TWEED SHIRE COUNCIL
MEETING TASK SHEET

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Action Item - OPERATIONS MEETING Tuesday, 21 August 2007

Action for Item **O28** as per the Committee Decision outlined below.

ATTENTION:

PLEASE NOTE THE ADOPTION OF THE COMMITTEE RECOMMENDATIONS BY COUNCIL AT ITS MEETING HELD TUESDAY 21 AUGUST 2007:

138 COUNCIL DECISION:
Administrator Boyd
Administrator Payne

RESOLVED that the recommendations of the Operations Committee held Tuesday 21 August 2007 be adopted.

FOR VOTE - Unanimous

TITLE: [CNR-OC] Burringbar/Mooball Sewerage Scheme

COMMITTEE DECISION:

Administrator Boyd
Administrator Payne

RECOMMENDED that Council:-

1. Proceeds with Burringbar/Mooball Sewerage Scheme implementation based on the State Government's election promise to provide up to 50% funding under the Country Town Water Supply and Sewerage Scheme and the Department of Local Government's advice that the project can be amalgamated within Council's current sewerage schemes for funding.

2. Proceeds with the community consultation stage of the project as part of the Review of Environmental Factors for Burringbar/Mooball Sewerage Scheme development approval process.

3. Communicates the Council decision through the Tweed Link and general press release.

4. Writes to all Burringbar and Mooball property owners advising of Council's decision.

FOR VOTE - Unanimous

Agenda Report

TITLE: [CNR-OC] Burringbar/Mooball Sewerage Scheme

ORIGIN:

Water

SUMMARY OF REPORT:

Council at its meeting of 8 May 2007 formally resolved to continue with the Burringbar/Mooball Sewerage Scheme and suspend recommencement of the project pending resolution of funding shortfall issues.

Recent advice from the Department of Local Government indicates that Council is able to use the Sewer Fund to assist with the construction of the Burringbar/Mooball Sewerage Scheme. The NSW Government has also indicated in a pre-election promise to fund up to 50% of the scheme.

It is now proposed that Council continue with the project and confirms the project timeframe.

The next project activity is the community consultation as part of the Review of Environmental Factors for Burringbar/Mooball Sewerage Scheme development approval process.

RECOMMENDATION:

That Council:-

1. **Proceeds with Burringbar/Mooball Sewerage Scheme implementation based on the State Government's election promise to provide up to 50% funding under the Country Town Water Supply and Sewerage Scheme and the Department of Local Government's advice that the project can be amalgamated within Council's current sewerage schemes for funding.**

2. **Proceeds with the community consultation stage of the project as part of the Review of Environmental Factors for Burringbar/Mooball Sewerage Scheme development approval process.**

3. **Communicates the Council decision through the Tweed Link and general press release.**

4. **Writes to all Burringbar and Mooball property owners advising of Council's decision.**

REPORT:

Background:
Council at its meeting of 8 May 2007 considered a report relating to the status and funding options of the Burringbar/Mooball Sewerage Scheme. A copy of the report is attached to this business paper for Council's information. At the meeting of 8 May 2007, it was resolved that Council:~

1. *Formally resolves to continue with the Burringbar Mooball Sewerage Scheme.*

2. *Requests the NSW Government to increase the subsidy available to Burringbar Mooball Sewerage Scheme to 70%.*

3. *Meets with the relevant NSW Government Ministers to seek legislative change to enable partial funding of the Burringbar Mooball Sewerage Scheme by Council's Sewer Fund.*

4. *Suspends recommencement of further investigation and design to progress the Scheme at this time pending resolution of funding shortfall issues.*

5. *Advises residents of the project status, Council's intention to continue with the Scheme and the annual charge of $350.*

Outcomes:
The Director-General Local Government, Mr Gary Payne, and Mr Graham Gibbs from the Department, have advised that because:-

a) Council has a shire-wide Water & Sewer Fund and does not have individual funds for different localities within the shire,

b) Council regards the whole of the water and sewerage infrastructure as a council-wide activity,

c) Council has a single annual sewerage charge that applies equally to all parcels with sewer,

d) Annual charges are not increasing to pay for new sewerage connections in a particular locality,

e) Nobody will be paying or contributing to a sewerage scheme without obtaining the benefit of the work.

f) Everyone who contributes to the Burringbar/Mooball Sewerage Scheme will actually receive sewer.

Council is able to amalgamate the Burringbar/Mooball Sewerage Scheme with the Shire wide scheme to assist with funding for the construction.

The General Manager has met with the Hon. Nathan Rees, Minister for Water Utilities, to discuss the possibility of increasing the subsidy available to the Burringbar/Mooball Sewerage Scheme from 50% to 70%. Unfortunately the outcome of this meeting

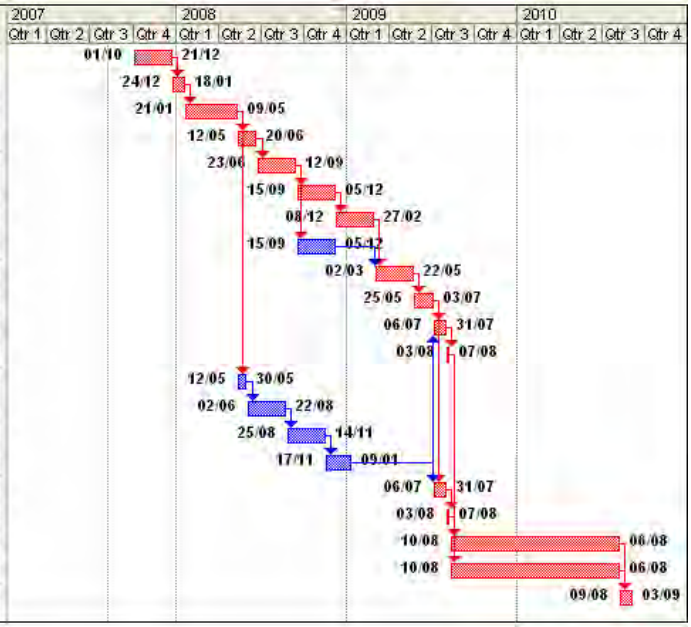
confirmed that the NSW Government will provide up to 50% subsidy to the Burringbar/Mooball Sewerage Scheme. Indications are that it is highly unlikely that additional funding would be made available.

Finance

The estimated cost of the scheme is $6.28M. Based on up to 50% as the state government contribution and $3,500 contribution from benefiting properties (164 properties) approximately $2.6M will be required from the sewer fund to finance the scheme. Adequate funds are allocated for the project in Council's 10 year financial plan.

Proposed Program for Burringbar/Mooball Sewerage Scheme

Task Name	Duration	Start	Finish
Community Consultation	12 wks	Mon 01/10/07	Fri 21/12/07
Report to Council	4 wks	Mon 24/12/07	Fri 18/01/08
Planning Approval	16 wks	Mon 21/01/08	Fri 09/05/08
Surveying	6 wks	Mon 12/05/08	Fri 20/06/08
Conceptual Design Retic	12 wks	Mon 23/06/08	Fri 12/09/08
Community Consultation/Comments	12 wks	Mon 15/09/08	Fri 05/12/08
Detailed Design Retic	12 wks	Mon 08/12/08	Fri 27/02/09
Tender Documents Retic	12 wks	Mon 15/09/08	Fri 05/12/08
Tendering Retic	12 wks	Mon 02/03/09	Fri 22/05/09
Tender Valuation	6 wks	Mon 25/05/09	Fri 03/07/09
Report to Council	4 wks	Mon 06/07/09	Fri 31/07/09
Tender Awarding	1 wk	Mon 03/08/09	Fri 07/08/09
Conceptual Design STP	3 wks	Mon 12/05/08	Fri 30/05/08
D&C Tender Documents STP	12 wks	Mon 02/06/08	Fri 22/08/08
Tendering STP	12 wks	Mon 25/08/08	Fri 14/11/08
Tender Valuation	8 wks	Mon 17/11/08	Fri 09/01/09
Report to Council	4 wks	Mon 06/07/09	Fri 31/07/09
Tender Awarding	1 wk	Mon 03/08/09	Fri 07/08/09
Retic Construction	52 wks	Mon 10/08/09	Fri 06/08/10
STP Construction	52 wks	Mon 10/08/09	Fri 06/08/10
Sewerage System Commissioning	4 wks	Mon 09/08/10	Fri 03/09/10



The above is the proposed timeframe for the project which indicates completion at the end of 2010. The residents of both villages will be informed of the proposed timeframe for the scheme implementation.

Review of Environmental Factors

The proposed works are required to be assessed under Part V of the Environmental Planning & Assessment Act 1979, and Tweed Shire Council is the determining authority in accordance with Section 110 of this Act.

Due to the relatively small scale of the project, the assessment was prepared in the form of the Review of Environmental Factors (REF). The REF was completed in January 2005. The REF identified several key issues and concluded that further environmental assessment such as an Environmental Impact Statement (EIS) is not required. Also the proposed project is not considered to require further assessment or the development of a Species Impact Statement for any flora or fauna species listed under the schedules of the NSW Threatened Species Conservation Act 1995 providing that no native vegetation is removed to site the facilities. The next stage of the project is to submit an application under Part V for the Construction of the Burringbar Mooball Sewerage Scheme for approval. Taking into consideration the sensitive nature of the proposed works, it is recommended to conduct the community consultation prior to lodgement of the development application.

Proposed Community Consultation Process
It is proposed to inform the community about REF purpose and identified key issues through the following avenues:-

1. Tweed Link advertisements inviting comments from the community and inviting the community to attend information days set up in Burringbar village commercial centre.

2. An Information Stand set up in the Burringbar and Mooball village centres and consisting of:-

   - Background information
   - REF findings
   - Information on how will a final decision on the Burringbar/Mooball Sewerage Scheme REF be made.
   - Information sheets detailing information on general wastewater treatment, wastewater management in Tweed Shire.
   - Information on how can the community have input.

3. Free call telephone line.

4. Reply paid mail.

LEGAL/RESOURCE/FINANCIAL IMPLICATIONS:

Nil.

POLICY IMPLICATIONS:

Nil.

UNDER SEPARATE COVER/FURTHER INFORMATION:

*To view any **"non confidential"** attachments listed below, access the meetings link on Council's website www.tweed.nsw.gov.au or visit Council's offices at Tweed Heads or Murwillumbah (from Friday the week before the meeting) or Council's libraries (from Monday the week of the meeting).*

1. Report "Burringbar Mooball Sewerage Scheme" (DW 1591555)

TWEED SHIRE COUNCIL
MEETING TASK SHEET

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Action Item - Council Meeting Wednesday 1 June 2005

Action is required for Item **31** as per the Council Resolution outlined below.

TITLE: [EO] Tyalgum Water Supply Upgrade

COUNCIL DECISION:

Administrator Boyd
Administrator Turnbull

That Council:

1. Adopts the concept report including the preferred option of a new water treatment plant for the Village of Tyalgum.

2. Expends $5,000 to detect and repair leakage.

FOR VOTE - Unanimous

Agenda Report

TITLE: [EO] Tyalgum Water Supply Upgrade

ORIGIN:

Water

SUMMARY OF REPORT:

Tyalgum water supply treatment system currently consists of a coarse in-river sand filter followed by chlorination. During periods of poor river quality, the treatment system is switched off until the raw water quality improves.

During 2002, an extended period of dry weather occurred that resulted in no flow into the weir pool between September and January 2003. Restrictions on water use were in place for a total of 25 weeks. Algal outbreaks occurred within the weir pool during this period that resulted in the water becoming unfit to extract. Water carting from Murwillumbah was introduced to ensure Tyalgum Village had an adequate supply of potable water.

Council at its meeting on Wednesday 6 August 2003 resolved to accept funding for the investigation of options for Tyalgum's water supply provided by the Department of Energy and Utilities (DEUS) under the Country Towns Water Supply & Sewerage Scheme.

A concept report has been produced on options for Tyalgum. The report investigated options to secure Tyalgum's water supply that included providing additional raw water storage capacity, provision of rainwater tanks and construction of a water treatment plant. This report is available on request from the Director Engineering & Operations.

The preferred option for Tyalgum's water supply is to construct a new treatment plant that will enable the raw water to be fully treated and delivered to the reticulation system.

RECOMMENDATION:

That Council adopts the concept report including the preferred option of a new water treatment plant for the Village of Tyalgum.

REPORT:

Tyalgum village has a population of 220. During 2002/2003, the village was placed on severe water restrictions for a period of 25 weeks when the creek supplying the village stopped flowing. During this period, potable water was carted 24 km from Murwillumbah to Tyalgum at a cost of over $90,000.

The Tyalgum water supply was installed in the 1960's. The system extracts water from the Tyalgum Weir Pool for distribution into the reticulation system and service reservoir. The weir pool has a usable storage capacity of 7.5 ML. The water undergoes coarse filtration at the extraction point and is disinfected using sodium hypochlorite. No other forms of treatment are provided.

The reticulation system currently services a population of 220 people including a primary school and pre-school. The average annual water extraction from the weir pool is 32 ML/a.

Council at its meeting on Wednesday 6 August 2003 resolved to accept funding for the investigation of options for Tyalgum's water supply provided by the Department of Energy and Utilities (DEUS) under the Country Towns Water Supply & Sewerage Scheme.

Water Demand
Current average day demands have been estimated at 0.09 ML/d. Current peak day demands is currently approximately 0.22 ML/d. Demands have been estimated from daily pump hour recordings. Flow to the village reticulation system is not currently monitored.

The peak demands correspond to approximately 1000 litres/head/day. This is not unexpected for a small rural community, but is higher than typical demands of 850 L/p/d for the major urban population areas in the region. The average daily consumption is 400 L/p/d, which is consistent with average water usage patterns elsewhere within the Shire.

Future population growth is not anticipated to be more than 1 – 2% p.a. This should be counteracted by more efficient water usage applications leading to zero overall growth in either average or peak daily demand. Census data indicates that the population of Tyalgum has had a zero growth rate.

Using the above information, future water supply should be sized to equal the peak day demand, i.e. 0.25 ML/d. If the population exceeds expected rates, demand management strategies can be adopted that would reduce peak water consumption.

All connected properties are metered and are charged for water usage under the Council's two part tariff system.

Weir Capacity
Tyalgum weir pool has a total capacity when full of 10.0 ML. The existing extraction point within the weir pool allows a total of 7.5 ML of the storage to be commanded leaving a dead storage volume of 2.5 ML.

The modelling indicated that the Tyalgum Weir is capable of supplying 120 ML/a on a regular basis. However, if there is no inflow into the weir pool for more than 3 months, failure of the supply does occur. The predicted confidence level in providing 32 ML/a (current annual demand) to the Village of Tyalgum is 99.9% of the time.

Tyalgum Village Water supply has a current water entitlement of 50 ML/annum.

Water Quality

Under normal flow conditions on the Tyalgum Creek, the water quality within the weir pool generally meets the Australian Drinking Water Guidelines. However, during storm events, the quality deteriorates resulting in high turbidity levels. As only coarse in-creek sand filtration and chlorination is provided, the water quality delivered to customers is of similar quality to the raw water.

Pumping is not usually undertaken during dirty water events in the weir pool as the service reservoir has an active storage volume of 0.110 ML (30 hours supply). Operational staff actively monitor weather forecasts to manage dirty water events as they occur.

During dry winter/spring periods, increased algae growth occurs within the weir pool. Cyanobacterium blooms are prevalent during this period and are generally above 2000 cells per 100 mL. This places the blooms into the Water Directorate's Blue Green Algae Management Protocols at *"Medium Alert Levels: Unsuitable for drinking unless treated with PAC/GAC"* for 26% of all algae samples collected during 2002. This can restrict pumping from the weir pool for up to 3 weeks at a time depending on rainfall.

There are currently no facilities available to allow activated carbon dosing of the supply system.

There is also significant contamination risk due to cattle grazing adjacent to the weir pool. The risks associated with this land use is increased protozoa, Giardia and Cryptosporidium outbreaks within the waterway. These are perceived risks based on current catchment management principals and cannot be discounted for Tyalgum.

Integrated Water Cycle Management

Montgomery Watson Harza was engaged by Council to undertake a mini Integrated Water Cycle Management report to assess alternative options for supplying water and water demand management for the village of Tyalgum. A copy of the report is available from the Director Engineering & Operations.

The conclusions of the IWCM report were:-

1. *A survey of residents found that:-*
   - *The current stock of water fixtures and fittings include a high proportion (80%) of dual flush toilets, however the showerhead stock contains less than 37% water efficient devices.*
   - *Approximately 30% of residents have rainwater tanks. The majority are of small volume with an average size of 1,000 to 1,500 L. Water is used for drinking and irrigation.*
2. *Assessment of water demand was undertaken using available billing data and it was found that:-*

- *Average billed water consumption was determined to be around 70 kL/d compared to a total production of 90 kL/d. Based on the available data it is estimated that the level of Non-Revenue Water may be up to 30%.*
- *Water usage in the residential sector is more than 80% of the total consumption, with an average of 538 L/account/d or 234 L/p/d (based on an average of 2.3 residents per account).*
- *External use averages around 30% of the total water production.*

3. *The effectiveness of a range of IWCM options was reviewed and it was found that:-*

- *Leakage detection and repair could be implemented for approximately $5,000. A reduction of up to 20 % of the overall water production may be achieved. However a Minimum Night Flow test needs to be undertaken to confirm the levels of leakage prior to committing to this work.*
- *Showerhead retrofit is the most appropriate option for residential sector efficiency improvement. Replacement of existing showerheads would reduce water use by up 55 L/d or 20 kL/a in the average household. The cost of this measure would be around $90 per household or $6,800.*
- *Rainwater tanks could be installed to reduce water use by the residential sector. Various options were reviewed using a water balance model and a range of solutions selected for various end use reductions. A summary of the selected options is as follows:-*

End Use Targeted	***Proposed Tank Size (L)***	***Average Rainwater Used (L/day)***	***Average Top Up Days per Annum (Day)***	***Total Saving % of Potable Water (%)***	***Estimated Cost of Tank Installation***
External	*4,500*	*109*	*74*	*21%*	*$2,700*
Internal (except toilets)	*10,000*	*144*	*62*	*39%*	*$4,300*
Internal (except toilets)	*30,000*	*170*	*6*	*46%*	*$10,900*
Internal (Cold Water Kitchen / Bathroom Sink)	*4,500*	*36*	*0*	*10%*	*$3,500*

4. *Consideration of the application of IWCM options to the water supply indicates that the preferred option is to construct the WTP in accordance with the TSC report. The reasons for the selection of this option are as follows:-*

- *The major objective of the upgraded water supply is to provide a source that is not affected by poor water quality resulting from blue green algae outbreaks in the weir.*
- *The required size of rainwater tanks used for extensive internal use (except toilets) is of the order of 30,000 L, based on the existing residential demands and 34 years of climate data.*
- *The estimated size of a rainwater tank to supply cold water to the kitchen and bathroom basin (at high reliability) was found to be more reasonable at 4,500 L. However, the use of rainwater for drinking purposes may not be acceptable from a public health perspective, as the water quality cannot be guaranteed. In addition the use of poorer water quality for other uses such as showering and clothes washing would be likely to cause further quality issues.*

- *An option to use rainwater tanks for external use and for toilet flushing was considered however such an approach would require connection of tanks to the potable supply for top up. It is likely that these tanks would require top up during a* poor water quality event limiting any cost offsets.

Upgrade Options
Do Nothing

The do nothing option is available and would require the acceptance by the community to continue with provision of the current water quality. It should be noted that although safe to drink, the water does not meet the ADWG aesthetic guidelines for turbidity, colour, iron and manganese and exceed the water quality standards set for an upgraded supply. These factors may affect the ability to fully disinfect the water supply and can lead to staining occurring within the reticulated water supply.

During periods of low flow and algal outbreaks, water would need to be carted to the township from Murwillumbah.

It is estimated that water carting would be required on average for 60 days each year to ensure adequate water quality.

The estimated yearly water cartage cost for Tyalgum is estimated at $80,000 based on standard water cartage rates and an allowance for managing and monitoring the cartage by Council staff.

Water cartage provides a risk of contamination of the water supply if the tanker used is not correctly disinfected prior to the cartage of potable water. Often the same water tankers will be used for transporting lesser quality water for filling farm dams or road work construction. Water quality cannot be guaranteed.

Off Stream Storage
Additional raw water storage is not required to ensure there is adequate water available to the Village. The current weir pool storage provides adequate safe yield for the village. During periods of good water quality within the weir pool, the raw water could be pumped to the off-stream storage and held in reserve. The village would still be supplied directly from the weir pool. When the water quality within the weir started to deteriorate, supply could then be switched to the storage thus maintaining a suitable quality for drinking.

A 6 ML off stream storage would provide a storage of raw water for a period of 27 peak demand days.

The provision of an off-stream storage will not in itself eliminate poor water quality and additional treatment facilities may be required to ensure Tyalgum is supplied with water quality that meets the ADWG. There would be significant risk in pumping poor quality water to the storage or the storage would not have sufficient capacity to enable continual supply during a serve dry period. In severe dry periods, water carting may still be required.

The estimated cost for a 6ML off stream storage would be $200,000.

New Water Treatment Plant
The provision of a treatment plant at Tyalgum would allow water to be continually extracted from the weir pool under most raw water quality situations. GHD has undertaken a report previously that recommended a membrane filtration package plant as being the most suitable installation of Tyalgum.

Due to algal growths that are occur within the weir pool, a granular activated carbon (GAC) filter would be installed downstream of the membrane filtration plant. The GAC would remove taste and odour compounds from the water and is also efficient at removing of algal toxins. Experience elsewhere indicates that the GAC has extended life as most organics are removed prior to contacting the carbon therefore extending the GAC life span.

Water would be extracted from the weir pool and pumped directly to the membrane filtration plant. Filtrate from the plant would then flow through the GAC and into the existing chlorine contact tank.

Estimated costs for the package plant is $815,000.

Preferred Option
A summary of the capital and NPV costs for the options identified in section 5 are provided in table 6 below:

Option	Capital Cost	Annual Cost	NPV (20 years @ 4%)
Continued Water Cartage	Nil	$110,000	$1,494,936
New Off Stream Storage	$475,000	$35,000	$932,392
New Water Treatment Plant	$815,000	$40,000	$1,327,267
Rainwater Tank 30,000 L	$2,398,000	-	$2,398,000

Based on minimising water quality risks to consumers within the Tyalgum Village, the preferred option is not the lowest cost option. The only option that will fully satisfy the both water quantity and quality requirements is the installation of a new water treatment plant. If the option of providing additional storage was to be adopted, Council would need to undertake additional water treatment in the near future to ensure the water quality meets adopted treated water target values.

Over a 20 year NPV period, there is little cost difference between water carting and a new water treatment plant. The later provides a better risk solution to council as the water quality guidelines can be guaranteed.

Tweed Shire Council has a duty of care in supplying water that is fit for use. That is, the water supply should be of suitable standards that will minimise risk of water borne disease and dirty water problems from occurring within the supply area.

LEGAL/RESOURCE/FINANCIAL IMPLICATIONS:

DEUS funding for the project will expire unless money is spent within three years of the Minister's CTWS&S program funding announcement of March 2005. Expenditure provided in current budget.

POLICY IMPLICATIONS:

Nil.

UNDER SEPARATE COVER/FURTHER INFORMATION:

1. The Concept Report can be found at DW No. 1207201