Prepared for Cowra Shire Council

# Development Servicing Plan For Water Supply Services

**Final Report**
**February 2008**

Hunter Water Australia Pty. Limited
ABN 19 080 889 905

## Report Details

**Project**: Development Servicing Plan for Water Supply Services

**Report No.:** 2694

**Author:** Greg Grant

**Document Version:** Final

## Document History and Status

| Issue | Document Version | Issue Date | Prepared By | Reviewed By |
|---|---|---|---|---|
| A | Draft | September 2007 | G Grant | C Berry |
| B | Draft | November 2007 | G Grant | C Berry |
| C | Draft | November 2007 | G Grant | C Berry |
| D | Final | February 2008 | G Grant | C Berry |

Hunter Water Australia Pty. Limited
ABN 19 080 869 905

Copyright © Hunter Water Australia Pty Limited, 2008

The concepts and information contained in this document are the property of Hunter Water Australia Pty Limited for the sole use of the nominated client. Use or copying of this document without the written permission of Hunter Water Australia constitutes an infringement of copyright.

Hunter Water Australia Pty Limited
ACN 080 869 905
PO Box 5007 HRMC NSW 2310
Telephone 02 4941 5844
Facsimile 02 4941 5801

# EXECUTIVE SUMMARY

This document is a Development Servicing Plan (DSP) and it contains, or references, all relevant information used to calculate the unit charge (developer charge per equivalent tenement) for developments in each relevant water supply DSP area within the Cowra Shire local government area. It has been prepared in accordance with the Guidelines for Developer Charges for Water Supply, Sewerage and Stormwater issued by the Minister for Land and Water Conservation (now Department of Water and Energy) in December 2002 [Ref 1]. These guidelines were based on a Determination issued by the Independent Pricing and Regulatory Tribunal (IPART) in September 2000 [Ref 2].

A DSP enables Council to levy contributions where the anticipated development will or is likely to increase the demand for water supply services. Projected population and development growth will place additional demand on the water supply systems. Generally, additional capacity is required in the water supply systems to accommodate the increased demands. This normally requires system components, such as pumping stations and pipelines to be upgraded. On occasions it is necessary to construct additional system components to service the growth. The principal purpose of the DSP is to identify the demand for capacity in water supply infrastructure as a result of development and to provide for that capacity through development contributions.

A draft document incorporating the DSPs for the Cowra water supply system was submitted to Council for approval prior to being placed on public exhibition for a 30 working day period. This provided an opportunity for examination by interested parties and for such parties to make submissions to Council on the draft Plans. Following adoption by Council the DSPs will be forwarded to the Department of Water and Energy (DWE) for registration.

The Developer Contribution is determined by analysing the cost of existing augmentation works, existing demand, anticipated growth and the cost of works required to meet the demand created by growth. The total cost of existing and proposed augmentation works required to service development is divided between demand units to determine the capital cost per unit. Any surplus income Council generates from a development (i.e. operational income minus operational, maintenance and administration costs) is deducted from the capital cost to obtain the Developer Contribution.

The methodology adopts a Return On Investment (ROI) approach to cover the opportunity costs or borrowing cost, capital cost variations and variations in rate of connection. All calculations are undertaken using Net Present Value (NPV). NPV is a standard commercial procedure for calculating the expected net monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present time, using the required return on investment.

The Developer Contribution is therefore calculated as:

- The present value (PV) of the cost over time of capital works required to service development (referred to as the "capital charge".)

less

- The present value of expected net income (revenue less expenses) over time from servicing development (referred to as the "reduction amount").

The capital charge calculated for each DSP area is shown in **Table A**. The calculation spreadsheets are included in Appendix B.

**Table A** *Calculated Capital Charges*

| DSP | Calculated Capital Charge ($/ET) |
|---|---|
| Cowra | 5,661 |
| Southern Section | 8,918 |
| 1(C)1 Zone | 10,548 |
| Central Tablelands | 10,698 |
| Wyangala | 25,968 |
| Darbys Falls | 30,026 |
| Billimari | 2,969 |

Where the capital charges of two or more service areas (DSPs) are within 30%, they should be agglomerated into a single DSP. Cowra Shire Council service areas should therefore be agglomerated into four DSPs as shown in **Table B**.

**Table B** *Agglomeration of Service Areas*

| DSP | Capital Charge ($/ET) | % of Highest Capital Charge | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| Darbys Falls | 30,026 | **100** | | | |
| Wyangala | 25,968 | 86 | | | |
| Central Tablelands | 10,698 | 36 | **100** | | |
| 1(c)1 Zone | 10,548 | | 99 | | |
| Southern Section | 8,918 | | 83 | | |
| Cowra | 5,661 | | 53 | **100** | |
| Billimari | 2,969 | | | 52 | **100** |

DSP A would include Darbys Falls and Wyangala.

DSP B would include Central Tablelands, 1(c)1 Zone and Southern Section

.

DSP C would include Cowra.

DSP D would include Billimari.

The calculation of the agglomerated capital charges is shown in **Table C**.

**Table C** *Calculation of Agglomerated Capital Charges*

| DSP | Area | Capital Charge ($/ET) | Growth (ET) | Weighted Average Capital Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls | 30,026 | 4 | 27,591 |
| | Wyangala | 25,968 | 6 | |
| B | Central Tablelands | 10,968 | 41 | 10,373 |
| | 1(c)1 Zone | 10,548 | 390 | |
| | Southern Section | 8,918 | 56 | |
| C | Cowra | 5,661 | 922 | 5,661 |
| D | Billimari | 2,969 | 13 | 2,969 |

Alternatively Council could consider an alternative agglomeration process which would result in several layers of charges as shown in **Table D**.

**Table D** *Alternative Agglomeration of Capital Charges*

| DSP | Area | Capital Charge ($/ET) | Growth (ET) | Weighted Average Capital Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls | 30,026 | 4 | 27,591 |
| | Wyangala | 25,968 | 6 | |
| B | Central Tablelands | 10,698 | 41 | 10,698 |
| C | 1(c)1 Zone | 10,548 | 390 | 10,548 |
| D | Southern Section | 8,918 | 56 | 8,918 |
| E | Cowra | 5,661 | 922 | 5,661 |
| F | Billimari | 2,969 | 13 | 2,969 |

A uniform reduction amount of $2,853/ET has been calculated for the Cowra Shire local government area. The calculation spreadsheet is included in Appendix C. All calculations are based on information supplied by Cowra Shire Council.

The calculated developer charges are summarised in **Table E**.

**Table E** *Calculated Developer Charges*

| DSP | Area | Capital Charge ($/ET) | Reduction Amount (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 27,591 | 2,853 | 24,738 |
| B | Central Tablelands<br>1(c)1 Zone<br>Southern Section | 10,373 | 2,853 | 7,520 |
| C | Cowra | 5,661 | 2,853 | 2,808 |
| D | Billimari | 2,969 | 2,853 | 116 |

If Council was to adopt the alternative capital charges shown in **Table D** the developer charges would be as shown in **Table F**.

**Table F** *Alternative Developer Charges*

| DSP | Area | Capital Charge ($/ET) | Reduction Amount (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 27,591 | 2,853 | 24,738 |
| B | Central Tablelands | 10,698 | 2,853 | 7,845 |
| C | 1(c)1 Zone | 10,548 | 2,853 | 7,695 |
| D | Southern Section | 8,918 | 2,853 | 6,065 |
| E | Cowra | 5,661 | 2,853 | 2,808 |
| F | Billimari | 2,969 | 2,853 | 116 |

On 25 October 2004 DEUS issued Circular LWU 5 which modified the guidelines to give Local Water Utilities (LWUs) more flexibility in selection of the number of DSP areas and the developer charges to be adopted.

A weighted average developer charge for all new developments within the Cowra Shire Council local government area has been calculated and is summarised in **Table G**.

**Table G** *Agglomerated Developer Charges*

| DSP | Area | Developer Charge ($/ET) | Growth (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 24,738 | 10 | 4,539 |
| B | Central Tablelands<br>1(c)1 Zone<br>Southern Section | 7,520 | 487 | |
| C | Cowra | 2,808 | 922 | |
| D | Billimari | 116 | 13 | |

Alternatively Central Tablelands, the 1(c)1 Zone and Southern Section could be retained as a separate DSP areas and the developer charges of the remaining service areas agglomerated into a single weighted average developer charge. The agglomeration of developer charges for the remaining service areas is shown in **Table H**.

**Table H** *Alternative Agglomerated Developer Charges*

| DSP | Area | Developer Charge ($/ET) | Growth (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 24,738 | 10 | 3,003 |
| | Cowra | 2,808 | 922 | |
| | Billimari | 116 | 13 | |
| B | Central Tablelands | 7,845 | 41 | 7,845 |
| C | 1(c)1 Zone | 7,695 | 390 | 7,695 |
| D | Southern Section | 6,065 | 56 | 6,065 |

Developer charges have been prepared for a number of scenarios. These are:

- The developer charges calculated in accordance with the guidelines as shown in **Table E**.
- The alternative developer charges shown in **Table F** which provide an additional layer of charges.
- The developer charge of $4,539/ET resulting from agglomerating all the service areas into a single DSP (refer **Table G**).

- The developer charges resulting from retaining Central Tablelands, the 1(c)1 Zone and Southern Section as separate DSPs but agglomerating all the remaining service areas into one DSP area. These alternative agglomerated developer charges are shown in **Table H**.

The above charges are the maximum that may be levied by Cowra Shire Council. In adopting a DSP, Cowra Shire Council may elect to levy less than these amounts, but any resulting cross subsidies must be disclosed in the DSP.

# TABLE OF CONTENTS


**1 INTRODUCTION 1**

**2 ADMINISTRATION 3**

2.1 Reference 3
2.2 When are Developer Contributions Applicable? 4
2.3 When are Developer Contributions Payable? 4
2.4 How is the Developer Contribution Applied? 5
2.5 What Relationship does this Plan Have to Other Plans? 5
2.6 Monitoring and Review/update of Developer Contributions 6

**3 PLANNING PROFILE 7**

3.1 Growth Profile and Existing Loadings 7
3.2 Future Development Profile 8

**4 WATER SUPPLY SERVICES 9**

4.1 Existing and Future Water Supply Services 9
4.2 Land use Information 9
4.3 Design Parameters 9
4.4 System Capacity 10
4.5 Standards of Service 10

**5 METHODOLOGY 12**

5.1 General 12
5.2 Net Present Value Process 12
5.3 Discount Rates 12
5.4 Assets 13
5.5 Calculation of Capital Contribution 13
5.6 Reduction Amount 14

**6 DEVELOPER CONTRIBUTIONS 15**

6.1 Calculation of Capital Charges 15
6.2 Agglomeration of Capital Charges 15
6.3 Calculation of Reduction Amount 17
6.4 Calculated Developer Charges 17
6.5 Agglomeration of Developer Charges 18
6.6 Cross Subsidy 19

**7 REFERENCES 21**

**8 GLOSSARY OF TERMS 22**

# LIST OF TABLES


Table 3-1 *Growth Projections (% per annum)* 7
Table 3-2 *Cowra Water Supply Systems – Demands at 30 June 2007* 8
Table 3-3 *Cowra Water Supply Systems – Future Demands* 8
Table 4-1 *Levels of Service* 10
Table 6-1 *Calculated Capital Charges* 15
Table 6-2 *Agglomeration of Service Areas* 15
Table 6-3 *Calculation of Agglomerated Capital Charges* 16
Table 6-4 *Alternative Agglomeration of Capital Charges* 17
Table 6-5 *Calculated Developer Charges* 17
Table 6-6 *Alternative Developer Charges* 18
Table 6-7 *Agglomerated Developer Charge* 19
Table 6-8 *Alternative Agglomerated Developer Charges* 19


# APPENDICES


Appendix A Plans
Appendix B Capital Charge Calculation
Appendix C Reduction Amount Calculation

# 1 INTRODUCTION

The development or redevelopment of land for residential, commercial or industrial purposes creates a need for additional capacity in water supply and sewerage systems. Water and sewerage providers recover the cost of providing this additional capacity predominantly through developer contributions.

Section 64 of the Local Government Act – 1993 details the provisions relating to the construction of works for developments. It states that the provisions of operation for water authorities, detailed in Division 5 of Part 2 of Chapter 6 of the Water Management Act 2000, apply to Councils exercising functions in the same way. Developers are required to pay a contribution, to the water supply authority, towards the cost of existing and projected water management works. The water supply authorities are also authorised, when calculating a developer contribution, to take into consideration the value of the existing water management works and the estimated cost of projected water management works.

This document is a Development Servicing Plan (DSP) and it contains, or references, all relevant information used to calculate the unit charge (developer charge per equivalent tenement) for developments in each relevant water supply DSP area within the Cowra Shire local government area. It has been prepared in accordance with the Guidelines for Developer Charges for Water Supply, Sewerage and Stormwater issued by the Minister for Land and Water Conservation (now Department of Water and Energy) in December 2002 [Ref 1]. These guidelines were based on a Determination issued by the Independent Pricing and Regulatory Tribunal (IPART) in September 2000 [Ref 2].

A DSP enables Council to levy contributions where the anticipated development will or is likely to increase the demand for water supply services. Projected population and development growth will place additional demand on the water supply systems. Generally, additional capacity is required in the water supply systems to accommodate the increased demands. This normally requires system components, such as pumping stations and pipelines to be upgraded. On occasions it is necessary to construct additional system components to service the growth. The principal purpose of the DSP is to identify the demand for capacity in water supply infrastructure as a result of development and to provide for that capacity through development contributions.

Cowra Shire Council maintains an asset register that includes details and timing of existing infrastructure. In addition, Council has prepared a schedule of capital works based on current projections of growth. In this DSP a developer contribution is determined by analysing the cost of existing infrastructure, existing demand, anticipated growth and the cost of works, required to meet the demands created by growth. The total cost of these works is divided between demand units to determine the capital cost per unit.

A draft document incorporating the DSPs for the Cowra water supply system was submitted to Council for approval prior to being placed on public exhibition for a 30 working day period. This provided an opportunity for examination by interested parties and for such parties to make submissions to Council on the draft Plans. Following adoption by Council the DSPs will be forwarded to the Department of Water and Energy (DWE) for registration.

# 2 ADMINISTRATION

## 2.1 REFERENCE

The following DSPs are referenced in this document:

| DSP Name | Cowra |
|---|---|
| DSP Area 1 | The areas covered by this DSP are the areas within the Cowra township which receive reticulated water supply from the Cowra water supply system. |
| DSP Boundary | The basis for defining the DSP boundary is the Cowra reticulation areas (refer Plan DSP1 in Appendix A). |

| DSP Name | Southern Section |
|---|---|
| DSP Area 2 | The areas covered by this DSP are the areas within the Cowra Shire Council local government area which receive reticulated water from the Southern Section water supply system. |
| DSP Boundary | The basis for defining the DSP boundary is the Noonbinna and Wattamondara reticulation areas (refer Plan DSP2 in Appendix A). |

| DSP Name | 1(C)1 Zone |
|---|---|
| DSP Area 3 | The areas covered by this DSP are the areas within the 1(C)1 Zone which receive reticulated water from the Cowra water supply system. |
| DSP Boundary | The basis for defining the DSP boundary is the 1(C)1 Zone reticulation areas (refer Plan DSP3 in Appendix A). |

| DSP Name | Central Tablelands |
|---|---|
| DSP Area 4 | The areas covered by this DSP are the areas within the Cowra Shire Council local government area which receive reticulated water from the Central Tablelands water supply system. |
| DSP Boundary | The basis for defining the DSP area boundary is the Woodstock/Westville, Goologong and Pearces reticulation areas (refer Plan DSP4 in Appendix A). |

| DSP Name | Wyangala |
|---|---|
| DSP Area 5 | The area covered by this DSP is the area within the village of Wyangala which receives a reticulated water supply from the Wyangala water supply system. |
| DSP Boundary | The basis for defining the DSP boundary is the Wyangala reticulation areas (refer Plan DSP5 in Appendix A). |

| DSP Name | Darbys Falls |
|---|---|
| DSP Area 6 | The area covered by this DSP is the area within the village of Darbys Falls which receives reticulated water supply from the Darbys Falls water supply system. |
| DSP Boundary | The basis for defining the DSP boundary is the Derby Falls reticulation areas (refer Plan DSP6 in Appendix A) |

| DSP Name | Billimari |
|---|---|
| DSP Area 7 | The area covered by this DSP is the area within the village of Billimari which receives reticulated water supply from the Billimari water supply system. |
| DSP Boundary | The basis for defining the DSP boundary is the Billimari reticulation areas (refer Plan DSP7 in Appendix A) |

## 2.2 WHEN ARE DEVELOPER CONTRIBUTIONS APPLICABLE?

Where additional demand is placed on its systems as a result of additional development connecting to the water supply and/or sewerage system, Council will issue a notice stating the required developer contribution.

For example, when a Developer proposes to subdivide land, erect or extend a commercial/industrial building or multiple residential dwelling units, a Development Application is lodged with Cowra Shire Council. If the new development is to be connected to Council's water and/or sewer mains, Council will investigate the impact of the proposed development on its systems and advise the Developer of the required developer contribution. This contribution will be a condition of the approved Development Application.

## 2.3 WHEN ARE DEVELOPER CONTRIBUTIONS PAYABLE?

The contribution(s) will be assessed by Council and will apply for 12 months from the date of this approval. Contributions not received by Council within 12 months of the date of notice will be adjusted in accordance with the DSP charge current at the time of payment.

For the Subdivision of land, contributions are paid prior to the issue of the Subdivision Certificate.

For the erection or extension of commercial/industrial buildings or multiple residential dwelling units etc, contributions are paid prior to the issue of the Construction Certificate.

## 2.4 HOW IS THE DEVELOPER CONTRIBUTION APPLIED?

The developer charge is the cost per *unit of capacity* within the relevant water infrastructure system. The measure for the standard *unit of capacity* is the capacity requirement relative to a single residential dwelling i.e. one residential dwelling equals to one Equivalent Tenement (ET).

The developer contribution payable for the respective water and/or sewer system is thus:

**Assessed Demand or Loading (ET) x Developer Contribution ($/ET)**

In order to assess the developer contribution applicable to a specific development, it is necessary to assess the demand that the proposed development will place on the relevant water system.

For the case of a development involving the creation of additional residential lots, this is a relatively simple process. The additional demand or loading created by the development is the number of additional lots.

The process of assessing the demand or loading of a potential development can be more complex if the development contains other than standard residential dwellings. For this case it is necessary to estimate the number of standard residential dwellings required to generate an *equivalent demand* or *loading* to the proposed development.

In order to assist with the assessment of water supply demand, the Water Directorate has published Technical Guidelines for Section 64 Determinations of Water and Sewer Equivalent Tenements (ETs) [Ref 3]. This document was produced specifically to aid NSW Local government Water Authorities in the process of determining developer charges under S64 of the Local Government Act 1993.

Cowra Shire Council recognises the above guidelines cannot practically be applied to all development applications. Some developments will not 'fit' a category in the Guidelines.

For this reason Council accepts that a small proportion of applications will be assessed on individual merit. Council will determine a loading for the development using the best available data. Council's Director of Operations retains the discretion to assess an application on its merits and in situations requiring conflict resolution, to determine the appropriate course of action.

## 2.5 WHAT RELATIONSHIP DOES THIS PLAN HAVE TO OTHER PLANS?

In addition to the developer charges calculated in this Plan for the water supply systems operated and maintained by Cowra Shire Council, a developer charge has also been calculated for the sewerage system that Council operates and maintains.

Also those villages supplied with water by Central Tablelands Water will be subject to a bulk water supply developer charge imposed by Central Tablelands Water. For Woodstock and Gooloogong this charge is currently $3,260/ET and for Pearces and Westville it is $6,780/ET.

The total developer charge that is applicable to a development will be the sum of the charges for each system that services the development site.

Also, in addition to any contribution which may be levied in accordance with this DSP, Council may require a contribution towards other public amenities and public services in accordance with its adopted Section 94 Contribution Plans which may be relevant to the proposed development.

Other fees and charges not relating to a Plan may also be applicable.

## 2.6 MONITORING AND REVIEW/UPDATE OF DEVELOPER CONTRIBUTIONS

The developer contribution calculated in this DSP is based on current projections of growth in population and development and Council's assessment of infrastructure that will be required to service this growth. It is important that trends are monitored to ensure that contributions received are spent in a manner that provides services in an efficient and effective way.

Council's commitment to future works will be dependent on development and any change in the current projections may necessitate the rescheduling of future works. This plan therefore will require periodic review, at maximum of every 5 to 6 years, to ensure the developer contributions remain valid. Any review of the plan would include a public exhibition period normally in conjunction with Councils Management Plan for that year.

In the period between any review, the developer contribution will be adjusted annually (1 July each year) on the basis of the change in the consumer price index (CPI) in the preceding 12 months to December, excluding the impact of GST.

# 3 PLANNING PROFILE

## 3.1 GROWTH PROFILE AND EXISTING LOADINGS

Census data for Cowra Shire Council to 2001 is used as the basis for serviced population determination.

The 2001 populations were projected forward. The population projections are based on the assumption that current and identified potential rezonings are fully developed in a 30 year period.

Growth profiles were then determined based on the percentages detailed in Table 3-1.

**Table 3-1** *Growth Projections (% per annum)*

| DSP | Growth Projection | |
|---|---|---|
| | 2007 | 2037 |
| Cowra | 0.9 | 0.5 |
| Southern Section | 0.3 | 0.3 |
| 1(C)1 Zone | 0.3 | 0.3 |
| Central Tablelands | 0.3 | 0.3 |
| Wyangala | 0.3 | 0.3 |
| Darbys Falls | 0.3 | 0.3 |
| Billimari | 0.3 | 0.3 |

The basic unit of measure to quantify the demand or loading on a water supply or sewerage system is an equivalent tenement (ET). One ET represents the equivalent demand or loading from a standard household.

An equivalent person (EP) is another basic unit of measure generally to quantity the loadings on a sewerage treatment works. One EP represents the equivalent loading from a standard person.

EPs can be converted into ET demands by defining an EP/ET ratio. The average household density or occupancy ratio is normally adopted as this ratio.

Table 3-2 details the existing demands for each DSP area.

**Table 3-2** *Cowra Water Supply Systems – Demands at 30 June 2007*

| Water Supply System | Existing Demands | |
|---|---|---|
| | EP | ET |
| Cowra | 10,548 | 4,153 |
| Southern Section | 1,521 | 599 |
| 1(C)1 Zone | 0 | 0 |
| Central Tablelands | 1,105 | 435 |
| Wyangala | 165 | 65 |
| Darbys Falls | 114 | 45 |
| Billimari | 335 | 132 |

## 3.2 FUTURE DEVELOPMENT PROFILE

Projected future demands on the Cowra water supply systems were estimated using the growth profile detailed in Table 3-1. The future demands are summarised in Table 3-3.

**Table 3-3** *Cowra Water Supply Systems – Future Demands*

| Water Supply System | Future Demands (ETs) | | | | | |
|---|---|---|---|---|---|---|
| | 2012 | 2017 | 2022 | 2027 | 2032 | 2037 |
| Cowra | 4,320 | 4,495 | 4,678 | 4,853 | 4,964 | 5,053 |
| Southern Section | 608 | 617 | 626 | 636 | 645 | 653 |
| ICI Zone | | | | | | 390 |
| Central Tablelands | 442 | 449 | 455 | 462 | 469 | 475 |
| Wyangala | 66 | 67 | 68 | 69 | 70 | 71 |
| Darbys Falls | 46 | 47 | 47 | 48 | 49 | 49 |
| Billimari | 134 | 136 | 138 | 141 | 143 | 144 |

# 4 WATER SUPPLY SERVICES

## 4.1 EXISTING AND FUTURE WATER SUPPLY SERVICES

Cowra Shire Council operates and maintains the Cowra Water supply system. Water is sourced from the Lachlan River. Other Headworks infrastructure consists of treatment facilities, reservoirs and associated pumping stations and trunk watermains. These facilities are shown on Plan DSP1 in Appendix A.

The Cowra Southern Section water supply system transports potable water through DN200, DN150 and DN100 trunk watermains to a number of villages to the south of Cowra. This DSP covers the villages of Noonbinna and Wattamondara which are located within the Cowra Shire local government area. The Southern Section water supply system extends outside the boundaries of Cowra Shire Council. Koorawatha and Bendick Murrel are in the Young Shire Council district and Greenethorpe in the Weddin Shire Council district. The facilities servicing these villages are shown on Plan DSP2 in Appendix A.

An extension of the Cowra water supply system supplies the 1(C)1 Zones located on the outskirts of Cowra. The facilities servicing the Zone are shown in Plan DSP3 in Appendix A.

The Central Tablelands water supply system supplies the villages of Woodstock/Westville, Goologong and Pearces which are located within the Cowra Shire local government area and the facilities servicing these villages are shown on Plan DSP4 in Appendix A.

Cowra Shire Council also operates and maintains separate water supply systems servicing the villages of Wyangala, Darbys Falls and Billimari. The location of the principal assets servicing these villages is also shown in the Plans included in Appendix A.

## 4.2 LAND USE INFORMATION

The DSPs should be read in conjunction with the Cowra Shire Local Environmental Plan and other Council planning instruments.

## 4.3 DESIGN PARAMETERS

Investigation and design of water supply system components is based on the following design manuals:

- Council's Development Control Plan and its references.

- WSAA Water Supply Code of Australia (WSA03-2002)
- Water Supply Investigation Manual (1986)

## 4.4 SYSTEM CAPACITY

Cowra Shire Council propose to augment is water supply systems to cater for future growth over the next 30 years. The projected number of Equivalent Tenements (ET) in 2037 has been used as the future system capacity to calculate the developer charges.

## 4.5 STANDARDS OF SERVICE

The standards of service to be provided to customers in the Cowra Shire water supply systems are detailed below:

In providing water supply services to the community Council must balance the standard of service desired with the cost of providing the service. The Levels of Service are designed by Council to represent the best level of service possible for a cost that the community can afford and is willing to pay. When these are in place all subsequent planning is done in relation to achieving these goals.

**The Levels of Service define the deliverables and are the driving force for the water supply scheme's management and development. Achieving the required Levels of Service is the PRIMARY GOAL.**

The target levels of service, which Council is aiming to achieve, are detailed below.

It should be noted that these Levels of Service are the targets, which Council aims to meet. They are not intended as a formal customer contract but rather Council's responsibility is to achieve these levels and then to achieve them more cost effectively through a process of continual improvement.

**Table 4-1** *Levels of Service*

| Description | Unit | Target Level of Service |
|---|---|---|
| **AVAILABILITY OF SUPPLY** | | |
| **Normal quantity Available:** | | |
| Domestic Peak Day | litres/tenement/day | 5000 (Town design criteria) |
| Domestic Annual | kilolitres/tenement /year | 410 average |
| Total Annual Average Consumption | megalitres/annum | 3200 |
| Peak/Average Consumption (annual) | megalitres/day | 4.45 |

| Description | Unit | Target Level of Service |
|---|---|---|
| **Pressure:** | | |
| Minimum pressure when conveying 0.15 L/s/tenement | metres head | 12 (99% of the time) |
| Maximum pressure | metres head | 90m (Town villages) |
| **Fire Fighting:** | | |
| Compliance with Building Code of Australia | service area | 100% (current approx. 98%) |
| **Consumption Restrictions in Droughts:** | | |
| Level of restriction supplied through a repeat of the worst drought on record. | % normal usage | 0% (in Council supply) 5% (in rural areas and outlying villages) |
| **Supply Interruptions to Consumers:** | | |
| *Planned:* | | |
| – Notice given to domestic customers | Hours | 24 |
| – Notice given to commercial customers | Working Days | 8 |
| – Maximum duration of interruption | Hours | 8 (95% of cases) |
| – Number of interruptions | no./ year/ customer | 1 |
| *Unplanned:* | | |
| – Maximum duration | | 8 |
| – Maximum number per year/customer | number/year | 4 |
| – Total number of interruptions | No. of interruptions/ year/ system | 28 |

# 5 METHODOLOGY

## 5.1 GENERAL

The Developer Contribution is determined by analysing the cost of existing augmentation works, existing demand, anticipated growth and the cost of works required to meet the demand created by growth. The total cost of existing and proposed augmentation works required to service development is divided between demand units to determine the capital cost per unit. Any surplus income Council generates from a development (i.e. operational income minus operational, maintenance and administration costs) is deducted from the capital cost to obtain the Developer Contribution.

## 5.2 NET PRESENT VALUE PROCESS

In order to account for the time value of money, all calculations are undertaken using Net Present Value (NPV). NPV is a standard commercial procedure for calculating the expected net monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present time, using the required return on investment.

The Developer Contribution is therefore calculated as:

- The present value (PV) of the cost over time of capital works required to service

less

- The present value of expected net income (revenue less expenses) over time from servicing development (referred to as the "reduction amount").

## 5.3 DISCOUNT RATES

A discount rate calculates the present value of money arising in the future. The discount rate therefore converts the value of future money to today's money.

The discount rate used in the developer charge calculation should reflect the opportunity cost to Council of funding infrastructure works. It should recognise that in providing infrastructure prior to development Council faces a number of uncertainties or risks. These uncertainties include growth rates, cost of capital works and changes in interest rates.

IPART has specified the discount rates to be used by Sydney Water Corporation, Hunter Water Corporation, Gosford City Council and Wyong shire Council. The specified discount rates vary depending on whether the assets were commissioned prior to or following 1996. Similar values are recommended by DLWC (now DWE) for regional Councils.

For the Cowra water supply system a pre-1996 asset real discount rate of 3% and a post-1996 asset real discount rate of 7% have been adopted. This complies with the DWE guidelines [Ref 1].

## 5.4 ASSETS

IPART defines assets on the basis of whether they were commissioned before or after the initial application of the NPV methodology for calculating developer contributions, i.e. 1996. This ensures a consistent rate of return is applied to all assets in subsequent reviews of a DSP.

Assets constructed prior to 1970 have generally been excluded from the developer contribution calculation as it assumed the cost of these assets has been fully recovered. Exceptions are made if the asset is a major works such as water treatment plants, major trunk watermains, major pumping stations and rising mains.

Cowra Shire Council has prepared a future Capital Works Schedule that includes works proposed to be constructed until 2037. Sufficient confidence of the timing of construction and costing of these works governs their inclusion in the developer contribution calculation.

A Modern Engineering Equivalent Replacement Asset (MEERA) value has been calculated for existing assets. The MEERA value has been 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.

Reticulation assets are excluded from the calculation of developer charges as the developer is responsible for the full cost of the design and construction of reticulation works within developments including subdivisions.

## 5.5 CALCULATION OF CAPITAL CONTRIBUTION

**NPV(Contribution) = NPV(Σ ASSET COSTS) / NPV(Σ INCREMENTAL ETs)**

The capital cost includes the cost of providing, extending or augmenting assets required, or likely to be required, to provide services to a development area. The capital cost per equivalent tenement (ET) is the value of the relevant assets divided by the capacity of these assets (in ETs).

The capital charge is calculated for each service area. Service areas are:

- An area served by a separate water supply distribution system
- Separate small towns or villages
- A new development area of over 500 lots

Where the capital charges for two or more service areas are within 30% they are agglomerated into a single DSP.

## 5.6 REDUCTION AMOUNT

Water utilities with more than 2000 assessments are offered the following methodologies for calculating the reduction amount:

- NPV of annual charges
- Direct NPV.

The NPV of annual charges method involves the calculation of the net present value (NPV) of the future net income from annual charges (income less OMA) for the development area.

The Direct NPV method involves the calculation of the renewal works and works to improve standards per ET, plus part of the net debt of the utility per ET.

The reduction amount for Cowra Shire Council has been calculated using the NPV of Annual Charges methodology. The reduction amount (cost) is determined as the difference between the operating revenue arising from a DSP area and the operating, maintenance and administration costs for that area. Projected net revenues and costs were determined until 2037 and hence a forecast horizon of 30 years was adopted to calculate the reduction amount. A single reduction amount has been calculated for the Cowra Shire local government area as common water supply Access and User Charges are levied.

# 6 DEVELOPER CONTRIBUTIONS

## 6.1 CALCULATION OF CAPITAL CHARGES

The capital charge calculated for each DSP area is shown in Table 6-1. The calculation spreadsheets are included in Appendix B. All calculations are based on information supplied by Cowra Shire Council.

**Table 6-1** *Calculated Capital Charges*

| DSP | Calculated Capital Charge ($/ET) |
|---|---|
| Cowra | 5,661 |
| Southern Section | 8,918 |
| 1(C)1 Zone | 10,548 |
| Central Tablelands | 10,698 |
| Wyangala | 25,968 |
| Darbys Falls | 30,026 |
| Billimari | 2,969 |

## 6.2 AGGLOMERATION OF CAPITAL CHARGES

Where the capital charges of two or more service areas (DSPs) are within 30%, they should be agglomerated into a single DSP. Cowra Shire Council service areas should therefore be agglomerated into four DSPs as shown in Table 6-2.

**Table 6-2** *Agglomeration of Service Areas*

| DSP | Capital Charge ($/ET) | % of Highest Capital Charge | | | |
|---|---|---|---|---|---|
| | | A | B | C | D |
| Darbys Falls | 30,026 | **100** | | | |
| Wyangala | 25,968 | 86 | | | |
| Central Tablelands | 10,698 | 36 | **100** | | |
| 1(c)1 Zone | 10,548 | | 99 | | |
| Southern Section | 8,918 | | 83 | | |
| Cowra | 5,661 | | 53 | **100** | |
| Billimari | 2,969 | | | 52 | **100** |

DSP A would include Darbys Falls and Wyangala.

DSP B would include Central Tablelands, 1(c)1 Zone, and Southern Section
.
DSP C would include Cowra.

DSP D would include Billimari.

The agglomerated capital charges, calculated in accordance with the guidelines, are shown in Table 6-3.

**Table 6-3** *Calculation of Agglomerated Capital Charges*

| DSP | Area | Capital Charge ($/ET) | Growth (ET) | Weighted Average Capital Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls | 30,026 | 4 | 27,591 |
| | Wyangala | 25,968 | 6 | |
| B | Central Tablelands | 10,968 | 41 | 10,373 |
| | 1(c)1 Zone | 10,548 | 390 | |
| | Southern Section | 8,918 | 56 | |
| C | Cowra | 5,661 | 922 | 5,661 |
| D | Billimari | 2,969 | 13 | 2,969 |

Alternatively Council could consider an alternative agglomeration process which would result in several layers of charges as shown in Table 6-4. There would be six DSPs as follows:

DSP A would include Darbys Falls and Wyangala.

DSP B would include Central Tablelands

DSP C would include 1(c)1 Zone.

DSP D would include Southern Section.
.
DSP E would include Cowra.

DSP F would include Billimari.

**Table 6-4** *Alternative Agglomeration of Capital Charges*

| DSP | Area | Capital Charge ($/ET) | Growth (ET) | Weighted Average Capital Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 30,026<br>25,968 | 4<br>6 | 27,591 |
| B | Central Tablelands | 10,698 | 41 | 10,698 |
| C | 1(c)1 Zone | 10,548 | 390 | 10,548 |
| D | Southern Section | 8,918 | 56 | 8,918 |
| E | Cowra | 5,661 | 922 | 5,661 |
| F | Billimari | 2,969 | 13 | 2,969 |

## 6.3 CALCULATION OF REDUCTION AMOUNT

A uniform reduction amount of $2,853/ET has been calculated for the Cowra Shire local government area. The calculation spreadsheet is included in Appendix C. All calculations are based on information supplied by Cowra Shire Council.

## 6.4 CALCULATED DEVELOPER CHARGES

The developer charges calculated in accordance with the guidelines are summarised in Table 6-5.

**Table 6-5** *Calculated Developer Charges*

| DSP | Area | Capital Charge ($/ET) | Reduction Amount (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 27,591 | 2,853 | 24,738 |
| B | Central Tablelands<br>1(c)1 Zone<br>Southern Section | 10,373 | 2,853 | 7,520 |
| C | Cowra | 5,661 | 2,853 | 2,808 |
| D | Billimari | 2,969 | 2,853 | 116 |

If Council was to adopt the alternative capital charges shown in Table 6-4 the developer charges would be as shown in Table 6-6.

**Table 6-6** *Alternative Developer Charges*

| DSP | Area | Capital Charge ($/ET) | Reduction Amount (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 27,591 | 2,853 | 24,738 |
| B | Central Tablelands | 10,698 | 2,853 | 7,845 |
| C | 1(c)1 Zone | 10,548 | 2,853 | 7,695 |
| D | Southern Section | 8,918 | 2,853 | 6,065 |
| E | Cowra | 5,661 | 2,853 | 2,808 |
| F | Billimari | 2,969 | 2,853 | 116 |

## 6.5 AGGLOMERATION OF DEVELOPER CHARGES

On 25 October 2004 DEUS issued Circular LWU 5 which modified the guidelines to give Local Water Utilities (LWUs) more flexibility in selection of the number of DSP areas and the developer charges to be adopted. If a LWU wishes to carry out additional agglomeration of DSP areas to suit their local circumstances the process will be as follows:

1. Subject to note 4 below, any DSP area can be agglomerated with the next highest or the next lowest DSP area on the basis of the weighted average developer charge for their areas.
2. Alternatively, the LWU may agglomerate all its DSP areas to calculate a weighted average developer charge for all new development.
3. The developer charges resulting from the additional agglomeration will be the maximum charges which the LWU can levy in each of the new agglomerated DSP areas.
4. However, in order to provide appropriate signals regarding the cost of urban development, additional agglomeration is not recommended for new development areas with high calculated developer charges (over about $20,000 per ET), where these areas involve a significant proportion of the LWU's new development.

The calculated developer charges for Wyangala and Darbys Falls are in excess of $20,000/ET. However these DSP areas include only a minor proportion of Cowra Shire's new development.

All the remaining calculated developer charges for Cowra Shire Council are below $20,000/ET. A weighted average developer charge for all new developments within the Cowra Shire Council local government area has been calculated and is summarised in Table 6-7.

**Table 6-7** *Agglomerated Developer Charge*

| DSP | Area | Developer Charge ($/ET) | Growth (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 24,738 | 10 | 4,539 |
| B | Central Tablelands<br>1(c)1 Zone<br>Southern Section | 7,520 | 487 | |
| C | Cowra | 2,808 | 922 | |
| D | Billimari | 116 | 13 | |

Alternatively Central Tablelands, the 1(c)1 Zone and Southern Section could be retained as separate DSP areas and the developer charges of the remaining service areas agglomerated into a single weighted average developer charge. The agglomeration of developer charges for this scenario is shown in Table 6-8.

**Table 6-8** *Alternative Agglomerated Developer Charges*

| DSP | Area | Developer Charge ($/ET) | Growth (ET) | Weighted Average Developer Charge ($/ET) |
|---|---|---|---|---|
| A | Darbys Falls<br>Wyangala | 24,738 | 10 | 3,003 |
| | Cowra | 2,808 | 922 | |
| | Billimari | 116 | 13 | |
| B | Central Tablelands | 7,845 | 41 | 7,845 |
| C | 1(c)1 Zone | 7,695 | 390 | 7,695 |
| D | Southern Section | 6,065 | 56 | 6,065 |

## 6.6 CROSS SUBSIDY

Developer charges have been prepared for a number of scenarios. These are:

- The developer charges calculated in accordance with the guidelines as shown in Table 6-5.
- The alternative developer charges shown in Table 6-6 which provide an additional layer of charges.
- The developer charge of $4,539/ET resulting from agglomerating all the service areas into a single DSP (refer Table 6-7).

- The developer charges resulting from retaining Central Tablelands, the 1(c)1 Zone and Southern Section as separate DSPs but agglomerating all the remaining service areas into one DSP area. These alternative agglomerated developer charges are shown in Table 6-8.

The above charges are the maximum that may be levied by Cowra Shire Council. In adopting a DSP, Cowra Shire Council may elect to levy less than these amounts, but any resulting cross subsidies must be disclosed in the DSP.

# 7 REFERENCES


[1] Department of Land and Water Conservation (December 2002), *Developer Contributions for Water Supply, Sewerage and Stormwater, Guidelines*.

[2] Independent Pricing and Regulatory Tribunal of New South Wales (September 2000), *Developer Contributions, Determination No 9, 2000*.

[3] Water Directorate (January 2005), *Section 64 Determinations of Equivalent Tenements, Technical Guidelines.*

# 8 GLOSSARY OF TERMS

In this DSP, unless the context or subject matter otherwise indicates or requires:

*'Council'* refers to Cowra Shire Council

*'CSC m*eans Cowra Shire Council

*'Development'* may include a reference to the erection of a building on land; the carrying out of a work in, on, over or under land; the use of land or of a building or work on that land and/or the subdivision of land.

'DEC' means Department of Environment and Conservation.

*'DLWC'* means former Department of Land and Water Conservation

'DEW' means Department of Energy and Water

*'EPAA*' means the Environmental Planning and Assessment Act 1979

*'EP'* means the equivalent persons and is the unit of measure to describe the flow or demand associated with an average person.

*'ET'* means the equivalent tenement and is the basic unit of measure used to describe flow or demand from contributing sources as a ratio to that expected from a single average residence. Other uses can be assessed as equivalent to a number of tenements.

*'Headworks'* means those components that form the key infrastructure requirements for the supply of sewerage or water supply services to an area. Typically, headworks comprise such components as dams, bores, pumping stations, treatment plants, purification plants and trunk mains.

*'GR'* means Growth Rate (% per annum)

*'HWA'* means Hunter Water Australia

*'Indexation'* means the percentage by which contributions are increased for each calculation period

*'IPART'* means Independent Pricing and Regulatory Tribunal

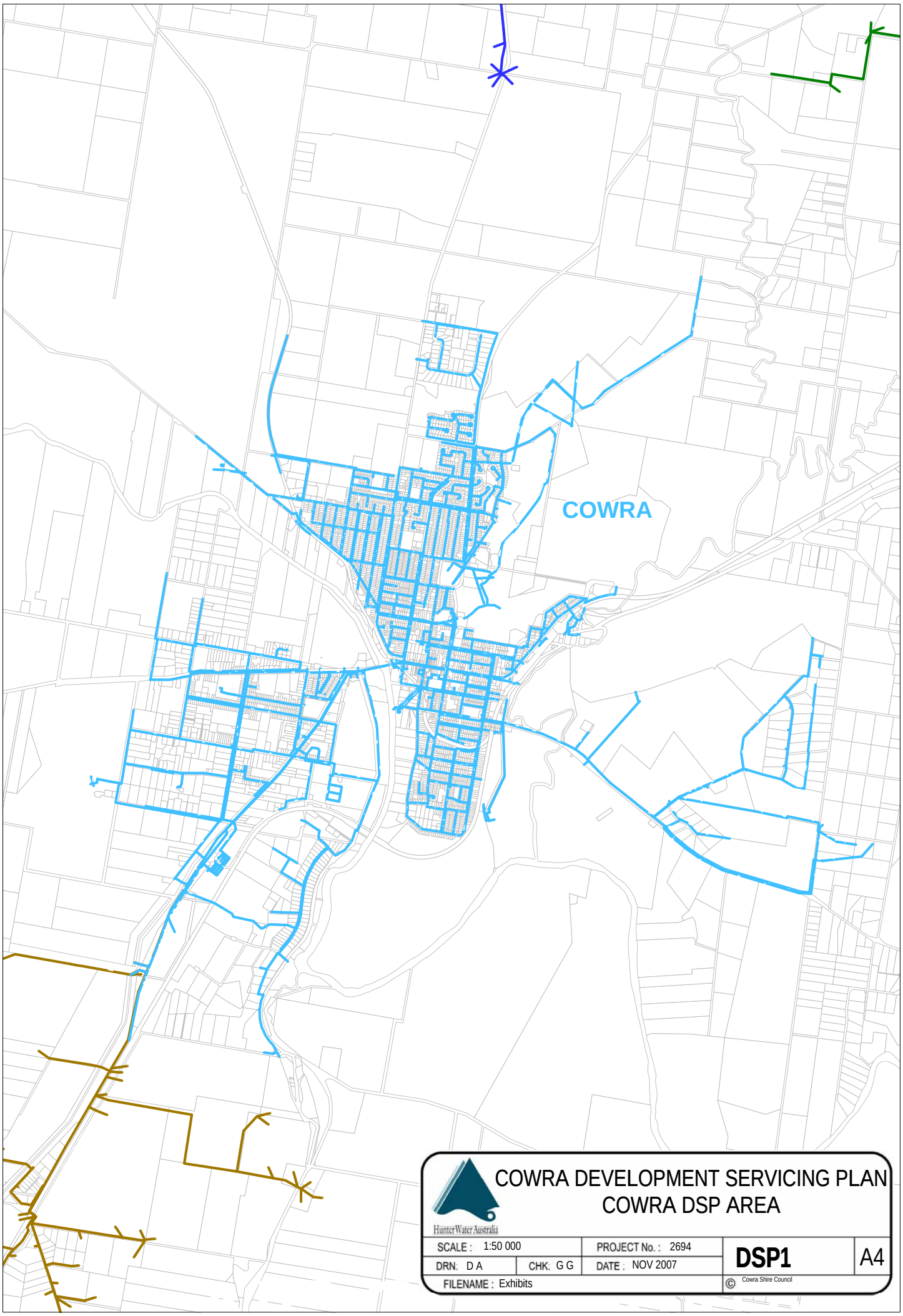
*'LG Act'* means the Local Government Act 1993;

*'NPV'* means Net Present Value; a process to convert future incomes or expenditures to the value of today's money.

*'Occupancy Rate'* means the average number of people per household; commonly referred to as the EP/ET ratio.

*'WTP'* means Water Treatment Plant

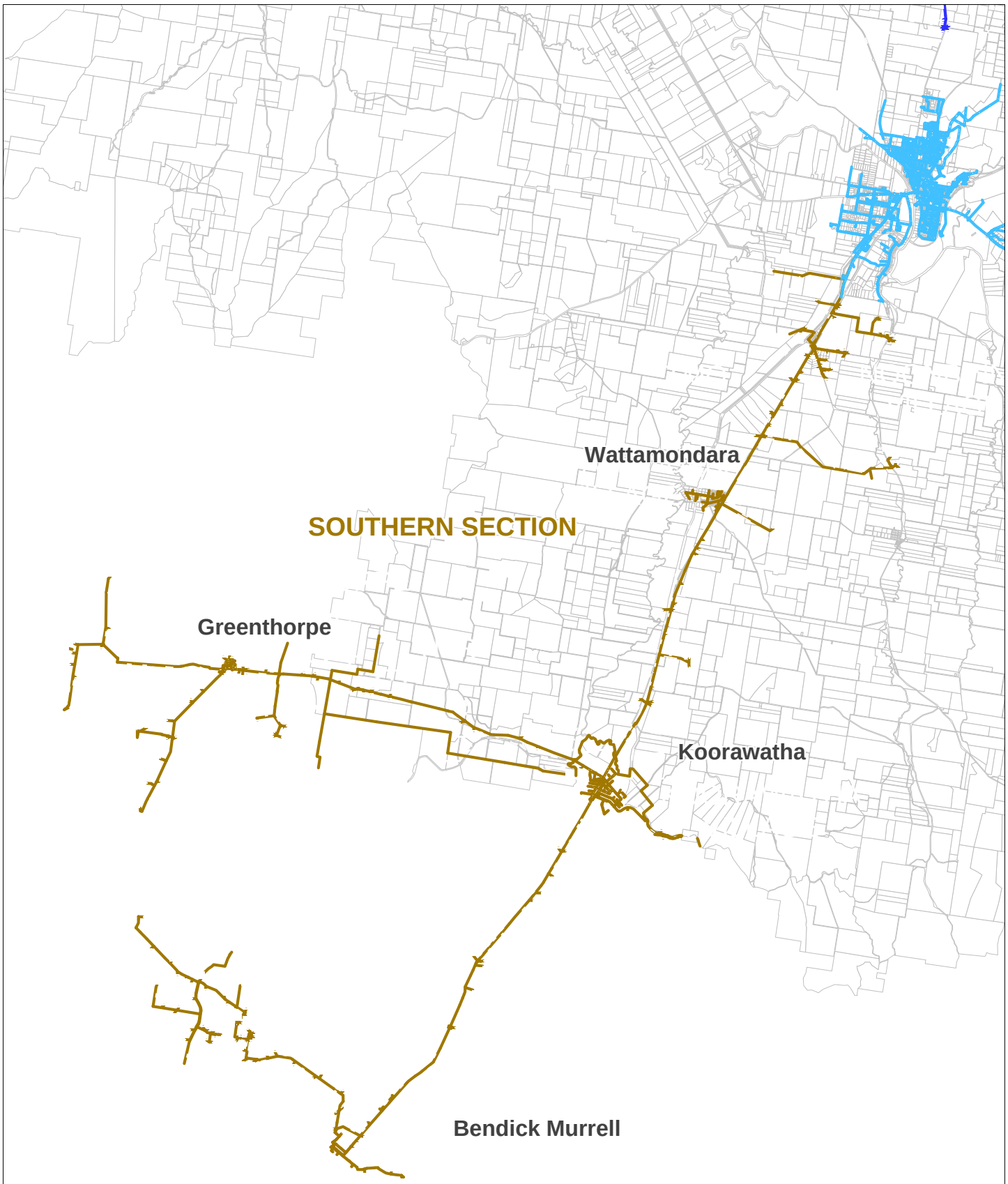
# Appendix A – Plans




# COWRA DEVELOPMENT SERVICING PLAN
## COWRA DSP AREA

Hunter Water Australia

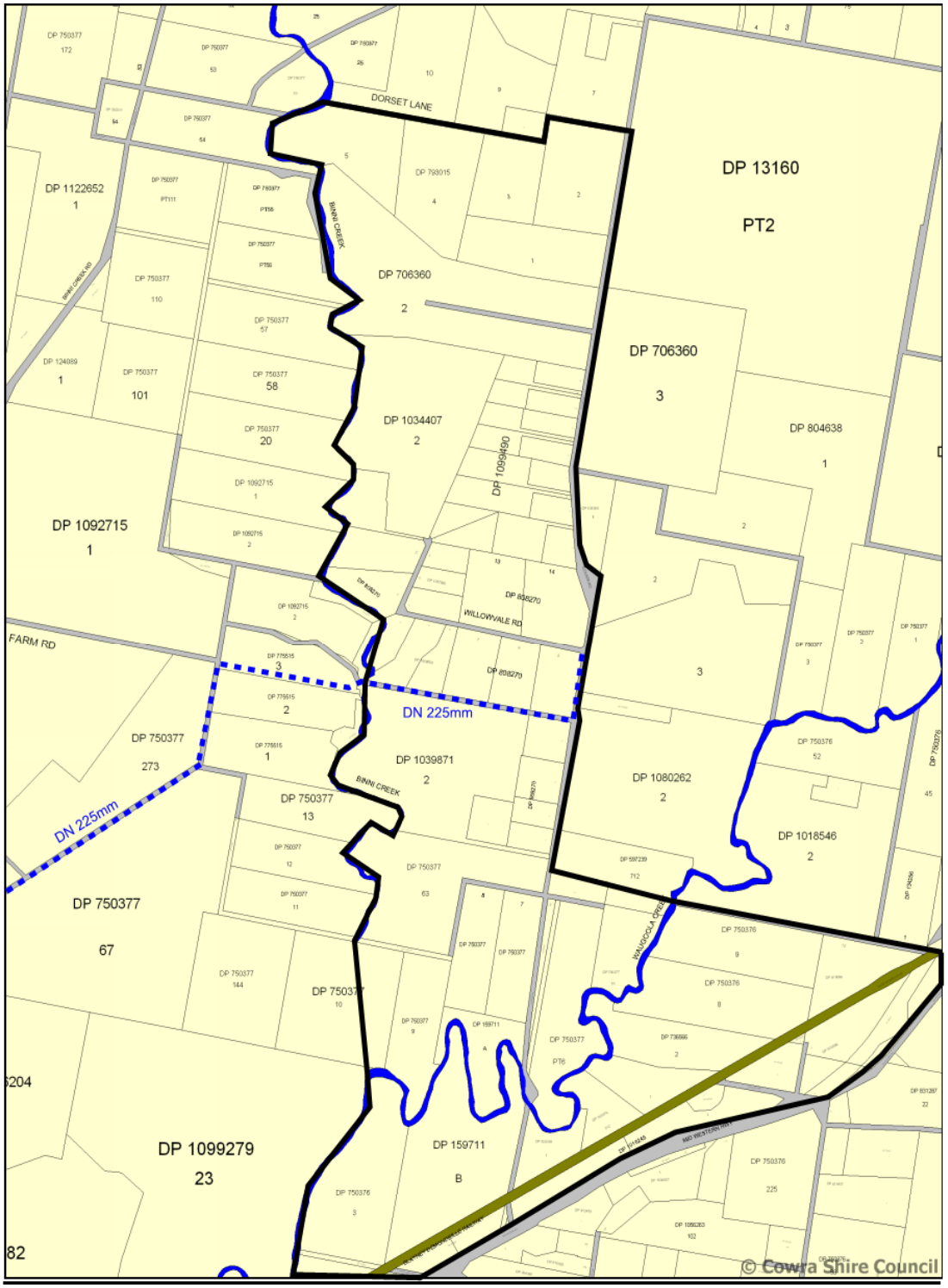
| | | | |
|---|---|---|---|
| SCALE : 1:50 000 | | PROJECT No. : 2694 | **DSP1** | A4 |
| DRN: D A | CHK: G G | DATE : NOV 2007 | | |
| FILENAME : Exhibits | | | © Cowra Shire Council | |




COWRA DEVELOPMENT SERVICING PLAN
SOUTHERN SECTION DSP AREA

Hunter Water Australia

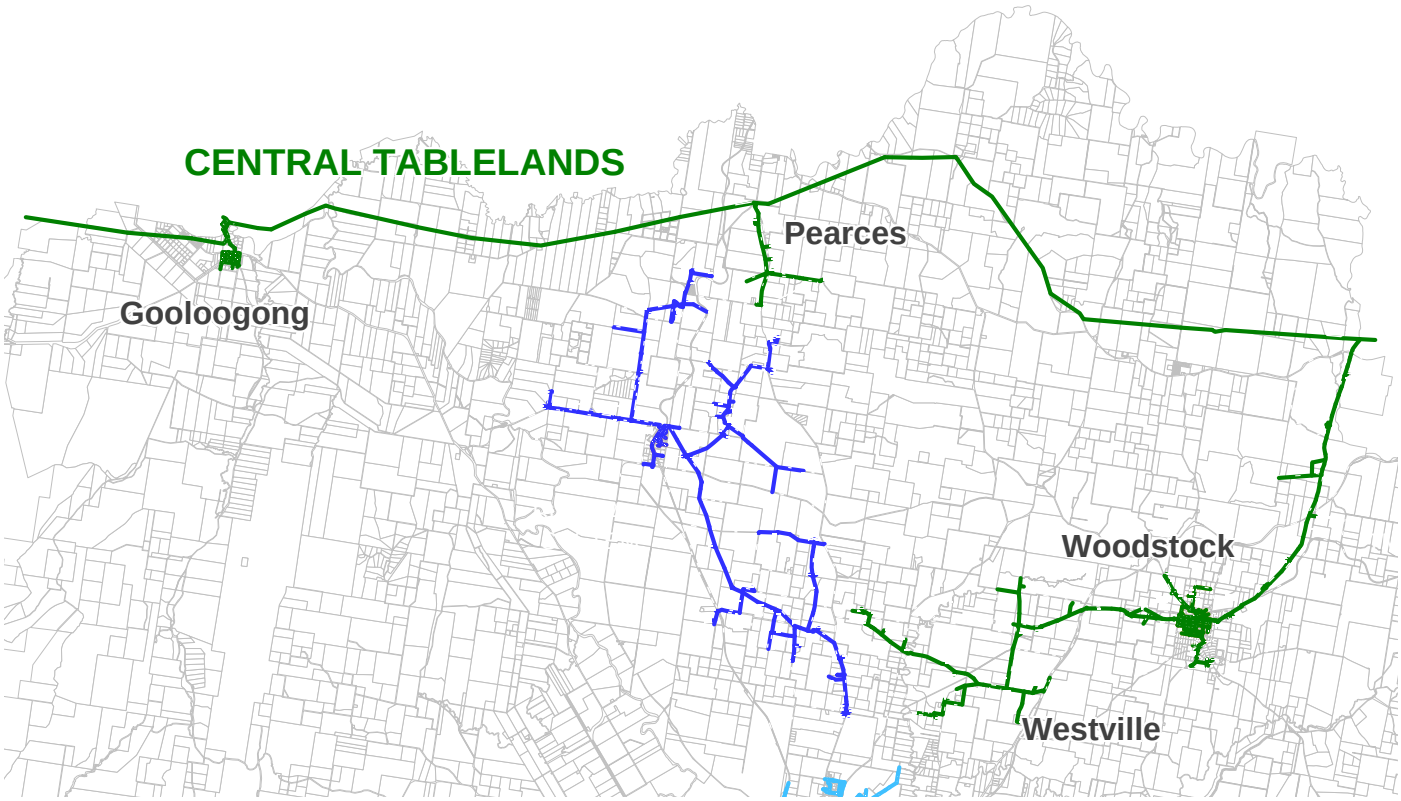
| | | | |
|---|---|---|---|
| SCALE : 1:200 000 | | PROJECT No. : 2694 | DSP2 | A4 |
| DRN: D A | CHK: G G | DATE : NOV 2007 | | |
| FILENAME : Exhibits | | | © Cowra Shire Council | |




# COWRA DEVELOPMENT SERVICING PLAN
## 1c1 RURAL RESIDENTIAL DSP AREA

Hunter Water Australia

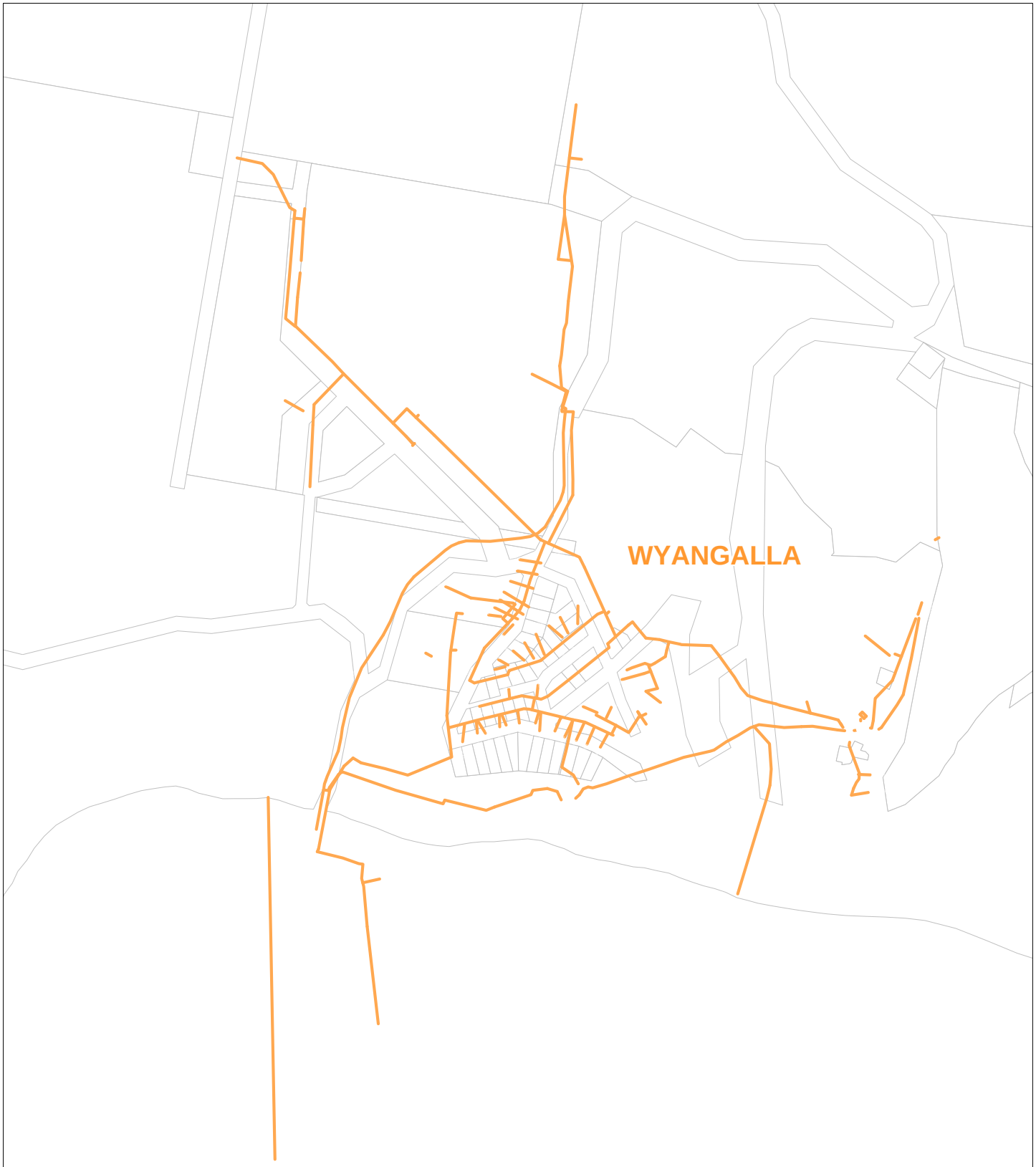
| | | | |
|---|---|---|---|
| SCALE : NTS | | PROJECT No. : 2694 | **DSP3** | A4 |
| DRN: | CHK: | DATE : JUNE 2009 | | |
| FILENAME : Exhibits | | | © Cowra Shire Council | |




COWRA DEVELOPMENT SERVICING PLAN
CENTRAL TABLELANDS DSP AREA

Hunter Water Australia

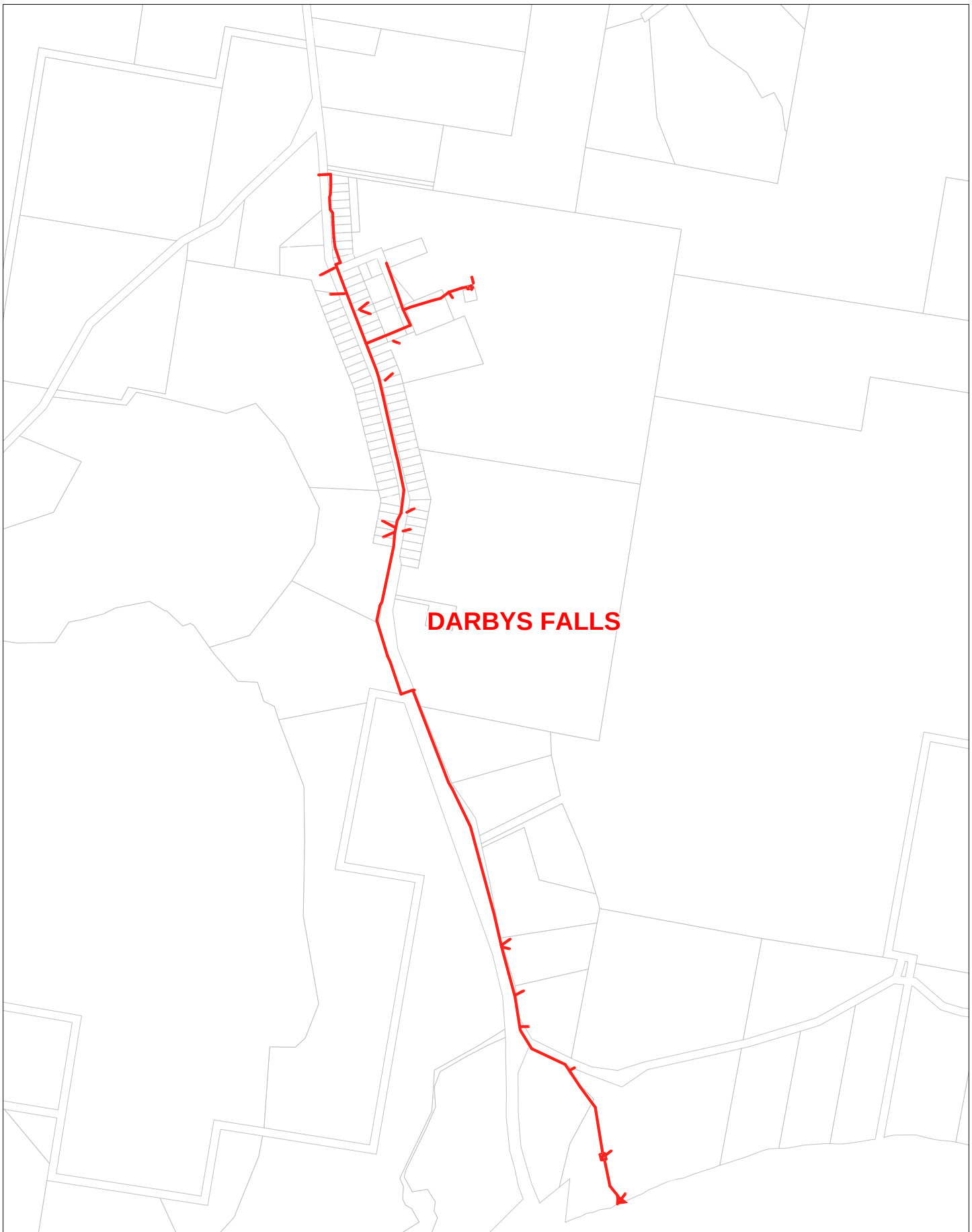
| | | | |
|---|---|---|---|
| SCALE : 1:300 000 | | PROJECT No. : 2694 | DSP4 | A4 |
| DRN: D A | CHK: G G | DATE : NOV 2007 | | |
| FILENAME : Exhibits | | | © Cowra Shire Council | |




Hunter Water Australia

# COWRA DEVELOPMENT SERVICING PLAN
## WYANGALA DSP AREA

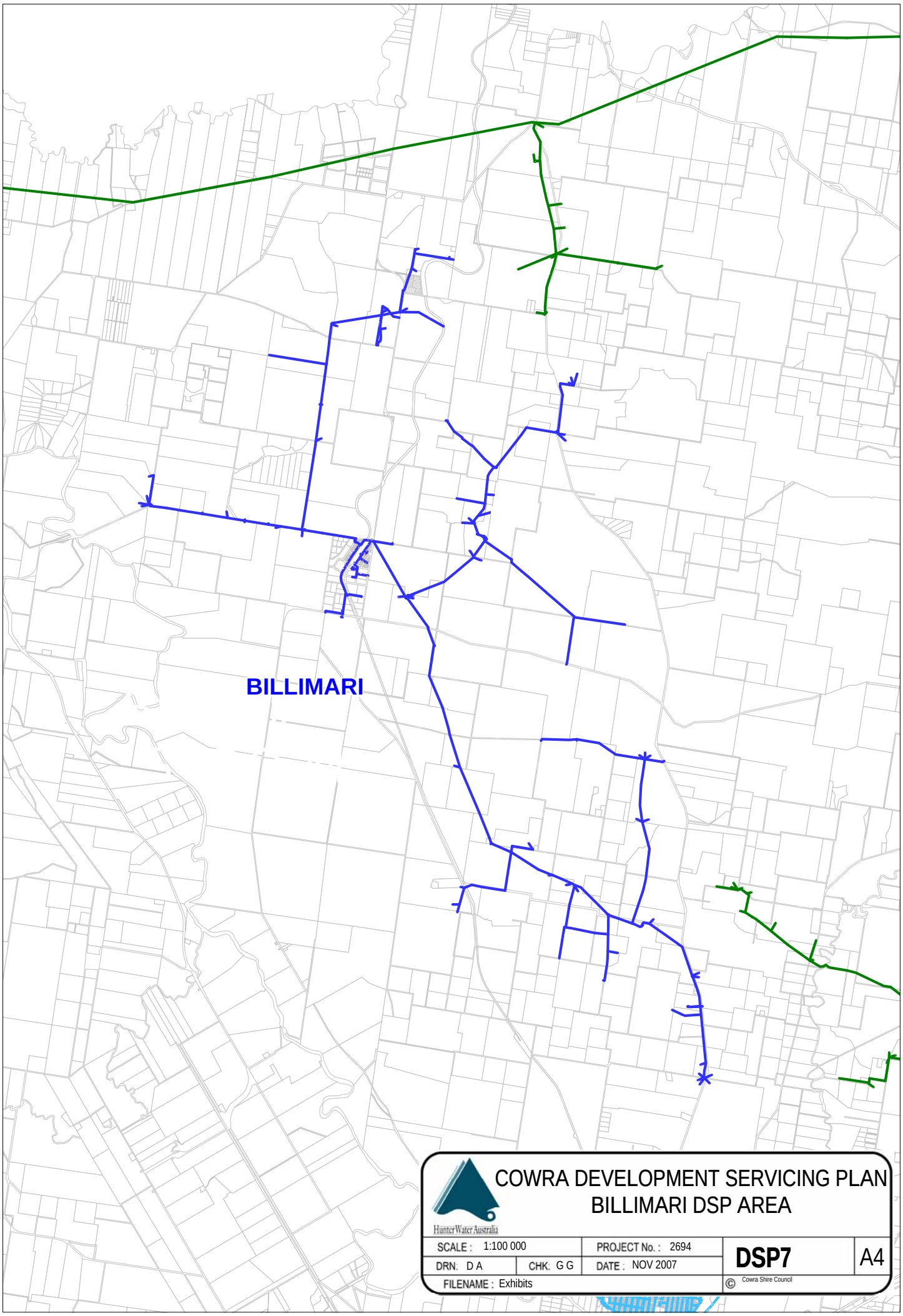
| | | | |
|---|---|---|---|
| SCALE : 1:7 500 | | PROJECT No. : 2694 | **DSP5** | A4 |
| DRN: D A | CHK: G G | DATE : NOV 2007 | | |
| FILENAME : Exhibits | | | © Cowra Shire Council | |




COWRA DEVELOPMENT SERVICING PLAN
DARBYS FALLS DSP AREA

Hunter Water Australia

| | | | |
|---|---|---|---|
| SCALE : 1:12 500 | | PROJECT No. : 2694 | DSP6 | A4 |
| DRN: D A | CHK: G G | DATE : NOV 2007 | | |
| FILENAME : Exhibits | | | © Cowra Shire Council | |


BILLIMARI
COWRA DEVELOPMENT SERVICING PLAN
BILLIMARI DSP AREA
Hunter Water Australia
SCALE : 1:100 000
PROJECT No. : 2694
DRN: D A
CHK: G G
DATE : NOV 2007
DSP7
A4
FILENAME : Exhibits
© Cowra Shire Council

# Appendix B – Capital Charge Calculation

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **Cowra Water Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| Low lift raw water WPS | 3 x 35kW | 1985 | 1995 | $288,409 | 6,252 | 2037 | 43 | 1.74 | 80 |
| Low lift rising trunk main | DN500 DICL | 1985 | 1995 | $70,976 | 6,252 | 2037 | 43 | 1.74 | 20 |
| high lift raw water WPS | 3 x 210 kW | 1985 | 1995 | $1,156,931 | 6,252 | 2037 | 43 | 1.74 | 322 |
| Cowra WTP | 32 ML/D | 1985 | 1995 | $13,118,478 | 6,252 | 2037 | 43 | 1.74 | 3,653 |
| Intermediate lift delivery WPS | 2 x 125 kW | 1991 | 1995 | $259,568 | 5,209 | 2037 | 43 | 1.74 | 87 |
| High lift delivery WPS | 2 x 375 kW | 1991 | 1995 | $1,128,914 | 5,599 | 2037 | 43 | 1.74 | 351 |
| Reservoir - high level | 4.5 ML concrete | 1968 | NA | $999,817 | 5,599 | 2037 | 43 | 1.74 | 0 |
| Reservoir - high level | 10 ML concrete | 1991 | 1995 | $1,670,024 | 5,599 | 2037 | 43 | 1.74 | 519 |
| Reservoir - low level | 1.3 ML concrete | 1909 | NA | $493,316 | 5,209 | 2037 | 43 | 1.74 | 0 |
| Reservoir - low level | 1.3 ML concrete | 1929 | NA | $493,316 | 5,209 | 2037 | 43 | 1.74 | 0 |
| Reservoir - low level | 4.5 ML concrete | 1968 | NA | $999,817 | 5,209 | 2037 | 43 | 1.74 | 0 |
| Reservoir - low level | 3.6 ML concrete | 1991 | 1995 | $855,887 | 5,209 | 2037 | 43 | 1.74 | 286 |
| Reservoir - intermediate level | 4.5 ML steel | 1941 | NA | $848,746 | 5,209 | 2037 | 43 | 1.74 | 0 |
| Trunk main - high level system | DN300 AC | 1968 | NA | $231,298 | 5,599 | 2037 | 43 | 1.74 | 0 |
| Trunk main - high level system | DN375 DICL | 1968 | NA | $223,338 | 5,599 | 2037 | 43 | 1.74 | 0 |
| Trunk main - high level system | DN250 AC | 1970 | 1995 | $107,398 | 5,209 | 2037 | 43 | 1.74 | 36 |
| Trunk main - high level system | DN200 AC Redfern St to end Pridham St | 1972 | 1995 | $169,403 | 5,209 | 2037 | 43 | 1.74 | 57 |
| Trunk main - intermediate system | DN250 AC Reservoir to Redfern St | 1972 | 1995 | | 5,209 | 2037 | 43 | 1.74 | 0 |
| Trunk main - low level system | DN375 AC Reservoir to bridge | 1988 | 1995 | $222,948 | 5,862 | 2037 | 43 | 1.74 | 66 |
| Trunk main - low level system | DN300 DICL main across access bridge | 1988 | 1995 | $248,915 | 5,862 | 2037 | 43 | 1.74 | 74 |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| Trunk main | DN375 PVC WTP to Kendal St | 2006 | 2006 | $123,999 | 5,209 | 2037 | 32 | 2.36 | 56 |
| Trunk main | DN200 PVC Kendal St to Baronga St | 2006 | 2006 | $85,067 | 5,209 | 2037 | 32 | 2.36 | 39 |
| Trunk main | DN150PVC Kendal St | 2006 | 2006 | $33,840 | 5,209 | 2037 | 32 | 2.36 | 15 |
| **Future Assets** | | | | | | | | | |
| | | | | | | | **Capital Charge ($/ET)** | | **5,661** |

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **Southern Section Water Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| Low lift raw water WPS | 3 x 35kW | 1985 | 1995 | $288,409 | 6,252 | 2037 | 43 | 1.74 | 80 |
| Low lift rising trunk main | DN500 DICL | 1985 | 1995 | $70,976 | 6,252 | 2037 | 43 | 1.74 | 20 |
| high lift raw water WPS | 3 x 210 kW | 1985 | 1995 | $1,156,931 | 6,252 | 2037 | 43 | 1.74 | 322 |
| Cowra WTP | 32 ML/D | 1985 | 1995 | $13,118,478 | 6,252 | 2037 | 43 | 1.74 | 3,653 |
| Trunk main - low level system | DN375 AC Reservoir to bridge | 1988 | 1995 | $222,948 | 5,862 | 2037 | 43 | 1.74 | 66 |
| Trunk main - low level system | DN300 DICL main across bridge | 1988 | 1995 | $248,915 | 5,862 | 2037 | 43 | 1.74 | 74 |
| Trunk main | DN300 DICL inlet to West Cowra WPS | 1988 | 1995 | $62,626 | 653 | 2037 | 43 | 1.74 | 167 |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| West Cowra WPS | 2 x 110 kW - Mech/Elect | 2005 | 2005 | $351,584 | 653 | 2037 | 33 | 2.42 | 1,302 |
| Koorawatha WPS | 2 x 12 kW - Mech/Elect | 2005 | 2005 | $74,712 | 653 | 2037 | 33 | 2.42 | 277 |
| Greenethorp WPS | 2 x 12 kW - Mech/Elect | 2005 | 2005 | $74,712 | 653 | 2037 | 33 | 2.42 | 277 |
| Koorawaths reservoir | 1.0 ML concrete | 2005 | 2005 | $433,987 | 653 | 2037 | 33 | 2.42 | 1,607 |
| Koorawatha | Trunk main replacement | 2005 | 2005 | $165,000 | 653 | 2037 | 33 | 2.42 | 611 |
| Koorawatha | Design and documentation | 2005 | 2005 | $125,000 | 653 | 2037 | 33 | 2.42 | 463 |
| **Future Assets** | | | | | | | | | |
| | | | | | | | **Capital Charge ($/ET)** | | **8,918** |

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **1(c)1 Zone Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| Low lift raw water WPS | 3 x 35kW | 1985 | 1995 | $288,409 | 6,252 | 2037 | 43 | 1.74 | 80 |
| Low lift rising trunk main | DN500 DICL | 1985 | 1995 | $70,976 | 6,252 | 2037 | 43 | 1.74 | 20 |
| high lift raw water WPS | 3 x 210 kW | 1985 | 1995 | $1,156,931 | 6,252 | 2037 | 43 | 1.74 | 322 |
| Cowra WTP | 32 ML/D | 1985 | 1995 | $13,118,478 | 6,252 | 2037 | 43 | 1.74 | 3,653 |
| High lift delivery WPS | 2 x 375 kW | 1991 | 1995 | $1,128,914 | 5,599 | 2037 | 43 | 1.74 | 351 |
| Reservoir - high level | 4.5 ML concrete | 1968 | NA | $999,817 | 5,599 | 2037 | 43 | 1.74 | 0 |
| Reservoir - high level | 10 ML concrete | 1991 | 1995 | $1,670,024 | 5,599 | 2037 | 43 | 1.74 | 519 |
| Trunk main - high level system | DN300 AC | 1968 | NA | $231,298 | 5,599 | 2037 | 43 | 1.74 | 0 |
| Trunk main - high level system | DN375 DICL | 1968 | NA | $223,338 | 5,599 | 2037 | 43 | 1.74 | 0 |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| **Future Assets** | | | | | | | | | |
| Watermain extension to 1(c)1 Zone | 5550 metres of DN225 | 2007 | 2007 | $945,157 | 390 | 2037 | 31 | 2.31 | 5,603 |
| | | | | | | | **Capital Charge ($/ET)** | | **10,548** |

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **Central Tablelands Water Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| Pearce rising main | 1000 metres of DN100 | 1992 | 1995 | $90,093 | 19 | 2037 | 43 | 1.74 | 8,254 |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| Gooloogong Booster | 1 x 10kW | 2002 | 2002 | $48,343 | 136 | 2037 | 36 | 2.58 | 917 |
| Pipeline replacement | 220 metres of DN150 | 2001 | 2001 | $16,920 | 136 | 2037 | 37 | 2.64 | 328 |
| Woodstock - new mains | 280 metres of DN200 PVC | 2004 | 2004 | $36,400 | 321 | 2037 | 34 | 2.47 | 280 |
| Woodstock - new mains | 624 metres of DN100 PVC | 2001 | 2001 | $43,680 | 321 | 2037 | 37 | 2.64 | 359 |
| Woodstock - new mains | 221 metres of DN100 PVC | 2004 | 2004 | $15,470 | 321 | 2037 | 34 | 2.47 | 119 |
| Woodstock - new mains | 554 metres of DN100 PVC | 2006 | 2006 | $38,780 | 321 | 2037 | 32 | 2.36 | 286 |
| Woodstock - new SV's | | 2005 | 2005 | $20,460 | 321 | 2037 | 33 | 2.42 | 154 |
| **Future Assets** | | | | | | | | | |
| | | | | | | | **Capital Charge ($/ET)** | | **10,698** |

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **Wyangala Water Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| Water Filtration Plant | 0.5 ML/day | 1994 | 1995 | $1,010,804 | 71 | 2037 | 43 | 1.74 | 24,783 |
| Lift pumping station | 1 x 10kW | 1970 | 1995 | $48,343 | 71 | 2037 | 43 | 1.74 | 1,185 |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| **Future Assets** | | | | | | | | | |
| | | | | | | | **Capital Charge ($/ET)** | | **25,968** |

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **Darbys Falls Water Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| Lift pumping station | 1 x 10kW | 1995 | 1995 | $48,343 | 49 | 2037 | 43 | 1.74 | 1,717 |
| Reservoir | 0.23 ML concrete | 1975 | 1995 | $95,367 | 49 | 2037 | 43 | 1.74 | 3,388 |
| Trunkmain | DN100 PVC | 1995 | 1995 | $81,524 | 49 | 2037 | 43 | 1.74 | 2,896 |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| **Future Assets** | | | | | | | | | |
| Water Filtration Plant | | 2007 | 2007 | $600,000 | 49 | 2037 | 31 | 2.31 | 28,309 |
| | | | | | | | **Capital Charge ($/ET)** | | **30,026** |

## DEVELOPER CHARGE CALCULATION

**DSP AREA** **Billimari Water Supply**

| | |
|---|---|
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED BEFORE 1 JANUARY 1996 : | 3.00% |
| DISCOUNT RATE (pa) FOR ASSETS CONSTRUCTED ON OR AFTER 1 JANUARY 1996 : | 7.00% |
| DISCOUNT RATE (pa) FOR PROPOSED FUTURE ASSETS : | 7.00% |

| Asset | | Year Commissioned | Effective Year of Commissioning | Capital Cost (June 07) ($) | System Capacity (ET) | Year Capacity Taken Up | Take Up Period (Years) | ROI Factor | Capital Charge ($/ET) |
|---|---|---|---|---|---|---|---|---|---|
| Description | Details | | | | | | | | |
| | | | | | | | | | |
| **Assets Constructed Prior to 1 January 1996** | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| **Assets Constructed Post 1 January 1996** | | | | | | | | | |
| | | | | | | | | | |
| Pumping station | 1 x 10kW | 2005 | 1995 | $48,343 | 144 | 2037 | 43 | 2.98 | 999 |
| Bore | 1 x 5kW | 2000 | 1995 | $95,367 | 144 | 2037 | 43 | 2.98 | 1,970 |
| | | | | | | | | | |
| **Future Assets** | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | **Capital Charge ($/ET)** | | **2,969** |

# Appendix C – Reduction Amount Calculation

**1st Iteration**

| Year | | | | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 | 2030/31 | 2031/32 | 2032/33 | 2033/34 | 2034/35 | 2035/36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capital Charge | (1) | | | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 |
| Input Reduction Amount | (2) | | | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| Average Developer Charge | (3)=(1)-(2) | | | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 | 5303 |
| Total Equivalent Tenements (ETs) | (4) | 0 | 5517 | 5566 | 5617 | 5668 | 5719 | 5771 | 5823 | 5876 | 5924 | 5973 | 6022 | 6071 | 6121 | 6171 | 6222 | 6273 | 6325 | 6377 | 6430 | 6483 | 6537 | 6591 | 6646 | 6701 | 6757 | 6813 | 6870 | 6927 | 6985 | 7043 | 7102 |
| New ET's per year | (5)= (4) current yr - (4) prev yr | | | 51 | 51 | 51 | 51 | 52 | 52 | 53 | 48 | 49 | 49 | 49 | 50 | 50 | 51 | 51 | 52 | 52 | 53 | 53 | 54 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 58 | 58 | 59 |
| PV (New Et's) | (6) = PV of (5) over 30years @ 7% | | | 687 | 689 | 691 | 693 | 695 | 696 | 697 | 698 | 704 | 709 | 714 | 720 | 725 | 731 | 736 | 741 | 745 | 750 | 754 | 759 | 762 | 766 | 769 | 773 | 775 | 778 | 780 | 781 | 782 | 783 |
| Cumulative New ET's | (7) | | | 51 | 102 | 153 | 204 | 256 | 308 | 361 | 409 | 458 | 507 | 556 | 606 | 656 | 707 | 758 | 810 | 862 | 915 | 968 | 1022 | 1076 | 1131 | 1186 | 1242 | 1298 | 1355 | 1412 | 1470 | 1528 | 1587 |
| Rates & Charges Revenue ($'000) | (8) | | | 4508 | 4558 | 4596 | 4631 | 4682 | 4721 | 4769 | 4786 | 4826 | 4867 | 4904 | 4957 | 5004 | 5056 | 5101 | 5155 | 5204 | 5257 | 5306 | 5356 | 5398 | 5441 | 5486 | 5529 | 5572 | 5618 | 5661 | 5707 | 5753 | 5800 |
| OMA cost ($'000) | (9) | | | 3317 | 3337 | 3354 | 3374 | 3394 | 3413 | 3431 | 3448 | 3467 | 3484 | 3503 | 3521 | 3540 | 3559 | 3579 | 3597 | 3617 | 3636 | 3655 | 3675 | 3695 | 3715 | 3736 | 3755 | 3775 | 3796 | 3817 | 3838 | 3859 | 3879 |
| (Revenue-OMA) ($'000) | (10) = (8) - (9) | | | 1191 | 1221 | 1242 | 1257 | 1288 | 1308 | 1338 | 1338 | 1359 | 1383 | 1401 | 1436 | 1464 | 1497 | 1522 | 1558 | 1586 | 1621 | 1651 | 1681 | 1703 | 1726 | 1751 | 1774 | 1797 | 1822 | 1844 | 1869 | 1894 | 1921 |
| Revenue - OMA for New ET's | (11) = (10) x (7)/(4) | | | 11 | 22 | 34 | 45 | 57 | 69 | 82 | 92 | 104 | 116 | 128 | 142 | 156 | 170 | 184 | 199 | 214 | 231 | 247 | 263 | 278 | 294 | 310 | 326 | 342 | 359 | 376 | 393 | 411 | 429 |
| PV (Revenue - OMA) for New ET's ($'000) | (12) = PV of (11) over 30 years @ 7% | | | $1,799 | 1,973 | 2,148 | 2,322 | 2,497 | 2,671 | 2,845 | 3,016 | 3,189 | 3,362 | 3,533 | 3,704 | 3,871 | 4,036 | 4,197 | 4,354 | 4,506 | 4,653 | 4,792 | 4,923 | 5,046 | 5,163 | 5,270 | 5,367 | 5,454 | 5,530 | 5,594 | 5,643 | 5,678 | 5,696 |
| Output Reduction Amount ($ per ET) | (13) = (12)/(6) | | | 2619 | 2866 | 3111 | 3353 | 3594 | 3837 | 4079 | 4322 | 4533 | 4743 | 4947 | 5143 | 5338 | 5522 | 5704 | 5876 | 6044 | 6201 | 6351 | 6488 | 6619 | 6737 | 6849 | 6946 | 7036 | 7110 | 7175 | 7222 | 7257 | 7271 |
| 5yr Average | | | | $3,109 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % Difference between Input and Output | | | | 36% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**2nd Iteration**

| Year | | | | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 | 2030/31 | 2031/32 | 2032/33 | 2033/34 | 2034/35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capital Charge | (1) | | | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 |
| Input Reduction Amount | (2) | | | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 | 3109 |
| Average Developer Charge | (3)=(1)-(2) | | | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 | 4194 |
| Total Equivalent Tenements (ETs) | (4) | | | 5566 | 5617 | 5668 | 5719 | 5771 | 5823 | 5876 | 5924 | 5973 | 6022 | 6071 | 6121 | 6171 | 6222 | 6273 | 6325 | 6377 | 6430 | 6483 | 6537 | 6591 | 6646 | 6701 | 6757 | 6813 | 6870 | 6927 | 6985 | 7043 | 7102 |
| New ET's per year | (5)= (4) current yr - (4) prev yr | | | 19 | 51 | 51 | 51 | 52 | 52 | 53 | 48 | 49 | 49 | 49 | 50 | 50 | 51 | 51 | 52 | 52 | 53 | 53 | 54 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 58 | 58 | 59 |
| PV (New Et's) | (6) = PV of (5) over 30years @ 7% | | | 655 | 689 | 691 | 693 | 695 | 696 | 697 | 698 | 704 | 709 | 714 | 720 | 725 | 731 | 736 | 741 | 745 | 750 | 754 | 759 | 762 | 766 | 769 | 773 | 775 | 778 | 780 | 781 | 782 | 783 |
| Cumulative New ET's | (7) | | | 19 | 70 | 121 | 172 | 224 | 276 | 329 | 377 | 426 | 475 | 524 | 574 | 624 | 675 | 726 | 778 | 830 | 883 | 936 | 990 | 1044 | 1099 | 1154 | 1210 | 1266 | 1323 | 1380 | 1438 | 1496 | 1555 |
| Rates & Charges Revenue ($'000) | (8) | | | 4454 | 4499 | 4534 | 4566 | 4612 | 4649 | 4693 | 4712 | 4750 | 4788 | 4824 | 4873 | 4919 | 4968 | 5010 | 5060 | 5107 | 5158 | 5206 | 5253 | 5294 | 5335 | 5379 | 5420 | 5461 | 5505 | 5547 | 5590 | 5635 | 5681 |
| OMA cost ($'000) | (9) | | | 3317 | 3337 | 3354 | 3374 | 3394 | 3413 | 3431 | 3448 | 3467 | 3484 | 3503 | 3521 | 3540 | 3559 | 3579 | 3597 | 3617 | 3636 | 3655 | 3675 | 3695 | 3715 | 3736 | 3755 | 3775 | 3796 | 3817 | 3838 | 3859 | 3879 |
| (Revenue-OMA) ($'000) | (10) = (8) - (9) | | | 1137 | 1162 | 1180 | 1192 | 1219 | 1237 | 1262 | 1264 | 1283 | 1304 | 1321 | 1352 | 1379 | 1409 | 1431 | 1463 | 1490 | 1521 | 1550 | 1578 | 1599 | 1619 | 1643 | 1665 | 1686 | 1709 | 1730 | 1753 | 1776 | 1802 |
| Revenue - OMA for New ET's | (11) = (10) x (7)/(4) | | | 4 | 14 | 25 | 36 | 47 | 59 | 71 | 80 | 91 | 103 | 114 | 127 | 139 | 153 | 166 | 180 | 194 | 209 | 224 | 239 | 253 | 268 | 283 | 298 | 313 | 329 | 345 | 361 | 377 | 394 |
| PV (Revenue - OMA) for New ET's ($'000) | (12) = PV of (11) over 30 years @ 7% | | | $1,598 | 1,761 | 1,925 | 2,089 | 2,252 | 2,414 | 2,576 | 2,735 | 2,897 | 3,057 | 3,216 | 3,375 | 3,531 | 3,685 | 3,834 | 3,980 | 4,122 | 4,258 | 4,388 | 4,511 | 4,626 | 4,735 | 4,835 | 4,926 | 5,007 | 5,078 | 5,137 | 5,183 | 5,214 | 5,231 |
| Output Reduction Amount ($ per ET) | (13) = (12)/(6) | | | 2441 | 2558 | 2788 | 3016 | 3241 | 3468 | 3693 | 3920 | 4116 | 4314 | 4503 | 4687 | 4868 | 5041 | 5211 | 5372 | 5529 | 5675 | 5816 | 5944 | 6067 | 6178 | 6283 | 6374 | 6459 | 6528 | 6589 | 6632 | 6665 | 6678 |
| 5yr Average | | | | $2,809 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % Difference between Input and Output | | | | -11% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**3rd Iteration**

| Year | | | | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2018/19 | 2019/20 | 2020/21 | 2021/22 | 2022/23 | 2023/24 | 2024/25 | 2025/26 | 2026/27 | 2027/28 | 2028/29 | 2029/30 | 2030/31 | 2031/32 | 2032/33 | 2033/34 | 2034/35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capital Charge | | | | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 | 7303 |
| Input Reduction Amount | | | | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 | 2809 |
| Average Developer Charge | | | | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 | 4494 |
| Total Equivalent Tenements (ETs) | | | | 5566 | 5617 | 5668 | 5719 | 5771 | 5823 | 5876 | 5924 | 5973 | 6022 | 6071 | 6121 | 6171 | 6222 | 6273 | 6325 | 6377 | 6430 | 6483 | 6537 | 6591 | 6646 | 6701 | 6757 | 6813 | 6870 | 6927 | 6985 | 7043 | 7102 |
| New ET's per year | | | | 19 | 51 | 51 | 51 | 52 | 52 | 53 | 48 | 49 | 49 | 49 | 50 | 50 | 51 | 51 | 52 | 52 | 53 | 53 | 54 | 54 | 55 | 55 | 56 | 56 | 57 | 57 | 58 | 58 | 59 |
| PV (New Et's) | | | | 655 | 689 | 691 | 693 | 695 | 696 | 697 | 698 | 704 | 709 | 714 | 720 | 725 | 731 | 736 | 741 | 745 | 750 | 754 | 759 | 762 | 766 | 769 | 773 | 775 | 778 | 780 | 781 | 782 | 783 |
| Cumulative New ET's | | | | 19 | 70 | 121 | 172 | 224 | 276 | 329 | 377 | 426 | 475 | 524 | 574 | 624 | 675 | 726 | 778 | 830 | 883 | 936 | 990 | 1044 | 1099 | 1154 | 1210 | 1266 | 1323 | 1380 | 1438 | 1496 | 1555 |
| Rates & Charges Revenue ($'000) | | | | 4467 | 4513 | 4549 | 4583 | 4629 | 4667 | 4712 | 4730 | 4767 | 4807 | 4843 | 4893 | 4940 | 4989 | 5032 | 5083 | 5130 | 5181 | 5230 | 5279 | 5320 | 5360 | 5404 | 5447 | 5488 | 5533 | 5574 | 5619 | 5664 | 5710 |
| OMA cost ($'000) | | | | 3317 | 3337 | 3354 | 3374 | 3394 | 3413 | 3431 | 3448 | 3467 | 3484 | 3503 | 3521 | 3540 | 3559 | 3579 | 3597 | 3617 | 3636 | 3655 | 3675 | 3695 | 3715 | 3736 | 3755 | 3775 | 3796 | 3817 | 3838 | 3859 | 3879 |
| (Revenue-OMA) ($'000) | | | | 1150 | 1177 | 1195 | 1209 | 1235 | 1254 | 1281 | 1282 | 1300 | 1323 | 1340 | 1372 | 1400 | 1431 | 1453 | 1486 | 1513 | 1545 | 1575 | 1604 | 1625 | 1645 | 1668 | 1692 | 1713 | 1737 | 1758 | 1782 | 1805 | 1831 |
| Revenue - OMA for New ET's | | | | 4 | 15 | 26 | 36 | 48 | 59 | 72 | 82 | 93 | 104 | 116 | 129 | 142 | 155 | 168 | 183 | 197 | 212 | 227 | 243 | 257 | 272 | 287 | 303 | 318 | 334 | 350 | 367 | 383 | 401 |
| PV (Revenue - OMA) for New ET's ($'000) | | | | $1,624 | 1,790 | 1,956 | 2,121 | 2,287 | 2,452 | 2,617 | 2,780 | 2,943 | 3,106 | 3,268 | 3,430 | 3,588 | 3,743 | 3,896 | 4,045 | 4,189 | 4,328 | 4,460 | 4,586 | 4,703 | 4,814 | 4,916 | 5,010 | 5,093 | 5,165 | 5,226 | 5,274 | 5,306 | 5,324 |
| Output Reduction Amount ($ per ET) | | | | 2480 | 2599 | 2832 | 3062 | 3292 | 3523 | 3753 | 3983 | 4183 | 4382 | 4576 | 4763 | 4947 | 5122 | 5295 | 5460 | 5619 | 5768 | 5912 | 6044 | 6169 | 6282 | 6390 | 6483 | 6570 | 6641 | 6703 | 6748 | 6782 | 6797 |
| 5yr Average | | | | $2,853 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| % Difference between Input and Output | | | | 2% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |