

PINE RIVERS SHIRE COUNCIL

DESIGN MANUAL

CIVIL INFRASTRUCTURE DESIGN



DESIGN STANDARDS

Part 1 Design Standards for Roadworks

Part 2 Design Standards for Stormwater Drainage Works

**Part 3 Design Standards for Water Supply
Works**

Part 4 Design Standards for Sewerage Works

PINE RIVERS SHIRE COUNCIL

DESIGN STANDARDS



PART 3

DESIGN STANDARDS FOR WATER SUPPLY WORKS

Section 1 Introduction

Section 2 Design Procedure

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PART 3 - DESIGN STANDARDS FOR WATER SUPPLY WORKS



SECTION 1 INTRODUCTION

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1.1.0 INTRODUCTION TO WATER SUPPLY

1.1.1 BACKGROUND

Pine Rivers Shire Council is experiencing strong growth in urban, industrial, and commercial areas. The impact of this development on the Pine Rivers Shire Council water storage, treatment and supply systems is significant. The need to establish suitable design and construction requirements in order to provide an efficient and minimum life-cycle cost water supply system to meet the needs of the community has led to the development of these design standards.

1.1.2 PURPOSE

The purpose of this part of the design manual is to set out the Pine Rivers Shire Council requirements for the investigation, planning, design and construction of potable water supply infrastructure within the Pine Rivers Shire.

It is intended that this information will be used by engineers, designers, project managers and construction personnel experienced in the field of water supply works, to ensure the completed works satisfy the legitimate needs of the Pine Rivers Shire domestic, industrial and commercial population, and the legislated requirements of the Queensland State Government.

1.1.3 SCOPE

The design standards contained in this part of the design manual cover all works associated with water mains, valves, hydrants, property services, pressure reducing valve installations, marker systems and other associated works. These standards shall apply to all works, whether they are constructed in association with new or existing developments, and shall also apply to such works to be constructed in privately or publicly owned land.

This manual covers the design and installation of a conventional on-demand water supply system.

Privately boosted supplies from conventional reticulation mains are covered on the basis that limited installations will be permitted under special circumstances. Typically, they will be restricted to a few allotments within a development located primarily in areas of conventional reticulated supply.

Alternate systems, such as dual supply (separate treated and untreated supplies from alternate sources) and constant-flow delivery systems, are not covered in this manual.

Other items not covered in this manual include detailed requirements for reservoirs, pump stations, elevated tanks, infrastructure for storage and transport of raw water and treatment plants. For information on these assets, specialised advice is to be sought from the Pine Rivers Shire Council on a site or project specific basis.

The Pine Rivers Shire Council is prepared to consider, on their merits, alternate or innovative design approaches. These design standards cannot, and do not, attempt to cover all possible requirements by the Pine Rivers Shire Council for every project. The Pine Rivers Shire Council may issue special requirements for particular projects as the need arises.

The Pine Rivers Shire Council Design Manual is a “living document” – it is periodically reviewed and updated as and where necessary. Accordingly, any constructive criticism is invited. Comments should be made in writing to the General Manager Pine Water, Pine Rivers Shire Council. Comments should include a reference to the section of the manual in question, a reason for any change and the suggested new content or solution.

1.1.4 **FORMAT FOR THE WATER SUPPLY STANDARDS**

Components of the Pine Rivers Shire Council Design Standards for Water Supply can be found in the following sections of the policy document:-

Section 1 - Introduction

- ❖ Introduction to Water Supply
- ❖ Responsibility of the Consultant
- ❖ References
- ❖ Definitions
- ❖ Documentation

Section 2- Design Procedure

- ❖ Preamble
- ❖ Headworks or Priority Infrastructure Plans
- ❖ Connection to Water
- ❖ Water
- ❖ Water Supply Network
- ❖ Location of Water Mains
- ❖ Design Principles

These standards are supported by associated design guidelines, standard drawings, and standard specifications.

❖ **STANDARD SPECIFICATIONS**

- ❖ Pine Rivers Shire Specifications - Series 400 and other referenced Specifications

❖ **STANDARD DRAWINGS**

- ❖ 8-40000 Series Drawings and other referenced standard drawings

1.2.0 RESPONSIBILITY OF THE CONSULTANT

1.2.1 NATURE AND EXTENT OF WORK

It shall be the responsibility of the consulting engineer to accurately and fully determine the nature and extent of work necessary to provide an effective water supply network to any development. The “nature and extent” of any works shall be to the satisfaction of a Pine Rivers Shire Council engineer and in accordance with these design standards.

1.2.2 COMPLIANCE WITH STANDARDS

All water supply works shall comply with the Sewerage and Water Supply Act, The Standard Water Supply Law, The Department of Natural Resources (Water Resources) – Guidelines for Planning and Design of Urban Water Supply Schemes, relevant Australian standards and these design standards. Where variations or discrepancies exist between design documents, the Pine Rivers Shire Council Design Standards shall take precedence.

These design standards do not limit the designer's obligations to comply with relevant legislation e.g. Sewerage and Water Supply Act, Environment Protection Act, Workplace Health and Safety Act etc.

1.2.3 PROTECTION OF THE ENVIRONMENT

It is Pine Rivers Shire Council's intention that the environmental aspects of any site or project are given close consideration.

The consultant's and contractor's attention is drawn to the requirements of relevant Environmental Protection Legislation.

Where works are undertaken adjacent to watercourses or other environmentally significant sites, priority is to be given to maintaining the existing vegetation and the environmental characteristics of the site.

All works are to be carried out and reinstatement completed, to the satisfaction of a Pine Rivers Shire Council engineer.

Where water supply works are carried out as part of a subdivision or other development, erosion and sediment control plans are to be prepared as part of the development plans.

Where water supply works are carried out externally to or separately from development sites, separate erosion and sediment control plans are to be prepared to the satisfaction of a Pine Rivers Shire Council engineer.

1.2.4 APPROVALS AND LICENCES

Where water supply works require an approval, permit, or licence from any State Government Department or other statutory authority, the consulting engineer shall obtain such approval or licence and copies of such approvals or licences shall be provided to a Pine Rivers Shire Council engineer.

Any costs associated with obtaining approvals or licences shall be borne by the developer.

1.2.5 CONSTRUCTION AND COMPLETION OF WORKS

Construction shall not commence until approval of all drawings has been issued by a Pine Rivers Shire Council engineer.

It shall be the responsibility of the consulting engineer to ensure the timely completion of all water supply works associated with a particular development.

Such works shall include, but are not limited to, planning, design, construction, testing, commissioning, maintenance, and provision of “as constructed” drawings and asset records of the completed works.

All water supply works shall be completed in a manner and time frame that is satisfactory to a Pine Rivers Shire Council engineer.

Where a construction period is likely to exceed twelve weeks, a formal construction programme is to be supplied to a Pine Rivers Shire Council engineer for approval.

Water supply works will not be accepted or considered as having reached practical completion and accepted “on maintenance” by the Pine Rivers Shire Council until all relevant “as constructed” plans and asset information have been supplied to the satisfaction of a Pine Rivers Shire Council engineer.

1.3.0 REFERENCES

1.3.1 REFERENCE DOCUMENTS

- ❖ Guidelines for Planning and Design of Urban Water Supply Schemes – Department of Natural Resources (Water Resources)
- ❖ Sewerage and Water Supply Act, 1949 – 1982 with Amendments
- ❖ Environment Protection Act, 1994
- ❖ Workplace Health and Safety Act, 1995
- ❖ Pine Rivers Shire Council Local Law 22 – Subdivision Control
- ❖ Pine Rivers Shire Council Local Planning Policy LP 10 – Water Supply and Sewerage Headworks Contributions
- ❖ Pine Rivers Shire Council Local Planning Policy LP 39 – Headworks Infrastructure Construction
- ❖ Pine Rivers Shire Council Priority Infrastructure Policy for Development Works
- ❖ Integrated Planning Act 1997
- ❖ Australian Drinking Water Guidelines 1996
- ❖ ANZECC Water Quality Guidelines
- ❖ Aboriginal Cultural Heritage Act 2003

1.4.0 DEFINITIONS

1.4.1 TERMS USED IN DESIGN STANDARDS

- ❖ Council – the Pine Rivers Shire Council
- ❖ Director, Assets and Infrastructure Services Division - the person occupying that position within the Pine Rivers Shire Council or their nominated representative.
- ❖ Manager, Development Services Department - the person occupying that position within the Pine Rivers Shire Council or their nominated representative.
- ❖ General Manager, Pine Water - the person occupying that position within the Pine Rivers Shire Council or their nominated representative.
- ❖ Manager, Electrical Mechanical Services Department - the person occupying that position within the Pine Rivers Shire Council or their nominated representative.
- ❖ A Pine Rivers Shire Council engineer - an engineer employed by the Pine Rivers Shire Council to approve, supervise, or inspect water supply works, or their nominated representative.
- ❖ Developer - the company, organisation or person whom, under the provisions of the Integrated Planning Act, approval has been given to carry out the works and who acts as Principal for the purpose of works carried out by contract.
- ❖ Consulting Engineer - the Registered Professional Engineering Company or Registered Professional Engineer engaged by the Principal to carry out the investigation and design of the water supply works to be constructed by the Principal.
- ❖ Contractor - as defined in AS 2124, the company, organisation or person engaged to carry out the construction of water supply works.
- ❖ Principal – when projects are commissioned by the Pine Rivers Shire Council, the Chief Executive Officer, Pine Rivers Shire Council
- ❖ Superintendent - when projects are commissioned by Pine Rivers Shire Council, the General Manager, Pine Water

1.5.0 DOCUMENTATION

1.5.1 GENERAL

In order to promote a standard approach to the design, specification and construction of water supply infrastructure within the Pine Rivers Shire, the standard specifications and standard drawings contained in this manual have been produced for inclusion with contract documentation for subdivision or other development works.

Where the Pine Rivers Shire Council standard specifications are used in a contract by another party, that party accepts the responsibility for their content, terms, conditions and limitations contained in the specifications and any matters arising from incompatibility between documentation contained in the contract.