

# Drought Management Plan

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**October 2019**



Version 1	Resolution 541/10	Adopted 28 July 2010
Version 2	Resolution 121/18	Adopted 27 June 2018
Version 3	Resolution 41/19	Adopted 27 March 2019
Version 4	Resolution 205/19	Adopted 17 October 2019

## **Executive Summary**

The Drought Management Plan has provided Tenterfield Shire Council with the structure to maintain a functioning and sustainable community water supply throughout drought periods. The original plan adopted by Council in 2010 and was reviewed in 2018. The Drought Management Plan (DMP) provides structured strategies (such as water restrictions) to preserve water and limit water usage. The reviewed plan will supersede the previous version effective from 22 November 2019.

The primary purpose of a Drought Management Plan is to ensure a structured method for the management of the local water supplies that service both the residential and commercial needs of the community in extended periods of drought. Appropriate management of Councils water supplies includes application of the Water Conservation and Demand Management Plan (WCDMP) that supplements the Drought Management Plan (DMP) that details the circumstances under which restrictions may be activated.

Included in the DMP is the Action Plan (AP) that outlines seven stages (seven levels) of drought severity and has been prepared in conjunction with the IPWEA Water Directorate guidelines and Council policy. Each stage has set triggers by which the stage begins and ends with both volume percentages and depth values from below the spillway. Each stage also has remediation actions to help reduce the severity of the drought with daily usage targets that aim to reduce daily consumption by a nominated percentage. Values for the easing of restriction levels are also provided.

The seven levels of water restriction actions are outlined, with ultimate restrictions of 100 litres/person/day (L/P/d).

Additional exemptions (by application) to water restrictions by community member/s or business within the community are also outlined.

An effective community awareness campaign is essential. By increasing awareness of the community on the effects they have on the water supply and the environment it is more likely that the DMP and AP will succeed in its goal of minimising water usage in drought conditions.

Communities within the Shire dependent on reticulated water supplies are detailed including; local climate, a history of droughts and associated water supply systems.

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NOTE: In the event of an extreme drought event, emergency actions have been developed in order to further protect the community. These actions are provided as a worst case scenario and should only be activated when all other options have failed.

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## 1.0 Background

This plan applies to the Tenterfield Shire communities supplied by a reticulated water supply system; Tenterfield, Urbenville and Jennings. The Jennings water supply is drawn from Wallangarra, which is operated by Southern Downs Regional Council. Details of these water supply systems are contained in Table 2. These three communities are reliant upon individual water supplies and are not interlinked.

The region immediately surrounding Tenterfield and its shire has a dry sub-humid climate. The climate can range from a very cold winter with regular frosts to a very dry and hot summer with pleasant conditions during the autumn and spring seasons.

- Tenterfield has a mean yearly rainfall of 851 mm with a mean relative humidity of 55% (BOM, 2018).
- Urbenville has a mean yearly rainfall of 1,053 mm with a mean relative humidity of 74% (BOM, 2018).
- Jennings/Wallangarra has a mean yearly rainfall of 785 mm with a mean relative humidity of 66% (BOM, 2018).

### 1.1 Tenterfield Water Supply Scheme

The Tenterfield water supply consists of the Tenterfield Dam with a water treatment facility located adjacent to the dam wall. The water is treated via chemical coagulation and sedimentation, with a deep bed filtration system. The filtered water is then pumped to the reticulation system with one operational water storage reservoir and one off-line. The dam has a capacity of 1,393 ML with an average daily demand of 1.2 ML/day supplied to the community. A schematic of the Tenterfield water supply system is available in Appendix A.

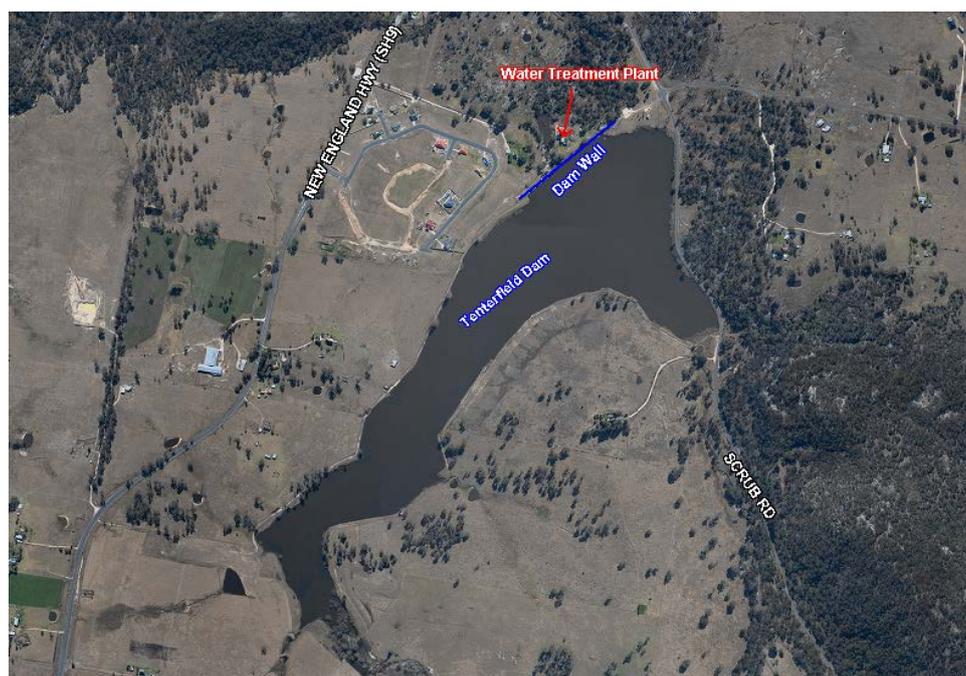


Figure 1 Tenterfield Creek Dam satellite view

An additional bore water system was constructed in 1994 and upgraded in 2010 to enhance the security of the Tenterfield community's water reticulation system. The Bore located at Shirley Park, suffered extreme damage from flooding in 2011 which destroyed the pump system. The bore pump system was replaced in 2018.

Historical drought periods (2002-2005) and (2006-2008) saw stress placed upon the Tenterfield Water Network. Level 3 restrictions were imposed in 2003 which created minor levels of social and economic stress for the community. The drought period 2006-2008 was much less intense with level 2 restrictions only enforced for a short period with little effect on the community.

## 1.2 Urbenville Muli Muli Woodenbong Water Supply Scheme

The Urbenville Muli Muli Woodenbong Water Supply (UMMWWS) scheme draws its raw water from Tooloom Creek. This water supply is a natural weir pool above Tooloom Falls and has a storage capacity of approximately 240 ML. Daily demand from the water supply is approximately 0.7 ML/day. A schematic of the Urbenville water supply system is available in Appendix A.



*Figure 2 Tooloom Creek intake water supply UMMWWS*

Historically severe droughts experienced from 2002-2005 demonstrated that the weir pool level did not drop to a level that justified raising restriction levels above level 2. The drought period experienced by Urbenville in 2007 saw the restriction levels tightened to Stage Six- Level 5 (EMERGENCY) restrictions. Urgent works were undertaken at that time that allowed access to a further 80 ML of low level storage in the weir pool. The supply system provides storage for the dependant community's in excess of two (2) years of unrestricted consumption. There have been instances in the past of algae outbreaks in the weir pool, which the new Water Treatment Plant (in operation from April 2010) adjacent to the off-take pump station has capacity to treat. Details of the Tooloom Creek Water Reservoir are provided in Appendix B.

### 1.3 Jennings Water Supply Scheme

The community of Jennings, which sits adjacent Wallangarra, has a number of different options for water supplies that may be used to service the community. These water sources include the Beehive Dam, the Soak, the Wells, and Cusack's Dam. All water sources have been labelled by Southern Downs Regional Council (SDRC, 2018) as unreliable water sources as have a history of drying up, with the exception of Cusack's Dam.

Current drought conditions of 2019 have seen critical (emergency) restrictions enforced with residents asked to reduce consumption to 100Liters/day/person. A schematic of the Jennings water supply system is available in Appendix A.

*Table 1 Summary of Tenterfield Shire Council Water Supply Systems*

Water Supply Scheme	Population Demand (Persons)	Number of Connections (Tenements)	Average Daily Demand (ML/d)	Bulk Water Sources	Current Problems	Past Drought Experience
Tenterfield	6,986	1,849	1.6	Tenterfield Dam Shirley Park Bore Apex Park Livestock bore	<ul style="list-style-type: none"> <li>• Dam prone to algal outbreaks</li> <li>• Potential for stratification</li> <li>• Study undertaken in 2019 demonstrates increased sedimentation in the dam lowering capacity</li> </ul>	<ul style="list-style-type: none"> <li>• 2002-2005, level 3 restrictions imposed</li> <li>• Excavation of dam perimeter in 2003 provided an additional 80 ML of storage capacity.</li> <li>• 2005-2008, heavy drought period with level 2 restrictions activated</li> <li>• Level 1 restrictions imposed as a permanent conservation measure in 2005</li> <li>• Bore in Shirley park activated with licence for 160 ML/year in 2003; damaged during flooding replaced in 2019</li> <li>• Excavation of sediment and rock reinforcement in 2019.</li> <li>• Solar Bore System at Apex Park reinstated in 2019 as alternative livestock non-potable water source</li> </ul>
Urbenville / Muli Muli / Woodenbong	787	359	0.7	Toooloom Creek Weir	<ul style="list-style-type: none"> <li>• Relatively shallow water source (prone to evaporation)</li> <li>• Storage prone to algal outbreaks during periods of drought</li> <li>• Off-take is placed well upstream of weir</li> </ul>	<ul style="list-style-type: none"> <li>• 2002-2005 drought period, level 2 restrictions activated</li> <li>• 2007, level 6 water restriction reached for a brief period with supply dangerously close to depletion</li> <li>• Emergency works completed 2007 allowed additional 80 ML of low level storage to be accessed.</li> <li>• Algae outbreaks are now treatable due to new filtration plant opened in 2010</li> </ul>
Jennings	160	91	0.02	Beehive Dam, the Soak, the Wells, Cusack's Dam	<ul style="list-style-type: none"> <li>• Water sources are classified as being not reliable</li> <li>• The Wells have dried up in past droughts</li> </ul>	<ul style="list-style-type: none"> <li>• Drought conditions where amplified due to abattoir activity (2008) now ceased.</li> <li>• 2008, level 3 restrictions reached with management plans proved in reduction of usage levels.</li> </ul>

## 2. Pre-Drought Planning

Drought is the most harrowing time for a community with respect to the Water Supply System. However, the effects of drought can be rapidly decreased with appropriate management and maintenance of the security of the system during non-drought periods. Measures for relieving the economic, social and environmental impact of drought during the non-drought period are outlined in the following sections.

### 2.1 Water Conservation and Demand Management Plan

Tenterfield Shire Council adopted a Water Conservation and Demand Management (WCDM) Plan at its meeting held on 23 June 2010 (CM430/10). The WCDM Plan has been prepared to supplement this Drought Management Plan (DMP) with measures that aim to reduce the community's total water usage levels during both drought and non-drought periods. Implementing the WCDMP will greatly increase the security of the Water Supply Systems.

The WCDM Plan has introduced the following measures to reduce water consumption:

- Residential rebates for water wise or AAA rating water saving shower heads and dual flush toilets;
- Endorsement of rainwater capture devices;
- Permanent water conservation measures.

The WCDM Plan will be revised every 3-5 years or when required. Additional means for integration in future plans may include the following measures:

- Funding for the upgrade of a community awareness and education programme;
- Residential rebates for water wise or AAA rating water saving devices that may include, washing machines, rainwater tanks and grey water reuse systems;
- Compulsory covers for all pools within the shire;
- Residential Audits and retrofits for both indoors and outdoors;
- Non-residential water audits for the top 50 water users, including Council Water loss management for any system losses and leaks.

### 2.2 System Monitoring and Security

With the integration of an appropriately compiled Drought Management Plan (DMP), the community adopting structured measures to combat decreasing water source levels and availability can reduce the severity of a drought. It should be noted that regardless of the efficiency of the DMP, these measures would be in vain if the water levels of the source are not monitored and secured even during periods of abundant water availability.

To achieve the desired outcome the DMP, water demand and system water levels need to be monitored regularly. Liaison with the NSW Office of Water (NOW) during non-drought periods is essential to ensure that the community is in good condition for any unanticipated or forecast dry periods.

Upon the activation of water restrictions, the monitoring of the water supply, demand levels, supply sources will be carried out daily. Measurement of water properties such as

electrical conductivity, alkalinity and algae levels will be increased to once weekly as the drought intensifies and the effect of water stagnation increases.

### 2.3 Funding Strategy

Periods of drought may have social, economic and environmental impacts for a community. For Council, a drought event can prove to be a costly exercise with serious stress placed on the finances allocated within the budget to each division. These financial stresses can be related to the following:

- Reduction in revenue as a direct result of the decline in water usage compounding as the drought continues
- Increased costs as drought intensifies and advertising campaign stretches out and increases in magnitude
- Additional costs incurred as a result of increased system monitoring and metre reading for supply and demand of water for the system as a whole;
- Staffing for the policing and enforcing of the restrictions
- Assessment and commissioning of alternate water sources will also result in cost increases.

Council budgets should encompass the possibility of the start or continuation of a drought when allocating funds for the following year. These contingencies should be set in place after careful deliberation and consultation with appropriate stakeholders. Any costs incurred from a drought should be accounted for, documented and be made available to the community, Council and government regulators (NOW) upon request. These costs can be used as validation for the need for future investment in water supply management planning and supply expansion.

## 3. Drought Management Action Plan (DMAP)

The Drought Management Action Plan (DMAP) incorporates actions and triggers by which a sustainable community can operate with as little disturbance while reducing the volumes of water used thus increasing the community's water system security.

The DMAP outlines seven stages of drought severity ranging from 1 (Low) to 7 (Emergency). Each stage has set triggers by which the stage begins and ends with both volume percentages and depth values from below the spillway. Each stage also has remediation actions to help reduce the severity of the effects of the drought with daily usage target that aim to reduce daily consumption by a nominated percentage.

Values for the easing of restriction levels are nominated on the basis that they will not be eased unless they will remain eased for a period of at least two (2) weeks before being tightened again in the event of a subsequent dry period.

Separate tables and restriction documents have been produced for the two water supply systems that are under the control of Tenterfield Shire Council (Tenterfield and Urbenville). Individual tables are also present for the easing of restrictions for each supply system. Table 3 and Table 5 outline levels at which restrictions and other actions are to be carried out, for Tenterfield and UMMWWS respectively. Example documents for media release and advertising are presented in Appendix C, Table 4 and Table 6 outline levels at which the restrictions may be eased in the event of an increased water level in the supply system for Tenterfield and UMMWWS respectively.

## .1 Water Consumption Targets and Restriction Triggers

The values within the Drought Management Action Plan and shown in Table 3 and Table 5 are specified levels by which action must be taken by Council to impose restrictions upon the community. These values aim to reduce the daily water usage volumes to desired limits, which will maintain a healthy economy whilst prolonging the water supply. If residents or businesses within the community do not meet these values, fines may be incurred as a deterrent for those who waste water or use large quantities of water without justification.

## .2 Exemptions from Restrictions

Water restriction levels may not be applicable to all members of the community. In this event, there are considerations for the exemption of water restrictions for person/s or businesses that are significantly affected by the implementation of water restriction measures. Criteria for exemptions from and/or easing of restrictions together with a Water Restriction Exemption Request form are presented in Appendix D.

If an exemption is granted, a permit confirming the details of usage will be issued to the person/s or business. This permit should be able to be produced upon request by a Council staff or concerned member of the community. If the person or business is using water contrary to the terms of use, the permit can be withdrawn at Councils discretion and appropriate fines incurred by the offending parties.

## .3 Application of Restrictions

The following tables detail the levels of restriction for both Tenterfield and Urbenville. Restrictions for Jennings will be as advised by Southern Downs Regional Council and is in accordance with its Drought Management Plan – refer to Appendix E.

Table 3 Drought Management Action Plan (DMAP) – Tenterfield Water Supply

Stages of Drought	Storage Condition	Trigger (Level Below Spillway)	Restriction Strategy and Levels
Pre-Activation	Above 70%	< 1 m	<ul style="list-style-type: none"> <li>Public Education and consultation</li> <li>Communication strategies active</li> <li>Permanent Water Conservation measures implemented – refer to Water Conservation and Demand Management Plan</li> </ul>
Stage 1 Low	70%	1.0 m	<p><b>Level 1 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Permanent Water Conservation Measures enforced</li> <li>Drought Management Team activated.</li> <li>Reduce normal average daily household consumption by 10%</li> <li>Target consumption levels of 220-320 litres/person/day (L/P/d)</li> <li>Review alternate water source availability</li> <li>Review Emergency Procedures</li> <li>Step up public awareness campaign</li> <li>Consider community, commercial and industrial needs</li> </ul>
Stage 2 Low to Moderate	60%	1.5 m	<p><b>Level 2 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Reduce normal average daily household consumption by 15%</li> <li>Target consumption levels of 200-320 litres/person/day (L/P/d)</li> <li>Step up public awareness campaign including advertisement of penalties</li> <li>Consider community, commercial and industrial needs</li> </ul>
Stage 3 Moderate	50%	1.7 m	<p><b>Level 3 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Reduce normal average daily household consumption by 20%</li> <li>Target consumption levels of 200-300 litres/person/day (L/P/d)</li> <li>Expand publicity of restrictions and penalties</li> <li>Public notices on roads and in motels etc.</li> <li>Commence policing of restriction</li> <li>Consideration of community, commercial and industrial needs</li> </ul>
Stage 4 Moderate to High	40%	2.2 m	<p><b>Level 4 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Reduce normal average daily household consumption by 30%</li> <li>Target consumption levels of 180-260 litres/person/day (L/P/d)</li> <li>Continue to expand publicity of water conservation, restrictions and penalties</li> <li>Enforce restrictions and impose penalties</li> <li>Implement alternative water supply options</li> </ul>

			<ul style="list-style-type: none"> <li>• Implement emergency procedures</li> <li>• Consider community, commercial and industrial needs</li> </ul>
<p><b>Stage 4.5</b> <b>High</b></p>	<p><b>37%</b></p>	<p>2.4 m</p>	<p><b>Level 4.5 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>• Reduce normal average daily household consumption by 40%</li> <li>• Target consumption levels of 170-240 litres/person/day (L/P/d)</li> <li>• Continue to expand publicity of water conservation, restrictions and penalties</li> <li>• Enforce restrictions and impose penalties</li> <li>• Implement alternative water supply options</li> <li>• Implement emergency procedures</li> <li>• Consider community, commercial and industrial needs</li> </ul>
<p><b>Stage 4.7</b> <b>High</b></p>	<p><b>26%</b></p>	<p>3.2m</p>	<p><b>Level 4.7 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>• Reduce normal average daily household consumption by 45%</li> <li>• Target consumption levels of 165-230 litres/person/day (L/P/d)</li> <li>• Continue to expand publicity of water conservation, restrictions and penalties</li> <li>• Enforce restrictions and impose penalties</li> <li>• Implement alternative water supply options</li> <li>• Implement emergency procedures</li> <li>• Consider community, commercial and industrial needs</li> </ul>
<p><b>Stage 5</b> <b>High</b></p>	<p><b>15%</b></p>	<p>4.2 m</p>	<p><b>Level 5 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>• Reduce normal average daily household consumption by 50%</li> <li>• Target consumption levels of 160-220 litres/person/day (L/P/d)</li> <li>• Continued public awareness campaign</li> <li>• Finalise alternate water supply options</li> <li>• Consider community, commercial and industrial needs</li> </ul>
<p><b>Stage 6</b> <b>Very High</b></p>	<p><b>10%</b></p>	<p>5 m</p>	<p><b>Level 5 - restriction maintained and enforced</b></p> <ul style="list-style-type: none"> <li>• Target consumption levels of 100-150 litres/person/day (L/P/d)</li> <li>• Extensive water conservation maintained and expanded</li> <li>• Consider community commercial and industrial needs</li> </ul>
<p><b>Stage 7</b> <b>Extreme</b></p>	<p><b>Less Than 10%</b></p>	<p>&gt;5 m</p>	<p><b>Level 5 - restrictions maintained and enforced</b></p> <ul style="list-style-type: none"> <li>• Target consumptions levels of 100 litres/person/day (L/P/d)</li> <li>• Alternate supply commissioned</li> <li>• Water cartage commenced when supply fails</li> <li>• Intermittent reticulation supply</li> <li>• Consider community, commercial and industrial needs</li> </ul>

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Table 4 Criteria for easing of restriction- Tenterfield Water Supply

Drought Response Level	Trigger Point for Increasing Water Restrictions		Trigger Point for Easing Water Restrictions	
	Storage Condition	Level Below Spillway	Storage Condition	Level Below Spillway
Permanent Water Conservation Measures	>70%	< 1 m	N/A	N/A
LEVEL 1 Low	70%	1 m	75%	0.86 m
LEVEL 2 Moderate	60%	1.5 m	65%	1.25 m
LEVEL 3 High	50%	1.9 m	55%	1.7 m
LEVEL 4 Very High	40%	2.2 m	45%	2 m
LEVEL 4.5 Extremely High	37%	2.4 m	40%	2.5 m
LEVEL 4.7 Extremely High	37%	2.4 m	40%	2.5 m
LEVEL 5 Emergency	26%	3.2m	37%	2.4m
6				
7				

For detailed tables on storage level to water volume rates please refer to Table 3.

Table 5 Drought Management Action Plan (DMAP) – Urbenville Water Supply

Stages of Drought	Storage Condition	Trigger (Level Below Weir)	Stages of Drought
Pre-Activation	Above 70%	<0.45 m	<ul style="list-style-type: none"> <li>Public Education and consultation</li> <li>Communication strategies active</li> <li>Permanent Water Conservation measures implemented – refer to Water Conservation and Demand Management Plan</li> </ul>
Stage 1 Low	70%	0.45 m	<p><b>Level 1 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Permanent Water Conservation Measures enforced</li> <li>Drought Management Team activated.</li> <li>Reduce normal average daily household consumption by 10%</li> <li>Target consumption levels of 220-320 litres/person/day (L/P/d)</li> <li>Review alternate water source availability</li> <li>Review Emergency Procedures</li> <li>Step up public awareness campaign</li> <li>Consider community, commercial and industrial needs</li> </ul>
Stage 2 Low to Moderate	60%	0.60 m	<p><b>Level 2 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Reduce normal average daily household consumption by 15%</li> <li>Target consumption levels of 200-320 litres/person/day (L/P/d)</li> <li>Step up public awareness campaign including advertisement of penalties</li> <li>Consider community, commercial and industrial needs</li> </ul>
Stage 3 Moderate	50%	0.75 m	<p><b>Level 3 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>Reduce normal average daily household consumption by 20%</li> <li>Target consumption levels of 200-300 litres/person/day (L/P/d)</li> <li>Expand publicity of restrictions and penalties</li> <li>Public notices on roads and in motels etc.</li> <li>Commence policing of restriction</li> <li>Consideration of community, commercial and industrial needs</li> </ul>

Stages of Drought	Storage Condition	Trigger (Level Below Weir)	Stages of Drought
<p><b>Stage 4</b> <b>Moderate to High</b></p>	<p><b>40%</b></p>	<p>0.9 m</p>	<p><b>Level 4 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>• Reduce normal average daily household consumption by 30%</li> <li>• Target consumption levels of 180-260 litres/person/day (L/P/d)</li> <li>• Continue to expand publicity of water conservation, restrictions and penalties</li> <li>• Enforce restrictions and impose penalties</li> <li>• Implement alternative water supply options</li> <li>• Implement emergency procedures</li> <li>• Consider community, commercial and industrial needs</li> </ul>
<p><b>Stage 5</b> <b>High</b></p>	<p><b>15%</b></p>	<p>1.28 m</p>	<p><b>Level 5 - restrictions activated</b></p> <ul style="list-style-type: none"> <li>• Reduce normal average daily household consumption by 50%</li> <li>• Target consumption levels of 160-220 litres/person/day (L/P/d)</li> <li>• Continued public awareness campaign</li> <li>• Finalise alternate water supply options</li> <li>• Consider community, commercial and industrial needs</li> </ul>
<p><b>Stage 6</b> <b>Very High</b></p>	<p><b>10%</b></p>	<p>1.35 m</p>	<p><b>Level 5 - restriction maintained and enforced</b></p> <ul style="list-style-type: none"> <li>• Target consumption levels of 100-150 litres/person/day (L/P/d)</li> <li>• Extensive water conservation maintained and expanded</li> <li>• Consider community commercial and industrial needs</li> </ul>
<p><b>Stage 7</b> <b>Extreme</b></p>	<p><b>Less Than 10%</b></p>	<p>&gt;1.35 m</p>	<p><b>Level 5 - restrictions maintained and enforced</b></p> <ul style="list-style-type: none"> <li>• Target consumptions levels of 100 litres/person/day (L/P/d)</li> <li>• Alternate supply commissioned</li> <li>• Water cartage commenced when supply fails</li> <li>• Intermittent reticulation supply</li> <li>• Consider community, commercial and industrial needs</li> </ul>

Table 6 Criteria for easing of restriction- Urbenville Water Supply

Drought Response Level	Trigger Point for Increasing Water Restrictions		Trigger Point for Easing Water Restrictions	
	Storage Condition	Level Below Weir	Storage Condition	Level Below Weir
Permanent Water Conservation Measures	>70%	<0.45 m	N/A	N/A
<b>LEVEL 1</b> Low	70%	0.45 m	75%	0.8 m
<b>LEVEL 2</b> Moderate	60%	0.60 m	65%	0.52 m
<b>LEVEL 3</b> High	50%	0.75 m	55%	0.67 m
<b>LEVEL 4</b> Very High	40%	0.90 m	45%	0.82 m
<b>LEVEL 5</b> Emergency	15%	1.25 m	35%	0.97 m

#### .4 Drought Management Team

When level one water storage condition levels are reached, Council will assemble a Drought Management Team. The team will consist of the Executive Team and the Mayor and Deputy Mayor.

The Drought Management Team will authorise the actions required in the Drought Management Action Plan. This will include the activation / easing of restrictions, approval to exemptions, authorising investigation of alternative water sources, negotiation of acquisition of water supplies, etc.

#### 3.5 Communication

The Drought Management Plan will be likely to fail without the implementation of an effective community awareness campaign. It is essential that the community be made aware of the restrictions that have been imposed and educated on the effective means for reducing the amount of water required on a day to day basis. Education on the effects of actions on the water supply and the environment will ensure that the Drought Management Plan will succeed in its goal of minimising water usage in the region.

Promoting community awareness can include internet advisement, community news information, television commercials, radio and newspaper advertisements, notices in public buildings (library, etc.) and in the local cinema, notices in local motels advising visitors of the situation the region faces, educational pamphlets and mail outs to residents connected to the local water grid.

Clause 137 (4) of the Local Government (General) Regulation 2005 requires that restrictions can only be imposed by a council notice published in a newspaper circulating within the local area. Notices will be published in the Tenterfield Star on Wednesday and Southern Free Times on the Thursday prior to the introduction of the new restrictions at 6:00 am on the following Monday. Following this, the notices will be published fortnightly for level 1 and 2 restrictions and weekly level 3 and above restrictions for the duration of the drought period.

For level 3 and higher restrictions to ensure maximum compliance, advertising of restrictions will also be placed with local radio stations (TENFM, Rebel FM and ABC Local Radio). These advertisements will be run during community service periods and will also advise of Water Wise tips for around the house.

With the introduction of water restrictions, Council will liaise with other Government agencies. Key agencies include NSW Office of Water (NOW), Environment Protection Authority (EPA), NSW Health, Gwydir/Border Rivers Catchment Management Authority (CMA) and State Water. It is particularly important that the relevant agencies be informed when significant impacts on the community, the environment or other stakeholders are expected as a result of actions arising from implementation of the plan.

### 3.6 Emergency Supply Options

In the event of insufficient water levels in any of the water supply systems, alternate water supplies will need to be sourced depending upon the severity of the drought and other effected regions. Investigation of alternate water supplies will commence at the activation of Level 3 restrictions. Detailed plans, including means for transportation of water to the required sites, will be developed with the activation of Level 4 water restrictions.

## 4 Water Conservation Measures (Restrictions)

In order to secure a community's water supply throughout extended dry periods, restrictions that govern water usage levels are a necessity. The extent of the restrictions is directly related to the degree of the drought. Restriction levels are thus increased as the drought intensifies.

Clause 137 of the Local Government (General) Regulation 2005 provides the Local Water Utility (Council) with the mechanism to impose restrictions on:

- (a) The purposes for which the water can be used, or
- (b) The times when the water can be used, or
- (c) The methods by which the water can be used, or
- (d) The quantities of the water that can be used.

### 4.1 Permanent Water Conservation Measures

The Water Conservation and Demand Management Plan, which supplements this document, provides for the retrofitting of community households with AAA rated water conserving fittings in order to encourage a water wise attitude within the community. This program will be subsidised by Council.

In addition to this program, the following five permanent Water Conservation Measures will apply to properties connected to the reticulated water supply systems in Tenterfield, Jennings and Urbenville:

1. The use of sprinklers, fixed hoses, micro sprays or garden watering systems are not permitted for watering gardens and lawns between the hours of 9:00 am and 4:00 pm
2. Only hand held hoses fitted with trigger nozzles shall be used at any time for the purpose of general watering of gardens and vehicle washing
3. Vehicles should only be washed on grassed or other permeable surfaces
4. The washing down of hard surfaces with hand held hoses will not be permitted at any time
5. Newly laid turf may be watered with an approved water conserving equipment for a period of up to six (6) weeks from the installation of the turf.

#### 4.2 Enforceable Water Restrictions

Five (5) levels of enforceable restrictions have been included in this plan as detailed below and are applicable to both Tenterfield and Urbenville. Complete restriction details are outlined in Table 7 below:

Table 7 Complete Table of Restrictions Tenterfield Shire

Table 7 Complete Table of Restrictions Tenterfield Shire

Level of Restriction	1	2	3	4	4.5	4.7	5
Level Below Spillway	1.0m	1.5m	1.7m	2.2m	2.4m	3.2m	4.2m
Dam Storage Condition	70%	60%	50%	40%	37%	26%	15%
<b>Domestic</b>							
Consumer Type	Restriction Actions						
Fixed Hoses/Sprinklers	2 hrs./day	BANNED	BANNED	BANNED	BANNED	BANNED	BANNED
Approved Micro-Sprays/Garden Watering Systems	2 hrs./day	1 hrs./day	1 hrs./day #	1 hrs./day #	30 Minutes/Day***	Bucket only watering ***	BANNED
Hand Held Hoses	No Restrictions	No Restrictions	2 hrs./day*	1 hrs./day #	30 Minutes/Day***	Bucket only watering ***	BANNED
Swimming Pools and Spas	Filling Permitted	Filling BANNED Topping up permitted	Filling BANNED Topping up Permitted	Filling and topping up BANNED	Filling and topping up BANNED	Filling and topping up BANNED	Filling and topping up BANNED
Washing Hard Surfaces	No Restrictions	Buckets Only	Buckets Only	BANNED	BANNED	BANNED	BANNED
<b>Public/Commercial</b>							
Consumer Type	Restriction Actions						
Public Gardens	Sprinklers 2 hrs./day *	Sprinklers 1 hrs./day #	Hand Held Hose 2 hr./day *	Hand Held Hose 1 hr./day #	BANNED	BANNED	BANNED
Sporting Grounds	Sprinklers 2 hrs./day *	Sprinklers 1 hrs./day #	Hand Held Hose 2 hr./day *	Hand Held Hose 1 hr./day #	BANNED	BANNED	BANNED
Show Ground	Sprinklers 2 hrs./day *	Sprinklers 1 hrs./day #	Hand Held Hose 2 hr./day *	Hand Held Hose 1 hr./day #	BANNED	BANNED	BANNED
Market Gardens	Sprinklers 6 hrs./day	Sprinklers 6 hrs./day ##	Sprinklers 4 hrs./day ##	Sprinklers 2 hrs./day ##	Sprinklers/Held Hose 1 hrs./day ###	Sprinklers/Held Hose 1 hrs./day ###	BANNED
Nurseries	Sprinklers 2 hrs./day *	Sprinklers 1 hrs./day #	Hand Held Hose 4r/day *	Hand Held Hose 2 hr./day #	Hand Held Hose 1 hr./day ###	Hand Held Hose 1 hr./day ###	BANNED
Washing of Motor Vehicles	No Restrictions	Buckets Only On Grassed Areas	BANNED	BANNED	BANNED	BANNED	BANNED
Fountains	No Restrictions	Topping up BANNED	BANNED	BANNED	BANNED	BANNED	BANNED
Auto Flush Toilets/Urinals	No Restrictions	No Restrictions	BANNED	BANNED	BANNED	BANNED	BANNED
Ready Mix Concrete	No Restrictions	No Restrictions	No Restrictions	8 hrs./day Operation	BANNED	BANNED	BANNED
Stock Troughs	No Restrictions	No Restrictions	No Restrictions	Automatic Filling Only **	Banned as Apex Park alternative	Banned as Apex Park alternative	BANNED
Water Cartage	No Restrictions	No Restrictions	Council Approved	Council Approved	Council Approved	Council Approved	BANNED
Others	No Restrictions	No Restrictions	Council Approved	Council Approved	Council Approved	Council Approved	BANNED
<b>Legend</b>	<b>Notes on Restrictions:</b> <ul style="list-style-type: none"> <li>* Between 5.30 pm and 7.30am daily Daylights Savings Time</li> <li>** Between 9.00 am and 5.00 pm Daily Daylight Saving Time and Eastern Standard Time</li> <li># Between 4.30 pm and 6.30 am daily Eastern Standard Time</li> <li>## Between 6.30 pm and 7.30 pm daily Daylight Savings Time</li> <li>### Between 4.30 pm and 5.30 pm Eastern Standard Time</li> <li>#### Between 6.30pm and 6.30 am daily Daylight Saving Time and Eastern Standard Time</li> <li>##### Between 5.00 pm and 6.00 pm daily Daylight Savings Time and Eastern Standard Time</li> </ul>						
No Restrictions Apply							
Restrictions Imposed							
Council Approval Needed to proceed							
BANNED							

### **Level 1 (Low)**

The first level of local Water Restrictions provides for the enforcement of permanent water conservation measures including the restricted use of sprinklers and fixed houses. This restriction strategy will aim to reduce normal average daily household consumption by 10% to a target level of 220 – 320 litres per person per day (L/P/d). The main effects of this level of restriction will be felt by the domestic sector of the community. Little to no impact will be aimed at the commercial or industrial sectors.

### **Level 2 (Moderate)**

The second level of restrictions will aim to reduce normal average daily household consumption by 15% to a target level of 200 – 320 litres per person per day (L/P/d). An increase in the advertising campaign for a reduction in water usage will be implemented. The domestic sector will again bear the brunt of restrictions with sprinklers and the filling of swimming pools and spas being banned completely. Minor restrictions will take effect on some commercial activities with washing of motor vehicles being restricted to the use of buckets.

### **Level 3 (High)**

The third level of restrictions will aim to reduce normal average daily household consumption by 20% to a target level of 200 – 300 litres per person per day (L/P/d). During this stage, policing is implemented with the increased monitoring of water usage throughout the community. Households and businesses with excess consumption levels will receive warning letters informing them of the possible fines that may be incurred if consumption within the dwelling or business is not decreased. The domestic sector has minor changes while the commercial sector is targeted more with the washing of motor vehicles banned along with auto flush toilets / urinals. No new turf is permitted to be laid or watered at this level of restriction. During this stage, alternate water sources, such as the Shirley Park Bore for Tenterfield, will be investigated and plans for implementation developed.

### **Level 4 (Very High)**

The fourth level of restrictions will aim to reduce normal average daily household consumption by 30% to a target level of 180 – 260 litres per person per day (L/P/d). Duration of water usage times are shortened once again down to minimal levels across all sectors of the community. Plans for implementing alternate water sources will be finalised.

### **Level 4.5 (Extremely High)**

The fourth level of restrictions will aim to reduce normal average daily household consumption by 40% to a target level of 170 – 240 litres per person per day (L/P/d). Duration of water usage times are shortened once again down to minimal levels across all sectors of the community. Plans for implementing alternate water sources will be finalised.

### **Level 4.7 (Extremely High)**

The fourth level of restrictions will aim to reduce normal average daily household consumption by 40% to a target level of 165 – 230 litres per person per day (L/P/d). Duration of water usage times are shortened once again down to minimal levels across all sectors of the community. Plans for implementing alternate water sources will be finalised.

### **Level 5 (Emergency)**

Level five restrictions will aim to reduce normal average daily household consumption by 50% to a target level of 160 – 220 litres per person per day (L/P/d). During this stage all non-essential water related activities are banned. Alternative water supply plans including

the carting of water to the supply system, intermittent closing of the reticulation system, etc. may be implemented.

## 5 Emergency Response Strategies

In the event of level 5 restrictions being activated by the Council, this will see a complete ban in any outdoor water usage. Any person(s) found to be disregarding these water conservation measures will be subject to heavy fines. A vast reduction in internal water consumption will also be possible as a result of the emergency level restrictions provided a community educational campaign is employed and effectively advertised. The implementation of emergency response measures will only be set in place once all other options have been exhausted.

### 5.1 Water Carting

In the event that water storages are depleted to the point where water needs to be imported from other water supplies, the use of Lismore's water supply would be most likely to be commissioned for the UMMWWS. Within a normal/daily water demand of 0.7 ML/day and a level 5 restriction target of a 50% reduction of daily use this will see a system demand of 0.35 ML/day. Twenty (20) tanker loads of 20,000L per day would suffice the demand requirements for the system.

In the event of Tenterfield water supply needing a supplement water source to be carted into the reservoir the use of an appropriately ample water supply would be commissioned. With a normal period usage of 1.2 ML/day from the system with a stage five restriction target of 50% reduction of daily volumes this will see a new daily needed volume of 0.6 ML/day. This would be possible from the carting of thirty (30) 20,000L water tankers/day. There may be a need for an additional load of water to be transported intermittently to cope with any over usage by the community.

Water carting requirements for the Jennings water supply would be mostly conducted by the Stanthorpe water supply in order to reduce the effect of surface evaporation throughout the numerous other water sources by where the water would be needed to be carted to.

### 5.2 Rationing

The premise of rationing of household water is a condition that will be voluntarily introduced by the individual households themselves, as each household functions in a different manner with different individual requirements. A persuasive education campaign can be a useful tool for getting community members on board with water conservation techniques and greatly reducing the daily demand placed on the local infrastructure. Household rationing will not be imposed by Council.

### 5.3 Intermittent Reticulation Supply

In the event of an extreme drought event it may be needed to reduce the supply from the treatment plant itself in order to reduce consumption. This may alleviate the demand pressures experienced by the water source and may also reduce system losses experienced by any old leaking water mains that may not be able to be detected and fixed. It would be most likely that the intermittent operation of the system would be run during

the main trading hours of the day and for periods of peak usage for people before and after work, the system would most likely be un-operational during the late evening and during the night. This strategy is only to be used as a last resort in order to reduce water consumption.

## References:

*Bureau of Meteorology BOM 2018, – Climate statistics for Australian Locations - accessed January 2018*  
[http://www.bom.gov.au/climate/averages/tables/cw\\_056032.shtml](http://www.bom.gov.au/climate/averages/tables/cw_056032.shtml)

*TSC 2007, Tenterfield Shire Council- Policy Statement (Demand Management) - Amended 26 September 2007, Resolution No: 572/07.*

*NSW Office of Water (NOW), 2014, Water Management Amendment Act 2014, accessed January 2018*  
<http://www.water.nsw.gov.au/water-management/law-and-policy>

*Southern Downs Regional Council (SDRC) 2009, Drought Management Plan 2009 (Appendix A) accessed January 2018*  
<http://www.sdrc.qld.gov.au/ArticleDocuments/406/Drought%20Management%20Plan%20October%202009.pdf.aspx?Embed=Y>

*Kyogle Council 2005, Kyogle Water Services Drought Management Plan June 2005 accessed January 2018*  
[https://www.kyogle.nsw.gov.au/wp-content/uploads/2017/05/Drought\\_Management\\_Plan.pdf](https://www.kyogle.nsw.gov.au/wp-content/uploads/2017/05/Drought_Management_Plan.pdf)

*NSW Office of Water (NOW), 2018 Drought Management accessed January 2018*  
<http://www.water.nsw.gov.au/urban-water/country-town-water/best-practice-management/drought-relief>

*NSW Office of Water (NOW), 2016, Best Management Practice, July 2016, accessed January 2018*  
[http://www.water.nsw.gov.au/\\_data/assets/pdf\\_file/0005/549608/BPMF.pdf](http://www.water.nsw.gov.au/_data/assets/pdf_file/0005/549608/BPMF.pdf)

*NSW Office of Water (NOW), 2018, Integrated Water Cycle Management (IWCM) accessed January 2018*

*Viridis on behalf of Tenterfield Shire Council 2013, Drinking Water Management System – Tenterfield Shire Council, June 2013*

[\*No 1: Integrated Water Cycle Management – helping local water utilities provide better services \(PDF, 180 KB\)\*](#)

[\*No 3: Identifying Integrated Water Cycle Management issues and developing solutions \(PDF, 264.21 KB\)\*](#)

[\*No 4: The role and purpose of the Project Reference Group \(PDF, 190.81 KB\)\*](#)

[\*No 6: Evaluation of Integrated Water Cycle Management scenarios \(PDF, 189.54 KB\)\*](#)

[\*No 7: The role of consultants in the Integrated Water Cycle Management process \(PDF, 219.34 KB\)\*](#)

[\*IWCM Check List \(PDF, 223.04 KB\).\*](#)

## Appendix A – Schematics of Tenterfield & Urbenville Water Supply Schemes

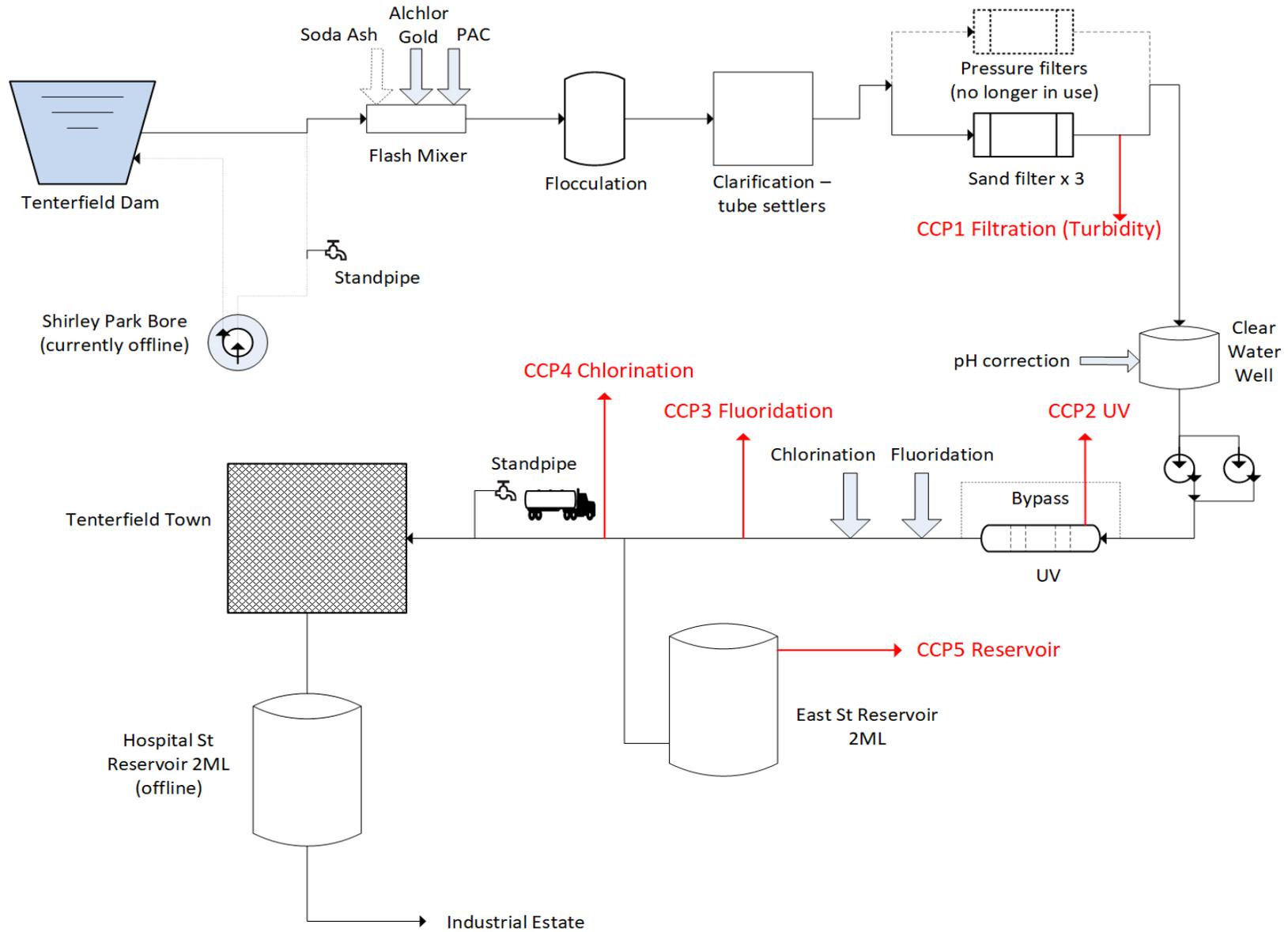


Figure 3 Tenterfield Water Supply (Viridis, 2018)

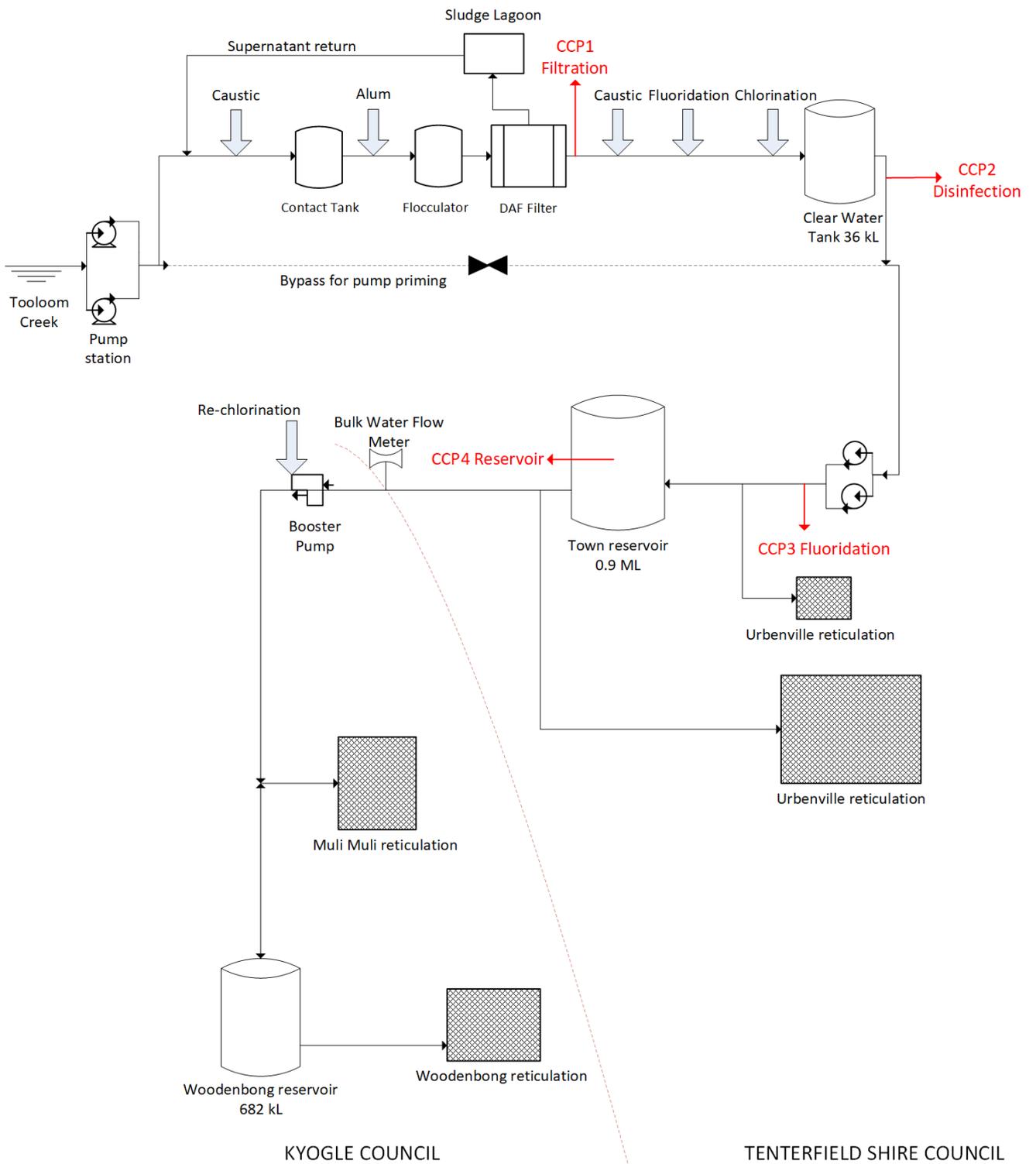
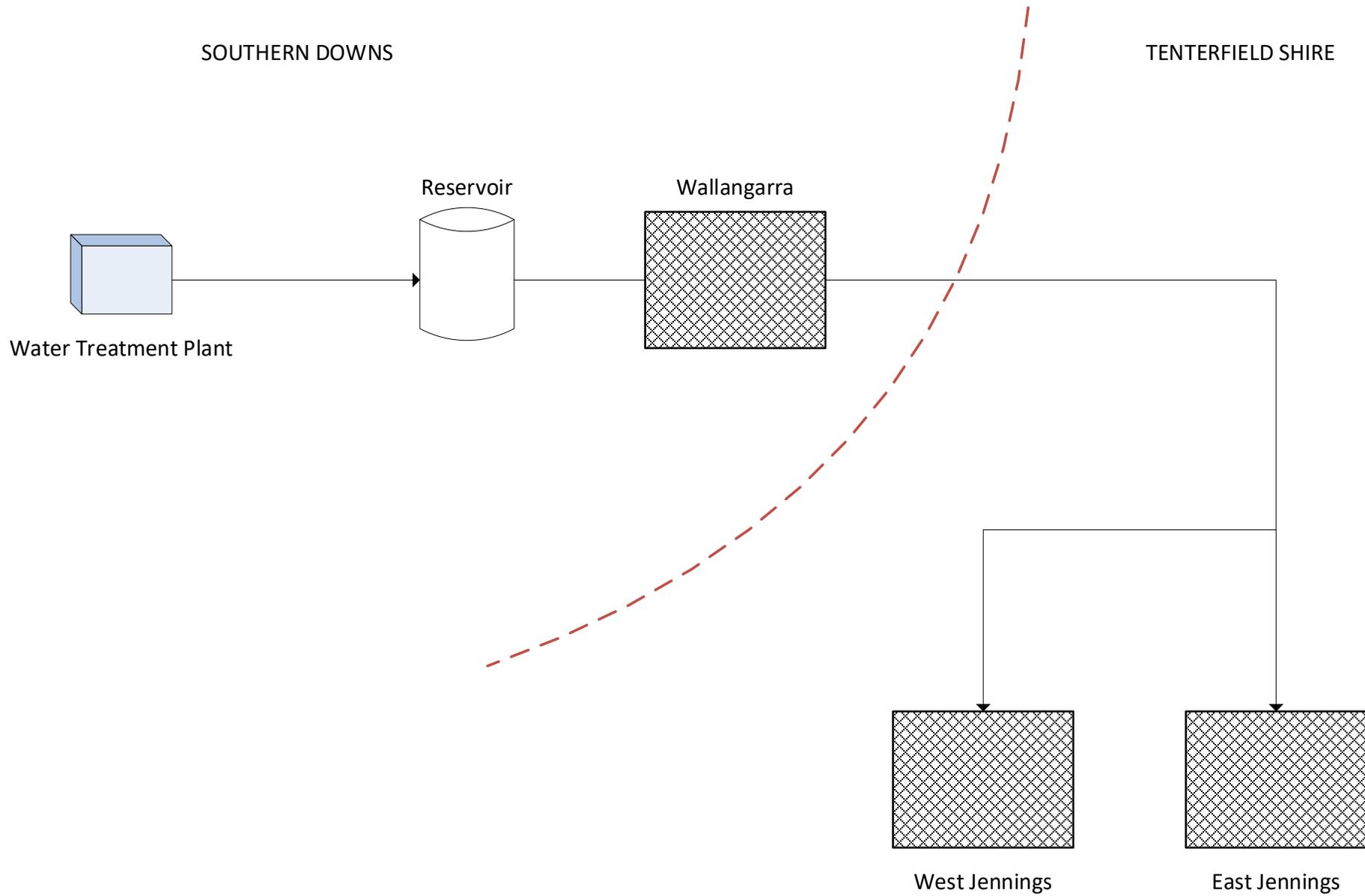


Figure 4 Urbenville Water Treatment (Viridis, 2018)



**Figure 5 Jennings Water Treatment (Viridis, 2018)**

## Appendix B – Urbenville/Woodenbong Water Supply Information

### URBENVILLE/WOODENBONG WATER SUPPLY

#### TOOLOOM CREEK CAPACITY - SURVEY REPORT

A survey has been carried out for the purpose of calculating the capacity of Tooloom Creek above the falls. The fieldwork was carried out from 11 - 15 November, 1996. A series of cross-sections were measured using a boat, a 5m staff, a total station theodolite and electronic data-logger. The set-up is shown in figure 1. A total of thirty-five cross-sections were measured with each section taking about forty minutes to complete. The creek is around thirty metres wide with depths varying from 1.5 - 5 metres deep. Sections were taken up to 3.8km upstream of the rock weir. The position of cross-sections are shown in figure 2. The levels obtained along the creek centreline were confirmed by echo soundings.

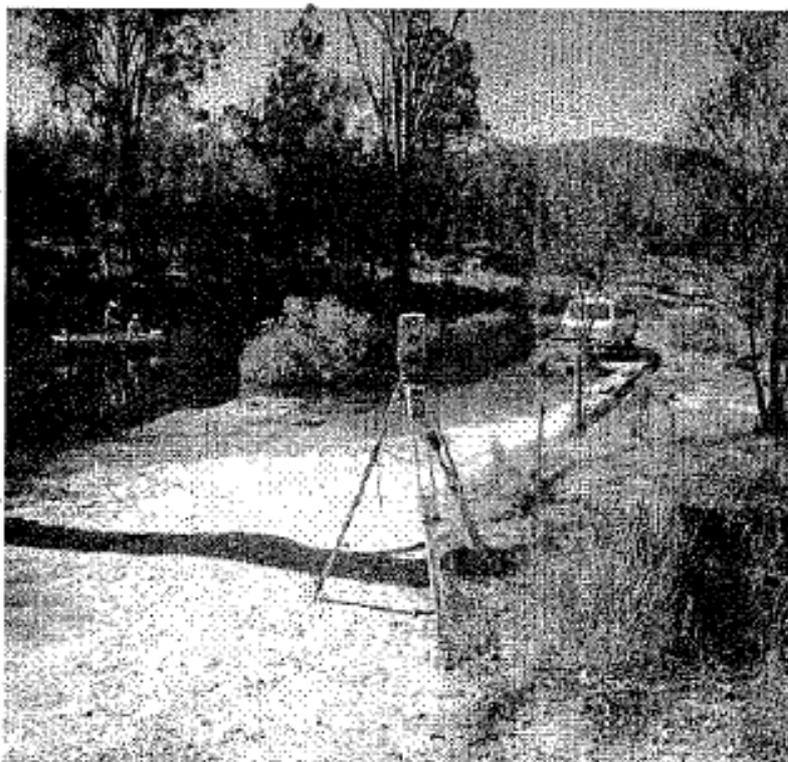


Figure 1

#### RESULTS

Once a digital terrain model has been created it is possible to extract volumes for any design surface. The main design surface for this model is the existing water level. The maximum water level in the creek is governed by the height of the spillway which is adjacent to the Tooloom Falls. The length of the model is governed by the number of cross-sections taken. The volume up to any particular cross-section can also be

becomes a useful reference point. For practical purposes the following capacities have been calculated.

- Spillway level &  
up to cross-section No. 31 240 Megalitres
- Spillway level &  
up to cross-section No. 37 253 Megalitres
- 0.3m above spillway level &  
up to cross-section No. 31 273 Megalitres
- 0.6m above spillway level &  
up to cross-section No. 31 308 Megalitres
- 0.9m above spillway level &  
up to cross-section No. 31 344 Megalitres

### SUMMARY

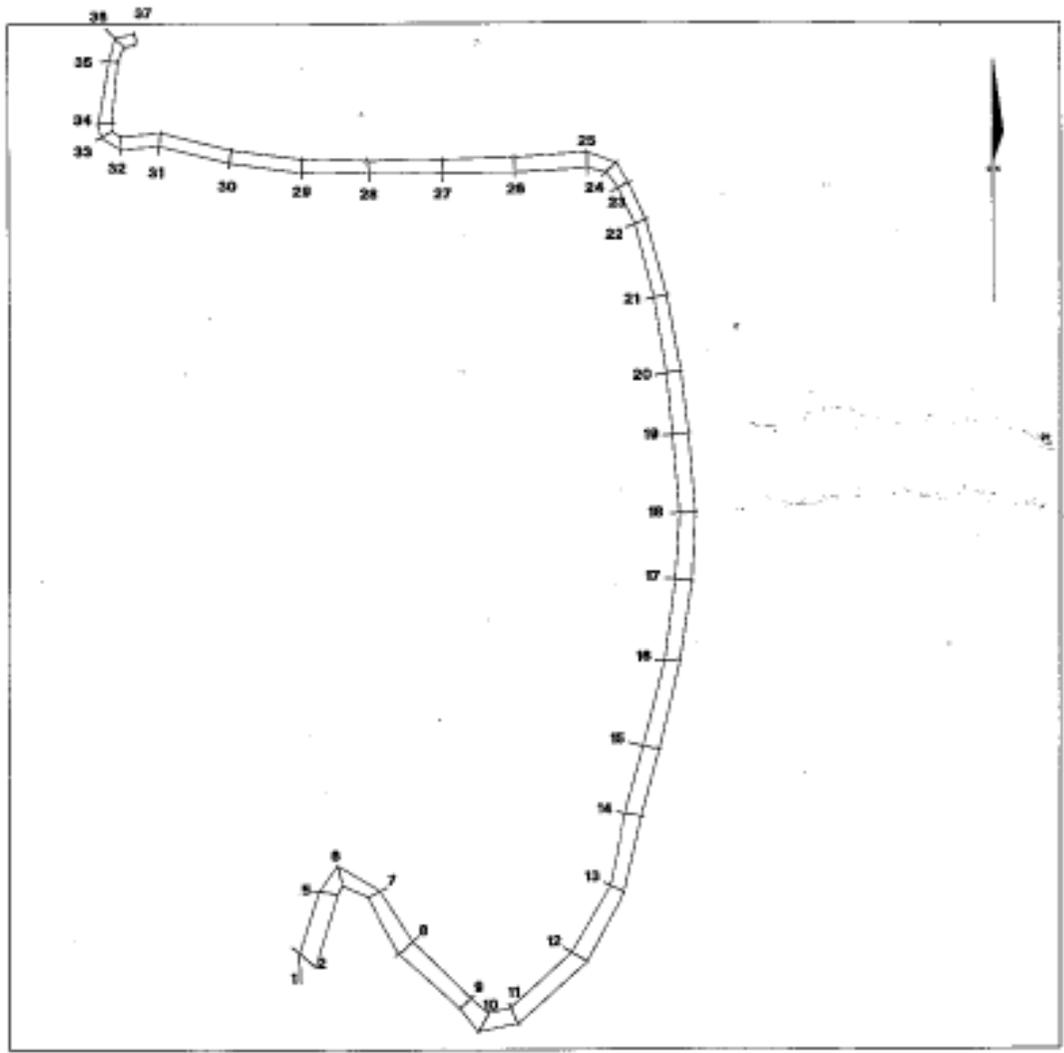
It is worth noting that at the pump station the creek is very shallow ( approximately 1 metre ) and that upstream from this point the creek begins to pool and becomes inconsistent in capacity. Although there are deep pools upstream of the pump station the capacity of the creek is not significantly affected. This is because of the fact that beyond cross-section No. 37 the creek becomes significantly shallower than at most points downstream of the pump station.

Another observation is that along the main straights ie. between No.12 & No. 22 and between No. 25 & No. 30, the depth of the creek is reasonably uniform ( 2.5 - 4.0m ), but at the bends, holes exist up to 7m deep.

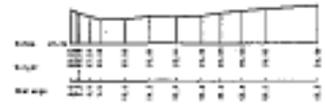
Where trees had fallen into and across the creek it was observed on the echo soundings that a significant amount of silt had built up on either side of the log effectively creating a minor blockage. One example of this exists between cross-section No. 18 & No. 19. The echo sounding roll may be viewed at any time and is in the possession of the Regional Surveyor at our Lismore office. A copy of the report showing the volume results calculated by our CADD Group is also attached.

  
STEPHEN C. SAUNDERS  
Registered Surveyor, Lismore  
Geomatics

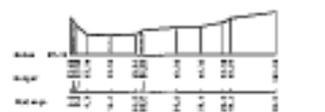
PLAN FROM CAT/No.



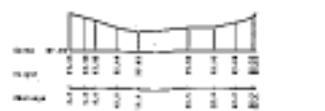
SECTION 1



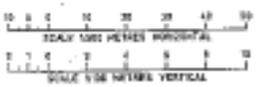
SECTION 2



SECTION 3



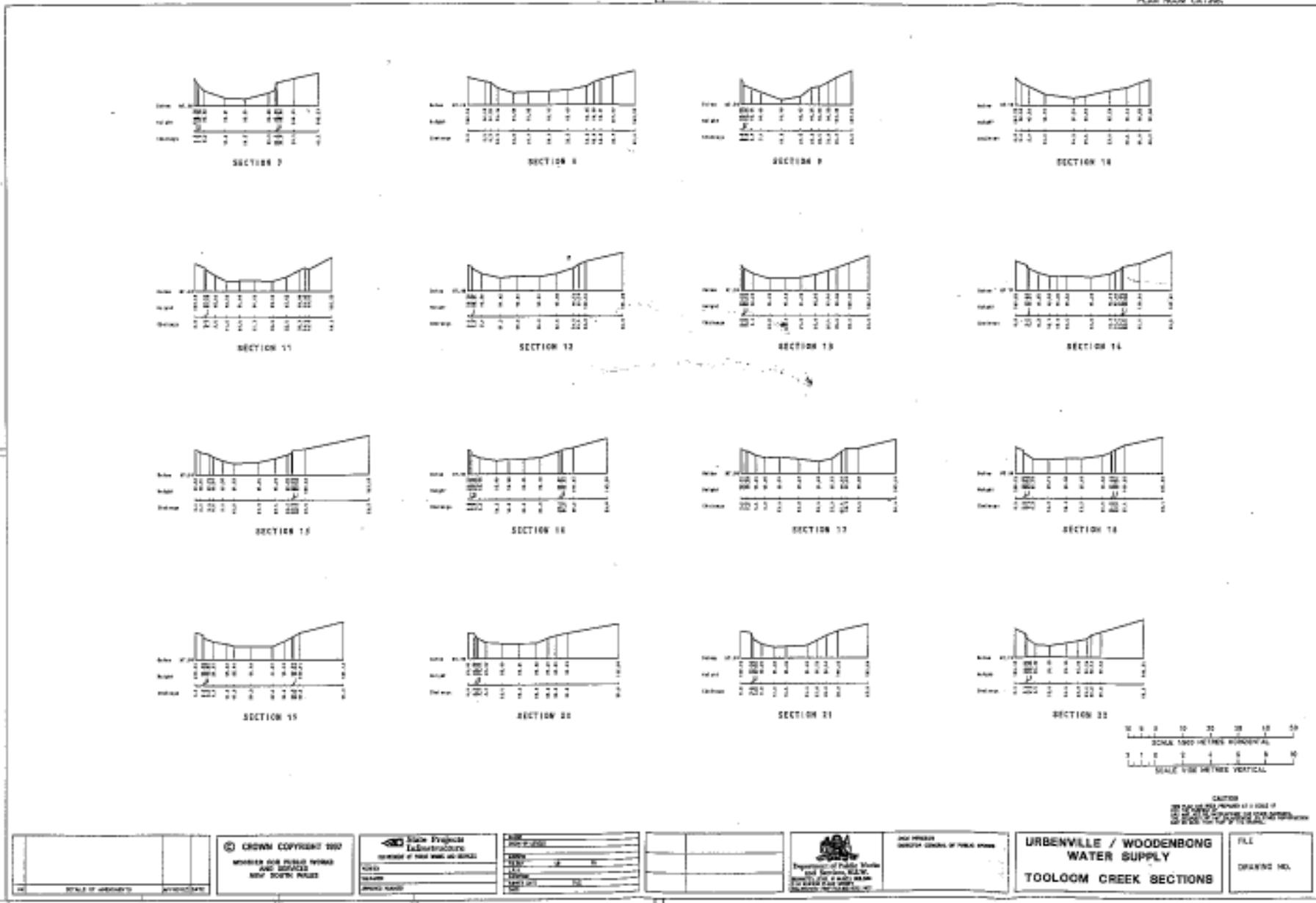
SECTION 4



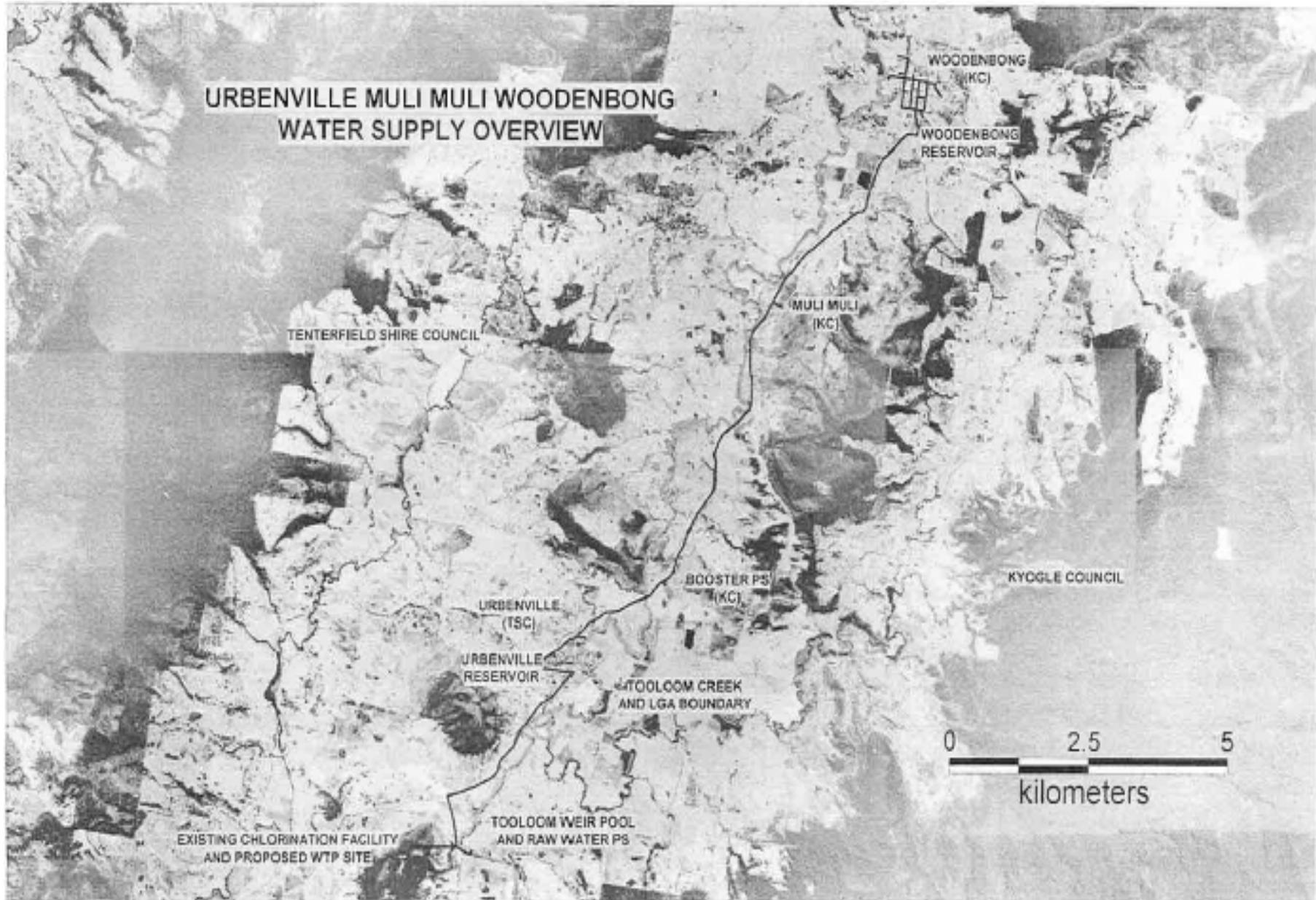
CAUTION  
 THIS DRAWING FORMED AS A PART OF  
 THE TOOLOOM CREEK WATER SUPPLY  
 PROJECT AND IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN PERMISSION OF THE TENTERFIELD SHIRE COUNCIL.

<p>DESIGN BY: [ ]</p> <p>CHECKED BY: [ ]</p>	<p>© CROWN COPYRIGHT 1987          MINISTER FOR PUBLIC WORKS          AND SERVICES          NEW SOUTH WALES</p>	<p>State Projects          Infrastructure          BOUNDARY OF PUBLIC TRUST AND RIGHTS</p>	<p>DATE: [ ]</p> <p>SCALE: [ ]</p> <p>PROJECT NO: [ ]</p>	<p>[ ]</p>	<p>Department of Public Works          and Services, NSW          WATER SUPPLY &amp; CIVIL ENGINEERING          12, GREAT WESTERN ROAD, SYDNEY</p>	<p>URBENVILLE / WOODENBONG          WATER SUPPLY          TOOLOOM CREEK SECTIONS</p>	<p>PLT          DRAWING NO.</p>
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PLAN ROOM CAT#m







## Appendix C – Community Notices and Advertising for Restriction Levels



# LEVEL 1 Water Restrictions News story

11 April 2018

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Tenterfield needs rain!

Residents of the Tenterfield Community are advised that our Tenterfield Dam is now at 70% capacity! This is concerning news for residents as Council has to place the town of Tenterfield on level one water restrictions.

Level one water restrictions are the lowest of the water restriction levels and are designed to provide some community awareness into water saving techniques. By raising community awareness we can all help to reduce water consumption and save our precious water supply.

The Level 1 restrictions reduce water usage through restricting the use of garden watering to two hours a day and residents are asked to abide by these restrictions.

Water is Life! Help our Community - Save Water!



# LEVEL 1

## Water Restrictions

### Advertisement

11 April 2018

---

Tenterfield Dam is now at 70% capacity. Council has now enacted the Drought Management plan and issued the town of Tenterfield level one water restrictions.

Level one water restrictions are the lowest of the water restriction levels and are designed to provide some community awareness into water saving techniques. By raising community awareness we can all help to reduce water consumption and save our precious water supply.

The Level 1 restrictions reduce water usage through restricting the use of garden watering to two hours a day and residents are asked to abide by these restrictions.



## **NOTICE**

11 April 2018

### **LEVEL 1**

## **WATER RESTRICTION**

Tenterfield Dam is now at 70% capacity.

Level one water restrictions are now in force

Restrictions are for the use of garden watering to be limited to two hours a day and residents are asked to abide by these restrictions.

## Appendix D – Water Restriction Exemption Request Form



# Tenterfield Shire Council

### WATER RESTRICTION EXEMPTION REQUEST FORM

Customer/ Business Name			Date	
Lot No:	Street No:	Street Name:		
Telephone No (Bus)		After Hours:	Mobile:	
Fax:		Email:		

**Category of restriction to which the permit request applies (Tick one box only)**

- |   |   |
|---|---|
| <input type="checkbox"/> Private Gardens                  | <input type="checkbox"/> Cleaning Paved Areas           |
| <input type="checkbox"/> Public Gardens                   | <input type="checkbox"/> Construction Activities        |
| <input type="checkbox"/> Ponds and Lakes                  | <input type="checkbox"/> Sports Ground/Recreation Areas |
| <input type="checkbox"/> Fountains                        | <input type="checkbox"/> Retail Gardens or Nursery      |
| <input type="checkbox"/> Cleaning Windows/Buildings Roofs | <input type="checkbox"/> Wholesale Gardens/Nursery      |
| <input type="checkbox"/> Farm Dams                        | <input type="checkbox"/> Vehicles, Boats or Aircraft    |
| <input type="checkbox"/> Swimming Pools                   | <input type="checkbox"/> Other .....                    |

From: .....am/pm to.....am/pm	Which days (circle) Mon Tue Wed Thu Fri Sat Sun	Dates ( if applicable ) .....
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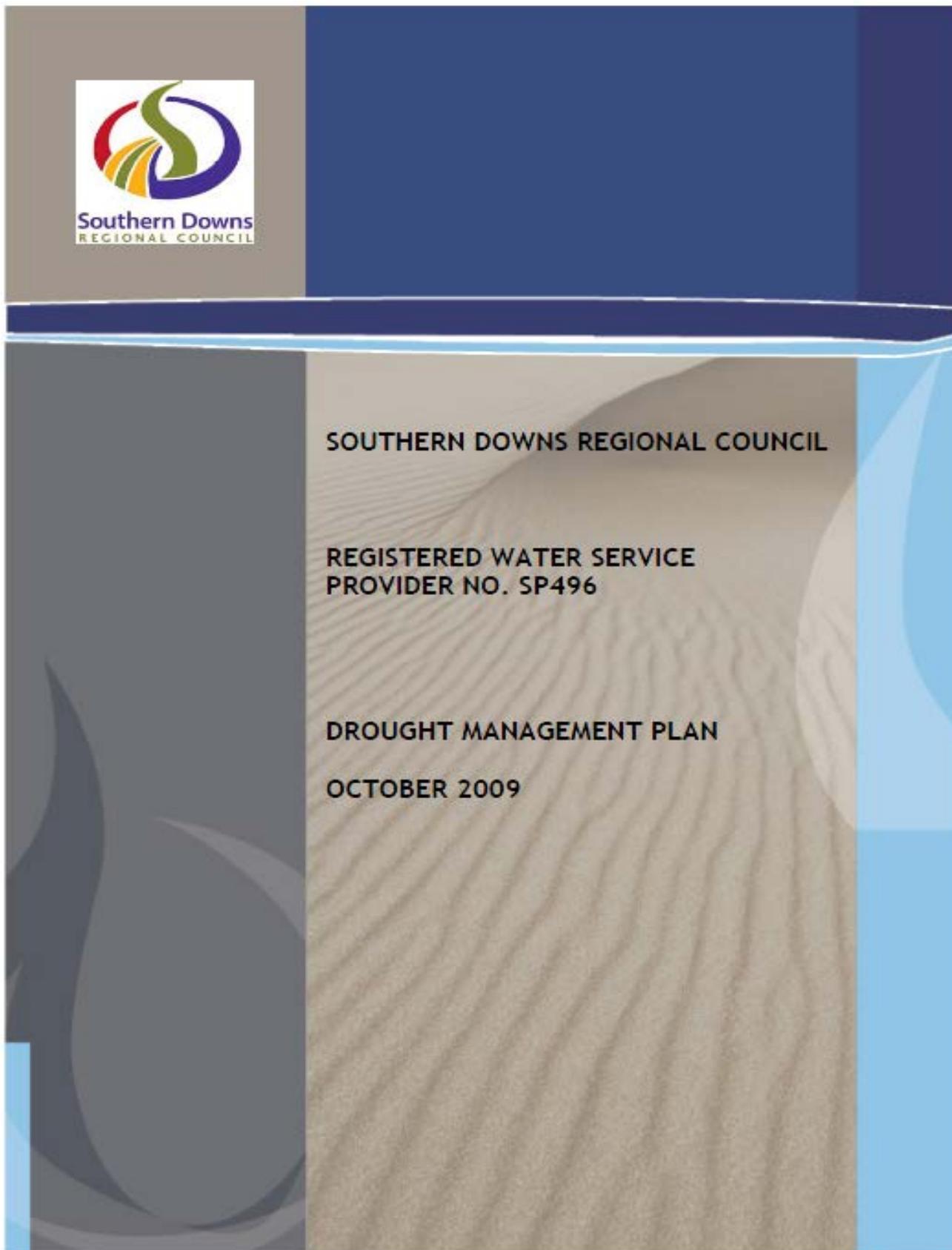
**Please select appropriate reason for which an exemption should be granted (Tick Box)**

- |   |   |
|---|---|
| <input type="checkbox"/> Adverse Financial Impact         | <input type="checkbox"/> Physical Damage to a Building or Structure |
| <input type="checkbox"/> Results in Less Water Being Used | <input type="checkbox"/> Public Health or Safety                    |
| <input type="checkbox"/> Special Needs and Shift in Hours | <input type="checkbox"/> Filling Swimming Pool or Spa               |



## Appendix E – Southern Downs Regional Council Drought Management Plan.

The following information regarding Jennings Water Restrictions was extracted from;



**TABLE 5.3: Restrictions on the Use of Water from SDRC Water Supply Systems**

Use Category	Permanent Measures	Medium Level	High Level	Extreme Level
<b>Maximum consumption target</b>	230 litres per person per day	200 litres per person per day	170 litres per person per day	140 litres per person per day
<b>1. Outdoor water use - garden and lawn watering</b>	<p>Allocated three days per week except between 10am and 4pm.</p> <p>Buckets, hoses, sprinklers and fixed irrigation systems allowed as per explanatory notes.</p>	<p>Four hours on each of the allocated three days per week.</p> <p>Watering restricted to between 7am and 9am and 4pm and 6pm from May to September (inclusive) and from 6am to 8am and 5pm to 7pm from October to April (inclusive).</p> <p>Buckets, hoses, sprinklers and fixed irrigation systems allowed as per explanatory notes</p>	<p>One hour on each of the three allocated days.</p> <p>Watering restricted to between 5pm and 6pm from May to September (inclusive) and from 6pm to 7pm from October to April (inclusive)</p> <p>Lawns may not be watered.</p> <p>Use of sprinklers and fixed irrigation systems prohibited, one handheld hose is allowed to be used per premises or buckets may be filled directly from one tap.</p>	<p>One hour on allocated day.</p> <p>Watering restricted to between 4pm to 5pm from May to September (inclusive) and from 6pm and 7pm from October to April (inclusive).</p> <p>Lawns may not be watered.</p> <p>Only buckets filled directly from one tap may be used.</p>



Use Category	Permanent Measures	Medium Level	High Level	Extreme Level
<p><b>2. High volume water users - residential</b></p>	<p>All ratepayers connected to the water supply receive a water brochure with their water bills containing water saving hints and tips. Average daily water use for the billing period is shown on the bill.</p>	<p>Household using more than 1 kilolitres per day (average) in any one billing period will be sent a standard letter asking them to reduce water usage and providing water saving hints and tips. Residents will also be encouraged to contact Council to discuss their individual circumstances.</p>	<p>Household using more than 800 litres per day (average) in any one billing period will be sent a standard letter asking them to fill out a short questionnaire about number of residents and water usage. Information on water saving hints and tips will also be included. Households with five or more permanent residents will not be contacted again. Households with four or less permanent residents will be advised that if their water usage exceed 170 litres per person per day (average) for two consecutive billing periods then an outdoor watering ban will be imposed. and their supply may be restricted when Extreme Level is reached</p>	<p>Household using more than 600 litres per day (average) in any one billing period will be sent a standard letter asking them to fill out a short questionnaire about number of residents and water usage. Information on water saving hints and tips will also be included. Households with five or more permanent residents will be sent a further letter asking them to reduce water usage to below 140 litres per person per day (average) Households with four or less permanent residents will be advised that if their water usage exceeds 140 litres per person per day (average) for two consecutive billing periods an outdoor watering ban will be imposed and their supply will be restricted.</p>



<b>Use Category</b>	<b>Permanent Measures</b>	<b>Medium Level</b>	<b>High Level</b>	<b>Extreme Level</b>
<b>3. High volume commercial and industrial users – more than 10ML per annum</b>	By June 2010 users will be contacted to explain the provisions of the new DMP. Users will be advised of the requirement to develop and submit a Water Use Efficiency Plan (WEMP) before Medium Level is imposed.	Users must have submitted a WEMP to Council for approval. Users must commence implementing the water efficiency measures approved in their WEMP	Users must be implementing the measures in an approved WEMP	Users must be implementing the measures in an approved WEMP.
<b>4. Vehicle washing businesses</b>	By June 2010 users will be contacted to explain the provisions of the new DMP.	Users will be contacted to discuss water saving initiatives and to remind users of the requirement to prepare a Simplified WEMP and submit it for approval to Council.	Users must be implementing an approved Simplified WEMP	Users must be implementing an approved Simplified WEMP
<b>5. Vehicle washing – motor dealerships</b>	Vehicles may be washed using a trigger hose during allowed outside water use times.	Vehicles may be washed using a trigger hose during allowed outside water use times.	Vehicles may be washed using a bucket filled directly from the tap during allowed outside water use times. The initial cleaning of a vehicle when it is delivered to the premises to ready it for sale may be carried out using a high pressure cleaning unit using a minimum amount of water.	Vehicles may be washed using a bucket filled directly from the tap during allowed outside water use times The initial cleaning of a vehicle when it is delivered to the premises to ready it for sale may be carried out using a high pressure cleaning unit using a minimum amount of water.



<b>Use Category</b>	<b>Permanent Measures</b>	<b>Medium Level</b>	<b>High Level</b>	<b>Extreme Level</b>
<b>6. Food transport vehicles.</b>	<p>Vehicles may be washed using a trigger hose during allowed outdoor water use times</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>	<p>Vehicles may be washed using a trigger hose during allowed outdoor water use times.</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>	<p>Vehicles may be washed using a bucket filled directly from the tap during allowed outdoor water use times.</p> <p>If cleaning of the vehicle is required at other times for health or safety reasons a high pressure cleaning unit may be used whilst minimizing the amount of water used.</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>	<p>Vehicles may be washed using a bucket filled directly from the tap during allowed outdoor water use times.</p> <p>If cleaning of the vehicle is required at other times for health or safety reasons a high pressure cleaning unit may be used whilst minimizing the amount of water used.</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>
<b>7. Outdoor water use - Vehicle washing; cars, boats, trucks, (not as part of a vehicle washing business).</b>	<p>Vehicles may be washed using a trigger hose during allowed outdoor water use times.</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>	<p>Vehicles may be washed using a trigger hose during allowed outdoor water use times.</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>	<p>Vehicles may be washed using a bucket filled directly from one tap during allowed outdoor water use times.</p> <p>Vehicles must be positioned on a grassed area.</p> <p>Water from a bucket filled directly from a tap may be used to clean windows, mirrors and headlights at any time for safety reasons.</p>	<p>Vehicles may be washed using a bucket filled directly from the tap during allowed outdoor water use times.</p> <p>Vehicles must be positioned on a grassed area.</p> <p>Water from a bucket filled directly from one tap may be used to clean windows, mirrors and headlights at any time for safety reasons</p>



<b>Use Category</b>	<b>Permanent Measures</b>	<b>Medium Level</b>	<b>High Level</b>	<b>Extreme Level</b>
<b>8. Outdoor water use - Pools, spas, water play</b>	New or existing pools, water play pools or spas may be filled or topped up during allowed outdoor water use times.	Existing pools and spas may be topped up during allowed outdoor water use times. Water play pools may be filled or topped up during allowed outdoor water use times.	Pools or spas may not be filled or topped up. Water play pools may be filled or topped up during allowed outdoor water use times.	Pools, spas or water play pools may not be filled or topped up.
<b>9. Outdoor water use - Ornamental ponds, fountains.</b>	May be topped up during allowed outdoor water use	May be topped up during allowed outdoor water use	No topping up of ponds is allowed unless from an alternate water source. Fountains must not operate unless water is recycled and any topping up is done from an alternate water source.	No topping up of ponds is allowed unless from an alternate water source. Fountains must not operate unless water is recycled and any topping up is done from an alternate water source.
<b>10. Outdoor water use - Washing of external paved or concrete surfaces</b>	Water from a bucket or a high pressure cleaning unit may be used to clean external paved or concrete surfaces during allowed outdoor water use, whilst minimizing the amount of water used.	Washing of residential external paved or concrete surfaces is not allowed unless for health or safety reasons. Commercial premises may use a high pressure cleaning unit to clean external paved or concrete surfaces during allowed outdoor water use, whilst minimizing the amount of water used.	Washing of residential external paved or concrete surfaces is not allowed unless for health or safety reasons. Commercial premises may use a high pressure cleaning unit to clean external paved or concrete surfaces during allowed outdoor water use, whilst minimizing the amount of water used.	Washing of external paved or concrete surfaces is not allowed unless for health or safety reasons.



<b>Use Category</b>	<b>Permanent Measures</b>	<b>Medium Level</b>	<b>High Level</b>	<b>Extreme Level</b>
<b>11. Outdoor water use - Washing buildings, including windows, walls and roofs.</b>	Buildings may be washed using water from a bucket, a trigger hose or high pressure cleaning unit during allowed outdoor water use	Buildings may be washed using a trigger hose or high pressure cleaning unit during allowed outdoor water use.	Windows may be washed using a bucket filled directly from a tap during allowed outdoor water use.	Not allowed.
<b>12. Building, construction and development</b>	By June 2010 users will be contacted to explain the provisions of the new DMP.	Users will be contacted to discuss water saving initiatives and to remind users of the requirement to prepare a Simplified WEMP and submit it for approval to Council.	Users must be implementing an approved Simplified WEMP.	Users must be implementing an approved Simplified WEMP.
<b>13. Active playing surfaces.</b>	Active playing surfaces may be watered during allowed outdoor water use times.	Develop a site specific watering plan and submit it to Council for approval. Active playing surfaces may be watered during allowed outdoor water use times.	Implement the High Level measures contained in an approved site specific watering plan. If the premises do not have an approved site specific watering plan then the active playing surfaces may only be watered during allowed outdoor water use times.	Implement the Extreme Level measures contained in an approved site specific watering plan. If the premises do not have an approved site specific watering plan then the active playing surfaces may only be watered during allowed outdoor water use times.



<b>Use Category</b>	<b>Permanent Measures</b>	<b>Medium Level</b>	<b>High Level</b>	<b>Extreme Level</b>
<b>14. Market gardens, commercial nurseries, turf farms, using more than 1ML per annum.</b>	By June 2010 users will be contacted to explain the provisions of the new DMP.	Users will be contacted to discuss water saving initiatives and to remind users of the requirement to prepare a Simplified WEMP and submit it for approval to Council.	Users must be implementing an approved Simplified WEMP.	Users must be implementing an approved Simplified WEMP.
<b>15. Rainwater tanks or other water storages such as large drums at premises connected to the town water supply</b>	May not be filled or topped up with water from the town water supply either by hose or by tanker. If the rainwater tank is connected to the town water supply then all restrictions on the use of water from the town water supply will also apply to water from the rainwater tank.	May not be filled or topped up with water from the town water supply either by hose or by tanker. If the rainwater tank is connected to the town water supply then all restrictions on the use of water from the town water supply will apply to water from the rainwater tank as well.	May not be filled or topped up with water from the town water supply either by hose or by tanker. If the rainwater tank is connected to the town water supply then all restrictions on the use of water from the town water supply will apply to water from the rainwater tank as well.	May not be filled or topped up with water from the town water supply either by hose or by tanker. If the rainwater tank is connected to the town water supply then all restrictions on the use of water from the town water supply will apply to water from the rainwater tank as well.

## Appendix F – Tenterfield Water Supply and Restriction Levels

Water Restrictions	RL (AHD)	Below Spillway (m)	Current Capacity (ML)	Capacity Percent
<b>None</b>	<b>880.054</b>	<b>0.00</b>	<b>1393</b>	<b>100%</b>
	880.00	0.05	1374	99%
	879.95	0.10	1352	97%
	879.90	0.15	1331	96%
	879.85	0.20	1310	94%
	879.80	0.25	1289	93%
	879.75	0.30	1268	91%
	879.70	0.35	1247	90%
	879.65	0.40	1226	88%
	879.60	0.45	1208	87%
	879.55	0.50	1190	85%
	879.50	0.55	1172	84%
	879.45	0.60	1154	83%
	879.40	0.65	1136	82%
	879.35	0.70	1118	80%
	879.30	0.75	1100	79%
	879.25	0.80	1082	78%
	879.19	0.86	1045	75%
	879.15	0.90	1027	74%
	879.10	0.95	1010	73%
	879.05	1.00	994	71%
<b>Level 1</b>	<b>878.99</b>	<b>1.06</b>	<b>975</b>	<b>70%</b>
	878.95	1.10	957	69%
	878.90	1.15	939	67%
	878.85	1.20	921	66%
	878.80	1.25	903	65%
	878.75	1.30	885	64%
	878.69	1.36	867	62%
<b>Level 2</b>	<b>878.59</b>	<b>1.46</b>	<b>836</b>	<b>60%</b>
	878.39	1.66	770	55%
	878.29	1.76	737	53%
	878.19	1.86	704	51%

Water Restrictions	RL (AHD)	Below Spillway (m)	Current Capacity (ML)	Capacity Percent
<b>Level 3</b>	<b>878.17</b>	<b>1.88</b>	<b>697</b>	<b>50%</b>
	878.09	1.96	662	48%
	877.99	2.06	627	45%
	877.89	2.16	592	42%
<b>Level 4</b>	<b>877.79</b>	<b>2.26</b>	<b>557</b>	<b>40%</b>
<b>Level 4.5</b>	<b>877.69</b>	<b>2.36</b>	<b>520</b>	<b>37%</b>
	877.59	2.46	502	36%
	877.49	2.56	484	35%
	877.39	2.66	466	33%
	877.29	2.76	448	32%
	877.19	2.86	430	31%
	877.09	2.96	409	29%
	876.99	3.06	388	28%
<b>Level 4.7</b>	<b>876.89</b>	<b>3.16</b>	<b>367</b>	<b>26%</b>
	876.79	3.26	346	25%
	876.69	3.36	325	23%
	876.59	3.46	311	22%
	876.49	3.56	297	21%
	876.39	3.66	283	20%
	876.29	3.76	269	19%
	876.19	3.86	255	18%
<b>Level 5</b>	<b>875.86</b>	<b>4.19</b>	<b>209</b>	<b>15%</b>
	875.69	4.36	185	13%
	875.19	4.86	140	10%
	874.69	5.36	95	7%
	874.19	5.86	65	5%
	873.69	6.36	35	3%
	873.19	6.86	23	2%
	872.69	7.36	10	1%
<b>Dam Empty</b>	<b>871.69</b>	<b>8.36</b>	<b>0</b>	<b>0%</b>

Notes:

Maximum Flood Level (MFL)

RL 881.97 Pump House Floor

RL 871.98

Full Supply Level (FSL)

RL 880.054 Trunion Obvert

RL 871.57

Invert of pipe to mixing tank

RL 875.42 AHD(m) = Water Supply Standard Datum (m) plus 1.62m

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