

ORDINARY COUNCIL MEETING

WEDNESDAY, 25 MARCH 2020

ATTACHMENT BOOKLET 1

Attachment No. 1 Development Servicing Plan – Water Supply

Attachment No. 2 Developing Servicing Plan – Sewerage Services

Development Servicing Plan – Water Supply

DSP Review Project

360791



Prepared for
Tenterfield Shire Council

16 March 2020



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Summary

This Development Servicing Plan (DSP) covers water supply developer charges in regard to the Tenterfield, Urbenville and Jennings development areas serviced by Tenterfield Shire Council.

This DSP document has been prepared in accordance with the 2016 Developer Charges Guidelines for Water Supply, Sewerage and Stormwater issued by the Minister for Lands and Water, pursuant to Section 306 (3) of the *Water Management Act, 2000*.

The area covered by each DSP, and the existing and proposed works serving the area are shown on the document in Section 12.

The timing and expenditures for works serving the area covered by each DSP are shown in Section 4.

Levels of service to be provided in each DSP area are summarised in Section 5.

The water supply developer charges for the areas covered by this DSP document have been determined as follows:

Table 1-1 Proposed Developer Charges

Service	DSP Name	Developer Charge (\$ per ET)
Water Supply	DSP Area A - Tenterfield - Urbenville	\$10,746
	DSP Area B Jennings	\$4,108

Developer charges relating to this DSP document will be reviewed after a period of 4 to 8 years.

In the period between any review, developer charges will be adjusted annually on the basis of the movements in the CPI for Sydney, excluding the impact of GST.

The developer shall be responsible for the full cost of the design and construction of water supply and sewerage reticulation works within subdivisions section.

Background information containing all the critical data including calculation models behind each DSP is available on request (e.g. on USB).

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1 Introduction

Section 64 of the *Local Government Act, 1993* enables a local government council to levy developer charges for water supply, sewerage and stormwater. This derives from a cross-reference in that Act to Section 306 of the *Water Management Act, 2000*.

A Development Servicing Plan (DSP) details the water supply, sewerage and/or stormwater developer charges to be levied on development areas utilising a water utility's water supply, sewerage and/or stormwater infrastructure.

This DSP document covers water supply developer charges in regard to the Tenterfield, Urbenville and Jennings development areas served by Tenterfield Shire Council (TSC).

This DSP document has been prepared in accordance with the 2016 Developer Charges Guidelines for Water Supply, Sewerage and Stormwater issued by the Minister of Lands and Water, pursuant to Section 306 (3) of the *Water Management Act, 2000*.

This DSP document supersedes any other requirements related to water supply developer charges for the areas covered by this DSP. This DSP takes precedence over any of TSC's code or policies where there are any inconsistencies relating to water supply developer charges.

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2 Administration

2.1 DSP Name and Area Covered

The service area boundaries within this DSP are defined by the extent of the water supply systems within the LGA. These boundaries capture the existing and future developments served by the TSC. Table 2-1 outlines the service areas.

Table 2-1 DSP name and area covered

DSP Name	Area Covered
Tenterfield	The area covered by this DSP is shown on Plan 360791-002-GS-002-ZoningPlan_Tenterfield. The DSP area is defined as the area served by the Tenterfield water supply system.
Urbenville	The area covered by this DSP is shown on Plan 360791-002-GS-004-ZoningPlan_Urbenville. The DSP area is defined as the area served by the Urbenville water supply system.
Jennings	The area covered by this DSP is shown on Plan 360791-002-GS-003-ZoningPlan_Jennings. The DSP area boundary is defined as the area served by the Southern Downs Regional water supply system within Tenterfield Shire Council area.

2.2 Payment of Developer Charges

Developer charges will be determined and levied in accordance with the provisions of this DSP document at the time of considering an application for a compliance certificate under Section 305 of the *Water Management Act 2000* or a construction certificate under Section 109 of the *Environmental Planning and Assessment Act 1979* or at the time of issuing a notice or other form of written advice, e.g. under the *SEPP (Exempt and Complying Development Codes) 2008*. The time limit for payment of developer charges will be included in the notice of determination or will be advised to the developer by a separate notice. The amount of any developer charges not paid within the specified time limit will lapse. Any subsequent determination of developer charges will be made in accordance with TSC's then current DSP.

2.3 Dispute Resolution

Disputes will be resolved in accordance with Section 2.9 of the Guidelines. TSC is not a member of the Electricity and Water Ombudsman (EWON).

3 Demographic and land use planning information

3.1 Growth Projections

Growth projections for Tenterfield Local Government Area (LGA) population are shown in Table 3-1. These projections are from 2019 to 2049, which is TSC's current planning horizon.

The population and number of Equivalent Tenements (ETs) in January 1996 (ie. 1995/96) are also indicated.

ET calculations are included in Section 7.3 of this DSP document.

Given the low population growth rate and its volatility to even small changes in new developments, an alternate reference was considered for the growth rate to be used for ETs. Analysing the number of connected properties within the LGA to the water supply systems, yields a more consistent growth rate of 0.68% and provides a more reliable basis for forecasting the ETs and performing the required calculations for the developer charges. This is shown in Table 3-2.

Table 3-1 Projected population growth

Year	Population	Population Growth Rate (% p.a.)	Adopted ET Growth Rate (%pa) based on the connect properties
1995/96	6,195		
2018/19	7,210	0.28%	0.68%
2019/20	7,230	0.28%	0.68%
2020/21	7,250	0.28%	0.68%
2021/22	7,250	0.00%	0.68%
2022/23	7,250	0.00%	0.68%
2023/24	7,250	0.00%	0.68%
2024/25	7,250	0.00%	0.68%
2025/26	7,250	0.00%	0.68%
2026/27	7,250	0.00%	0.68%
2027/28	7,250	0.00%	0.68%
2028/29	7,250	0.00%	0.68%
2029/30	7,250	0.00%	0.68%
2030/31	7,250	0.00%	0.68%
2031/32	7,230	-0.28%	0.68%
2032/33	7,210	-0.28%	0.68%
2033/34	7,190	-0.28%	0.68%
2034/35	7,170	-0.28%	0.68%
2035/36	7,150	-0.28%	0.68%
2036/37	7,150	0.00%	0.68%
2037/38	7,150	0.00%	0.68%
2038/39	7,150	0.00%	0.68%
2039/40	7,150	0.00%	0.68%
2040/41	7,150	0.00%	0.68%
2041/42	7,150	0.00%	0.68%
2042/43	7,150	0.00%	0.68%
2043/44	7,150	0.00%	0.68%

Year	Population	Population Growth Rate (% p.a.)	Adopted ET Growth Rate (%pa) based on the connect properties
2044/45	7,150	0.00%	0.68%
2045/46	7,150	0.00%	0.68%
2046/47	7,150	0.00%	0.68%
2047/48	7,150	0.00%	0.68%
2048/49	7,150	0.00%	0.68%

Table 3-2 Connected Properties for water supply

Year	LGA	Tenterfield	Urbenville	Jennings
2008	2,033	1,800	150	83
2009	2,044	1,815	145	84
2010	2,074	1,840	148	86
2011	2,072	1,840	148	84
2012	2,096	1,860	152	84
2019	2,184	1,916	165	103
Average growth rate		0.68%		

Growth projections for the number of Equivalent Tenements (ETs) for water supply are shown in Table 3-3. The ET in January 1996 is also indicated. ET calculations are included in Section 7.3 of the DSP document.

Table 3-3 Projected demand growth for ETs

Service Area	ETs 1996	Current ETs 2019	Projected ETs 2049	Total New ETs	Proportion of Growth
Jennings	85	100	122	22	4.19%
Tenterfield	1,807	2,112	2,584	472	88.55%
Urbenville	148	173	212	39	7.26%
Total	2,041	2,385	2,918	533	100%

3.2 Land Use Information

This DSP document should be read in conjunction with Tenterfield Local Environmental Plan (LEP) 2013 which sets the framework for planning and development and applies land zonings across the LGA. These zonings specify the land uses permitted in each of the zones and provide development standards that may apply to specific developments. Tenterfield currently does not have any specific strategies in place to guide future residential and commercial development across the LGA. Low population growth has resulted in most developments being in-fill development within Tenterfield itself or small subdivisions on the edge of established towns and villages.

On 1 March 2018, the NSW Government updated the Environmental Planning and Assessment Act 1979 with a number of changes required to be implemented at various stages over the next few years. This included the requirement for Council's to prepare a Local Strategic Planning Statement (LSPS) set out the 20-year vision for land-use in the local area, the special character and values that are to be preserved and how change will be managed into the future. This would, in turn, inform the future Local Housing Strategy and any LEP amendments that may be required to implement the outcomes of the LSPS. The requirement to deliver the LSPS and associated LEP Review is late 2019.

4 Water Supply Infrastructure

The existing and proposed water supply headworks serving the areas covered by this DSP are shown on plans in Section 12.

The existing and proposed water supply distribution works serving the areas covered by this DSP document are shown on Plans in Section 12.

4.1 Existing Capital Costs

The estimated MEERA capital cost of water supply capital works servicing the areas covered by this DSP document are shown in Section 14. Note that only those assets built in the last 30 years are included.

4.2 Future Capital Works Program

The timing and expenditure for water supply capital works (including backlog works) serving the area covered by this DSP document are shown in Section 15.

4.3 Reticulation Works

The developer shall be responsible for the full cost of the design and construction of water supply reticulation works within subdivisions.

5 Levels of Service

System design and operation are based on providing the following levels of service (LOS). Typical levels of service are outlined below.

Further information on levels of service is available from:

- > Tenterfield Shire Council's Strategic Business Plan for Water Supply and Sewerage Services, December 2015, (available at www.tenterfield.nsw.gov.au).
- > NSW Water and Sewerage Strategic Business Planning Guidelines, NSW Office of Water, July 2011, (available at www.water.nsw.gov.au).

5.1 Water Supply

The LOS that apply to TSC's water supply system are the targets that TSC aims to meet. These targets are not intended as a formal customer contract. The key LOS provided in Tenterfield Shire Council's Strategic Business Plan for Water Supply and Sewerage Services 2015 are found in Table 5-1.

Table 5-1 Water Supply Levels of Service

Description	Units	Target Level of Service
Availability of Supply	-	All residential and non-residential properties within the defined service area.
Peak Day Demand	L/dwelling/day	2,000
Average Annual Demand	kL/dwelling/year	190
Fire Fighting	L/s	Water will be available from the fire hydrants for firefighting at minimum flow rates determined by guidelines for specific types of development as set out in Local Government Regulations and the conditions established by the NSW Fire Brigade
Pressure (when conveying maximum instantaneous demand (6l/min)):		
Minimum pressure	Metres head	12 except for existing high level zones at all times
Maximum static pressure	Metres head	90
Potable Water Quality	Compliance with ADWG 2011	
Consumption Restrictions in Drought		
Maximum frequency of restrictions	Number of times per 10 years	5
Maximum duration of restrictions	Months/10 year period	10
Ability to supply demand through the worst drought on record	% of water demand	90(i.e. a 10% reduction in consumption).
Interruptions to Supply (per year per supply)		
Planned (95% of time)		
Notice given to domestic customers (between 9am and 4pm)	Days	2 weeks
Notice given to industrial and commercial customers (times to be negotiated)	Days	2 weeks
Unplanned		
Maximum duration	Hours	<<4 hrs
Maximum interruptions to supply	Per 1,000 properties p.a.	40

Description	Units	Target Level of Service
Main breaks	Per 100 km main p.a.	25
Service Provided		
Time to provide an individual, residential connection to water supply in services area	Working days	5
Response Time (time to have staff onsite or to investigate a problem or answer an enquiry)		
Priority 1: A complete failure to maintain continuity of supply to large number of customers or critical user at critical time		
Possible Issues: Broken water main, broken service, jammed hydrant, no water, dirty water, leak creating a major issue. Typical Effects: Personal injury or risk to public health, loss of supply, major property damage, failure to maintain quality or quantity of service, large volume of water wasted, significant unplanned depletion of service reservoir, major environmental impact.	Repairs to commence: Within 0.5 hour (during work hours) Within 1 hours (after work hours)	
Priority 2: Known fault, non-urgent		
Possible Issues: Service disconnection, faulty hydrant/valve, missing hydrant. Typical Effects: Need for preventative maintenance, minor customer impact.	Programmed Maintenance	

6 Design Parameters

6.1 Water Supply

Investigation and design of water supply system components is based on the Water Supply Investigation Manual (1986).

The following technical reports relate to the system components in this DSP document:

- > Council Standards for Engineering Works Policy
- > Council Standards for Engineering Works Preface and Supplementary Notes
- > TSC has published a range of asset management documentation that covers the water system and contains the management strategy for the water network. The documents include:
 - > Water Supply Asset Management Plan, 2018 (available at www.tenterfield.nsw.gov.au)
 - > Asset Management Strategy 2017 – 2027, 2017
 - > Tenterfield Shire Council's Strategic Business Plan for Water Supply and Sewerage Services, December 2015, (available at www.tenterfield.nsw.gov.au).

7 Developer Charges Calculation – Water Supply

All new properties and properties with change in use which are subject to payment of water supply charges are liable for payment of developer charges. An ET is the basic unit to determine the loading that the development will place on the water supply system. One ET represents the equivalent loading for a single, detached residential dwelling. TSC uses the NSW Water Directorate's Guidelines for Determining Water ET Figures.

Credit for existing use is applied in the calculation of the ET loadings, as the developer charges are levied for additional ET loading only. For example, the first lot in residential subdivisions is exempt from developer charges where the lot is already connected to the water supply system. Properties not already rated for water supply do not receive the one lot credit.

7.1 Summary

The developer charges for the area covered by this DSP document are as follows:

Table 7-1 Summary of proposed water supply developer charges

DSP Area	Capital Charge (\$ per ET)	Reduction Amount (\$ per ET)	Calculated Maximum Developer Charge (\$ per ET)	Adopted Developer Charge (\$ per ET)
DSP Area A				
▪ Tenterfield	\$7,920	-\$2,826	\$10,746	\$10,746
▪ Urbenville				
DSP Area B				
▪ Jennings	\$1,282	-\$2,826	\$4,108	\$4,108

These amounts have been calculated on the basis of the information shown in Sections 7.2 to 7.7.

7.2 Service Areas

The water supply service areas and the basis of determining the service areas are as follows:

Table 7-2 Water supply service areas

Name of service area	Basis of determining the service area
Jennings	Area serviced by a separate water supply distribution system
Tenterfield	Area serviced by a separate water supply distribution system
Urbenville	Area serviced by a separate water supply distribution system

7.3 Equivalent Tenements (ETs)

As indicated in Section 5.1, one of the key levels of service (LOS) for Council's water supply is "the average residential water to be supplied for a detached residential dwelling (1 ET) per tenement", which is 190 kL/annum. Council's 2015 strategic business plan (available at www.tenterfield.nsw.gov.au) includes this LOS and was derived after careful consideration of the average residential water supplied per connected property over the last 10 years. Current billing and usage information show the average annual residential water volume supplied for a single detached residential dwelling as 159.8 kL. This number 159.8 kL has been adopted and represents 1 ET.

For each service area, the number of ETs to be served has been determined as the estimated annual water to be supplied to the service area divided by the volume for 1 ET.

ET projections for each service area are shown in Table 7-3. The ETs in January 1996 are also indicated.

Table 7-3 ET projections for water supply

Year	Number of ETs			
	Tenterfield	Urbenville	Jennings	Total ETs
1995/96	1,807	148	85	2,041
2018/2019	2,112	173	100	2,385
2019/20	2,126	174	101	2,401
2020/21	2,141	175	101	2,417
2021/22	2,155	177	102	2,434
2022/23	2,170	178	103	2,450
2023/24	2,184	179	103	2,467
2024/25	2,199	180	104	2,483
2025/26	2,214	181	105	2,500
2026/27	2,229	183	105	2,517
2027/28	2,244	184	106	2,534
2028/29	2,259	185	107	2,551
2029/30	2,274	186	108	2,568
2030/31	2,290	188	108	2,585
2031/32	2,305	189	109	2,603
2032/33	2,321	190	110	2,621
2033/34	2,336	192	110	2,638
2034/35	2,352	193	111	2,656
2035/36	2,368	194	112	2,674
2036/37	2,384	195	113	2,692
2037/38	2,400	197	113	2,710
2038/39	2,416	198	114	2,728
2039/40	2,433	199	115	2,747
2040/41	2,449	201	116	2,765
2041/42	2,465	202	117	2,784
2042/43	2,482	203	117	2,803
2043/44	2,499	205	118	2,822
2044/45	2,516	206	119	2,841
2045/46	2,533	208	120	2,860
2046/47	2,550	209	121	2,879
2047/48	2,567	210	121	2,899
2048/49	2,584	212	122	2,918

ET calculation details for each service area are shown in Section 13.

7.4 Capital Charge

The capital charge for each service area covered by this DSP document has been calculated using NPV spreadsheet method.

Under the NPV spreadsheet method, the capital cost of relevant assets and projected ETs served in a service area are entered into a spreadsheet. These capital costs are only for the share of the asset capacity used in the service area. The PV of capital cost and the PV of the new ETs are calculated, and the capital charge per ET is the PV of the capital cost divided by the PC of the ETs.

Calculations details for PV of ETs and PV of capital costs for each service area are shown in Section 16.

The summary of the capital charge calculations is shown in Table 7-4.

Table 7-4 Summary of capital charges

Service Area	PV of New ETs for pre-1996 assets @3%	PV of New ETs for post-1996 assets @5%	PV of capital cost for pre-1996 assets @3%	PV of capital cost for post-1996 assets @5%	Capital charge for pre-1996 assets	Capital charge for post-1996 assets	Capital charge per ET (\$)
Tenterfield	370	253	\$0	\$1,958,435	\$0	\$7,732	\$7,732
Urbenville	30	21	\$0	\$213,172	\$0	\$10,228	\$10,228
Jennings	18	12	\$0	\$15,890	\$0	\$1,282	\$1,282

7.5 DSP Area

Table 7-5 shows agglomeration of service areas into DSP areas of within 30% of highest capital charge.

Table 7-5 Agglomeration of service areas

Service Area	Capital Charge (2018/19 \$ per ET)	Percentage of Highest Capital Charge DSP Area A	Percentage of Highest Capital Charge DSP Area B
Urbenville	\$10,208	100%	
Tenterfield	\$7,732	76%	
Jennings	\$1,282	13%	100%

Weighted average capital charge for each DSP area is calculated by weighting by the PV of new ETs in each service area. The calculation is shown in Table 7-6.

Table 7-6 Weighted average capital charge

DSP Area	Service Area	Capital charge for each service area	New ETs in service area	PV of new ETs in service area	% of PV of new ETs in DSP area	Weighted component of the capital charge for each DSP area (\$ per ET)	Weighted capital charge for each DSP area (\$ per ET)
DSP Area A	Tenterfield	\$10,228	39	20	8%	\$774	\$7,920
	Urbenville	\$7,732	472	250	92%	\$7,147	
DSP Area B	Jennings	\$1,282	22	12	100%	\$1,282	\$1,282

The utility-wide weighted average capital charge is \$7,638.

7.6 Reduction Amount

Council has adopted the NPV of Annual Bills method to calculate the Reduction Amount. This method involves the difference between the revenue for annual bills, and annual OMA cost, projected for new development over the next 30 years. This is divided by the PV of the new ETs over 30 years to give the reduction amount.

The reduction amounts have been calculated as follows:

- > Income from annual bills at the commencement of the DSP = \$ 929.80 per ET
- > OMA cost at the commencement of the DSP = \$1,170.23 per ET
- > Net income = Annual bill – OMA cost (as above) = -\$240.43 per ET

Based on the calculations shown in Table 7-7, the resulting reduction amount is -\$2,826 per ET.

Table 7-7 Calculation of the reduction amount

Year	Total ETs	New ETs	NPV of new ETs	Cumulative new ETs	Net income from new ETs (\$)	NPV of net income from new ETs	Reduction amount (\$ per ET)
2018/19	2,385		267			-\$753,780	-\$2,826
2019/20	2,401	16		16	-\$3,847		
2020/21	2,417	16		32	-\$7,694		
2021/22	2,434	17		49	-\$11,781		
2022/23	2,450	16		65	-\$15,628		
2023/24	2,467	17		82	-\$19,715		
2024/25	2,483	16		98	-\$23,562		
2025/26	2,500	17		115	-\$27,650		
2026/27	2,517	17		132	-\$31,737		
2027/28	2,534	17		149	-\$35,824		
2028/29	2,551	17		166	-\$39,912		
2029/30	2,568	17		183	-\$43,999		
2030/31	2,585	17		200	-\$48,086		
2031/32	2,603	18		218	-\$52,414		
2032/33	2,621	18		236	-\$56,742		
2033/34	2,638	17		253	-\$60,829		
2034/35	2,656	18		271	-\$65,157		
2035/36	2,674	18		289	-\$69,485		
2036/37	2,692	18		307	-\$73,812		
2037/38	2,710	18		325	-\$78,140		
2038/39	2,728	18		343	-\$82,468		
2039/40	2,747	19		362	-\$87,036		
2040/41	2,765	18		380	-\$91,364		
2041/42	2,784	19		399	-\$95,932		
2042/43	2,803	19		418	-\$100,500		
2043/44	2,822	19		437	-\$105,068		
2044/45	2,841	19		456	-\$109,637		
2045/46	2,860	19		475	-\$114,205		
2046/47	2,879	19		494	-\$118,773		

Year	Total ETs	New ETs	NPV of new ETs	Cumulative new ETs	Net income from new ETs (\$)	NPV of net income from new ETs	Reduction amount (\$ per ET)
2047/48	2,899	20		514	-\$123,582		
2048/49	2,918	19		533	-\$128,150		

Calculation details for the reduction amount are shown in Section 17.

7.7 Cross-Subsidy

The cross-subsidy is the difference (%) between the annual bill with the calculated maximum developer charge and the increase in the annual bill with a proposed lower developer charge.

LWUs may elect to cap the developer charges for small villages in order to maintain affordability and to avoid 'stranded' assets in such villages.

LWUs may also cap other developer charges to maintain affordability, subject to adopting a commercial developer charge which recovers a significant proportion of the capital cost of the infrastructure.

The cross-subsidy, resulting from capping of developer charges must be disclosed in the DSP, the utility's Annual Report, annual Operational Plan and in communication materials for consultation with stakeholders as noted above.

Two options were developed and examined as follows.

- > Option 1 – No cross-subsidy – Calculated maximum developer charge adopted
- > Option 2 – Adopted cross-subsidy of 20%

A summary of the options for developer charges and cross-subsidy is shown in Table 7-8.

Table 7-8 Developer charges options – weighted average subsidy

Option 1 - No Cross Subsidy							
DSP Area	Service Area	Calculated Developer Charge	PV New ETs	Weighting	Weighted component	Weighted average developer charge	Weighted average cross-subsidy to developer charge
DSP Area A	Tenterfield	\$10,746	250	89%	\$9,511	\$10,464	\$0
	Urbenville		20	7%	\$778		
DSP Area B	Jennings	\$4,108	12	4%	\$175		

OPTION 2 - 20% DISCOUNT							
DSP Area	Service Area	Calculated Developer Charge	PV New ETs	Weighting	Weighted component	Weighted average developer charge	Weighted average cross-subsidy to developer charge
DSP Area A	Tenterfield	\$9,162	250	89%	\$8,109	\$8,936	\$1,528
	Urbenville		20	7%	\$664		
DSP Area B	Jennings	\$3,851	12	4%	\$164		

The impact of cross-subsidies on the annual water supply/ sewerage bill for each option is shown in Table 7-9 below.

Table 7-9 Impact of cross-subsidies on annual bill

Option	Required annual water supply bill per ET (\$)	Resulting increase in annual water supply/ sewerage bill (%)
1 – No Cross-subsidy	\$930	Nil
2 – Adopted Cross-subsidy (20%)	\$940	1.10%

Council has elected to not apply a cross-subsidy to the calculated developer charges for water services. This results in no increase to the current annual water supply bill due to developer charges.

Calculation details for the reduction amount are shown in Section 18.

8 Reviewing / Updating of Calculated Developer Charges

Developer charges will be adjusted on the 1st July each year on the basis of movements in the CPI for Sydney, in the preceding 12 months to December, excluding the impact of GST.

Developer charges will be reviewed by Council after a period of 4 to 8 years.

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9 Background Information

Background information containing all the critical data including calculation models behind each DSP is available from TSC on request. The contact details are below:

Tenterfield Shire Council
Ph: (02) 6736 6000

The background document lists and references all the other studies that have been used as a source, including TSC's Strategic Business Plan, Financial Plan and the latest TBL Performance Report.

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10 Other DSPs and Related Contribution Plans

This DSP document supersedes any other requirements related to water supply developer charges for the Tenterfield area covered by this DSP.

The related Section 64 Development Servicing Plan is:

- > *Tenterfield Shire Council Development Contributions Plan 2019 – Sewerage Services (Cardno, 2019)*

The related Section 7.11 and Section 7.12 Development Contributions Plans are:

- > *Tenterfield Shire Council Section 7.11 Levy Development Contributions Plan 2019 (Cardno, 2019)*
- > *Tenterfield Shire Council Section 7.12 Levy Development Contributions Plan 2019 (Cardno, 2019)*

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11 Glossary

Annual Bill	LWU's annual water supply or sewage bill for an annual demand of 1 ET.
Asset	An asset (or part of an asset) including land and headworks assets that directly provides, or will provide, the developer services to development within the DSP area for which the Developer Charge is payable.
ADWF	Average dry weather flow. One of the design parameters for flow in sewers.
Annual Demand	The total water demand over a year. Used to size headworks components
Background Information	Contains all the critical data behind each DSP. This information should be made available electronically to developers on request, e.g. On a USB and should include the calculation models in Excel or similar electronic spreadsheet format, so that all components of the models can be investigated.
BOD	Biochemical oxygen demand. Used as a measure of the 'strength' of sewage.
Capital Cost	The Present Value (MEERA basis) of all expenditure on assets used to service the development.
Capital Charge	Capital cost of assets per ET adjusted for commercial return on investment (ROI)
CP	Section 94 Contributions Plan
CPI	Consumer price index.
DPI Water	A division of NSW Department of Primary Industries
Developer Charge (DC)	Charge levied on developers to recover part of the capital cost incurred in providing infrastructure to new development
Development Area	See DSP area
Discount Rate	The rate used to calculate the present value of money arising in the future.
DSP Document	Development Servicing Plan Document
DSP Area	That part of a water utility's area covered by a particular Development Servicing Plan. Also referred to as Development Area.
EP	Equivalent Persons (or equivalent population). Used as a design parameter for loadings of sewage treatment works.
ET	Equivalent tenement. The annual demand a detached residential dwelling will place on the infrastructure in terms of the water consumption or sewage discharge.
Government Subsidies	Government funds provided towards the capital cost of a project.
GST	Goods and services tax.
Headworks	Significant assets at the top end of the water systems or the bottom end of the

	wastewater and stormwater system. For example water headworks may comprise a system of storage reservoirs, water treatment works and major supply conduits.
IPART	The NSW Independent Pricing and Regulatory Tribunal.
KL	Kilolitre (1,000 litres).
LEP	Local Environmental Plan
LGNSW	Local Government and Shires Associations.
LSPS	Local Strategic Planning Statement
LWU	Local water utility (NSW). Excludes Sydney Water Corporation, Hunter Water Corporation, Gosford Council, Wyong Council, Essential Water and Fish River Water Supply.
MEERA	Modern Engineering Equivalent Replacement Asset. An asset value calculated on the basis that the asset is constructed at the time of valuation in accordance with modern engineering practice and the most economically viable technologies, which provides similar utility functions to the existing asset in service.
ML	Megalitre (1,000,000 litres, or 1,000 kilolitres).
Net Income	Annual bill minus OMA cost per ET.
NOW	NSW Office of Water, replaces by DPI Water since July 2015
NPV	Net present value means the difference between the Present Value of a revenue stream and the Present Value of a cost stream.
OMA	Operation, maintenance and administration (cost).
Peak Day Demand	The maximum demand in any one day of the year. Used to size water treatments works, service reservoirs, trunk mains and pumping stations in the distribution system.
Operating Cost	In relation to a DSP is the operation, maintenance and administration cost (excluding depreciation and interest) of a LWU in providing Customer services to a DSP area.
Periodic bills	The periodic bills (generally quarterly) levied by a LWU in accordance with their annual operational plan.
Post 1996 Asset	An asset that was commissioned by a LWU on or after 1 January 1996 or that is yet to be commissioned.
Pre-1996 Asset	An asset that was commissioned by a LWU before 1 January 1996.
PV	Present value. The current value of future money or ETs.
PWWF	Peak wet weather flow. One of the design parameters of flow in sewers
Real Terms	The value of a variable adjusted for inflation by a CPI adjustment

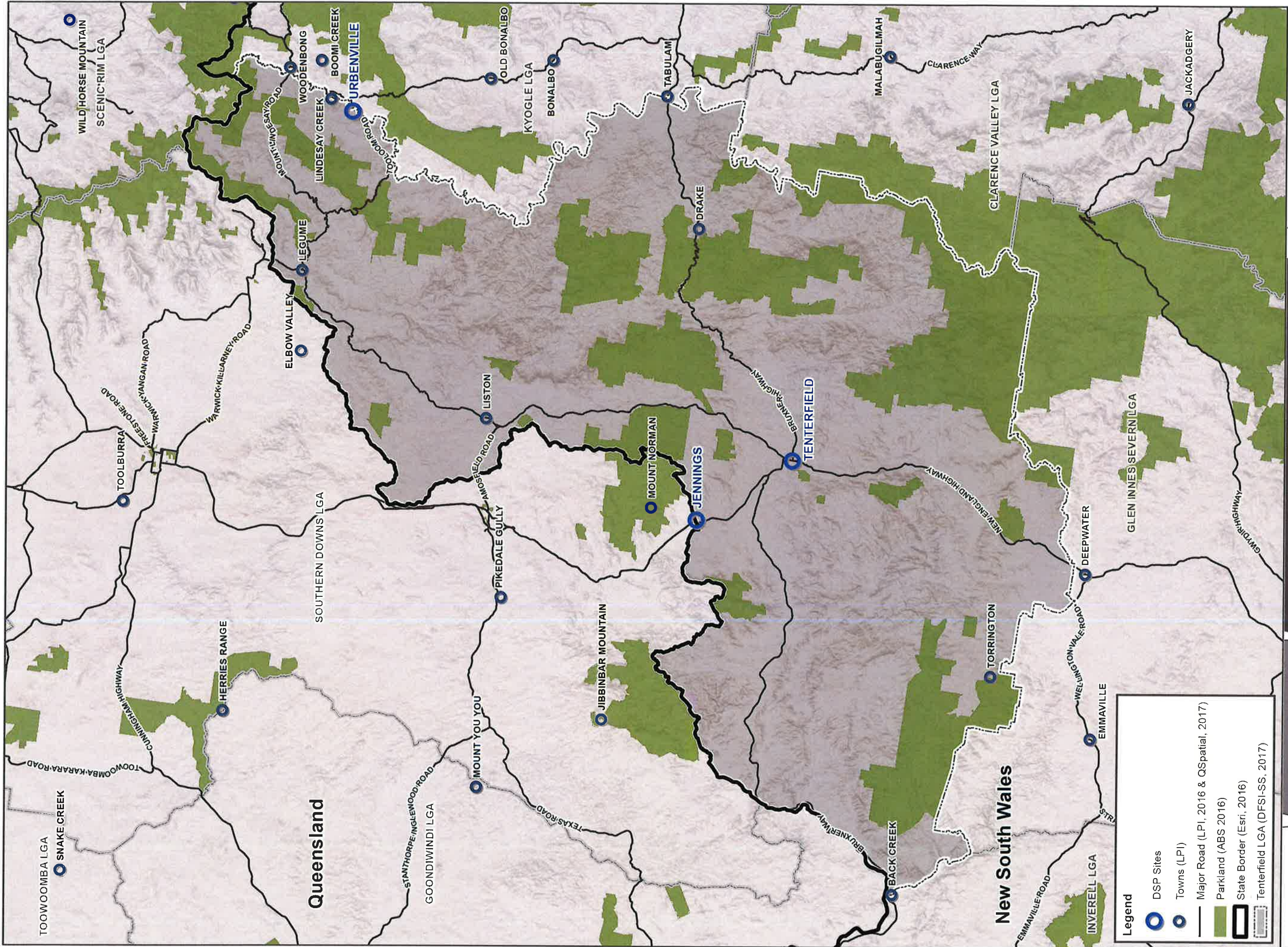
Reduction Amount	The amount by which the capital charge is reduced to arrive at the developer charge. This amount reflects the capital contribution that will be paid by the occupier of a development as part of future annual bills.
ROI	Return on investment. Represents the income that is, or could be, generated by investing money.
Service Area	An area serviced by a separate water supply system, an area served by a separate STW, a separate small town or village, or a new development of over 500 ETs.
SS	Suspended solids, or the concentration of particles in sewage. Used as a measure of the 'strength' of sewage.
STW	Sewage treatment works
TRB	Typical residential bill, which is the principal indicator of the overall cost of a water supply or sewerage system and is the bill paid by a residential customer using the utility's average annual residential water supplied per connected property.
TSC	Tenterfield Shire Council
WICA	Water Industry Competition Act, 2006
WICAA	Water Industry Competition Amendment (Review) Act, 2014
WTW	Water treatment works.

12 Plans

Plans of the DSP areas and existing assets are shown on the following pages

- > 360791-002-GS-001-SitePlan 01
- > 360791-002-GS-002-ZoningPlan_Tenterfield 01
- > 360791-002-GS-003-ZoningPlan_Jennings 01
- > 360791-002-GS-004-ZoningPlan_Urbenville 01
- > 360791-002-GS-005-ExistingWater_Tenterfield 01
- > 360791-002-GS-007-ExistingWater_Urbenville 01

DRAFT



Legend

- DSP Sites
- Towns (LPI)
- Major Road (LPI, 2016 & QSpatial, 2017)
- Parkland (ABS 2016)
- State Border (Esri, 2016)
- Tenterfield LGA (DFSI-SS, 2017)



1:500,000 Scale at A3

0 5 10 15 20 km

Study Area

TENTERFIELD LOCAL GOVERNMENT AREA



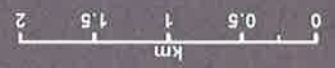
Zoning Plan Tenterfield LGA Development Servicing Plan

Legend

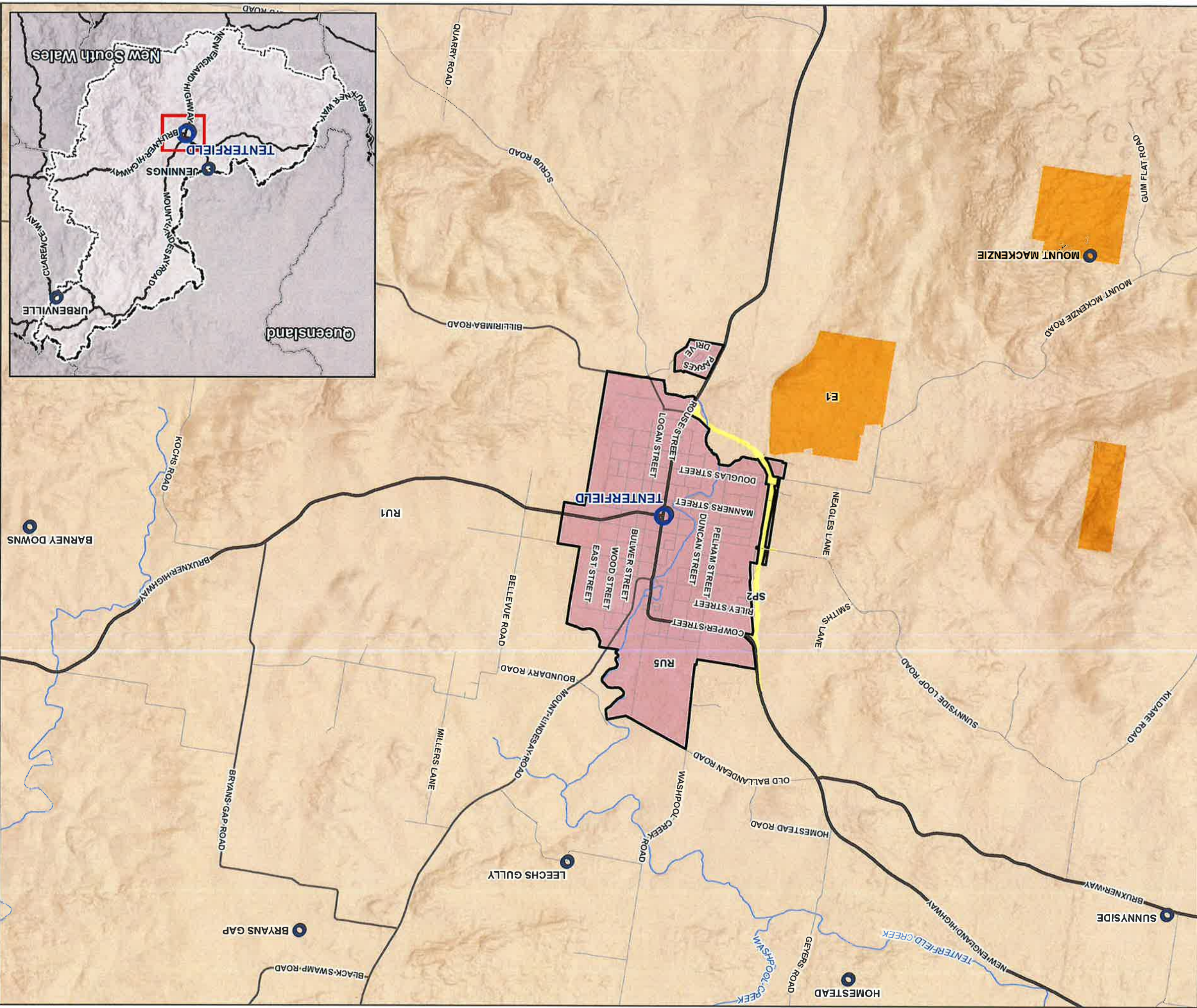
- DSP Sites
- Towns (LP)
- Major Watercourses (LP)
- Service Area
- State Border (Esri, 2016)
- Tenterfield LGA (DFS-SS, 2017)
- Roads (NSW SS)
- Local Road
- Arterial Road
- Major Road
- E1 - National Parks and Nature Reserves
- RU1 - Primary Production
- RU5 - Village
- SP2 - Infrastructure

NOTE: Service Area defined by the water and sewer supply systems

1:50,000 Scale at A3



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2020-03-16 | Project: 3607-91
Coordinate System: GDA 1994 MGA Zone 56
Map: 360791-002-GS-002-ZoningPlan_Tenterfield.mxd 03





Zoning Plan Jennings

TENTERFIELD LGA
DEVELOPMENT SERVICING PLAN

Legend

- DSP Sites
- Towns (LPI)
- Major Watercourses (LPI)
- Service Area
- State Border (Estn, 2016)
- Tenterfield LGA (DFSI-SS, 2017)
- Roads (NSW SS)
 - Major Road
 - Local Road
- Tenterfield LEP, 2013 (DPE, Feb 2019)
 - RU1 - Primary Production
 - RU5 - Village

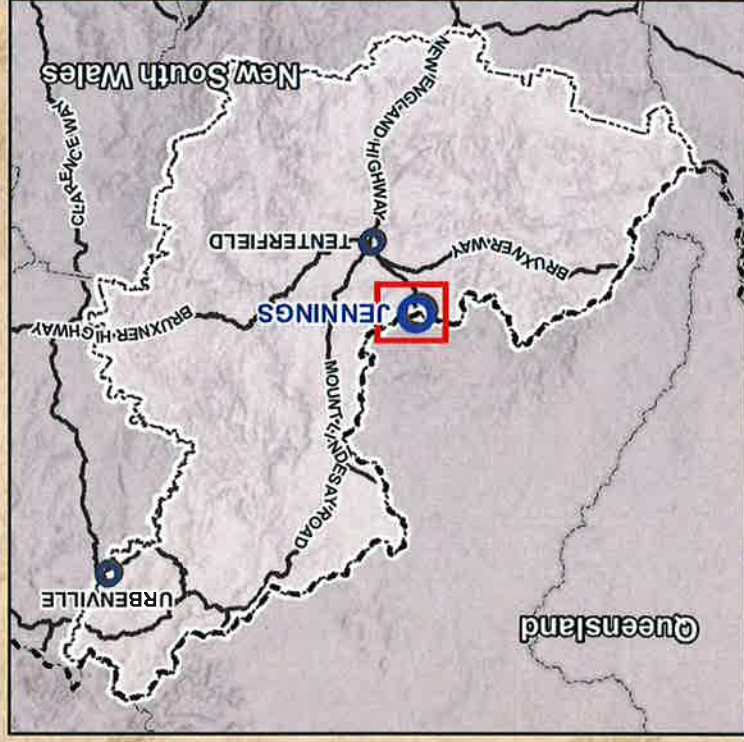
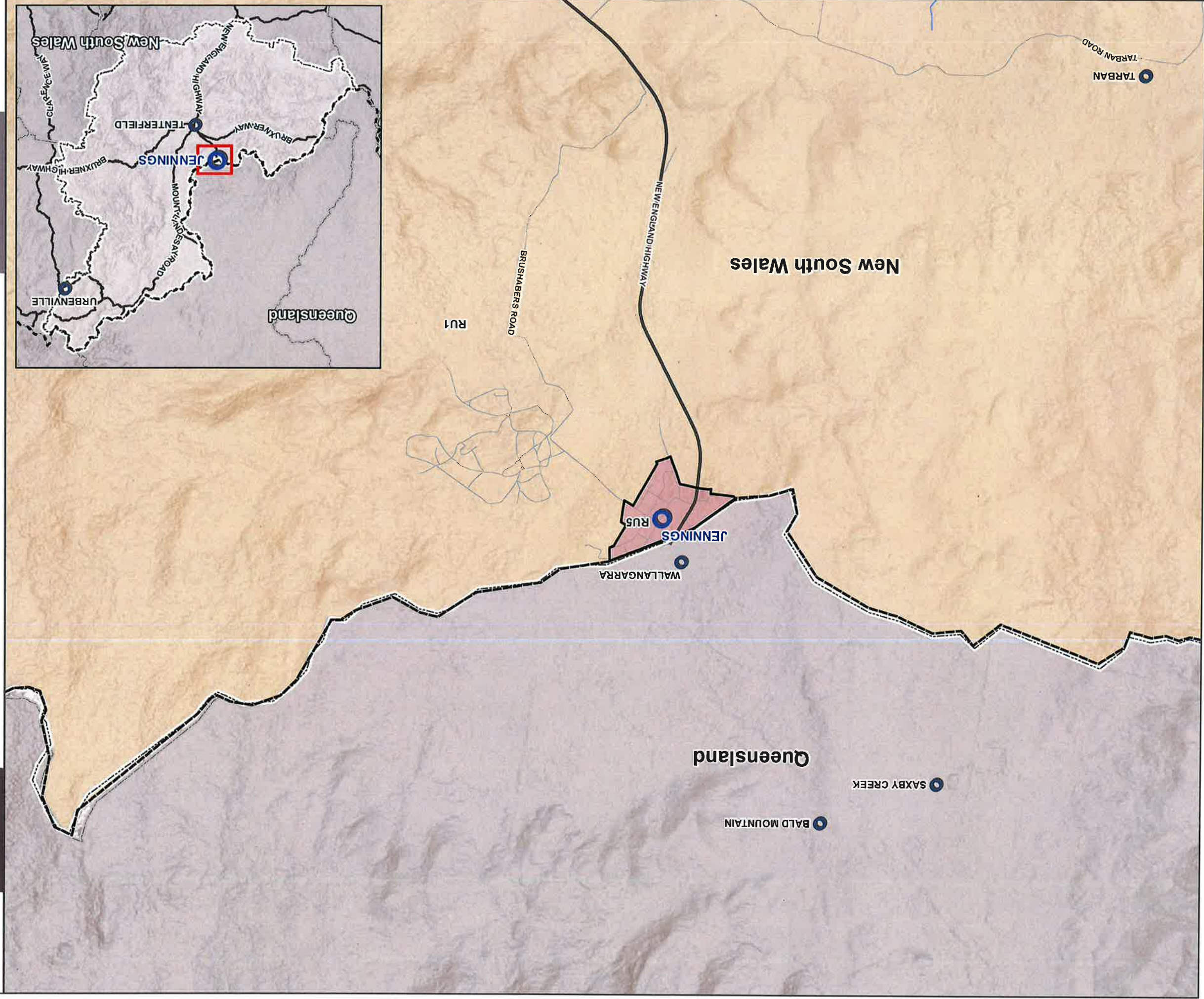
NOTE: Service Area defined by the water and sewer supply systems

1:40,000 Scale at A3

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km



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2020-03-16 | Project: 3607-91
Coordinate System: GDA 1994 MGA Zone 56
Map: 360791-002-GS-003-ZoningPlan_Jennings.mxd 03





Zoning Plan Urbenville TENTERFIELD LGA DEVELOPMENT SERVICING PLAN

Legend

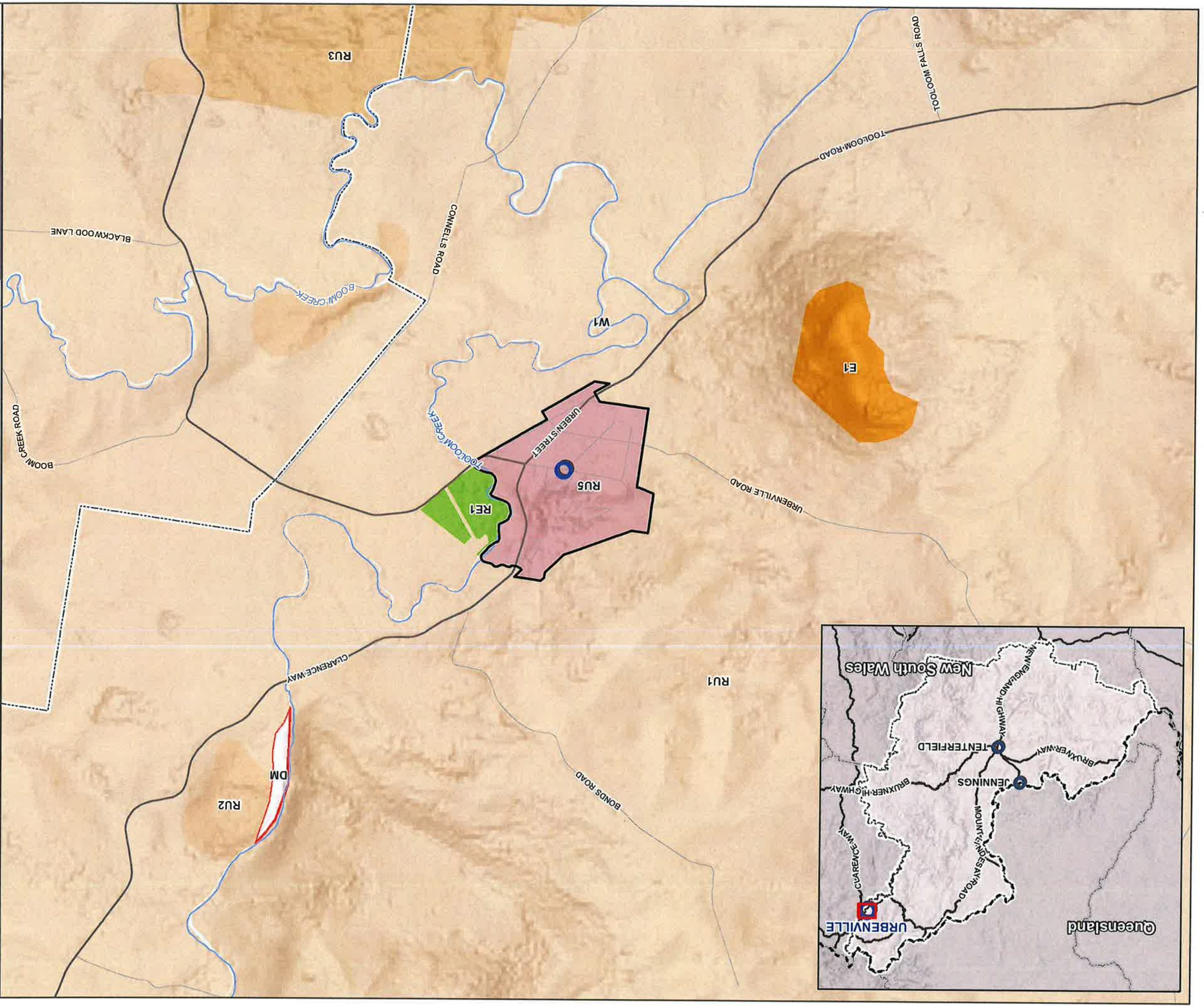
- DSP Sites
 - Towns (LPI)
 - Major Watercourses (LPI)
 - Service Area
 - State Border (Estl, 2016)
 - Tenterfield LGA (DFS-S, 2017)
 - Roads (NSW SS)
 - Arterial Road
 - Local Road
 - Tenterfield LEP, 2013 (DPE, Feb 2019)
 - E1 - National Parks and Nature Reserves
 - RE1 - Public Recreation
 - RU1 - Primary Production
 - RU2 - Rural Landscape
 - RU3 - Forestry
 - RU5 - Village
 - W1 - Natural Waterways
 - DM - Deferred Matter
- NOTE: Service Area defined by the water and sewer supply systems

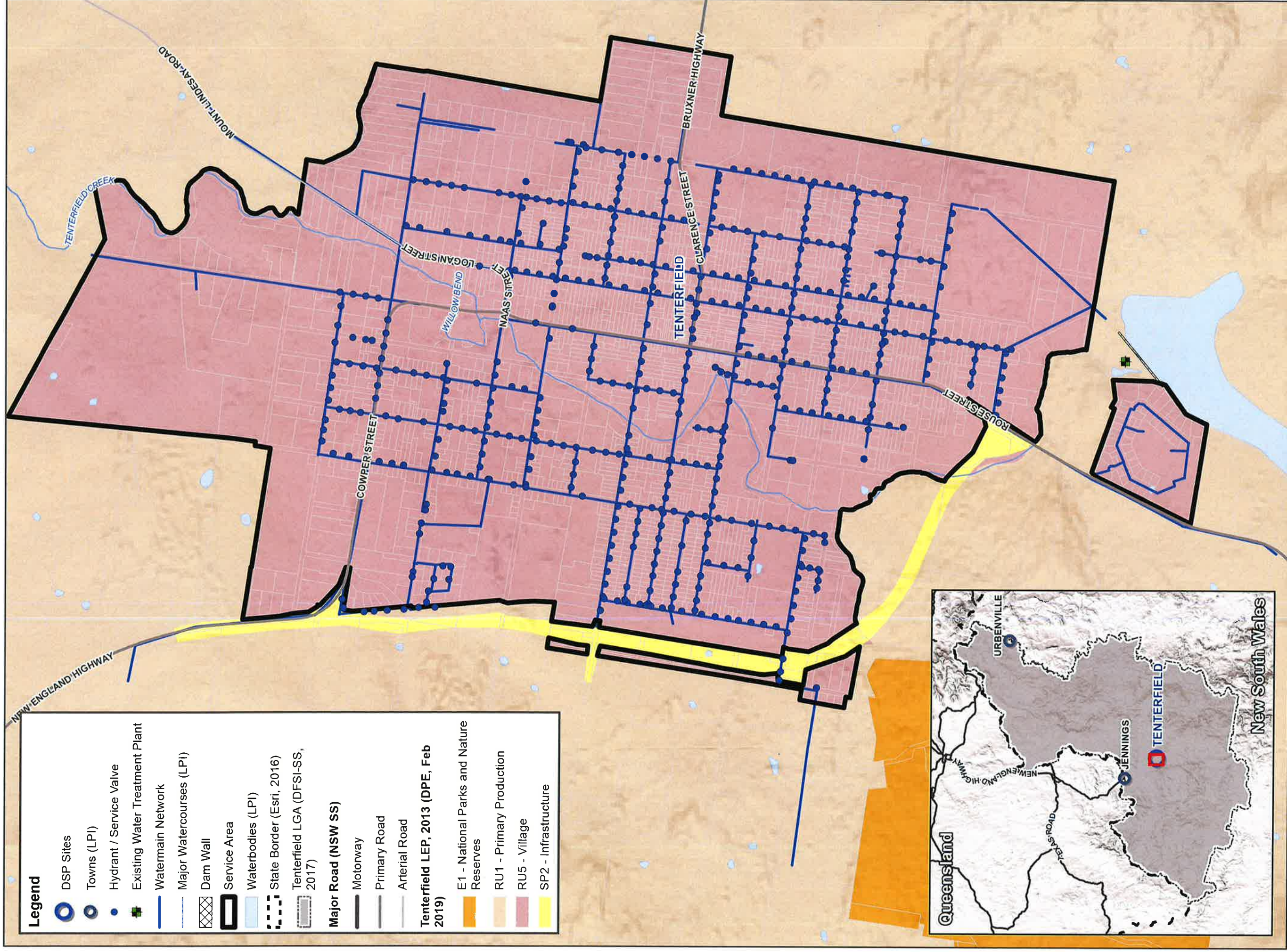
1:20,000 Scale at A3

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Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2020-03-16 | Project: 3607-91
Coordinate System: GDA 1994 MGA Zone 56
Map: 360791-002-GS-004-ZoningPlan_Urbenville.mxd 03





Legend

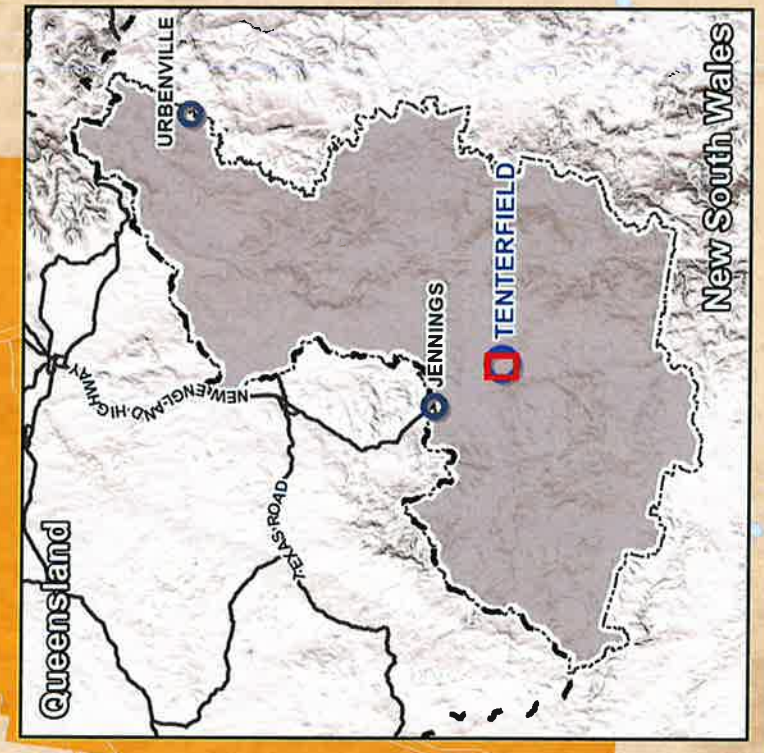
- DSP Sites
- Towns (LPI)
- Hydrant / Service Valve
- Existing Water Treatment Plant
- Watermain Network
- Major Watercourses (LPI)
- Dam Wall
- Service Area
- Waterbodies (LPI)
- State Border (Esri, 2016)
- Tenterfield LGA (DFSI-SS, 2017)

Major Road (NSW SS)

- Motorway
- Primary Road
- Arterial Road

Tenterfield LEP, 2013 (DPE, Feb 2019)

- E1 - National Parks and Nature Reserves
- RU1 - Primary Production
- RU5 - Village
- SP2 - Infrastructure



1:16,000 Scale at A3

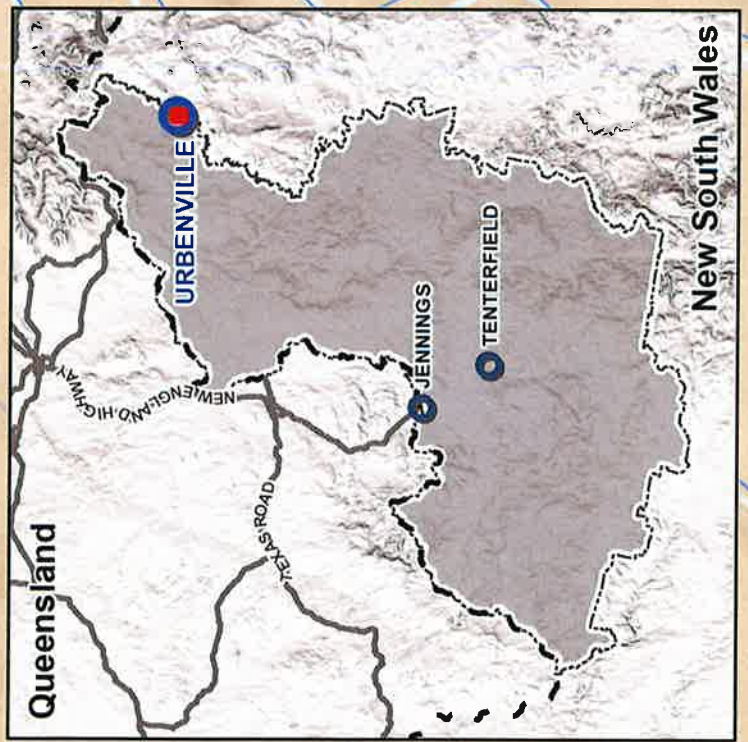
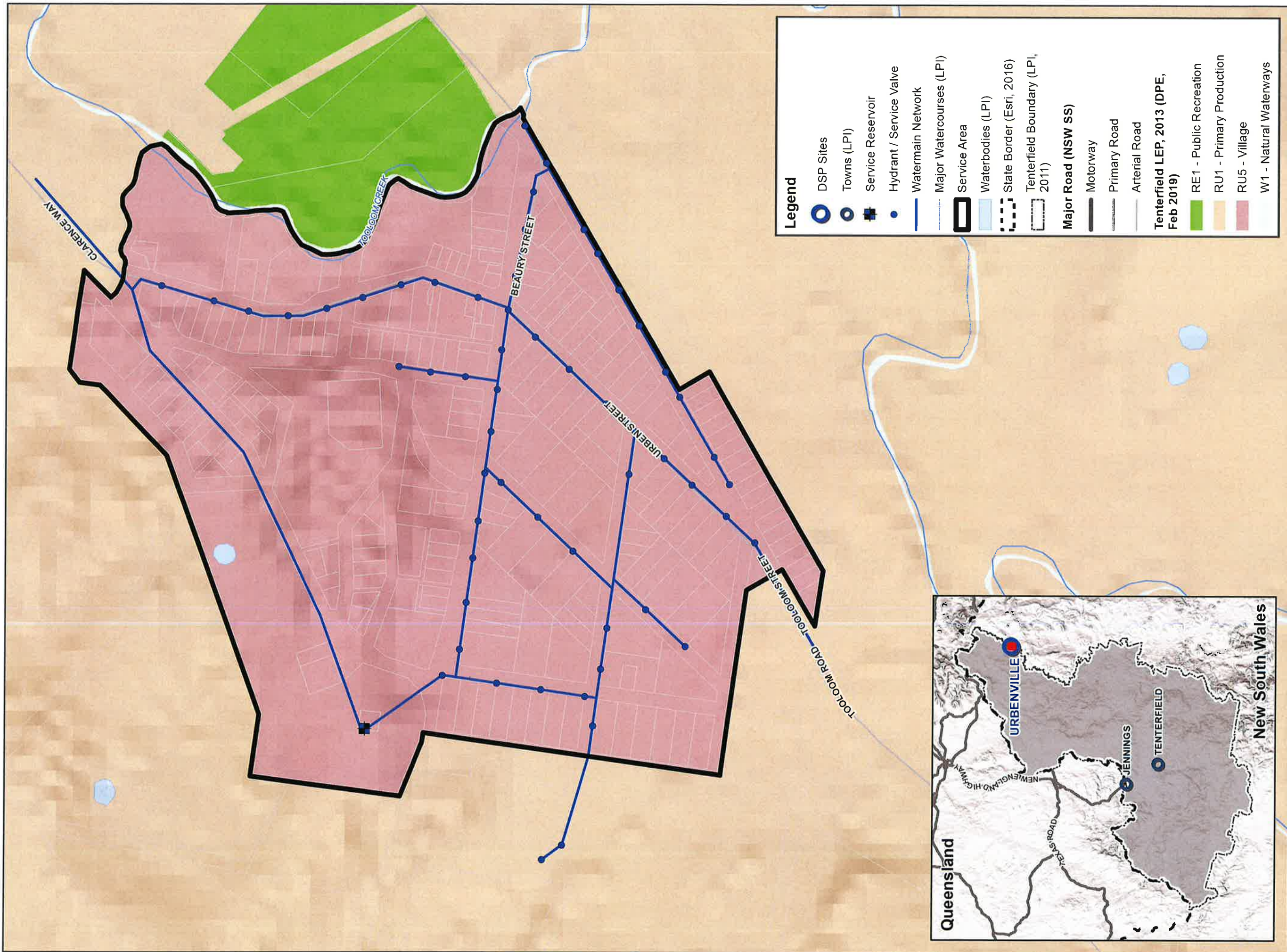
0 150 300 450 600 m

Existing Water Infrastructure Tenterfield

TENTERFIELD LGA - DEVELOPMENT SERVICING PLAN



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2020-01-28 | Project: 3607-91
Coordinate System: GDA 1994 MGA Zone 56
Map: 360791-002-GS-005-ExistingWater_Tenterfield.mxd 02



Existing Water & Sewer Mains Urbenville

TENTERFIELD LGA - DEVELOPMENT SERVICING PLAN



Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2020-01-28 | Project: 3607-91
Coordinate System: GDA 1994 MGA Zone 56
Map: 360791-002-GS-007-ExistingWater_Urbenville.mxd 02

13 Calculation of ETs

Water Supply Information	Value	Source
Tenterfield Dam, 1,393ML capacity, average demand 1.2ML/day		TSC Drought Management Plan (pg5)
Water Supplied 2018-2019 (ML) - Tenterfield	337.6	Council
Average Annual Residential Water Supplied 2018-2019 (kL/connected property)	159.8	Council
Equivalent Tenements (ETs) for 2018-2019 - Tenterfield	2,111.9	= Total Water supplied / Average annual residential supplied
Urbenville water supply, 240ML capacity weir, average demand 0.7 ML/day, some water supplied to adjacent Shire		TSC Drought Management Plan (pg6)

Connected Properties Water				
Year	LGA	Tenterfield	Urbenville	Jennings
2008	2033	1800	150	83
2009	2044	1815	145	84
2010	2074	1840	148	86
2011	2072	1840	148	84
2012	2096	1860	152	84
2019	2,184	1916	165	103
Source				
TSC Water Supply and Sewerage Strategic Business Plan (pg. 34,35) - 2008-2012				
Council - Actual values for 2019				
TSC Drought Management Plan (pg8) - Urbenville system total connected properties 2019			359	

Data for ET calculations			
Proportion of connected properties	LGA	Tenterfield	Jennings
ETs (2019)	100%	88.55%	4.19%
	2384.9	2111.9	100

Year	LGA Population (Number)			Adopted ET growth rate	Equivalent Tenements (ETs)				Annual ET Take-up (New ETs)			
	Data points	Growth Rate (%) p.a.)	Estimation		LGA	Tenterfield	Urbenville	Jennings	LGA	Tenterfield	Urbenville	Jennings
1995/96		0.53%	6,195	0.68%	2,041	1,807	148	85				
1996/97		0.53%	6,229	0.68%	2,055	1,819	149	86	14	12	1	1
1997/98		0.53%	6,262	0.68%	2,069	1,832	150	87	14	13	1	1
1998/99		0.53%	6,295	0.68%	2,083	1,844	151	87	14	12	1	0
1999/00		0.53%	6,329	0.68%	2,097	1,857	152	88	14	13	1	1
2000/01	6,363	0.53%	6,363	0.68%	2,111	1,869	153	88	14	12	1	0
2001/02		0.53%	6,397	0.68%	2,125	1,882	154	89	14	13	1	1
2002/03		0.53%	6,431	0.68%	2,140	1,895	155	90	15	13	1	1
2003/04		0.53%	6,465	0.68%	2,154	1,908	156	90	14	13	1	0
2004/05		0.53%	6,499	0.68%	2,169	1,921	157	91	15	13	1	1
2005/06	6,534	0.53%	6,534	0.68%	2,184	1,934	159	91	15	13	2	0
2006/07		1.39%	6,625	0.68%	2,199	1,947	160	92	15	13	1	1
2007/08		1.39%	6,717	0.68%	2,214	1,960	161	93	15	13	1	1
2008/09		1.39%	6,810	0.68%	2,229	1,974	162	93	15	14	1	0
2009/10		1.39%	6,904	0.68%	2,244	1,987	163	94	15	13	1	1
2010/11	7,000	1.39%	7,000	0.68%	2,259	2,001	164	95	15	14	1	1
2011/12		0.42%	7,030	0.68%	2,274	2,014	165	95	15	13	1	0
2012/13		0.42%	7,060	0.68%	2,290	2,028	166	96	16	14	1	1
2013/14		0.42%	7,090	0.68%	2,305	2,042	167	97	15	14	1	1
2014/15		0.42%	7,120	0.68%	2,321	2,055	169	97	16	13	2	0

Year	LGA Population (Number)			Adopted ET growth rate	Equivalent Tenements (ETs)				Annual ET Take-up (New ETs)			
	Data points	Growth Rate (% p.a.)	Estimation		LGA	Tenterfield	Urbenville	Jennings	LGA	Tenterfield	Urbenville	Jennings
2015/16	7,150	0.42%	7,150	0.68%	2,337	2,069	170	98	16	14	1	1
2016/17		0.28%	7,170	0.68%	2,353	2,084	171	98	16	15	1	0
2017/18		0.28%	7,190	0.68%	2,369	2,098	172	99	16	14	1	1
2018/19		0.28%	7,210	0.68%	2,385	2,112	173	100	16	14	1	1
2019/20		0.28%	7,230	0.68%	2,401	2,126	174	101	16	14	1	1
2020/21	7,250	0.28%	7,250	0.68%	2,417	2,141	175	101	16	15	1	0
2021/22		0.00%	7,250	0.68%	2,434	2,155	177	102	17	14	2	1
2022/23		0.00%	7,250	0.68%	2,450	2,170	178	103	16	15	1	1
2023/24		0.00%	7,250	0.68%	2,467	2,184	179	103	17	14	1	0
2024/25		0.00%	7,250	0.68%	2,483	2,199	180	104	16	15	1	1
2025/26	7,250	0.00%	7,250	0.68%	2,500	2,214	181	105	17	15	1	1
2026/27		0.00%	7,250	0.68%	2,517	2,229	183	105	17	15	2	0
2027/28		0.00%	7,250	0.68%	2,534	2,244	184	106	17	15	1	1
2028/29		0.00%	7,250	0.68%	2,551	2,259	185	107	17	15	1	1
2029/30		0.00%	7,250	0.68%	2,568	2,274	186	108	17	15	1	1
2030/31	7,250	0.00%	7,250	0.68%	2,585	2,290	188	108	17	16	2	0
2031/32		-0.28%	7,230	0.68%	2,603	2,305	189	109	18	15	1	1
2032/33		-0.28%	7,210	0.68%	2,621	2,321	190	110	18	16	1	1
2033/34		-0.28%	7,190	0.68%	2,638	2,336	192	110	17	15	2	0
2034/35		-0.28%	7,170	0.68%	2,656	2,352	193	111	18	16	1	1
2035/36	7,150	-0.28%	7,150	0.68%	2,674	2,368	194	112	18	16	1	1
2036/37		0.00%	7,150	0.68%	2,692	2,384	195	113	18	16	1	1
2037/38		0.00%	7,150	0.68%	2,710	2,400	197	113	18	16	2	0
2038/39		0.00%	7,150	0.68%	2,728	2,416	198	114	18	16	1	1
2039/40		0.00%	7,150	0.68%	2,747	2,433	199	115	19	17	1	1

Year	LGA Population (Number)			Adopted ET growth rate	Equivalent Tenements (ETs)				Annual ET Take-up (New ETs)			
	Data points	Growth Rate (% p.a.)	Estimation		LGA	Tenterfield	Urbenville	Jennings	LGA	Tenterfield	Urbenville	Jennings
2040/41		0.00%	7,150	0.68%	2,765	2,449	201	116	18	16	2	1
2041/42		0.00%	7,150	0.68%	2,784	2,465	202	117	19	16	1	1
2042/43		0.00%	7,150	0.68%	2,803	2,482	203	117	19	17	1	0
2043/44		0.00%	7,150	0.68%	2,822	2,499	205	118	19	17	2	1
2044/45		0.00%	7,150	0.68%	2,841	2,516	206	119	19	17	1	1
2045/46		0.00%	7,150	0.68%	2,860	2,533	208	120	19	17	2	1
2046/47		0.00%	7,150	0.68%	2,879	2,550	209	121	19	17	1	1
2047/48		0.00%	7,150	0.68%	2,899	2,567	210	121	20	17	1	0
2048/49		0.00%	7,150	0.68%	2,918	2,584	212	122	19	17	2	1
Total ETs					2,918	2,584	212	122	877	777	64	37
Future ET Total (From 2019)					533							
								472		39		22

14 Existing Capital Costs

	Tenterfield	Urbenville	Jennings
New Growth ETs =	777	64	37
Total ETs =	2,584	212	122
Growth %	30.1%	30.2%	30.3%

Urbenville Share %	= 165 / 359	46%
--------------------	-------------	-----

Indexation from 2012 to 2019	15%
Indexation from 2017 to 2019	6%

Asset Service Area(s)	Asset	Commissioning Year	Effective Commissioning Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Jennings	Jennings Water Supply Main - 06/07 Additions	2007	1/01/2007	\$5,000		\$5,744	100.0%	30.3%	\$1,740	Asset less than 30 years old
Jennings	Jennings Mains Augmentation - Gladstone Street 07/08	2008	1/01/2008	\$9,000		\$10,339	100.0%	30.3%	\$3,131	Asset less than 30 years old
Jennings	Jennings Mains Replacement - Duke St 07/08	2008	1/01/2008	\$13,000		\$14,934	100.0%	30.3%	\$4,523	Asset less than 30 years old
Jennings	Jennings Mains Augmentation - 08/09	2009	1/01/2009	\$2,000		\$2,297	100.0%	30.3%	\$696	Asset less than 30 years old
Jennings	Jennings Mains Replacement - 08/09	2009	1/01/2009	\$10,000		\$11,487	100.0%	30.3%	\$3,479	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Jennings	Jennings Water Supply Mains - Meter Replacement	2010	1/01/2010	\$1,000		\$1,149	100.0%	30.3%	\$348	Asset less than 30 years old
Jennings	Mains Replacement	2011	1/01/2011	\$9,000		\$10,339	100.0%	30.3%	\$3,131	Asset less than 30 years old
Jennings	Mains Extension (S67)	2011	1/01/2011	\$2,000		\$2,297	100.0%	30.3%	\$696	Asset less than 30 years old
Jennings	Mains Replacement	2019	1/01/2019			\$10,600	100.0%	30.3%	\$3,210	Asset less than 30 years old
Tenterfield	Water treatment plant	1930	Excluded	\$258,000		\$296,376	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Dam	1932	Excluded	\$13,842,000		\$15,900,923	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Water treatment plant	1956	Excluded	\$3,730,000		\$4,284,817	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Water treatment plant	1967	Excluded	\$753,000		\$865,005	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Tenterfield Mains1 Amidale Street - WTM1ARMP01	1970	Excluded	\$49,000		\$56,288	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Tenterfield Mains1 Amidale Street - WTM1ARMP02	1970	Excluded	\$53,000		\$60,883	100.0%	30.1%	\$0	Excluded, asset more

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
										than 30 years old
Tenterfield	Tenterfield Mains1 Amidale Street - WTM1ARMP03	1970	Excluded	\$227,000		\$260,765	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Dam Stage 2	1976	Excluded	\$3,912,000		\$4,493,889	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	Water treatment plant	1983	Excluded	\$748,000		\$859,261	100.0%	30.1%	\$0	Excluded, asset more than 30 years old
Tenterfield	High lift pump station 75kW	2001	1/01/2001	\$66,000		\$75,817	100.0%	30.1%	\$22,795	Asset less than 30 years old
Tenterfield	High lift pump station 45 kW	2002	1/01/2002	\$96,000		\$110,279	100.0%	30.1%	\$33,156	Asset less than 30 years old
Tenterfield	High lift pump station 75kW	2002	1/01/2002	\$147,000		\$168,865	100.0%	30.1%	\$50,770	Asset less than 30 years old
Tenterfield	Bore	2003	1/01/2003	\$404,000		\$464,093	100.0%	30.1%	\$139,530	Asset less than 30 years old
Tenterfield	Water storage 81168	2003	1/01/2003	\$135,000		\$155,081	100.0%	30.1%	\$46,625	Asset less than 30 years old
Tenterfield	Water storage 81169	2003	1/01/2003	\$127,000		\$145,891	100.0%	30.1%	\$43,862	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Saddlers Estate Pumping Station	2005	1/01/2005		\$45,000	\$47,610	100.0%	30.1%	\$14,314	Asset less than 30 years old
Tenterfield	Tenterfield Water Supply Treatment Plant - 06/07 Additions	2007	1/01/2007	\$1,000		\$1,149	100.0%	30.1%	\$345	Asset less than 30 years old
Tenterfield	Tenterfield Water Supply Main - 06/07 Additions	2007	1/01/2007	\$168,000		\$192,989	100.0%	30.1%	\$58,022	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment - Chemical Handling Shed 07/08	2008	1/01/2008	\$3,000		\$3,446	100.0%	30.1%	\$1,036	Asset less than 30 years old
Tenterfield	Tenterfield Mains Augmentation Townes Extension 07/08	2008	1/01/2008	\$1,000		\$1,149	100.0%	30.1%	\$345	Asset less than 30 years old
Tenterfield	Tenterfield Mains Augmentation Kelly Extension 07/08	2008	1/01/2008	\$1,000		\$1,149	100.0%	30.1%	\$345	Asset less than 30 years old
Tenterfield	Tenterfield Mains Augmentation 07/08 East Street	2008	1/01/2008	\$15,000		\$17,231	100.0%	30.1%	\$5,181	Asset less than 30 years old
Tenterfield	Tenterfield Mains Augmentation Riley St Subdivision 07/08	2008	1/01/2008	\$10,000		\$11,487	100.0%	30.1%	\$3,454	Asset less than 30 years old
Tenterfield	Tenterfield Mains Meter Replacement 07/08	2008	1/01/2008	\$16,000		\$18,380	100.0%	30.1%	\$5,526	Asset less than 30 years old
Tenterfield	Tenterfield Mains Raising Fireplugs 07/08	2008	1/01/2008	\$2,000		\$2,297	100.0%	30.1%	\$691	Asset less than 30 years old
Tenterfield	Tenterfield Mains Replacement Rouse Street 07/08	2008	1/01/2008	\$4,000		\$4,595	100.0%	30.1%	\$1,381	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Tenterfield Mains Millrace Fire Service Rouse Street 07/08	2008	1/01/2008	\$6,000		\$6,892	100.0%	30.1%	\$2,072	Asset less than 30 years old
Tenterfield	Tenterfield Mains Stage 1 Simpson Street 07/08	2008	1/01/2008	\$25,000		\$28,719	100.0%	30.1%	\$8,634	Asset less than 30 years old
Tenterfield	Tenterfield Reservoir - Catchment Area Fence 07/08	2008	1/01/2008	\$34,000		\$39,057	100.0%	30.1%	\$11,743	Asset less than 30 years old
Tenterfield	Tenterfield Reservoir - Flood Warning System 07/08	2008	1/01/2008	\$10,000		\$11,487	100.0%	30.1%	\$3,454	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment - Chemical Handling Shed 08/09	2009	1/01/2009	\$44,000		\$50,545	100.0%	30.1%	\$15,196	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment - Boundary Fencing 08/09	2009	1/01/2009	\$14,000		\$16,082	100.0%	30.1%	\$4,835	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment - Mains Power Upgrade 08/09	2009	1/01/2009	\$11,000		\$12,636	100.0%	30.1%	\$3,799	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment - Fluoride Dosing Plant 08/09	2009	1/01/2009	\$63,000		\$72,371	100.0%	30.1%	\$21,758	Asset less than 30 years old
Tenterfield	Tenterfield Mains Augmentation 08/09 Martin Lane	2009	1/01/2009	\$10,000		\$11,487	100.0%	30.1%	\$3,454	Asset less than 30 years old
Tenterfield	Tenterfield Mains Augmentation 08/09 Whereat Lane	2009	1/01/2009	\$8,000		\$9,190	100.0%	30.1%	\$2,763	Asset less than 30 years old
Tenterfield	Tenterfield Mains Meter Replacement 08/09	2009	1/01/2009	\$18,000		\$20,677	100.0%	30.1%	\$6,217	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Tenterfield Mains Replacement Rouse Street 08/09	2009	1/01/2009	\$18,000		\$20,677	100.0%	30.1%	\$6,217	Asset less than 30 years old
Tenterfield	Tenterfield Mains Installation of Flow Meters 08/09	2009	1/01/2009	\$1,000		\$1,149	100.0%	30.1%	\$345	Asset less than 30 years old
Tenterfield	Tenterfield Mains Extension 08/09 Scott St Brierley	2009	1/01/2009	\$4,000		\$4,595	100.0%	30.1%	\$1,381	Asset less than 30 years old
Tenterfield	Tenterfield Mains Extension 08/09 Rouse St - Tenterfield Car Centre	2009	1/01/2009	\$0		\$0	100.0%	30.1%	\$0	Asset less than 30 years old
Tenterfield	Tenterfield Mains Extension 08/09 Scott St - St Josephs	2009	1/01/2009	\$1,000		\$1,149	100.0%	30.1%	\$345	Asset less than 30 years old
Tenterfield	Tenterfield Reservoir - Flood Warning System 08/09	2009	1/01/2009	\$47,000		\$53,991	100.0%	30.1%	\$16,232	Asset less than 30 years old
Tenterfield	Tenterfield Reservoir - Boundary Fence 08/09	2009	1/01/2009	\$20,000		\$22,975	100.0%	30.1%	\$6,907	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment Plant Chemicals Handling Shed	2010	1/01/2010	\$4,000		\$4,595	100.0%	30.1%	\$1,381	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment Plant - Boundary Fence	2010	1/01/2010	\$18,000		\$20,677	100.0%	30.1%	\$6,217	Asset less than 30 years old
Tenterfield	Tenterfield Water Mains Augmentation	2010	1/01/2010	\$31,000		\$35,611	100.0%	30.1%	\$10,707	Asset less than 30 years old
Tenterfield	Tenterfield Water Mains Extension	2010	1/01/2010	\$23,000		\$26,421	100.0%	30.1%	\$7,944	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Tenterfield Water Riley Street Subdivision	2010	1/01/2010	\$96,000		\$110,279	100.0%	30.1%	\$33,156	Asset less than 30 years old
Tenterfield	Tenterfield Water Meter Replacement	2010	1/01/2010	\$6,000		\$6,892	100.0%	30.1%	\$2,072	Asset less than 30 years old
Tenterfield	Tenterfield Water Card Reader at Standpine	2010	1/01/2010	\$22,000		\$25,272	100.0%	30.1%	\$7,598	Asset less than 30 years old
Tenterfield	Tenterfield Reservoirs - Dam Anchor Testing	2010	1/01/2010	\$155,000		\$178,055	100.0%	30.1%	\$53,533	Asset less than 30 years old
Tenterfield	Chemical Handling Shed 10/11	2011	1/01/2011	\$2,000		\$2,297	100.0%	30.1%	\$691	Asset less than 30 years old
Tenterfield	Fluoride Dosing Plant	2011	1/01/2011	\$13,000		\$14,934	100.0%	30.1%	\$4,490	Asset less than 30 years old
Tenterfield	Mains Augmentation - Martin St	2011	1/01/2011	\$14,000		\$16,082	100.0%	30.1%	\$4,835	Asset less than 30 years old
Tenterfield	Meter Replacement	2011	1/01/2011	\$18,000		\$20,677	100.0%	30.1%	\$6,217	Asset less than 30 years old
Tenterfield	Riley Street Subdivision	2011	1/01/2011	\$80,000		\$91,900	100.0%	30.1%	\$27,630	Asset less than 30 years old
Tenterfield	Melaleuca St Pumping Station	2011	1/01/2011		\$69,787	\$73,835	100.0%	30.1%	\$22,198	Asset less than 30 years old
Tenterfield	Melaleuca St Pumping Station	2011	1/01/2011		\$20,347	\$21,527	100.0%	30.1%	\$6,472	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Melaleuca St Pumping Station	2011	1/01/2011		\$56,842	\$60,139	100.0%	30.1%	\$18,081	Asset less than 30 years old
Tenterfield	Melaleuca St Pumping Station	2011	1/01/2011		\$14,653	\$15,503	100.0%	30.1%	\$4,661	Asset less than 30 years old
Tenterfield	Flood Warning System	2012	1/01/2012		\$37,000	\$39,146	100.0%	30.1%	\$11,769	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment Boat & Storage Shed	2013	1/01/2013		\$36,097	\$38,191	100.0%	30.1%	\$11,482	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment variable speed drive	2014	1/01/2014		\$18,653	\$19,735	100.0%	30.1%	\$5,933	Asset less than 30 years old
Tenterfield	Tenterfield WTP - In Line Telemetry	2014	1/01/2014		\$18,289	\$19,350	100.0%	30.1%	\$5,818	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment Generator Slab/ Shed	2014	1/01/2014		\$17,992	\$19,036	100.0%	30.1%	\$5,723	Asset less than 30 years old
Tenterfield	Tenterfield WTP - Alchor Tank, Pumps	2014	1/01/2014		\$7,610	\$8,051	100.0%	30.1%	\$2,421	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment Solar Energy System	2014	1/01/2014		\$2,237	\$2,367	100.0%	30.1%	\$712	Asset less than 30 years old
Tenterfield	Tenterfield Pump Station Shirely Park Bore	2014	1/01/2014		\$1,000	\$1,058	100.0%	30.1%	\$318	Asset less than 30 years old
Tenterfield	Tenterfield WTP - Solar Energy System	2015	1/01/2015		\$13,532	\$14,317	100.0%	30.1%	\$4,304	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Tenterfield Water Treatment Amenities Room	2015	1/01/2015		\$11,258	\$11,911	100.0%	30.1%	\$3,581	Asset less than 30 years old
Tenterfield	Tenterfield Water Treatment Alchor Tank Pumps	2015	1/01/2015		\$8,726	\$9,232	100.0%	30.1%	\$2,776	Asset less than 30 years old
Tenterfield	Tenterfield WTP - Calibration of Testing Equipment	2015	1/01/2015		\$5,532	\$5,853	100.0%	30.1%	\$1,760	Asset less than 30 years old
Tenterfield	Tenterfield Pump Station Sludge Pump	2015	1/01/2015		\$1,000	\$1,058	100.0%	30.1%	\$318	Asset less than 30 years old
Tenterfield	Tenterfield WTP - Options & Design Development	2015	1/01/2015		\$74,243	\$78,549	100.0%	30.1%	\$23,616	Asset less than 30 years old
Tenterfield	Tenterfield Water Booster Pump Shed	2016	1/01/2016		\$5,000	\$5,290	100.0%	30.1%	\$1,590	Asset less than 30 years old
Tenterfield	Tenterfield Trunk Mains Replacement	2018	1/01/2018	\$87,187		\$100,156	100.0%	30.1%	\$30,112	Asset less than 30 years old
Tenterfield	Dam Wall Design and Repairs	2019	1/01/2019			\$7,300,000	100.0%	30.1%	\$2,194,755	Asset less than 30 years old
Tenterfield	Shirley Park Bore	2019	1/01/2019			\$30,000	100.0%	30.1%	\$9,020	Asset less than 30 years old
Tenterfield	APEX Park Bore	2019	1/01/2019			\$20,000	100.0%	30.1%	\$6,013	Asset less than 30 years old
Tenterfield	Mains Replacement	2019	1/01/2019			\$262,700	100.0%	30.1%	\$78,981	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Tenterfield	Meter Replacement	2019	1/01/2019			\$0	100.0%	30.1%	\$0	Excluded, Reticulation
Tenterfield	Flood Warning System (Gas Bubbler)	2019	1/01/2019			\$16,800	100.0%	30.1%	\$5,051	Asset less than 30 years old
Tenterfield	Shirley Park Bore Flood Damage Restoration	2019	1/01/2019			\$2,000	100.0%	30.1%	\$601	Asset less than 30 years old
Tenterfield	Valve Renewal		Excluded			\$0	100.0%	30.1%	\$0	Excluded, Reticulation
Urbenville	Toolom Ck Weir	1967	Excluded	\$18,000		\$20,677	46.0%	30.2%	\$0	Excluded, asset more than 30 years old
Urbenville	Water treatment plant	1982	Excluded	\$18,000		\$20,677	46.0%	30.2%	\$0	Excluded, asset more than 30 years old
Urbenville	Urbenville Main1 Tooloom Falls Road -WUM1TFRP02	1996	1/01/1996	\$2,000		\$2,297	46.0%	30.2%	\$319	Asset less than 30 years old
Urbenville	Urbenville Main1 Tooloom Falls Road -WUM1TFRP04	1996	1/01/1996	\$6,000		\$6,892	46.0%	30.2%	\$957	Asset less than 30 years old
Urbenville	Raw water pump station	2001	1/01/2001	\$87,000		\$99,941	46.0%	30.2%	\$13,875	Asset less than 30 years old
Urbenville	Urbenville Water Supply Treatment Plant - 06/07 Additions	2007	1/01/2007	\$24,000		\$27,570	46.0%	30.2%	\$3,828	Asset less than 30 years old
Urbenville	Urbenville Water Supply Main - 06/07 Additions	2007	1/01/2007	\$2,000		\$2,297	46.0%	30.2%	\$319	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Urbenville	Urbenville Water Treatment Plant Augmentation 07/08	2008	1/01/2008	\$34,000		\$39,057	46.0%	30.2%	\$5,423	Asset less than 30 years old
Urbenville	Urbenville Water Treatment Plant Emergency Works 07/08	2008	1/01/2008	\$75,000		\$86,156	46.0%	30.2%	\$11,962	Asset less than 30 years old
Urbenville	Urbenville Mains - Meter Replacement 07/08	2008	1/01/2008	\$1,000		\$1,149	46.0%	30.2%	\$159	Asset less than 30 years old
Urbenville	Urbenville Water Treatment Plant Augmentation 08/09	2009	1/01/2009	\$62,000		\$71,222	46.0%	30.2%	\$9,888	Asset less than 30 years old
Urbenville	Urbenville Treatment Plant Augmentation	2010	1/01/2010	\$1,994,000		\$2,290,597	46.0%	30.2%	\$318,020	Asset less than 30 years old
Urbenville	Urbenville Water Main - Replace Faulty Valves	2010	1/01/2010	\$2,000		\$2,297	46.0%	30.2%	\$319	Asset less than 30 years old
Urbenville	Urbenville Water Main - Mains Replacement	2010	1/01/2010	\$3,000		\$3,446	46.0%	30.2%	\$478	Asset less than 30 years old
Urbenville	Main Reservoir	2010	1/01/2010		\$88,500	\$93,633	46.0%	30.2%	\$13,011	Asset less than 30 years old
Urbenville	WTP - Augmentation	2011	1/01/2011	\$39,000		\$44,801	46.0%	30.2%	\$6,220	Asset less than 30 years old
Urbenville	WTP - Augmentation - Contract Management	2011	1/01/2011	\$44,000		\$50,545	46.0%	30.2%	\$7,017	Asset less than 30 years old
Urbenville	WTP - Augmentation - Other Expenses	2011	1/01/2011	\$82,000		\$94,197	46.0%	30.2%	\$13,078	Asset less than 30 years old

Asset Service Area(s)	Asset	Commissioning Year	Effective Commission Date	Capital Cost (2012)	Capital Cost (2017)	MEERA (2019)	Shared Proportion	Growth Proportion	Recoverable MEERA	Justification
Urbenville	Urbenville Meter Replacement 10/11	2011	1/01/2011	\$1,000		\$1,149	46.0%	30.2%	\$159	Asset less than 30 years old
Urbenville	Urbenville WTP - Solar Installation	2015	1/01/2015		\$19,607	\$20,744	46.0%	30.2%	\$2,883	Asset less than 30 years old
Urbenville	Urbenville Secure Yield	2015	1/01/2015		\$8,000	\$8,464	46.0%	30.2%	\$1,176	Asset less than 30 years old
Urbenville	Urbenville Water Treatment Plant	2019	1/01/2019			\$5,000	46.0%	30.2%	\$694	Asset less than 30 years old

15 Future Capital Works Program

	Tenterfield	Urbenville	Jennings
New Growth ETs =	472	39	22
Total ETs =	2,584	212	122
Growth %	18.3%	18.4%	18.0%

Urbenville share %	46%
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Asset Service Area(s)	Asset Details	Year	Cost Estimate	Shared Proportion	Growth Proportion	Recoverable Cost	Justification
Jennings	Water main replacement	2020	\$10,600	100%	18.0%	\$1,908.8	Future renewal within next 10 years
Jennings	Water main replacement	2021	\$10,900	100%	18.0%	\$1,962.9	Future renewal within next 10 years
Jennings	Water main replacement	2022	\$11,200	100%	18.0%	\$2,016.9	Future renewal within next 10 years
Jennings	Water main replacement	2023	\$11,500	100%	18.0%	\$2,070.9	Future renewal within next 10 years
Jennings	Water main replacement	2024	\$11,800	100%	18.0%	\$2,124.9	Future renewal within next 10 years
Jennings	Water main replacement	2025	\$12,100	100%	18.0%	\$2,179.0	Future renewal within next 10 years
Jennings	Water main replacement	2026	\$12,700	100%	18.0%	\$2,287.0	Future renewal within next 10 years
Jennings	Water main replacement	2027	\$12,700	100%	18.0%	\$2,287.0	Future renewal within next 10 years
Jennings	Water main replacement	2028	\$12,700	100%	18.0%	\$2,287.0	Future renewal within next 10 years
Jennings	Water main replacement	2029	\$12,700	100%	18.0%	\$2,287.0	Future renewal within next 10 years
Tenterfield	Water main replacement	2020	\$262,700	100%	18.3%	\$47,978.2	Future renewal within next 10 years
Tenterfield	Flood Warning System	2020	\$16,800	100%	18.3%	\$3,068.3	Future renewal within next 10 years
Tenterfield	Meter Replacement	2020	\$21,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Shirley Park Bore Flood Damage Restoration	2020	\$2,000	100%	18.3%	\$365.3	Future renewal within next 10 years
Tenterfield	Hospital Hill Reservoir	2020	\$100,000	100%	18.3%	\$18,263.5	Future renewal within next 10 years
Tenterfield	Water Supply, Drought Augmentation	2020	\$636,771	100%	18.3%	\$116,296.7	New asset

Asset Details		Year	Cost Estimate	Shared Proportion	Growth Proportion	Recoverable Cost	Justification
Asset Service Area(s)							
Tenterfield	Water treatment plant	2021	\$9,350,000	100%	18.3%	\$1,707,638.2	Future renewal within next 10 years
Tenterfield	Water main replacement	2021	\$269,300	100%	18.3%	\$49,183.6	Future renewal within next 10 years
Tenterfield	Flood Warning System	2021	\$17,200	100%	18.3%	\$3,141.3	Future renewal within next 10 years
Tenterfield	Meter Replacement	2021	\$21,500	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Shirley Park Bore Flood Damage Restoration	2021	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2022	\$276,000	100%	18.3%	\$50,407.3	Future renewal within next 10 years
Tenterfield	Flood Warning System	2022	\$17,600	100%	18.3%	\$3,214.4	Future renewal within next 10 years
Tenterfield	Meter Replacement	2022	\$22,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Shirley Park Bore Flood Damage Restoration	2022	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2023	\$282,900	100%	18.3%	\$51,667.5	Future renewal within next 10 years
Tenterfield	Flood Warning System	2023	\$18,000	100%	18.3%	\$3,287.4	Future renewal within next 10 years
Tenterfield	Meter Replacement	2023	\$22,600	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Tenterfield Mains Augmentation	2023	\$10,900	100%	18.3%	\$1,990.7	Future Asset
Tenterfield	Air Scour - Pipe Renewal Program	2023	\$60,000	100%	18.3%	\$10,958.1	Future renewal within next 10 years
Tenterfield	Shirley Park Bore Flood Damage Restoration	2023	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2024	\$289,550	100%	18.3%	\$52,882.0	Future renewal within next 10 years
Tenterfield	Flood Warning System	2024	\$18,400	100%	18.3%	\$3,360.5	Future renewal within next 10 years
Tenterfield	Meter Replacement	2024	\$23,200	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Sludge Removal	2024	\$10,000	100%	18.3%	\$1,826.4	Future renewal within next 10 years
Tenterfield	Valve Renewal	2024	\$50,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	UV Disinfection System	2024	\$21,000	100%	18.3%	\$3,835.3	Future renewal within next 10 years
Tenterfield	Shirley Park Bore Flood Damage Restoration	2024	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2025	\$296,280	100%	18.3%	\$54,111.1	Future renewal within next 10 years
Tenterfield	Flood Warning System	2025	\$19,500	100%	18.3%	\$3,561.4	Future renewal within next 10 years
Tenterfield	Meter Replacement	2025	\$23,800	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Valve Renewal	2025	\$20,000	0%	18.3%	\$0.0	Excluded, reticulation

Asset Service Area(s)	Asset Details	Year	Cost Estimate	Shared Proportion	Growth Proportion	Recoverable Cost	Justification
Tenterfield	Shirley Park Bore Flood Damage Restoration	2025	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2026	\$303,010	100%	18.3%	\$55,340.3	Future renewal within next 10 years
Tenterfield	Flood Warning System	2026	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Meter Replacement	2026	\$24,400	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Valve Renewal	2026	\$20,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Shirley Park Bore Flood Damage Restoration	2026	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2027	\$309,740	100%	18.3%	\$56,569.4	Future renewal within next 10 years
Tenterfield	Flood Warning System	2027	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Meter Replacement	2027	\$25,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Valve Renewal	2027	\$20,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Shirley Park Bore Flood Damage Restoration	2027	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2028	\$316,470	100%	18.3%	\$57,798.5	Future renewal within next 10 years
Tenterfield	Flood Warning System	2028	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Meter Replacement	2028	\$25,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Valve Renewal	2028	\$20,000	0%	18.3%	\$0.0	Excluded, reticulation
Tenterfield	Shirley Park Bore Flood Damage Restoration	2028	\$20,000	100%	18.3%	\$3,652.7	Future renewal within next 10 years
Tenterfield	Water main replacement	2029	\$323,200	100%	18.3%	\$59,027.7	Future renewal within next 10 years
Tenterfield	Flood Warning System	2029	\$20,400	100%	18.3%	\$3,725.8	Future renewal within next 10 years
Tenterfield	Meter Replacement	2029	\$25,000	0%	18.3%	\$0.0	Excluded, reticulation
Urbenville	Mains Extension	2020	\$5,000	46%	18.4%	\$423.0	Future renewal within next 10 years
Urbenville	Water treatment plant	2021	\$5,000	46%	18.4%	\$423.0	Future renewal within next 10 years
Urbenville	Water treatment plant	2023	\$5,000	46%	18.4%	\$423.0	Future renewal within next 10 years
Urbenville	Mains Extension	2024	\$20,000	46%	18.4%	\$1,692.1	Future Asset
Urbenville	Meter Replacement in WTP	2024	\$20,000	46%	18.4%	\$1,692.1	Future renewal within next 10 years
Urbenville	Valve/ Hydrant Replacement	2024	\$20,000	0%	18.4%	\$0.0	Excluded, reticulation
Urbenville	Meter Replacement	2024	\$10,000	0%	18.4%	\$0.0	Excluded, reticulation

Asset Service Area(s)	Asset Details	Year	Cost Estimate	Shared Proportion	Growth Proportion	Recoverable Cost	Justification
Urbenville	Water treatment plant	2025	\$5,000	46%	18.4%	\$423.0	Future renewal within next 10 years

16 Calculation of the Capital Charge

Dates and General information	Value	Source
Year of Calculation	2019	
Assessment date	30/06/2019	
Discount rate date	1/01/1996	
30yr cut-off date	30/06/1989	
DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 :	3%	DSP Guidelines
DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 :	5%	DSP Guidelines
DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS :	5%	DSP Guidelines

16.1 Tenterfield

Tenterfield			
	NPV Assets	NPV ETs	Capital Charge
Existing Assets (Pre 1996)	\$0	370	\$0
Existing Assets (Post 1996)	\$1,958,435	253	\$7,732
		Total	\$7,732

Year	Annual ET Take-up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Historical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
1988/89		\$0						
1989/90		\$0						
1990/91		\$0						
1991/92		\$0						
1992/93		\$0						
1993/94		\$0						
1994/95		\$0						
1995/96	0		\$0	0	0	0	0	\$0
1996/97	12		\$0	1	12	11		\$0
1997/98	13		\$0	2	12	12		\$0
1998/99	12		\$0	3	11	10		\$0
1999/00	13		\$0	4	12	11		\$0
2000/01	12		\$22,795	5	10	9		\$17,860

Year	Annual ET Take-up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Historical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
2001/02	13		\$83,925	6	11	10		\$62,626
2002/03	13		\$230,018	7	11	9		\$163,469
2003/04	13		\$0	8	10	9		\$0
2004/05	13		\$14,314	9	10	8		\$9,227
2005/06	13		\$0	10	10	8		\$0
2006/07	13		\$58,368	11	9	8		\$34,126
2007/08	13		\$43,862	12	9	7		\$24,424
2008/09	14		\$89,451	13	10	7		\$47,438
2009/10	13		\$122,607	14	9	7		\$61,925
2010/11	14		\$95,275	15	9	7		\$45,829
2011/12	13		\$11,769	16	8	6		\$5,392
2012/13	14		\$11,482	17	8	6		\$5,010
2013/14	14		\$20,924	18	8	6		\$8,694
2014/15	13		\$36,355	19	7	5		\$14,387
2015/16	14		\$1,590	20	8	5		\$599
2016/17	15		\$0	21	8	5		\$0
2017/18	14		\$30,112	22	7	5		\$10,294
2018/19	14		\$2,294,421	23	7	5		\$746,998
2019/20	14		\$185,972	24	7	4		\$57,664
2020/21	15		\$1,763,616	25	7	4		\$520,801
2021/22	14		\$57,274	26	6	4		\$16,108
2022/23	15		\$71,556	27	7	4		\$19,166
2023/24	14		\$65,557	28	6	4		\$16,723
2024/25	15		\$61,325	29	6	4		\$14,899
2025/26	15		\$62,646	30	6	3		\$14,495
2026/27	15		\$63,875	31	6	3		\$14,075
2027/28	15		\$65,104	32	6	3		\$13,663
2028/29	15		\$62,753	33	6	3		\$12,543
2029/30	15		\$0	34	5	3		\$0
2030/31	16		\$0	35	6	3		\$0
2031/32	15		\$0	36	5	3		\$0
2032/33	16		\$0	37	5	3		\$0
2033/34	15		\$0	38	5	2		\$0
2034/35	16		\$0	39	5	2		\$0
2035/36	16		\$0	40	5	2		\$0
2036/37	16		\$0	41	5	2		\$0
2037/38	16		\$0	42	5	2		\$0
2038/39	16		\$0	43	4	2		\$0
2039/40	17		\$0	44	5	2		\$0
2040/41	16		\$0	45	4	2		\$0

Year	Annual ET Take- up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Histor- ical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
2041/42	16		\$0	46	4	2		\$0
2042/43	17		\$0	47	4	2		\$0
2043/44	17		\$0	48	4	2		\$0
2044/45	17		\$0	49	4	2		\$0
2045/46	17		\$0	50	4	1		\$0
2046/47	17		\$0	51	4	1		\$0
2047/48	17		\$0	52	4	1		\$0
2048/49	17		\$0	53	4	1		\$0
	777				370	253	\$0	\$1,958,435

16.2 Urbenville

Urbenville			
	NPV Assets	NPV ETs	Capital Charge
Existing Assets (Pre 1996)	\$0	30	\$0
Existing Assets (Post 1996)	\$213,172	21	\$10,228
		Total	\$10,228

Year	Annual ET Take-up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Historical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
1988/89		\$0						
1989/90		\$0						
1990/91		\$0						
1991/92		\$0						
1992/93		\$0						
1993/94		\$0						
1994/95		\$0						
1995/96	0		\$1,276	0	0	0	0	\$1,276
1996/97	1		\$0	1	1	1		\$0
1997/98	1		\$0	2	1	1		\$0
1998/99	1		\$0	3	1	1		\$0
1999/00	1		\$0	4	1	1		\$0
2000/01	1		\$13,875	5	1	1		\$10,872
2001/02	1		\$0	6	1	1		\$0
2002/03	1		\$0	7	1	1		\$0
2003/04	1		\$0	8	1	1		\$0
2004/05	1		\$0	9	1	1		\$0
2005/06	2		\$0	10	1	1		\$0
2006/07	1		\$4,147	11	1	1		\$2,424
2007/08	1		\$17,544	12	1	1		\$9,769
2008/09	1		\$9,888	13	1	1		\$5,244
2009/10	1		\$331,828	14	1	1		\$167,596
2010/11	1		\$26,475	15	1	0		\$12,735
2011/12	1		\$0	16	1	0		\$0
2012/13	1		\$0	17	1	0		\$0
2013/14	1		\$0	18	1	0		\$0
2014/15	2		\$4,059	19	1	1		\$1,606
2015/16	1		\$0	20	1	0		\$0
2016/17	1		\$0	21	1	0		\$0
2017/18	1		\$0	22	1	0		\$0
2018/19	1		\$694	23	1	0		\$226

Year	Annual ET Take-up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Historical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
2019/20	1		\$423	24	0	0		\$131
2020/21	1		\$423	25	0	0		\$125
2021/22	2		\$0	26	1	1		\$0
2022/23	1		\$423	27	0	0		\$113
2023/24	1		\$3,384	28	0	0		\$863
2024/25	1		\$423	29	0	0		\$103
2025/26	1		\$0	30	0	0		\$0
2026/27	2		\$0	31	1	0		\$0
2027/28	1		\$423	32	0	0		\$89
2028/29	1		\$0	33	0	0		\$0
2029/30	1		\$0	34	0	0		\$0
2030/31	2		\$0	35	1	0		\$0
2031/32	1		\$0	36	0	0		\$0
2032/33	1		\$0	37	0	0		\$0
2033/34	2		\$0	38	1	0		\$0
2034/35	1		\$0	39	0	0		\$0
2035/36	1		\$0	40	0	0		\$0
2036/37	1		\$0	41	0	0		\$0
2037/38	2		\$0	42	1	0		\$0
2038/39	1		\$0	43	0	0		\$0
2039/40	1		\$0	44	0	0		\$0
2040/41	2		\$0	45	1	0		\$0
2041/42	1		\$0	46	0	0		\$0
2042/43	1		\$0	47	0	0		\$0
2043/44	2		\$0	48	0	0		\$0
2044/45	1		\$0	49	0	0		\$0
2045/46	2		\$0	50	0	0		\$0
2046/47	1		\$0	51	0	0		\$0
2047/48	1		\$0	52	0	0		\$0
2048/49	2		\$0	53	0	0		\$0
	64				30	21	\$0	\$213,172

16.3 Jennings

Jennings			
	NPV Assets	NPV ETs	Capital Charge
Existing Assets (Pre 1996)	\$0	30	\$0
Existing Assets (Post 1996)	\$213,172	21	\$10,228
	Total		\$10,228

Year	Annual ET Take-up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Historical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
1988/89		\$0						
1989/90		\$0						
1990/91		\$0						
1991/92		\$0						
1992/93		\$0						
1993/94		\$0						
1994/95		\$0						
1995/96	0		\$0	0	0	0	0	\$0
1996/97	1		\$0	1	1	1		\$0
1997/98	1		\$0	2	1	1		\$0
1998/99	0		\$0	3	0	0		\$0
1999/00	1		\$0	4	1	1		\$0
2000/01	0		\$0	5	0	0		\$0
2001/02	1		\$0	6	1	1		\$0
2002/03	1		\$0	7	1	1		\$0
2003/04	0		\$0	8	0	0		\$0
2004/05	1		\$0	9	1	1		\$0
2005/06	0		\$0	10	0	0		\$0
2006/07	1		\$1,740	11	1	1		\$1,017
2007/08	1		\$7,654	12	1	1		\$4,262
2008/09	0		\$4,175	13	0	0		\$2,214
2009/10	1		\$348	14	1	1		\$176
2010/11	1		\$3,827	15	1	0		\$1,841
2011/12	0		\$0	16	0	0		\$0
2012/13	1		\$0	17	1	0		\$0
2013/14	1		\$0	18	1	0		\$0
2014/15	0		\$0	19	0	0		\$0
2015/16	1		\$0	20	1	0		\$0
2016/17	0		\$0	21	0	0		\$0
2017/18	1		\$0	22	1	0		\$0
2018/19	1		\$3,210	23	1	0		\$1,045

Year	Annual ET Take- up (ET)	Existing Assets (Pre 1996)	Existing Assets (Post 1996)	Historical Index	PV of Historical ETs (3%)	PV of Historical ETs (5%)	PV Existing Assets (Pre 1996) (3%)	PV Existing Assets (Post 1996) (5%)
2019/20	1		\$1,909	24	0	0		\$592
2020/21	0		\$1,963	25	0	0		\$580
2021/22	1		\$2,017	26	0	0		\$567
2022/23	1		\$2,071	27	0	0		\$555
2023/24	0		\$2,125	28	0	0		\$542
2024/25	1		\$2,179	29	0	0		\$529
2025/26	1		\$2,287	30	0	0		\$529
2026/27	0		\$2,287	31	0	0		\$504
2027/28	1		\$2,287	32	0	0		\$480
2028/29	1		\$2,287	33	0	0		\$457
2029/30	1		\$0	34	0	0		\$0
2030/31	0		\$0	35	0	0		\$0
2031/32	1		\$0	36	0	0		\$0
2032/33	1		\$0	37	0	0		\$0
2033/34	0		\$0	38	0	0		\$0
2034/35	1		\$0	39	0	0		\$0
2035/36	1		\$0	40	0	0		\$0
2036/37	1		\$0	41	0	0		\$0
2037/38	0		\$0	42	0	0		\$0
2038/39	1		\$0	43	0	0		\$0
2039/40	1		\$0	44	0	0		\$0
2040/41	1		\$0	45	0	0		\$0
2041/42	1		\$0	46	0	0		\$0
2042/43	0		\$0	47	0	0		\$0
2043/44	1		\$0	48	0	0		\$0
2044/45	1		\$0	49	0	0		\$0
2045/46	1		\$0	50	0	0		\$0
2046/47	1		\$0	51	0	0		\$0
2047/48	0		\$0	52	0	0		\$0
2048/49	1		\$0	53	0	0		\$0
	37				18	12	\$0	\$15,890

17 Calculation of the Reduction Amount

Income	Water	Source
Income	\$2,217,470	2019-2020 Operation Plan (pg75)
Ops, Mnt and Admin	\$2,790,875	2019-2020 Operation Plan (pg75)
ET's	2,385	
Income / ET	\$930	
Ops, Mnt and Admin / ET	\$1,170	
Net income per ET	-\$240	

	NPV Income	NPV ETs	Reduction Amount
Reduction Amount	-\$753,780	267	-\$2,826

Year	Total ETs	New ETs	PV Future ETs (5%)	Cumulative ETs	Net Income	PV Net income (5%)
2018/19	2,385					
2019/20	2401	16	15	16	-\$3,847	-\$3,664
2020/21	2417	16	15	32	-\$7,694	-\$6,979
2021/22	2434	17	15	49	-\$11,781	-\$10,177
2022/23	2450	16	13	65	-\$15,628	-\$12,857
2023/24	2467	17	13	82	-\$19,715	-\$15,448
2024/25	2483	16	12	98	-\$23,562	-\$17,583
2025/26	2500	17	12	115	-\$27,650	-\$19,650
2026/27	2517	17	12	132	-\$31,737	-\$21,481
2027/28	2534	17	11	149	-\$35,824	-\$23,093
2028/29	2551	17	10	166	-\$39,912	-\$24,502
2029/30	2568	17	10	183	-\$43,999	-\$25,725
2030/31	2585	17	9	200	-\$48,086	-\$26,776
2031/32	2603	18	10	218	-\$52,414	-\$27,796
2032/33	2621	18	9	236	-\$56,742	-\$28,658
2033/34	2638	17	8	253	-\$60,829	-\$29,260
2034/35	2656	18	8	271	-\$65,157	-\$29,849
2035/36	2674	18	8	289	-\$69,485	-\$30,316
2036/37	2692	18	7	307	-\$73,812	-\$30,671
2037/38	2710	18	7	325	-\$78,140	-\$30,923
2038/39	2728	18	7	343	-\$82,468	-\$31,081
2039/40	2747	19	7	362	-\$87,036	-\$31,241
2040/41	2765	18	6	380	-\$91,364	-\$31,233
2041/42	2784	19	6	399	-\$95,932	-\$31,233
2042/43	2803	19	6	418	-\$100,500	-\$31,162
2043/44	2822	19	6	437	-\$105,068	-\$31,027

Year	Total ETs	New ETs	PV Future ETs (5%)	Cumulative ETs	Net Income	PV Net income (5%)
2044/45	2841	19	5	456	-\$109,637	-\$30,834
2045/46	2860	19	5	475	-\$114,205	-\$30,590
2046/47	2879	19	5	494	-\$118,773	-\$30,298
2047/48	2899	20	5	514	-\$123,582	-\$30,024
2048/49	2918	19	4	533	-\$128,150	-\$29,651
			267			-\$753,780

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18 Cross-Subsidy Calculations

Council has elected to not apply a cross-subsidy to the developer charges for water services.

Option 1 - No Cross Subsidy							
DSP Area	Service Area	Calculated Developer Charge	PV New ETs	Weighting	Weighted component	Weighted average developer charge	Weighted average cross-subsidy to developer charge
DSP Area A	Tenterfield	\$10,746	250	89%	\$9,511	\$10,464	\$0
	Urbenville		20	7%	\$778		
DSP Area B	Jennings	\$4,108	12	4%	\$175		

OPTION 2 - 20% DISCOUNT							
DSP Area	Service Area	Calculated Developer Charge	PV New ETs	Weighting	Weighted component	Weighted average developer charge	Weighted average cross-subsidy to developer charge
DSP Area A	Tenterfield	\$9,162	250	89%	\$8,109	\$8,936	\$1,528
	Urbenville		20	7%	\$664		
DSP Area B	Jennings	\$3,851	12	4%	\$164		

Option	Required annual water supply / sewerage bill per ET (\$)	Resulting increase in annual water supply/ sewerage bill (%)
1 – No Cross-subsidy	\$930	
2 – Adopted Cross-subsidy (20%)	\$940	1.10%

Option 2 - 20% Discount	
Weighted subsidy	\$1,527.66
Income	\$2,217,470
ETs	2,385
Annual Bill 0%	\$930
Annual Bill 10%	\$940
Increase %	1.10%

Year	Total ETs	New ETs	Annual Subsidy	PV Annual with Subsidy	Annual Bill revenue - no subsidy	Annual Bill revenue - with subsidy	Additional amount required (Difference)	PV Additional Amount
2018/19	2,385							
2019/20	2,401	16	\$24,443	\$24,443	\$2,232,443	\$2,257,027	\$24,584	\$24,584
2020/21	2,417	16	\$24,443	\$23,279	\$2,247,517	\$2,272,266	\$24,750	\$23,571
2021/22	2,434	17	\$25,970	\$23,556	\$2,262,693	\$2,287,609	\$24,917	\$22,600
2022/23	2,450	16	\$24,443	\$21,114	\$2,277,971	\$2,303,056	\$25,085	\$21,669
2023/24	2,467	17	\$25,970	\$21,366	\$2,293,352	\$2,318,607	\$25,254	\$20,777
2024/25	2,483	16	\$24,443	\$19,151	\$2,308,837	\$2,334,262	\$25,425	\$19,921
2025/26	2,500	17	\$25,970	\$19,379	\$2,324,427	\$2,350,024	\$25,597	\$19,101
2026/27	2,517	17	\$25,970	\$18,457	\$2,340,122	\$2,365,892	\$25,769	\$18,314
2027/28	2,534	17	\$25,970	\$17,578	\$2,355,923	\$2,381,867	\$25,943	\$17,560
2028/29	2,551	17	\$25,970	\$16,741	\$2,371,831	\$2,397,950	\$26,119	\$16,836
2029/30	2,568	17	\$25,970	\$15,943	\$2,387,846	\$2,414,141	\$26,295	\$16,143
2030/31	2,585	17	\$25,970	\$15,184	\$2,403,969	\$2,430,442	\$26,473	\$15,478
2031/32	2,603	18	\$27,498	\$15,312	\$2,420,202	\$2,446,853	\$26,651	\$14,840
2032/33	2,621	18	\$27,498	\$14,583	\$2,436,543	\$2,463,374	\$26,831	\$14,229
2033/34	2,638	17	\$25,970	\$13,117	\$2,452,995	\$2,480,008	\$27,012	\$13,643
2034/35	2,656	18	\$27,498	\$13,227	\$2,469,559	\$2,496,753	\$27,195	\$13,081
2035/36	2,674	18	\$27,498	\$12,597	\$2,486,234	\$2,513,612	\$27,378	\$12,542
2036/37	2,692	18	\$27,498	\$11,997	\$2,503,021	\$2,530,584	\$27,563	\$12,026
2037/38	2,710	18	\$27,498	\$11,426	\$2,519,922	\$2,547,672	\$27,749	\$11,530
2038/39	2,728	18	\$27,498	\$10,882	\$2,536,937	\$2,564,874	\$27,937	\$11,056
2039/40	2,747	19	\$29,025	\$10,939	\$2,554,067	\$2,582,193	\$28,125	\$10,600
2040/41	2,765	18	\$27,498	\$9,870	\$2,571,313	\$2,599,628	\$28,315	\$10,164
2041/42	2,784	19	\$29,025	\$9,922	\$2,588,675	\$2,617,181	\$28,507	\$9,745
2042/43	2,803	19	\$29,025	\$9,450	\$2,606,154	\$2,634,853	\$28,699	\$9,344
2043/44	2,822	19	\$29,025	\$9,000	\$2,623,752	\$2,652,644	\$28,893	\$8,959

Year	Total ETs	New ET's	Annual Subsidy	PV Annual with Subsidy	Annual Bill revenue - no subsidy	Annual Bill revenue - with subsidy	Additional amount required (Difference)	PV Additional Amount
2044/45	2,841	19	\$29,025	\$8,571	\$2,641,468	\$2,670,556	\$29,088	\$8,590
2045/46	2,860	19	\$29,025	\$8,163	\$2,659,303	\$2,688,588	\$29,284	\$8,236
2046/47	2,879	19	\$29,025	\$7,774	\$2,677,260	\$2,706,742	\$29,482	\$7,897
2047/48	2,899	20	\$30,553	\$7,794	\$2,695,337	\$2,725,018	\$29,681	\$7,571
2048/49	2,918	19	\$29,025	\$7,052	\$2,713,537	\$2,743,418	\$29,881	\$7,260
				\$427,866				\$427,866