with funding drawn from the Queensland Future Growth Fund. South east Queensland projects include dam site investigations for the Mary and Logan Rivers. The Central region projects are raising the existing Eden Bann Weir, and constructing a new weir at Rookwood on the Fitzroy River.

The Traveston site on the Mary River has been selected because of its potential to provide significant quantities of water to meet the needs of the growing population of south east Queensland for the next 50 years and beyond. Following studies of all possible sites in the region, Traveston Crossing has been identified as the only remaining site in the region capable of accommodating a major water storage. In previous reports the Traveston site was rejected as its potential capacity was larger than needed for just the Mary Valley and Sunshine Coast. A regional approach to water security is now required and therefore this site has been identified to help meet the needs of the whole south east Queensland region.

Studies indicate the storage could provide up to 150 000 megalitres of water each year. This will boost available supplies for growing communities living and working in the region – and other parts of south east Queensland through connection to the proposed water grid. It is not intended to be a dam for exclusive local use.

How do land holders access the announced 'Land Acquisition Fund'?

The initial \$50 million Land Acquisition Fund is to allow people affected by the proposed dam at Traveston Crossing the opportunity to negotiate the sale of their property with the government. The government is standing in the market and is an active buyer of property affected by the announcement. All expressions of interest to sell are being considered, but priority is being given to landholders who can demonstrate that the announcement of the proposed dam site is causing them uncertainty and hardship. Examples include:

- sale process has fallen through as a result of the announcement of the project
- property was to be used as collateral for a loan and the proposed financier has refused to accept the property as security
- pressing medical, personal, domestic or social reasons
- other special circumstances may be considered on a case by case basis.

The department is taking particular care to ensure that each owner is offered a fair market price. Owners who have commenced negotiations with the government will be encouraged to seek their own independent valuation and legal advice. Reasonable out of pocket expenses will be met by the government. The department will discuss purchase arrangements with all landholders who express interest in selling. Many enquires have been processed through the call centre and more than 40 applications to sell have been made.

Land owners wishing to sell their property to the government should contact the call centre on 1800 243 585.

What about the other studies like social, environmental, economic and cultural heritage?

Current investigations include a preliminary assessment of environmental, social and cultural studies. Detailed studies will commence in earnest if the initial drilling and geotechnical work confirm the site is suitable for a dam. These studies will be carried out in compliance with relevant State and Commonwealth legislation and will involve extensive community consultation.

If all goes to plan, when will it be built?

If Traveston Crossing is confirmed as the best location, construction will be scheduled for completion by the end of 2011.

Are road realignments being examined now?

On behalf of the Department of Natural Resources, Mines and Water, the Department of Main Roads is undertaking a preliminary assessment of the roads issues associated with the proposed Mary River dam. This assessment will provide an overview of the needs and opportunities for reinstating roads that would be affected by the dam and will include an estimate of various costs. The State Government will include this assessment in its consideration regarding the establishment of the dam

PART C

Works Details

Duration of Activity

Name of Watercourse SCRUBBY CREEK
 Activity to commence no earlier than 01/02/2000 (Mandatory)
 Activity to cease no later than 01/02/2001

PART D

Lands Supplied by Works

Lot	Plan	Parish
1	209480	ITABIL

PART E

Purpose of Activity



TO LOT A SAFER MORE NATURAL FLATTER BATTER ON PART OF THE BANKS SURROUNDING A WATERHOLE ENLARGEMENT ON THE CREEK SOME YEARS AGO WHICH LEFT THE EXCAVATED PERIMETER TOO STEEP FOR SAFETY AND STABILITY MAY ALSO REMOVE SOME WEEDS WHICH IMPROVE WATERFLOW IN AND OUT OF THE WATERHOLE

PART F

Proposed Activity

To destroy native vegetation in the watercourse - RIPPLES
 Length 20 m Width 5 m Total Area 100 m²
 ha
 ACTUAL AREA WILL LIKELY BE LESS THAN INDICATED

To excavate in the watercourse
 Enter dimensions of excavation Approx
 Length 25 metres Width will vary 2m to approx metres
 Depth 1 metres Total volume 25 cubic metres

To place fill in the watercourse
 Enter dimensions of fill
 Length metres Width metres
 Depth metres Total volume cubic metres

PART G

Method of Operation

Machinery Chemical Other (please specify)

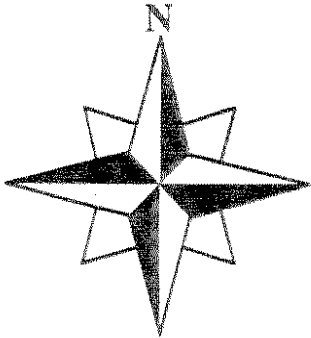
Types of Vegetation or Material to be Removed

NEEDS, HERBACEOUS WITH SOME SHRUBS FROM TOTAL OF 10 TO 15 M²
SHALL TRANSDUCE THESE SECTIONAL AREA OF WATERHOLE BANKS TO MAKE A MORE FLAT AND SAFE SITE

LATE NOTE: THIS APPLICATION WAS DECLINED DUE TO THE NEED TO PROTECT THE ENVIRONMENT / STREAM, YET THIS WILL ALL BE FLOODED & DESTROYED BY RIVERINE PROTECTION PERMIT TRAVISION DAM

SKETCH PLAN SHOWING LOCATION OF WORKS

include property boundaries, Lot/ Plan descriptions and, where applicable, the position of the stream.



PROPOSED TRIM UNNATURAL LOOKING CORNERS LEFT DUE TO PREVIOUS OPERATOR EXCAVATOR OPERATOR STUFFING UP NATURAL LOOK WHEN HIS MACHINE BOGGED IN CREEK.

ORIGINAL CREEK BANK TO BE LEFT AS IS. MAX BE PLANTED WITH SUITABLE VEGETATION

AND 2 MAY THIS INLET PIPES PLACED 15" BE LOWERED THERE TO FACILITATE CROSSING PRESENT STEEP BANK

SOME REEDS MAY BE CLEANED OUT HERE.

ABOUT 5M

MAX 1.5M
MAX 5M

WATER HOLE

NOT TO SCALE

PROPOSED REDUCTION IN TANTER SLOPE WILL BE MOST SHALLOW ANGLE IN SOUTH EAST

BOUNDARY

BOUNDARY

Stream bank vegetation is VALUABLE

Vegetation on stream banks is **VALUABLE** for many more reasons than you may first think.

Why is stream bank vegetation valuable?

The root systems of trees, shrubs, and grasses bind and hold the banks together much in the same way that reinforcement improves the strength of concrete.

After heavy rain, when creeks and rivers are flowing fast, vegetation helps absorb the force of the flow and reduce the water's capacity to erode the banks.

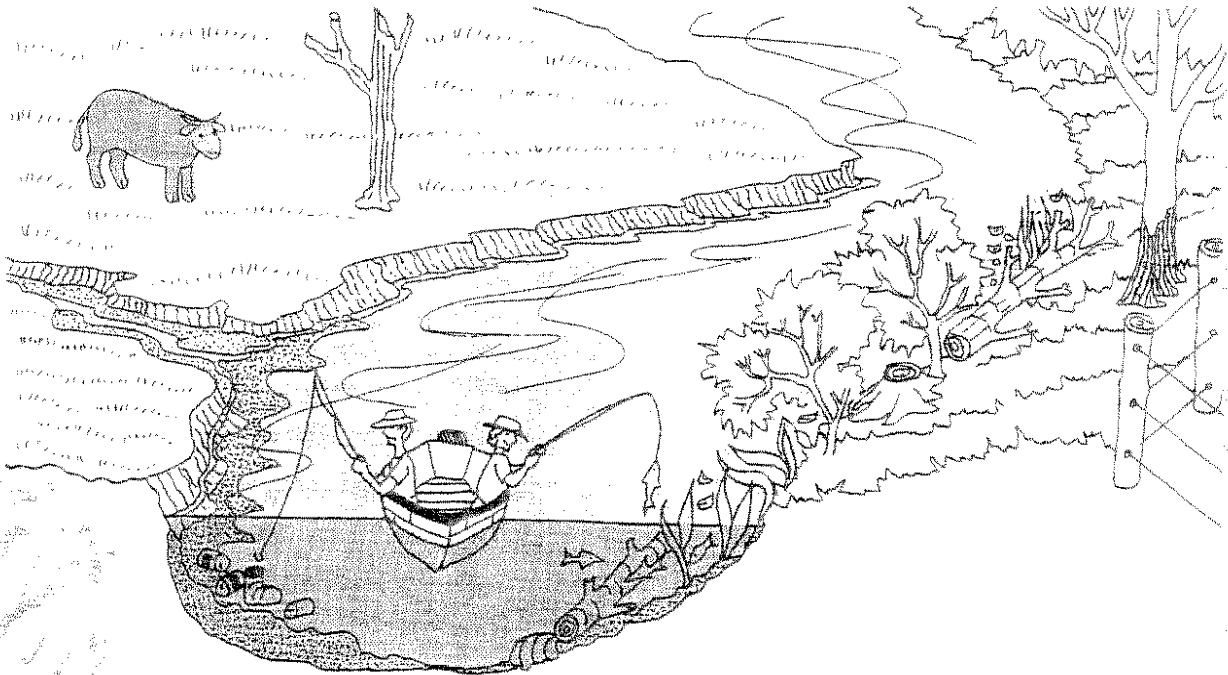
Trees and shrubs on the banks and within the stream provide shade and shelter for aquatic and terrestrial fauna. Fish and other aquatic organisms need moderate temperatures to live and breed successfully.

Grasses and other groundcover plants help filter sediments, nutrients and pollutants from run-off before they enter the stream. By acting as a buffer in this way, vegetation helps maintain good quality water in our streams and reduce problems with algal blooms and toxins.

Bank vegetation provides food for fish and other aquatic life in the form of leaf litter, plant debris and insects falling from the trees.

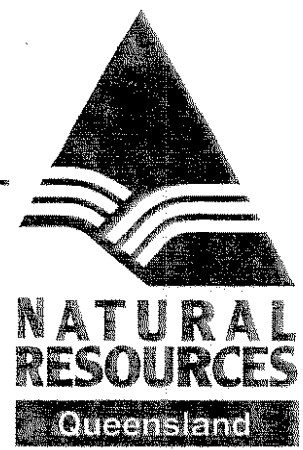
Submerged logs and the overhanging roots of trees and shrubs provide places for fish and other water organisms to rest, live, breed and hide. Keen fishermen know that the best places to fish are around the old logs in the water.

When it comes to property values, there is increasing recognition of the important functions of stream bank vegetation and of its aesthetic appeal.



Vegetation on stream banks holds the banks together, helps maintain clean water, and provides shade, food and shelter for stream life.

RECEIVED 02-3-2000



29 February 2000

HJ Stroben
Knobby Glen
Via KANDANGA QLD 4570

Dear Sir,

RE: REQUEST TO DESILT/ EXCAVATE BED OF SCRUBBY CREEK WITHIN PROPERTY OWNED BY NK MADSEN, LOT 2 RP179776.

I refer to an inspection of the above portion of Scrubby Creek with Amos Saraber of this Department on the 25th of February 2000. During the inspection, you stated that the bed level of Scrubby Creek below your property (on land owned by NK Madsen) had increased in height in recent years, to such an extent that it had effectively raised the water level in the watercourse. This had resulted in the waterlogging of the riparian portion of your property (an area of approximately 0.5 Ha), to the detriment of your cattle which access the creek for watering and grazing purposes.

You stated that the increase in bed level in Scrubby Creek was caused by the accumulation of large amounts of silt, as a result of the excavation of a waterhole in the creek some years ago by the owner of the above property, NK Madsen.

It is my understanding that you have requested that this Department require NK Madsen to desilt the above portion of the creek, which you believe will alleviate the alleged waterlogging on your property.

I advise that an increase in bed level of the creek below your property could be due to a number of factors, including siltation caused by the continued bed and bank destabilisation as a result of unrestricted cattle access to the creek on your property and on Lot 2 RP179776. It would seem unlikely however, that excavation of the waterhole in the creek has caused an increase in bed level.

Note also that this Department recognises that the bed and banks of watercourses change over time, even in cases where the watercourse is in a relatively undisturbed condition.



DEPARTMENT OF NATURAL RESOURCES

Enquires to: A Saraber
PO Box 383, GYMPIE Q 4570



Excavation of the bed of Scrubby Creek is considered a short term solution that may have long term detrimental effects. I therefore advise that this Department will not authorise any excavation works within the creek, both in your property or in the property owned by NK Madsen.

It is recommended that the creek be fenced off to prevent or minimise cattle access, and that suitable riparian vegetation be planted along the creek banks. This is considered a long term solution to the problem, which will have the effect of stabilising the banks of the watercourse and minimising future siltation problems.

Yours sincerely



Amos Saraber
Technical Officer
Stream Management
North Coast District.

cc. NK Madsen
PO Box 41
KANDANGA QLD 4570



THIS LETTER ONLY
CONSIDERS THE BATTERING
OF THE LEAD, NOT
THE CREEK CROSSING.



Our Ref: GL1668

22 March 2000

N K Madsen
PO 41
KANDANGA QLD 4570

Dear Sir,

RE: RIVERINE PROTECTION PERMIT , APPLICATION NO: 21726

With reference to the above application for proposed excavation and removal of vegetation in Scrubby Creek, I wish to advise that after consideration of your application, the Chief Executive has decided to **Refuse** your application for the following reasons:

1. The works will not improve the stability of the bed and banks of the watercourse.
2. The works will result in further disturbance to the watercourse (caused by large machinery).
3. Works, if approved, will cause a short-term increase in turbidity of water in the watercourse.

If you wish to appeal against this decision, you may appeal to a Magistrates Court (see attached).

It is suggested that you fence off the watercourse to minimise cattle access overcoming any safety issues associated with cattle entering the creek.

This will also reduce the likelihood of further bed and bank destabilisation and will allow for the re-establishment of natural riparian vegetation in the watercourse.

If you have any further queries please contact this office.

Yours faithfully


for **DISTRICT MANAGER**
DEPARTMENT OF NATURAL RESOURCES, GYMPIE



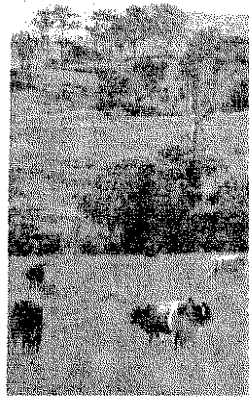
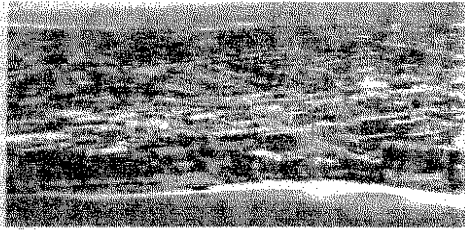
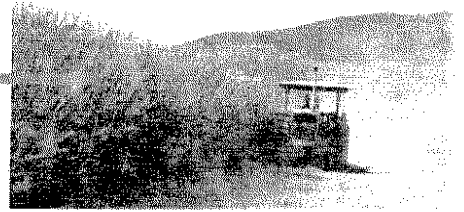
DEPARTMENT OF NATURAL RESOURCES

Enquiries to: Graeme Williams
27 O'Connell Street, PO Box 383, GYMPIE QLD 4570
Telephone: 5482 2555 Facsimile: 5482 9278

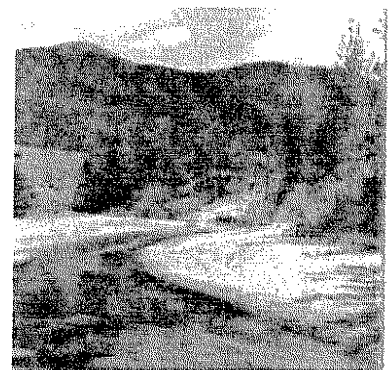
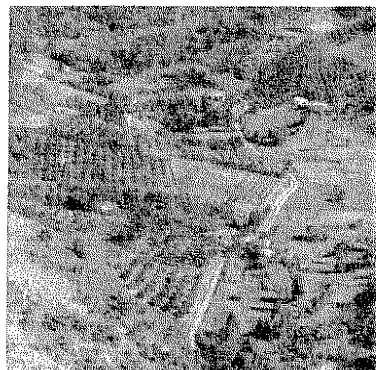
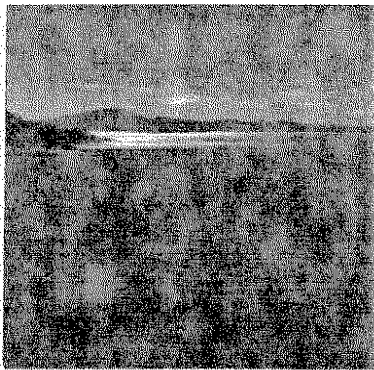




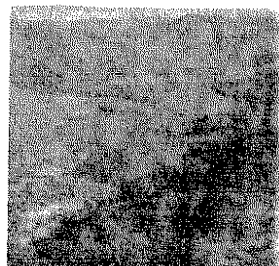
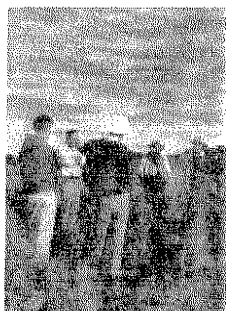
EXECUTIVE
SUMMARY



AN APPRAISAL STUDY OF
WATER SUPPLY SOURCES



FOR
THE SUNSHINE COAST
AND
THE MARY RIVER VALLEY





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QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

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The report may be obtained from the DPI Bookshop and the Nambour Regional Office and Gympie District Office of the DPI Water Resources. Inquiries should be addressed to:

The Manager
Appraisal Planning
Water Resources Division
DPI Water Resources
Mineral House
41 George St
Brisbane, Queensland
Australia 4001

Phone: (07) 224 7360
Fax: (07) 224 8359

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INTRODUCTION

A Department of Primary Industries (Water Resources) major study on water supply sources for South-East Queensland which was carried out in 1990 and which included consideration of alternative sources to the Wolffdene Dam proposal recommended that future water supplies for the Sunshine Coast should come from resources in the adjacent area.

Increases in demand for water for urban communities, industry and agriculture in the Mary River Valley, Hervey Bay and the Sunshine Coast region are expected to result in water supply shortages from existing sources before the turn of the century. In response to a decision by Government this study has been undertaken now to identify a strategy for future supply. This study of the future water needs of these areas has been conducted based on demand projections to the year 2041.

Soon after commencement of the study in early 1992, the Department of Primary Industries (Water Resources) released two Information Bulletins, followed by an Information Paper in April 1993 which provided details of progress on the study. In May 1993, a consultants' report "Review of Alternative Water Technologies for the Sunshine Coast and the Greater Mary Valley Region" was also released (Connell Wagner 1993).

Subsequent to release of the Information Paper and the consultants' report, submissions were invited from the community on issues of concern. Submissions were received until near the end of September 1993. During the course of the community consultation program, meetings were held at Gympie, Maryborough, Conondale, Kenilworth, Amamoor, Kilkivan and Woolooga to discuss the study and to explain the process for the consideration of submissions.

The total number of submissions received was 113 and an analysis of them is provided in a report titled "The Public Comments on an Appraisal Study of Water Supply Sources for the Sunshine Coast and the Mary River Valley." Detailed information on the appraisal study is contained in the Main Report titled "Water Supply Sources for the Sunshine Coast and the Mary River Valley". Both of these reports will be available for public perusal at Department of Primary Industries offices and Local Government offices in the study area.

It will be necessary to maintain effective community consultation during the ongoing planning and implementation of the strategy for the provision of future supplies.

The identification of future water sources for this region is an integral part of a Regional Water Infrastructure Plan called for by the Regional Planning Advisory Group SEQ2001 project. The outcomes of this study will complete the definition of the future water sources for the region so that a study of distribution requirements will be able to better analyse optimal arrangements.

THE OBJECTIVES OF THE SUNSHINE COAST AND THE MARY RIVER VALLEY APPRAISAL STUDY

The terms of reference for this study included an emphasis on environmental, social and economic issues, as follows:

- (a) Review all existing storages with regard to the extent of their existing commitment.
- (b) Conduct a detailed investigation which recognises the possible impact of demand management strategies on urban, industrial, power generation and agricultural growth trends in the Sunshine Coast and Mary River Valley to establish water supply demand and trends over the next 50 years.
- (c) Evaluate potential water supply sources on a comparable basis including assessment of any social and environmental impacts of any option.
- (d) Study the possibility of interbasin transfers of water and how sites relate to one another so that progressive development can take place to best effect.
- (e) Draw up a logical program of water resources development in the Mary River Valley taking into account existing development and future land use control for preservation of sites.
- (f) Examine the flood mitigation value as well as the water supply potential of all damsites.
- (g) Develop a strategic plan for water resources development in the Mary River Valley for consideration by Government together with, if necessary, proposals for legislative controls to ensure potential sites are not alienated from their proposed use.

As the Sunshine Coast is a prominent tourist destination, high resident and visitor populations have resulted in high levels of urban development.

WATER RESOURCES OF THE STUDY AREA

Principal drainage basins are those of the Mary, Noosa, Maroochy and Burrum Rivers and those of Fraser Island. The mean annual discharge of surface water from the study area exceeds 4 900 000 megalitres per annum.

Large volumes of groundwater are stored in the dune sands of Cooloola-Teewah and Fraser Island. The Great Sandy Region Management Plan provides that the groundwater resources of that region only be used for areas of settlement contained within the region. For this reason, the option of using groundwater from the Cooloola area as a possible future source of urban water supply for the Sunshine Coast area has been excluded from this study.

Groundwater from Fraser Island has also not been considered as an option for future water supply on the adjacent coast because the island has been listed as a World Heritage Area.

EXISTING WATER RESOURCES DEVELOPMENT AND UTILISATION

The Mary River and its tributaries provide supply for local agricultural, urban and industrial water users as well as providing urban water supply to the Sunshine Coast. Supply to the Sunshine Coast areas is derived from Borumba Dam and Lake McDonald for Noosa Shire and to Caloundra City and Maroochy Shire from Baroon Pocket Dam.

The existing Mary River system is close to being fully committed except for some 8 800 megalitres per annum which is surplus to current allocations in the lower Mary River area.

The estimated water use for irrigation, urban, and industrial purposes in the study area for 1993 was approximately 63 300 megalitres. Of this total, some 38 600 megalitres were used for urban and industrial purposes and 24 700 megalitres for agriculture.

Borumba Dam, which was constructed on Yabba Creek in 1964, has a storage capacity of 33 400 megalitres. It provides regulated supplies to the Mary River for agriculture, urban and industrial uses.

Construction of Baroon Pocket Dam on Obi Obi Creek for urban water supply on the Sunshine Coast was completed in 1988 by the Caloundra-Maroochy Water Supply Board. It also provides 2 000 megalitres per annum for riparian use along Obi Obi Creek. Prior to the dam's construction, Caloundra City Council obtained its water supply from three storages constructed within the Mooloolah River catchment, of which Ewen Maddock Dam is the largest.

Ewen Maddock Dam is not currently used for urban water supply by Caloundra City Council because of the higher distribution cost (due to pumping) and treatment costs from this storage compared with the cost of water from Baroon Pocket Dam. As demand increases in the future and exceeds available supply from Baroon Pocket Dam, it is expected that Ewen Maddock Dam will be brought back into service.

Other major sources of water supply on the Sunshine Coast include Wappa Dam, Poona Dam, Intake Weir and Cooloolabin Dam for Maroochy Shire town water supply and Six Mile Creek Dam (Lake McDonald) for Noosa Shire town water supply.

Urban water supply for Maryborough comes primarily from Teddington Weir. In 1993, a pipeline was installed to transfer water from the Mary River Barrage to Teddington Weir. This will supply an additional 1 000 megalitres per annum for Maryborough urban water supply and an additional 2 500 megalitres per annum for irrigation.

Hervey Bay City obtains its urban water supply from a three storage system including Lenthall's Dam on the Burrum River and from the Cassava Dams.

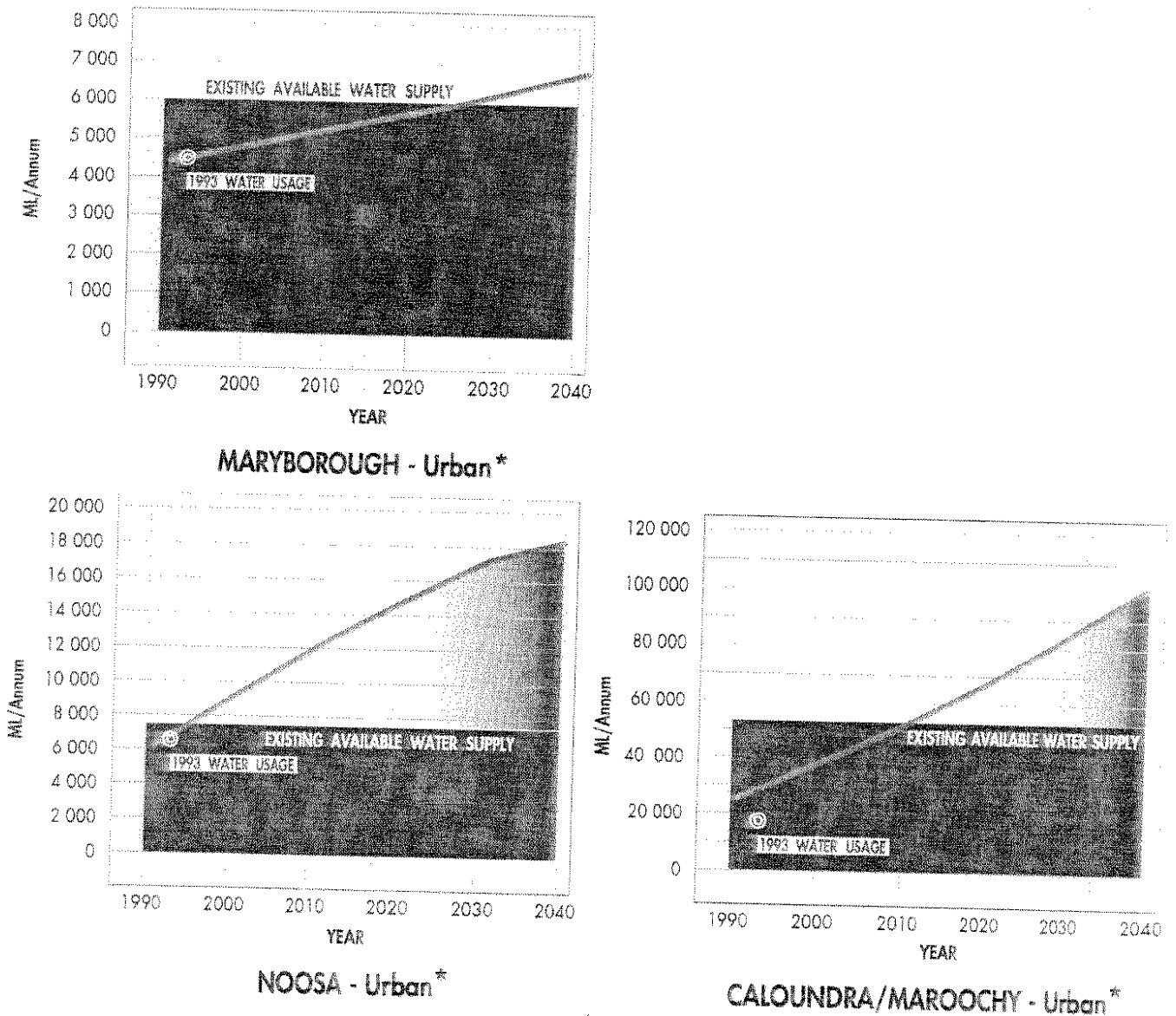


THE PROJECTED WATER DEMANDS

Currently, urban water and agricultural uses account for 61% and 39% respectively of the total water use in the study area. In recent years, the Sunshine Coast has been one of the major urban growth areas in South-East Queensland.

Recent population projections prepared by Department of Housing, Local Government and Planning show that population on the Sunshine Coast is expected to grow from 161 300 at present to about 365 000 by 2011. On the basis of population growth estimates from 2011 to 2041 prepared for this study by the Applied Population Research Unit, it is possible that the population of Noosa and Maroochy Shires and Caloundra City could reach 700 000 by 2041. Demand projections for the major urban centres in the study area

FIGURE 2 : ADOPTED WATER DEMAND PROJECTIONS



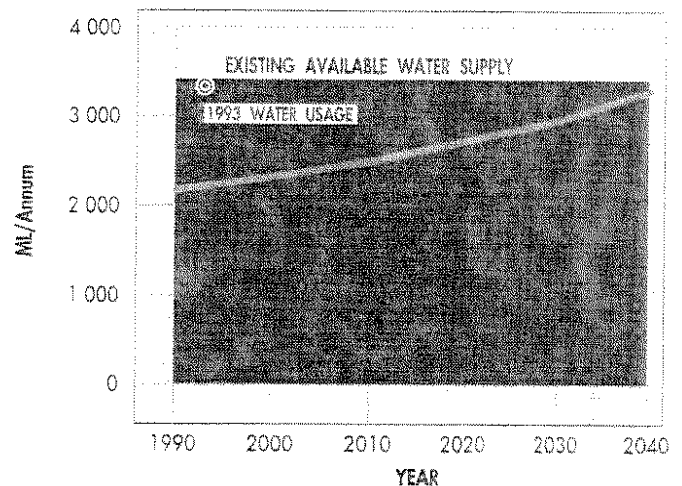
* NOTE: Projected demands are based on updated population projections using 1991 Census data and assuming 20% reduction through demand management strategies.



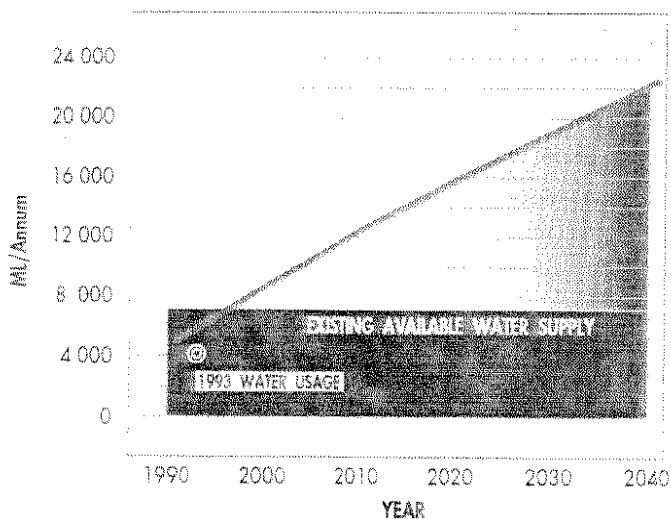
are shown on Figure 2 together with the existing available supplies. Urban demand projections are based on a consumption of 530 litres per capita per day which is a 20% reduction on overall potential consumption by urban users (i.e. without demand management). It should be noted that this projection includes demand by commercial and industrial users in urban areas.

Existing allocation for irrigation from regulated supplies in the Mary River Valley is 29 800 megalitres per annum. Potential demand in the Lower Mary Irrigation Area could increase by 33 500 megalitres per annum if the area were fully developed. Hence the total agricultural irrigation requirements for the year 2041 could reach 70 000 megalitres per annum.

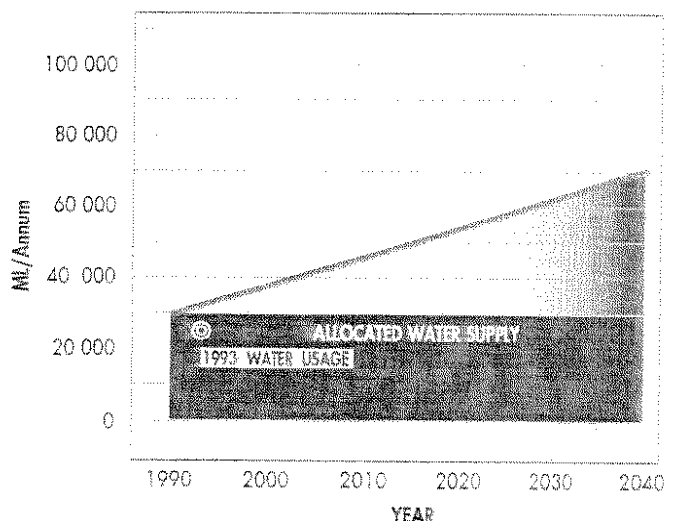
Figure 2 shows that it will be necessary to progressively provide for additional water supplies even in the event of achieving significant reduction in urban use through demand management strategies. In particular, Figure 2 shows that it will be necessary to augment water supply to Noosa Shire and Hervey Bay City before the turn of the century. Caloundra City and Maroochy Shire are expected to require augmentation around 2010.



GYMPIE - Urban *



HERVEY BAY - Urban *



MARY RIVER VALLEY - Agriculture *

* NOTE: Projected demands are based on updated population projections using 1991 Census data and assuming 20% reduction through demand management strategies.

OPTIONS FOR FUTURE WATER RESOURCES DEVELOPMENT

The potential supply options considered in this study have included alternative supply sources, raising existing storages and new storage sites.

ALTERNATIVE WATER SUPPLY SOURCES

As part of this appraisal study, in May 1993 consultants Connell Wagner prepared a report titled "Review of Alternative Water Technologies for the Sunshine Coast and Greater Mary Valley Region". The report has evaluated the alternatives of desalination of seawater, use of treated wastewater, greywater and rainwater tanks. Greywater is wastewater from bathrooms and laundries.

The consultants' study concluded that desalination of seawater is the only alternative supply option with the capability of meeting the total additional urban water supply requirements on the Sunshine Coast, although at far greater cost. There is likely to be growing application of technologies such as rainwater tanks, effluent reuse and use of greywater when public health issues have been satisfactorily addressed. These technologies have potential to defer the need for additional storages but will not replace that need.

SURFACE WATER STORAGES

INITIAL CONSIDERATION BY GOVERNMENT

Based on the study findings and an initial consideration of those findings by Government prior to release of the Information Paper, it was concluded that:

- The Sunshine Coast/Mary River Valley will require additional sources of supply within the next 10 to 20 years.
- Of all the options considered, the raising of Borumba Dam appears to be the preferred option because of its cost-effectiveness and minimal impacts. Raising of Borumba Dam is capable of meeting the estimated future demands of the area for several decades depending on actual population growth, the effectiveness of demand management strategies and the take-up of alternative water supply technologies such as reuse of greywater and of treated wastewater.
- To provide for the area's water supply needs in the longer term, further options need to be identified. The options worthy of further consideration include the sites on Munna Creek, Wide Bay Creek and Amamoor Creek.
- Because of their higher costs and significant social and environmental impacts, the options of future storages on the Mary River (Cambroon), Mary River (Conondale) and Obi Obi Creek (Kidaman) sites have been specifically excluded by the Government from further consideration in this study.

ENVIRONMENTAL FLOW ALLOWANCE

In considering the available options for additional surface water storages in the Mary River Valley, hydrologic model studies have assumed an environmental flow allowance on the basis of the monthly flow in the stream being maintained up to the 20th percentile of the monthly natural flow.

RAISING EXISTING STORAGES

Storages where raising has been considered include the Mary River Barrage, Borumba Dam, Baroon Pocket Dam and Lenthall's Dam. Locations of these storages are shown on Figure 3.

At the request of Maroochy Shire Council after release of the Information Paper, an evaluation of raising the existing Wappa Dam was undertaken on the same basis as for the other options in the Mary River Valley. This option proved to be less economic compared with providing supply from the Mary River Valley. Maroochy Shire Council has advised of its agreement that the option of raising Wappa Dam as a source of future water supply for the Sunshine Coast does not warrant further consideration.

Mary River Barrage

Only a marginal increase in available water supply would be achieved by raising Mary River Barrage. Whilst raising the barrage has not been considered further in this study as a means of meeting long-term needs, this option could be further considered if there were a short term requirement to meet needs in the Lower Mary River area.

Borumba Dam on Yabba Creek

An initial 2 metre raising of Borumba Dam would cost about \$2 million. This would provide an additional 12 000 megalitres per annum to the Mary River system.

Higher levels of raising would require major reconstruction of the existing dam. A 25-metre raising of the existing dam would cost approximately \$47 million and could provide an additional 39 000 megalitres per annum of supply to the Mary River system.

Baroon Pocket Dam on Obi Obi Creek

Raising Baroon Pocket Dam by 5 metres would only provide an additional 3 000 megalitres per annum yield. Further, impacts in the storage area would be significant. This option has not been considered further because of its limited potential.

Lenthall's Dam on Burrum River

Consultants to Hervey Bay City Council have investigated the potential for raising Lenthall's Dam by up to 6 metres which could provide an additional 15 600 megalitres per annum from the three storage system on the Burrum River. The cost of raising Lenthall's Dam would be \$5 million based on updated estimates by consultants.

NEW STORAGE SITES

New storage sites remaining under consideration after initial consideration by Government included sites on Amamoor Creek, Wide Bay Creek and Munna Creek.

Locations of the surface water storage options considered are shown in Figure 3.

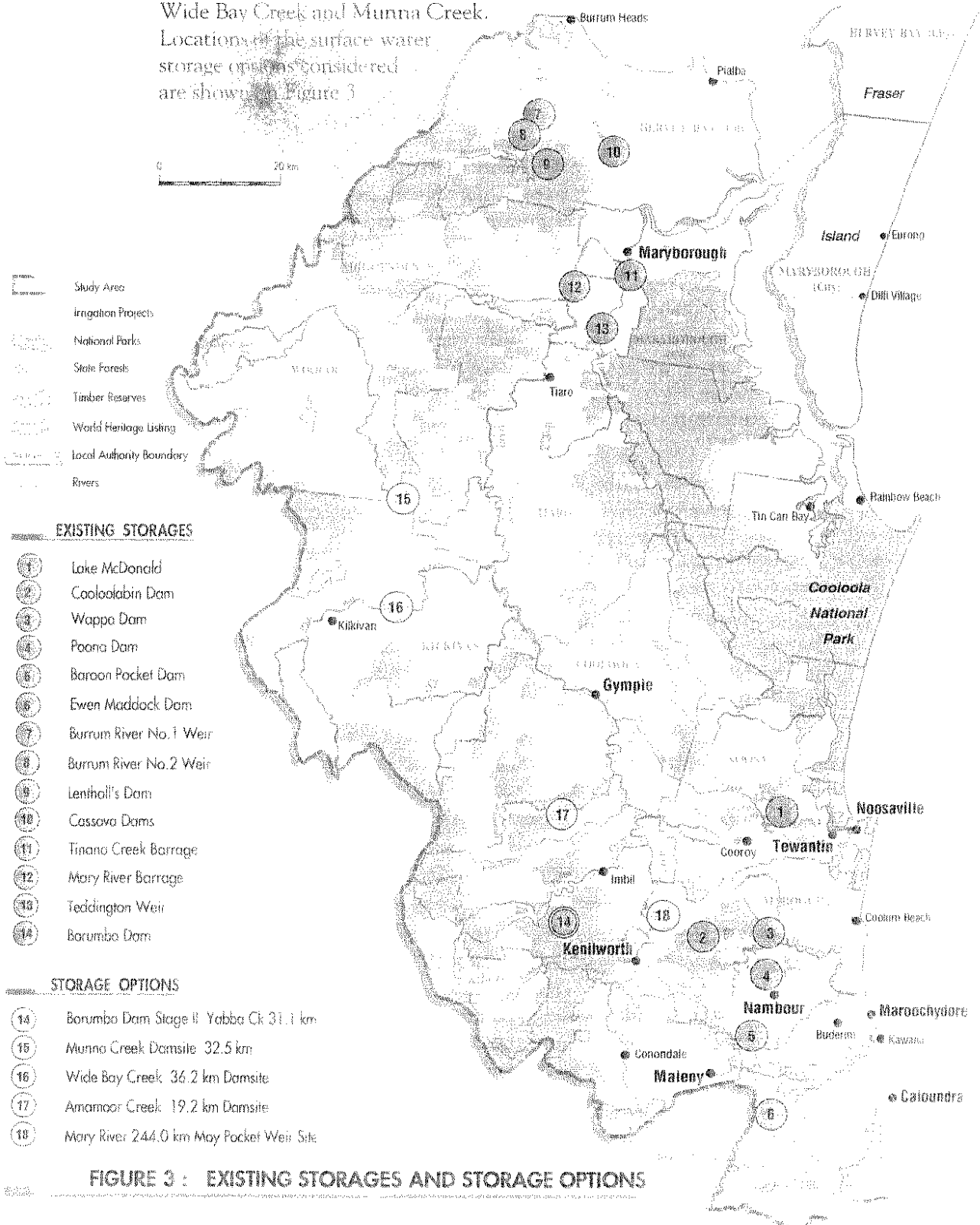


FIGURE 3 : EXISTING STORAGES AND STORAGE OPTIONS

Amamoor Creek Damsite (AMTD 19.2 kilometres)

This damsite is in a strategic position to command demands within the middle and lower Mary River Valley areas. However, it is not well located to supply to the Sunshine Coast. The storage would displace a relatively small number of people. A number of environmental concerns would need to be addressed. Estimated costs range from \$34 million to \$64 million depending on the level of development.

Wide Bay Creek Damsite (AMTD 36.2 kilometres)

A dam at this site can only supply the lower part of the Mary River Valley, which precludes it as a source of water supply to the Sunshine Coast. Estimates of cost range from \$61 million to \$105 million depending on the level of development. These estimates include extensive road, powerline and railway infrastructure relocation. The highest level of development feasible at this site would affect parts of Kilkivan township.

Munna Creek Damsite (AMTD 32.5 kilometres)

As for the Wide Bay Creek site, the Munna Creek Damsite can only supply the lower part of the Mary River Valley which precludes it from supplying the Sunshine Coast.

Estimates of cost for a dam on Munna Creek range from \$77 million to \$100 million depending on the level of development and include extensive road and powerline infrastructure relocation.

ENVIRONMENTAL AND SOCIAL IMPACTS**FLORA AND FAUNA**

Portions of State Forests would be inundated by the Munna Creek, Amamoor Creek and raised Borumba Dam options, including some rainforest areas on Amamoor Creek. Also, fauna habitats would be lost within the storage areas. The endangered Mary River cod, found only in a few tributaries of the Mary River, may be affected by the proposed Amamoor Creek damsite. Surveying at all sites has been limited, and flora and fauna surveys would be required at all sites before any construction were to proceed.

SOCIAL ENVIRONMENT

Inundating any of the areas would change the character of the area and the local community. This means altered lifestyles for those remaining in the community and distress for those residents affected by land acquisition. For the highest levels of development considered, social impacts would be lowest at the Amamoor Creek site and highest at the Wide Bay Creek site.

Developing storages would inundate existing recreational areas at the Munna Creek, Wide Bay Creek and Amamoor Creek sites. However, water storages create new recreational opportunities.

LAND USE

The sites cover areas planned for Rural Use or Special Purpose (State Forest). None of the sites affect any National Park.

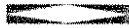
The Munna Creek proposal would have a marginal impact on State Forest 50 and access to a Forest Feature Area would be affected by the Wide Bay Creek proposal. Native forests, plantation areas and rainforest areas would be affected by the Amamoor Creek proposal as well as inundation of the main Amamoor Creek Road and both Amamoor and Cedar Grove State Forest parks.

Mining for gold and other metals would be affected by the dam proposals on Munna Creek (1 lease) and Wide Bay Creek (2 leases).

WATER QUALITY

Water from all damsites under consideration is suitable for potable use following appropriate treatment. Minimum treatment of supplies from each of the sites should be able to remove high levels of turbidity and colour and to reduce unacceptably high levels of iron and manganese to appropriate standards.

For any storage in the study area, as is the case for most areas of South-East Queensland, there is a possibility of blue-green algal blooms which are linked to nutrient inflows as well as other factors. Potential nutrient sources which have been identified are feedlots, dairies and Kilkivan's sewage treatment plant located upstream of the storage site on Wide Bay Creek.



THE COMMUNITY CONSULTATION PROGRAM

Following the release in April 1993 of the Information Paper on this study, public meetings were held at Nambour, Maryborough, Conondale, Kenilworth, Amamoor, Kilkivan and Woolooga as well as a number of small group meetings. The community was invited to make submissions based on the Information Paper, and these were received up until the end of September 1993.

COMMUNITY RESPONSE

Local Government, industry and interest groups and individuals responded with 113 submissions. These responses provided a wide range of views with the community generally accepting increase in demand associated with population growth. Views on meeting future needs were expressed in different ways but were generally within the three broad approaches of providing additional water supply by increasing storage capacity, by alternative technologies and by demand management strategies.

Many of the individual submissions indicated a preference to augment existing supply sources with alternative sources and to encourage "WaterWise" habits and practices. However, Local Governments and agricultural groups supported use of additional storage as well as alternatives.

A number of submissions expressed concern that current agricultural and urban use of water is wasteful and insensitive to the environment. The main concern regarding high urban water consumption was that water is being supplied to coastal regions from dams in the hinterland areas which have significant environmental and agricultural values. Another common view was that building more dams will encourage unlimited urban expansion.

A common view of those people who would be directly affected by the construction of a dam is that dams are socially and environmentally unacceptable. Attention was drawn to the health risks associated with dams which inundate old cattle dip sites, feedlots, piggeries, dairies, old mines and sewage plants. Another health related concern was that dams will create mudflats which could encourage mosquito breeding and the spread of mosquito-borne disease. The danger of dam failure as a consequence of seismic activity in the region was also raised in a number of submissions.

It was suggested in some submissions that other surface water site options should be considered including the raising of Wappa Dam.

Some submissions expressed support for damsites in the upper Mary Valley which were ruled out of further consideration by the Government on the basis of high cost and adverse environmental and social impacts.

Submissions from agricultural industries generally supported the options being considered and expressed the view that agricultural production needs to expand to remain viable and that this can be achieved by increasing the supply of water for irrigation. It was also suggested that an additional benefit of raising Borumba Dam is its potential provision of hydro-electric power.

The general view expressed in a number of submissions was that, even though the demand for water for agriculture and urban use is increasing in the region, the construction of dams is not the most appropriate option. It was considered that not enough is being done by Government to encourage implementation of alternative technologies. There is a perception that the Government's existing legislation and guidelines encourage urban and agricultural water wastage and discourage the implementation of alternative supply technologies.

Many submissions indicated that care should be taken when choosing a damsite to ensure that it will cause minimal loss of agricultural land and that it should be built as close as possible to the area of greatest demand. Many responses considered that the water supply from a newly constructed dam should be augmented by alternative water sources and the use of water be controlled by some form of demand management and water conservation education with a view to reducing the "per capita" consumption in urban areas. Also, it was considered in many responses that alternative technologies, particularly water recycling and rainwater collection, should be implemented immediately to augment existing supply systems and this would increase the efficiency of water use and reduce the problem of effluent disposal.

DEPARTMENTAL RESPONSE TO COMMUNITY CONSULTATION PROGRAM

Because of the magnitude of future water supply requirements in the study area, the raising of existing storages or new storage development needed to be considered as supply source options. Of the available options considered in the study, analysis has shown that dams provide water at the least cost.

Use of alternatives such as rainwater tanks, treated wastewater, greywater and stormwater does have scope for application as sources of potable and non-potable water. These alternatives are intended to be an integral part of the future water resources development strategy for the study area. Their use is dependent on resolving a number of public health and environmental issues which require input from Queensland Health and Department of Environment and Heritage in the formulation of policy and guidelines for Local Government.

The present state of technology for desalination of seawater on the scale required makes the cost of supply much higher than for surface water supplies. In addition there are very high electrical power requirements, the adverse impact of siting large industrial plants in urban areas and the adverse environmental impacts of disposing of process wastes.

Demand management will play a key role in the future strategy for water supply in the study area and a 20 percent reduction in potential consumption has been adopted in this study as being realistically achievable in the short term. In time, it may be possible to achieve greater savings. There has been a favourable response to the Government's "WaterWise" program and Local Government's willingness to seek water consumption reductions has already been demonstrated.

THE STUDY CONCLUSIONS

The study has addressed each of the Terms of Reference listed earlier, in a comprehensive Final Report. The more important conclusions of the study are set out below.

1. The existing storages and pipelines within the study area have inadequate capacity to meet future water needs of predicted populations at current rates of water use and at significantly reduced rates.
2. The rate of growth of water demand cannot be predicted with certainty. However, a lower rate of population growth than forecast or a reduction of per capita consumption will only delay the need for a future major storage but will not eliminate it.
3. The Mary River Valley catchment must be treated as a total system since diversion of water from one location has an impact on the supplies available at all other locations downstream. It is for this reason that the needs of Maryborough and Hervey Bay City were considered in conjunction with the needs of the Sunshine Coast and other needs in the Mary River Valley.
4. Noosa Shire and Hervey Bay City both require augmentation of their water supplies during the next few years. Other Local Governments including Cooloola and those in the Sunshine Coast area will require additional supplies from around year 2010.
5. The following is the preferred strategy for future water supply infrastructure to meet urban and agricultural water needs for the Sunshine Coast and the Mary River Valley.

A. In the short to medium term

- Progressive raising of the Borumba Dam storage level from around year 1997 to an ultimate raising around year 2010 of about 25 metres to provide additional supplies to the Sunshine Coast and the Mary River Valley.

Associated with the major raising of Borumba Dam will be the requirement to convey water to the Sunshine Coast by pump station and pipelines;

- Construction of a storage/regulating weir on the Mary River near Moy Pocket around year 2006 to provide additional water supply for Noosa Shire and agriculture.
- Raising of Lenthall's Dam on the Burrum River around year 1997 to provide additional supplies to Hervey Bay, subject to review on completion of Council's consultant studies which are currently in progress;
- Adoption of policies by Local Government to reduce the demand for additional supplies in urban areas by the use of rainwater tanks, treated wastewater and greywater consistent with public health and safety;

- Consistent with the recommendations of the SEQ2001 study, consideration, in consultation with Local Governments and the Caloundra-Maroochy Water Supply Board, of institutional arrangements and future responsibilities for the future provision of water supply to the Sunshine Coast and Mary River Valley; and
- Continuing consultation with Local Governments, Stakeholder Groups and with the community regarding the detail of the strategy

B. In the longer term

- A dam on Amamoor Creek, possibly around year 2027 with reallocation of part of the Borumba Dam supply from the Mary River Valley to the Sunshine Coast with the Amamoor Creek Dam supplying urban and agricultural water needs of the Mary River Valley downstream of Amamoor Creek (subject to further consultation with affected parties and further consideration by Government).
6. Given the general community understanding that raising of Borumba Dam is the preferred option, and also that an interim raising of the spillway is required in the next few years, it is considered that action should be taken to acquire land in the storage area from landholders who will be affected by the raising of the dam. To facilitate this action, the Department of Primary Industries (or its successor under corporatisation arrangements) should stand in the market place to acquire such land as owners offer it for sale.
 7. The Amamoor Creek site is the preferred longer term element of the strategy rather than the other available options, the Wide Bay Creek or Munna Creek sites, because of its better cost effectiveness, smaller impacts and because of its more strategic location to serve demands in the middle and lower parts of the Mary River Valley.
 8. Consideration of future water supply options for Hervey Bay City has included alternatives of raising the existing Lenthall's Dam on the Burrum River and sourcing water from the Mary River system. Estimates of the cost and water supply from a raised Lenthall's Dam were prepared in 1990 by consultants to Council (Barlow, Gregg, Abercromby and Associates in association with Sinclair Knight and Partners 1990). Before confirming a strategy for supply to Hervey Bay, it is considered that further studies which are being undertaken by consultants to the Council should be completed and reviewed.
 9. Further water supply to Tin Can Bay and Rainbow Beach in Cooloola Shire should in the first instance be obtained from local groundwater resources although ultimately consideration may need to be given to the use of surface water from the Mary River Valley system if population increases exceed those considered in this study.
 10. Alternative sources of water supply such as rainwater tanks, use of grey water, use of treated wastewater, and desalination of sea water can contribute significantly to provision of part of the future water requirements thus delaying to some extent the need for new major storages. However, further dam storage is still considered necessary in the longer term.

11. Independent consultants concluded that only desalination of sea water had the potential for supplying the future water needs without providing further storage, although at a much higher cost. In addition, the costs of water from the other alternative sources were higher than the costs of supplying water from a source in the Mary River Valley.
12. Comparison costs of alternative sources of water supply infrastructure to deliver water to strategically placed reservoirs throughout the Sunshine Coast are shown in Table 1. It can be seen from Table 1 that the cost (discounted at 5% and 7%) of supplying urban water supplies by reverse osmosis desalination plants is 1.8 and 1.6 times respectively more expensive than for an equivalent supply from surface water storages in the Mary River Valley.

TABLE 1: COSTS FOR ALTERNATIVE WATER SUPPLY SYSTEMS

WATER SUPPLY SOURCE	PRESENT VALUE OF COSTS			
	DISCOUNT RATE %	SUNSHINE COAST \$M	MARY VALLEY \$M	TOTAL \$M
Three Desalination Plants and distribution systems serving Sunshine Coast, plus modest raising of Borumba Dam with a weir on the Mary River at Moy Pocket to serve users in the Mary River Valley	5	451	14	465
	7	293	10	303
Substantial raising of Borumba Dam plus a weir on the Mary River at Moy Pocket together with a distribution system serving the Sunshine Coast, plus a dam on Amamoor Creek serving users in the Mary River Valley	5	143	117	260
	7	110	81	191

13. It should also be noted that significant environmental and social issues would need to be addressed if large scale desalination plants were to be sited in the Sunshine Coast area. These include the large energy demand of such plants, the need to dispose of large volumes of brine and the difficulty of finding an acceptable site for a large scale "industrial" type plant.
14. Widespread use of the alternative water source technologies such as use of greywater and treated wastewater require finalisation of guidelines for Local Government. Environmental and public health and safety risks are associated with the use of grey water and treated wastewater unless very comprehensive guidelines are available and implemented. Rainwater tanks are likely to be an important source of supply in rural areas within the study area but are unlikely to be widely used in urban areas because of their high initial cost and because roof areas and rainfall are unlikely to ensure reliable supplies during drier periods.

15. Preliminary studies indicate that dams at any of the sites in the Mary River Valley would have significant environmental and social impacts. However, it is sufficiently clear that the preferred development strategy would have fewer impacts than other combinations of development options. More detailed environmental impact studies will be required for each of the proposed developments in advance of any construction.
16. Preliminary studies also indicate that none of the storage options considered in the study would provide major flood mitigation benefits. Reductions in flood levels would only result for modest distances downstream of each of the storages.
17. Provision for releases of water for environmental flow requirement has a significant impact on the supplies available for diversion for consumptive use. Allowance has been made in this study for environmental releases. If different release provisions are adopted at some time in the future as a result of further research into instream requirements, then some impact on the availability of supply will result.
18. A process of community consultation should continue in relation to the submissions provided in response to distribution of the Information Paper. It is desirable that

TABLE 2 : MAJOR AUGMENTATION ELEMENTS FOR FUTURE WATER SUPPLY TO THE SUNSHINE COAST AND THE MARY RIVER VALLEY TO YEAR 2041

AUGMENTATION	USERS	YEAR REQUIRED (ON OR ABOUT)	ADDITIONAL SUPPLY CONTRIBUTIONS (ML/A)
Interim raising of Borumba Dam by 2 metres	Noosa Shire Agriculture	1997	12 000
¹ Raise Lenthall's Dam plus conveyance	Hervey Bay City Council	1997	15 600
² Construction of storage/regulating weir, on Mary River upstream of Moy Pocket	Noosa Shire/Agriculture	2006	9 000
Raising of Borumba Dam by 25 metres plus conveyance	Sunshine Coast/ Agriculture	2010	39 000
³ Construction of a dam on Amamoor Creek	Mary River Valley Urban/Agriculture	2027	35 000

Notes: 1 Subject to further consideration on conclusion of Hervey Bay City Council's consultancy studies.
 2 Strip of the weir will need to be the subject of a subsequent detailed study to determine its location and optimum capacity.
 3 Subject to further consultation and consideration by Government.

this consultation continue to respond to matters raised in the submissions as well as to advise the community of the Government's preferred strategy for development of future water supply sources.

THE POSSIBLE DEVELOPMENT PROGRAM

Table 2 shows the elements of a possible water resources development program with anticipated timing and estimates of cost to meet the expected shortfall in supply by the major water users in the study area.

Use of the alternative water technologies of rainwater tanks, treated wastewater and greywater does have scope for application in the study area. They are viewed in the outcome of this study as having an important future role in water supply augmentation and may delay the need for the major surface water infrastructure components. However, before implementation of alternative water technologies, a number of public health related issues have to be resolved and guidelines put into place.

TABLE 2 CONTINUED : MAJOR AUGMENTATION ELEMENTS FOR FUTURE WATER SUPPLY TO THE SUNSHINE COAST AND THE MARY RIVER VALLEY TO YEAR 2041

PRELIMINARY ESTIMATES OF COSTS IN 1993 - \$M		REMARKS
STRUCTURE	CONVEYANCE	
2		Supply for Noosa drawn from Mary River at Coles Crossing and other users along the Mary River
5	18	Augmentation of existing system
11		Regulation of natural flows from upper Mary River
47	110	Pump station and pipeline needed to convey additional supply to Sunshine Coast area
37		Amamoor Creek dam supplying Mary River Valley following reallocation of some Borumba Dam supplies from Mary River to Sunshine Coast

THE PREFERRED STRATEGY FOR FUTURE WATER SUPPLY FOR THE SUNSHINE COAST, MARY RIVER VALLEY AND HERVEY BAY

Of the options analysed in the study, no single option has the capability of satisfying demand to 2041.

A preferred strategy for development of future water resources is proposed to meet the expected shortfall in supply by the major water users in the study area.

The preferred strategy is:

1. In the short to medium term:

- Progressive raising of the Borumba Dam storage level from around the year 1997 to an ultimate raising around the year 2010 of about 25 metres to provide additional supplies to the Sunshine Coast and the Mary River Valley.

Associated with the major raising of Borumba Dam will be a requirement to convey water to the Sunshine Coast by pump station and pipelines;

- Construction of a storage/regulating weir on the Mary River at Moy Pocket around year 2006 to provide additional water supply for Noosa Shire and agriculture;
- Raising of Lenthall's Dam on the Burrum River around year 1997 to provide additional supplies to Hervey Bay subject to review on completion of Councils consultant studies which are currently in progress;
- Adoption of policies by Local Government to reduce the demand for additional supplies in urban areas by use of rainwater tanks, treated wastewater and greywater consistent with public health and safety;
- Consistent with the recommendations of the SEQ2001 study, consideration, in consultation with Local Governments and the Caloundra-Maroochy Water Supply Board, of institutional arrangements and future responsibilities for the future provision of water supply to the Sunshine Coast and Mary River Valley; and
- Continuing consultation with Local Governments, Stakeholder Groups and with the community regarding the detail of the strategy.

2. In the longer term:

- Consideration of a dam on Amamoor Creek with possible construction around year 2027 with reallocation of part of the Borumba Dam supply from the Mary River Valley to the Sunshine Coast with the Amamoor Creek Dam supplying urban and agricultural water needs of the Mary River Valley downstream of Amamoor Creek (subject to further consultation with affected parties and further consideration by Government).

The timing of the development options outlined above will be dependent on the following:

- actual future population growth;
- effectiveness of demand management strategies implemented by Local Governments;
- adoption of alternative water technologies (rainwater tanks, use of treated wastewater and greywater) by Local Governments and public acceptance of these technologies;
- actual demand for further allocations for irrigation expected to be mainly in the Lower Mary River Irrigation Area.

It should also be noted that more detailed investigations will be required to finalise details of the elements of the preferred strategy. Issues requiring special attention include:

- further investigation of the environmental and social impacts and issues identified as part of the public consultation program;
- detailed environmental and social impact assessments and the development of environmental management programs before any construction proceeds;
- detailed technical investigation of the identified surface water development proposals;
- action to limit cost escalation of any lands required and to control development in the catchment areas which would threaten water quality in the proposed storages;
- confirmation of any buffer zone boundaries required;
- environmental and social impact assessment of pumpstation and pipelines to convey water from the Mary River Valley to the Sunshine Coast.

It will be necessary to maintain effective community consultation throughout the implementation of programs for the various water source developments.

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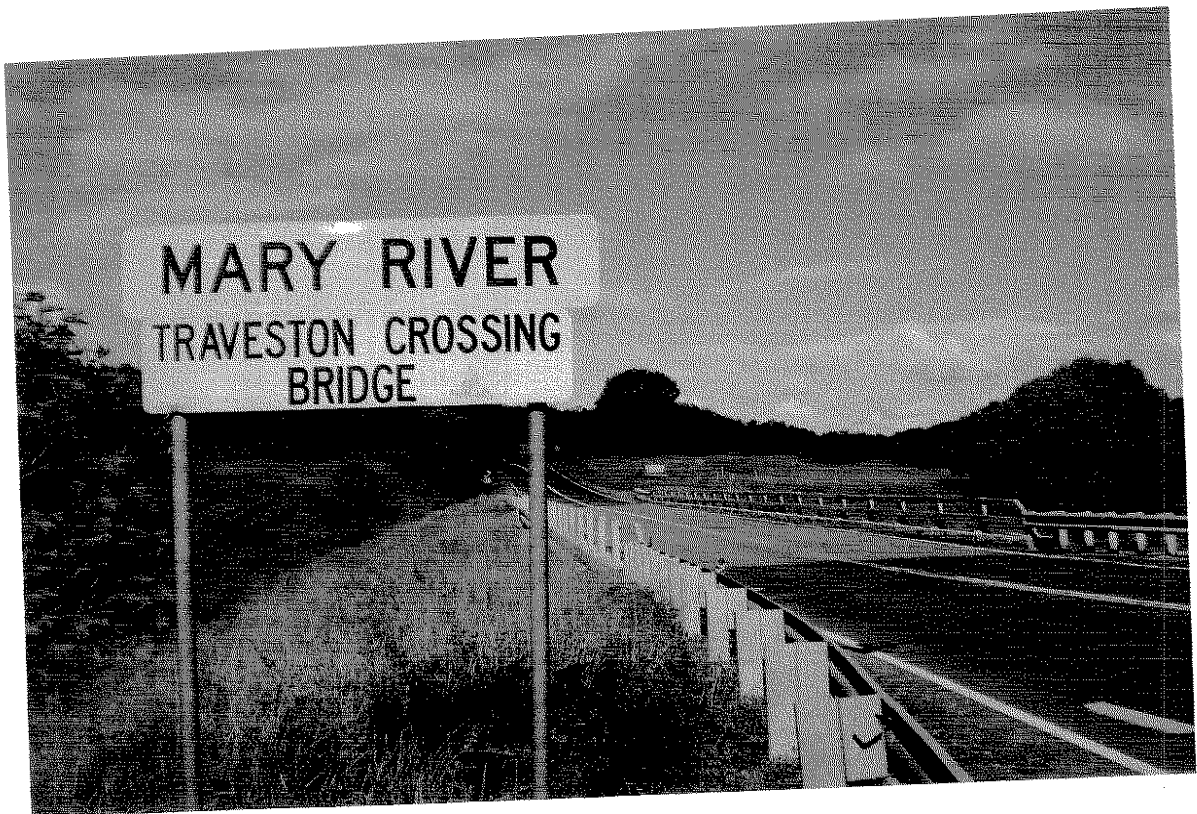
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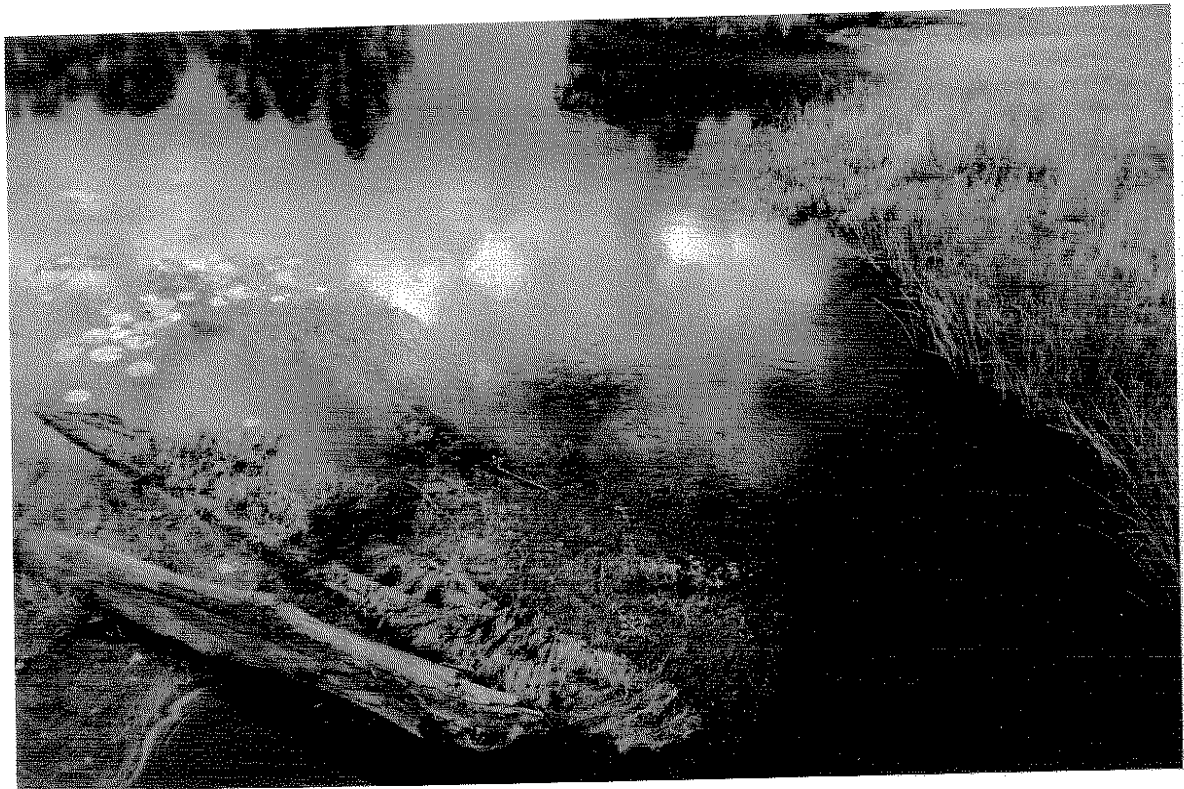
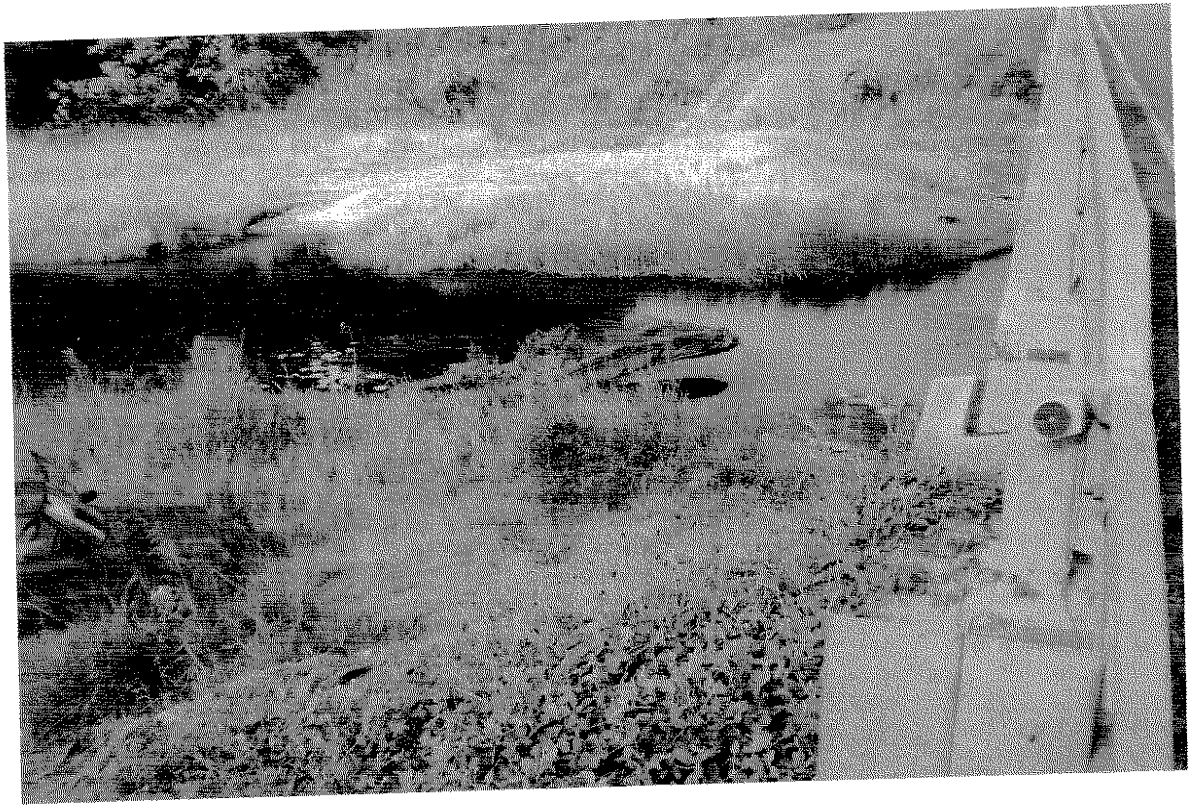
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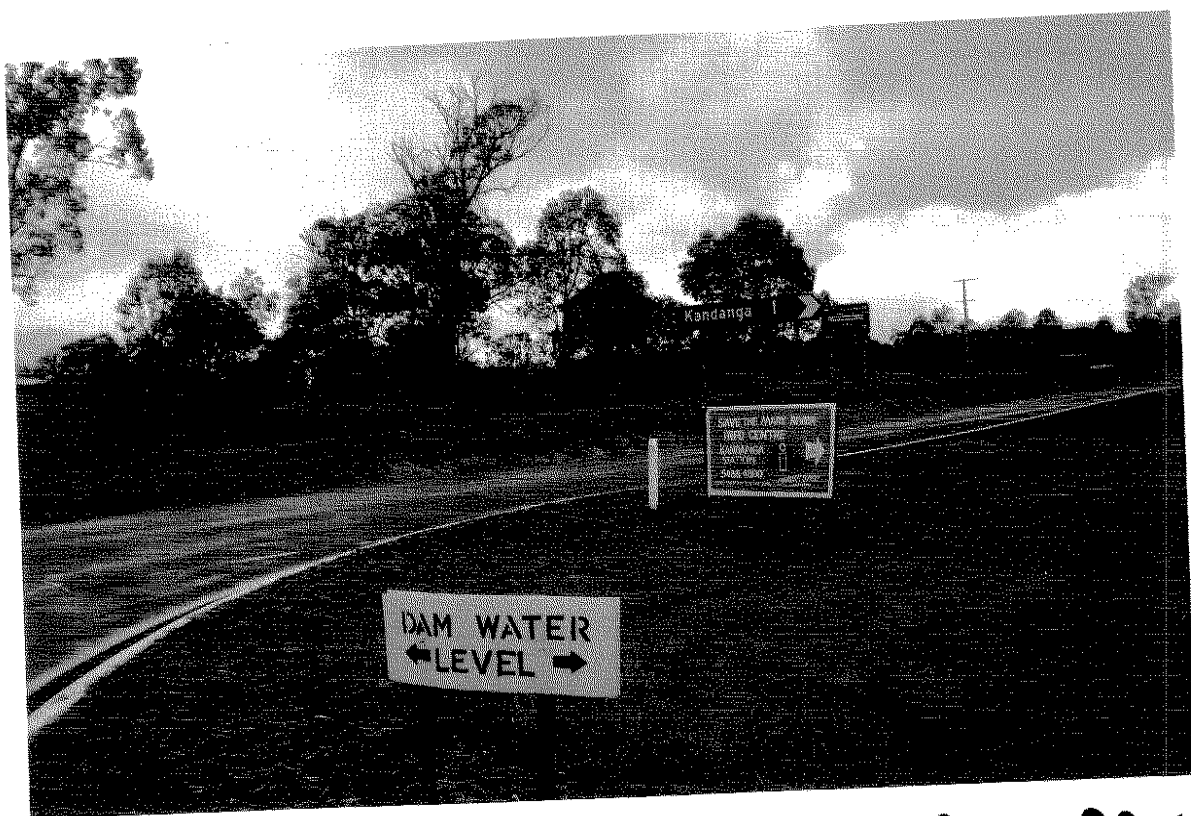
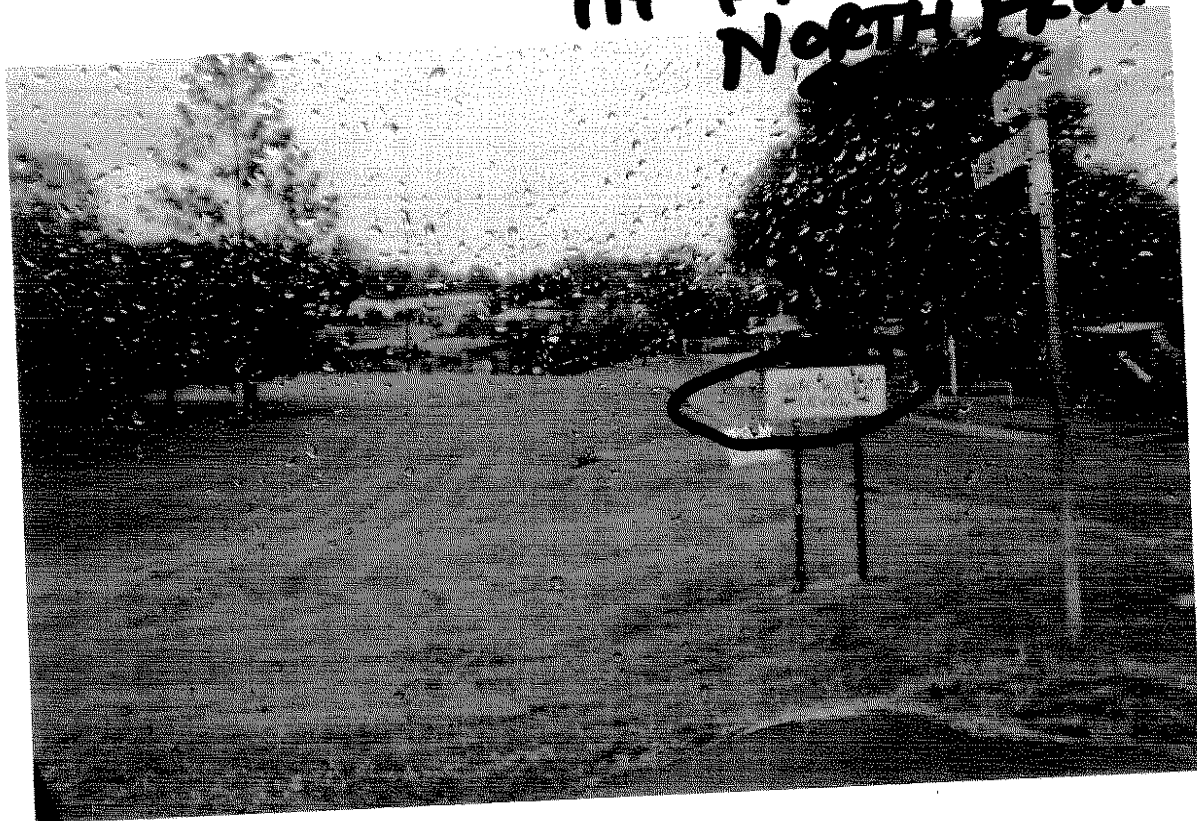
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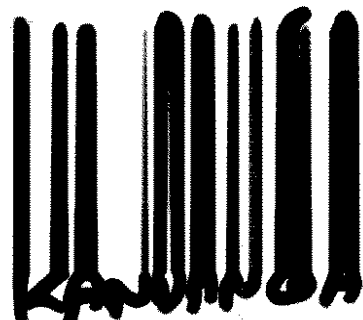


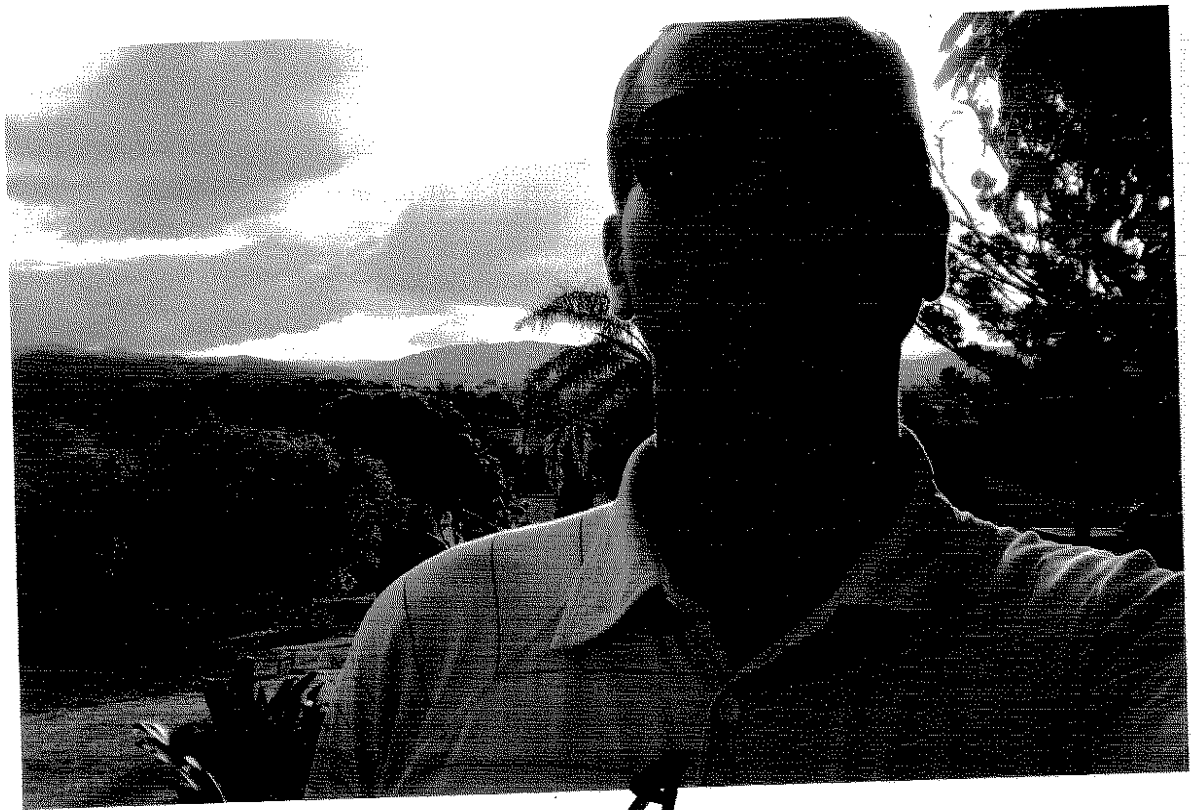
BOTH PHOTOS OF THE
MADON RIVER TAKEN 24/3/07

IN KANDANGA (LOOKING NORTH FROM 17A)



INDICATED WATER AT KANDANGA
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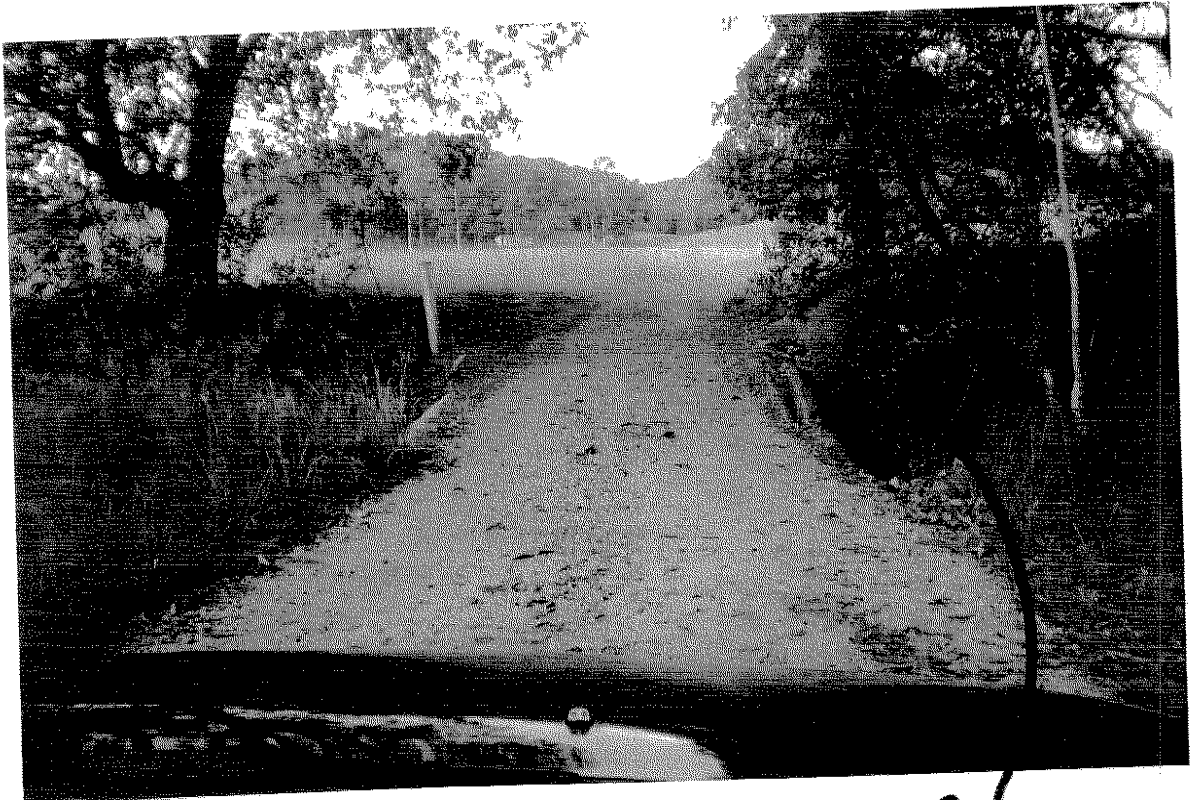
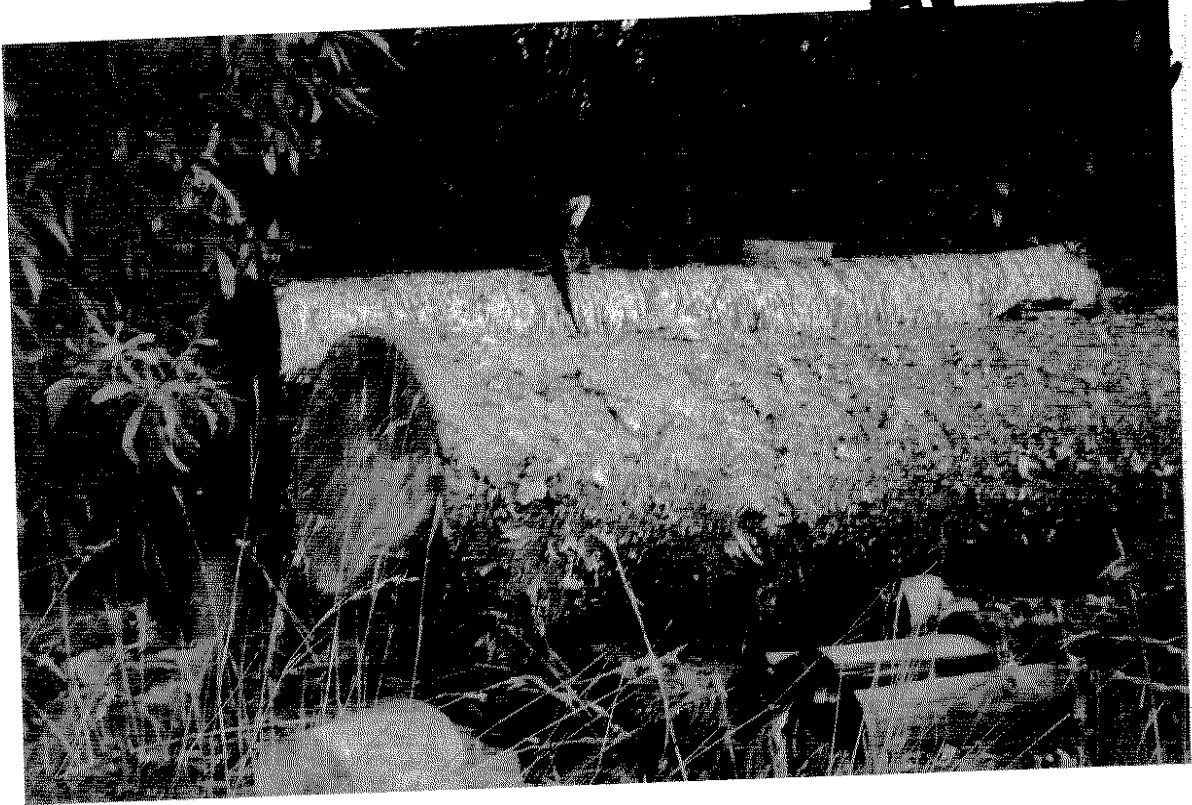


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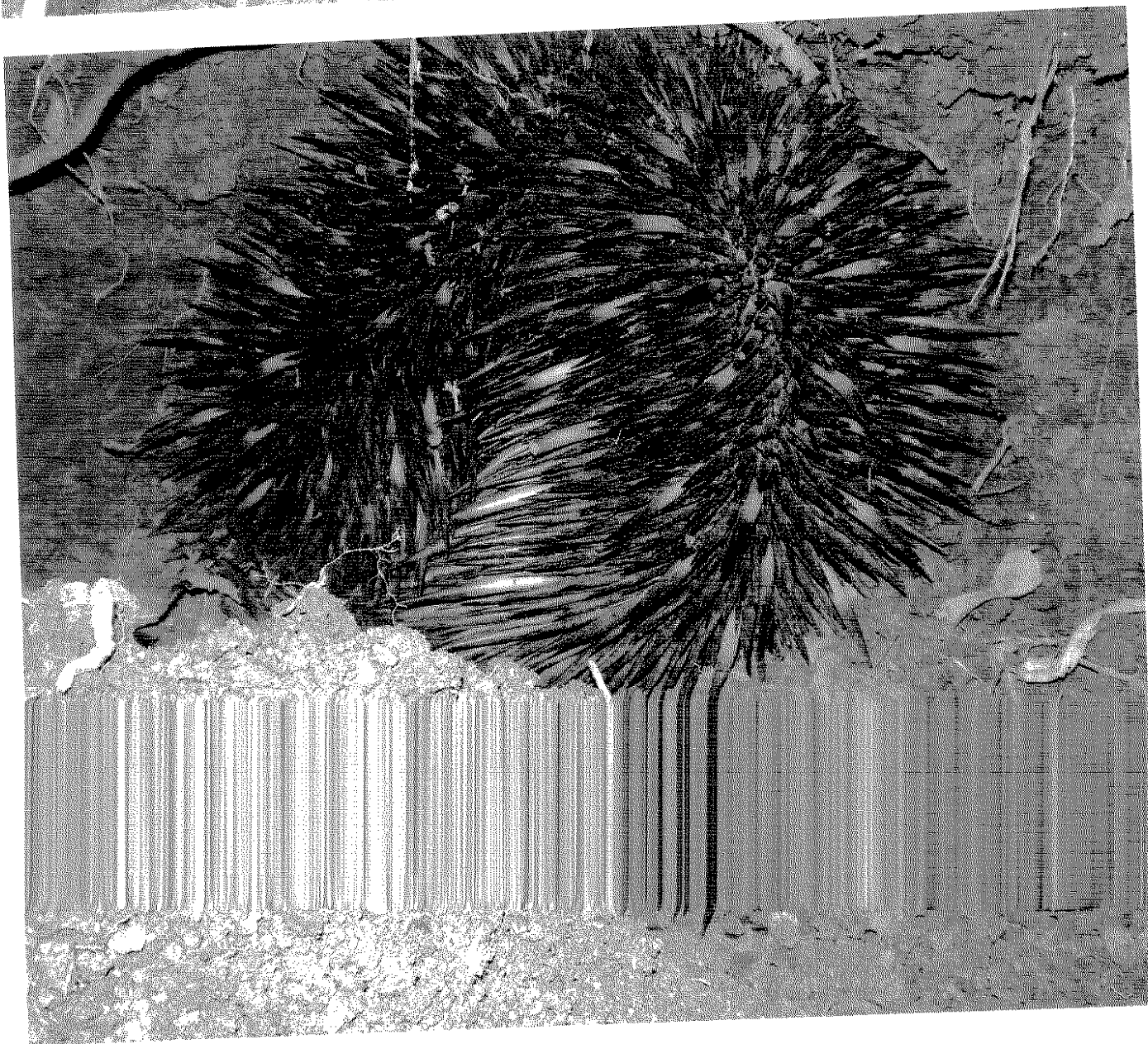
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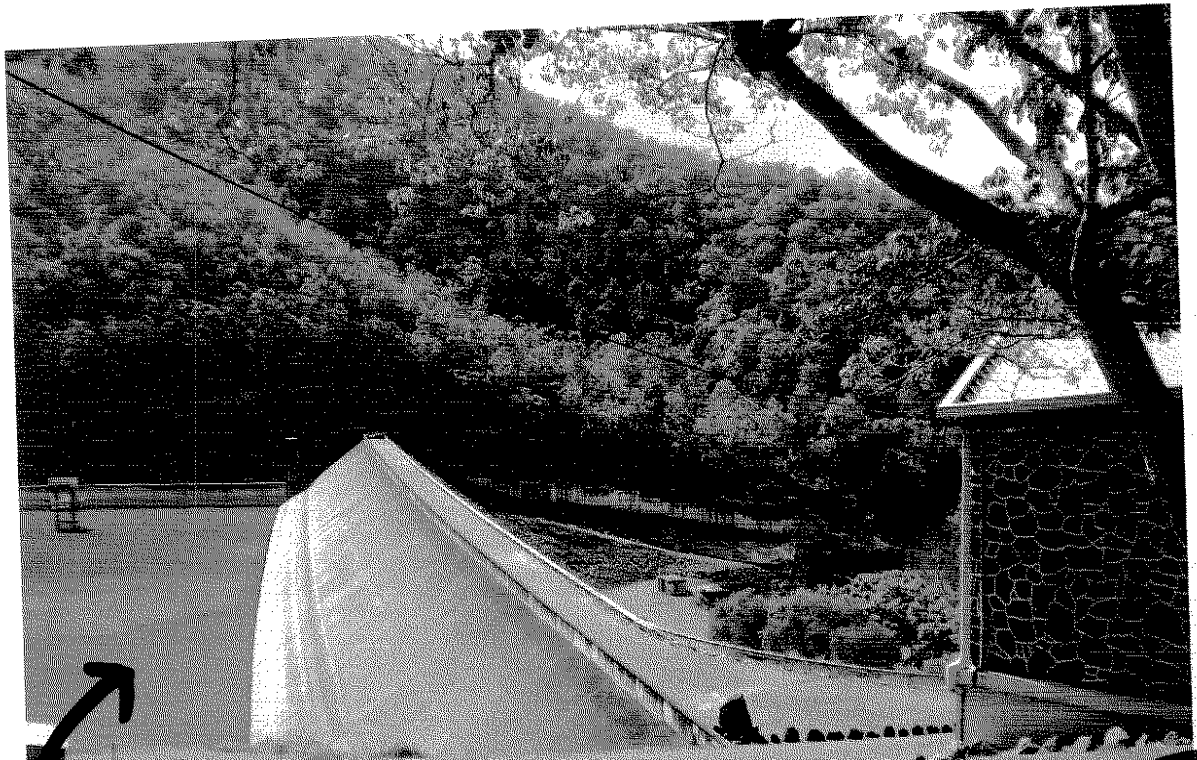
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BLUE GREEN ALGAE, WOULD BE WORSE IN THE STARY VALLEY!

