Cooee Lodge Retirement Village
Gilgandra, NSW, 2827

Fire Hydrant Services

FIRE HYDRANT SERVICES PERFORMANCE SPECIFICATION

Consulting Engineers:
Centric Building Services Engineers Pty Ltd
Sydney: Suite 1, 401 Pacific Highway,
Artarmon NSW 2064
Newcastle: Suite: 1, 122 Road, Newcastle West, NSW, 2302
P: 02 90526460
Info@centricengineers.com.au
www.centricengineers.com.au

Client
Gilgandra Shire Council
P.O. Box 23, Gilgandra NSW, 2827

Issue	Comment	Date	Job no.
1	Draft	14/02/2025	24107
2	Revised	17/4/2025	

Table of Contents

1 Preliminaries

1.1 Generally

This part of the specification shall be read in conjunction with the general conditions of contract, preliminary clauses and technical clauses included in the main specification.

1.2 Definitions

The “Superintendent” herein after referred to, as the SI shall be the person as nominated by the Project Manager.

Hydraulics sub- Contractor – Contractor carrying out the hydraulic services installation under this specification.

"Approved" shall mean approved in writing by the SI or by Regulation or Ruling by Local Authority.

"Or equal" shall mean a material, product of component nominated by the SI, which is equivalent in performance and quality to and of cost not exceeding that specified.

1.3 Scope of work

The work covered by these documents includes the final design co-ordination, manufacture, supply, installation, testing, commissioning, and subsequent maintenance for the stipulated period of the work specified herein and shown on the accompanying drawings.

Provide all manufactured items, materials, labour, cartage, tools, plant, appliances, and fixings necessary for the proper execution of the works, together with all minor and incidental works.

The whole of the works shall comply with all the latest relevant Regulations and to all Local Authority requirements. The cost of any materials or equipment required to meet such regulations and requirements shall be included in the Tender whether specially shown or described in the documents or not.

All materials and equipment shall be the best of their respective kinds, complying with the relevant Standards and Local Codes of Practice. All materials and equipment shall be new and shall be delivered to the site with the maker’s label intact.

1.4 Hydraulic Work

The extent of the hydraulics work covered in this Specification and as shown on the drawings consists of the following:

- Fire hydrant service

1.5 Certification of works

At the completion of the works and prior to the submission for final payment the Contractor shall make all necessary applications, pay all fees, obtain and issue to the Superintendent Certificates indicating that the works comply with the current regulations and requirements of the relevant Authority.

Wherever applicable the relevant Authority shall issue the Certificate. Where this is not standard practice the Contractor shall provide a Certificate or Letter of Certification which will guarantee that the works comply with the relevant Authorities regulations, requirements, and conditions.

1.6 Authorities

The whole of the work shall be carried out by or under the full supervision of a fully licensed contractor in accordance with the drawings and specification, and to the satisfaction of the Company and to the Standards and Regulations of any authority having jurisdiction over the works and in particular those listed below:

- Local Water & Sewer Authority
- State Fire Brigades

- Department of Health
- Building Code of Australia
- Local Municipal Council
- Workcover Authority of NSW
- Department of Industrial Relations

Pay the relevant authorities all fees and charges legally demandable including and not limited to:

- Inquiry fees
- Commencement of work fees
- Road opening fees
- Service connection fees

The Sub-Contractor shall submit evidence that:

Requirements of authorities relating to the work under the contract have been ascertained prior to the commencement of the hydraulic services installation.

Fees to authorities, if any, have been paid and all types of approvals obtained.

Certificates of compliance about the extent of the installation. Such certificates must be obtained on completion of the installation.

All fittings, pipes, accessories, and the like used in the works shall bear approval marks where and as required by the regulatory authorities.

Test certificates for all essential service fittings. Be provided prior to completion.

Where some doubts exist as to the appropriate standard, the decision shall be made by the SI before commencement of any work on or off the site. If a doubt exists as to whether a section of the design can comply with the relevant authorities' regulations the SI shall be notified prior to the commencement of any work. No consideration of claim for redundant work shall be given if the SI is not notified.

1.7 Drawings

Three sets of drawings detailing the dimensions of pipework and installation requirements will be provided to the successful contractor. Prior to construction, the successful contractor must obtain from site all necessary dimensions to enable work to proceed.

1.8 Coordination

The Contractor shall coordinate his work with other trades on the buildings in such a manner as not to interfere with other work being carried out on the building.

In locations where piping and equipment must be installed along with other work being installed under other contracts, the Contractor shall cooperate with the other Contractor's concerned and see that all equipment is installed to the best advantage.

Any cutting etc, required to the building structure as a result of this Contractor's failing to coordinate with the program shall be arranged at the Contractor's expense.

1.9 Setting out

The set out of pipework to all groups of fixtures shall be so arranged in conjunction with the SI and other trades concerned. All pipework shall be made and positioned in a neat, workmanlike manner and a first-class finish obtained.

1.10 Placing of orders

The Contractor shall ensure that orders for materials, sanitary fixtures, pumps, etc., shall be placed with the manufacturer and/or supplier as soon as possible to ensure delivery of the items specified and to obviate any delay or change of specified articles due to this neglect.

1.11 Provision of materials

Except where otherwise noted, the Contractor shall provide all necessary fixtures and appliances, piping fittings, tools, pumps and all other incidental materials and accessories necessary for the satisfactory installation, testing and completion of the works, all to the satisfaction of the Company.

All materials shall be new and the best of their respective kinds and generally the whole of the work shall be carried out in a tradesman like manner and a first-class finish obtained.

Allow for building in such other fittings and accessories as required or supplied with the fixtures.

1.12 Obvious work

The nature and spirit of the Specification and Drawings is to provide for the work herein enumerated and shown on the tender documents to be fully understood that the Hydraulic Subcontractor, on accepting the contract, agreed to furnish everything necessary for such construction notwithstanding any omission in the Specification and Drawings.

1.13 Existing services

The hydraulic sub-contractor shall be completely satisfied that all existing services required to be connected are those to which the documents indicate, and that they are of the size and level shown on the drawings. No additional claims will be accepted for rectifying works that have been incorrectly connected as a result of failing to confirm the documented information at site prior to commencing this work.

All existing services to be connected to, other than Authority Services, shall be cleaned, flushed out and tested to an equivalent standard of all new works, and to the satisfaction of the SI prior to their connection.

The hydraulic sub-contractor shall not close down any existing services without giving at least 48 hours notification to The Proprietor or without written approval to do so. After notification to The Proprietor that the service is redundant, the hydraulic sub-contractor may proceed to cap off, or seal the service off in the correct manner, as is required by the Authorities and the SI.

The hydraulic sub-contractor will be responsible for checking with all Authorities and the SI concerning the location of any existing services on the site.

The hydraulic sub-contractor shall allow to seal off all existing services that may become redundant during the progress of the Project. All such services shall be sealed off at the relevant Authority supply main and removed where practicable.

1.14 Testing generally and sterilization of systems

Make all tests as shall be required or ordered by the authorities having jurisdiction, using the methods prescribed by them.

Furnish all necessary material, equipment, and skilled labour for testing the work. All necessary water for the tests will be from site supply.

The Contractor shall pay for and make good all damage to work and materials resulting from the tests.

All tests shall be made in the presence of the SI and authorities. Give not less than 48 hours' notice in writing to these parties before making tests.

Every facility shall be made available to the SI for the inspection of any part of the work or apparatus during the progress of the project and on completion such shall be tested in the Contractor's or Manufacturer's workshop as directed by the SI.

A record of all tests shall be kept on site and the Contractor shall obtain certificates of satisfactory completion of the whole of the installation.

Provide in duplicate to the SI all certificates of tests issued by the authorities.

1.15 Protection

The Hydraulic Sub-Contractor shall be entirely responsible for all apparatus, equipment and appurtenances furnished by him or his Sub-Contractors in connection with this work, and special care shall be taken to protect all parts thereof in such a manner as may be necessary or as directed. This protection shall include covers, crating, sheds, stores, or other means to protect the apparatus, equipment, and materials from the weather and to prevent dirt, grit, plaster or other foreign substances from entering the working parts of machinery or equipment.

Special care shall be taken to keep all open ends of pipes, ducts, flues, etc closed while in storage or during course of installation.

The Hydraulic Sub-Contractor shall protect all parts of the building and the work of other Sub-Contractors from damage which may be caused by the Contractor's workmen or Sub-Contractors. The Hydraulic Sub-Contractor shall be responsible for making good any such damage.

1.16 Underground metal piping protection

Provide corrosion protection for underground ferrous piping and underground non-ferrous metal piping in corrosive areas.

Select from the following protection methods:

- Impermeable flexible plastic coating
- Sealed polyethylene sleeve
- Continuous wrapping using proprietary petroleum taping material.

Provide sacrificial anodes or impressed current for cathodic protection. Incorporate a facility for periodic testing.

Comply with the recommendations of AS 2832.1

1.17 Piping cleaning, protection, and installation

Before installation, remove loose scale, burrs, fins, and obstructions.

During construction, prevent the entry of foreign matter into the piping system by temporarily sealing the open ends of pipes and valves with purpose-made covers of pressed steel or rigid plastic.

After installation all piping to be flushed with clean water at the highest possible velocity and flushed out until all foreign matter is removed.

Install piping in straight lines at uniform grades with no sags. Arrange to prevent air locks. Provide sufficient unions, flanges, and isolating valves to allow removal of piping and fittings for maintenance or replacement of plant.

Arrange and support piping so that it remains free from vibrations whilst permitting necessary movements. Minimise the number of joints.

Provide at least 25mm clear between pipes and between pipes and building elements, additional to insulation.

Join dissimilar metals with fittings of electrolytically compatible material.

Provide access and clearance at fittings which require maintenance or servicing, including control valves and joints intended to permit pipe removal. Arrange piping so that it does not interfere with the removal or servicing of associated equipment or valves or block access or ventilation openings.

Sheath or sleeve metal piping chased into masonry or encased in concrete so that expansion or contraction can take place without damage to the pipe or to the material or surface finish of the surrounding element.

1.18 Manufacturer's directions

Manufactured articles, materials and equipment are to be supplied, installed, connected, erected, used, cleaned, and commissioned in strict conformity with manufacturer's printed directions unless otherwise

specified. In any case, the Hydraulic Sub-Contractor is to obtain from the Supplier agreement that the product as used or specified is being used or specified in accordance with the manufacturer's requirements and practice. Retain manufacturer's directions for such articles on site for the Proprietor's reference.

1.19 Capping off

During the construction, leave all unfinished work in safe condition as per Work Cover requirements, protect the works against damage or loss through any cause whatsoever, and seal off open ends of pipe in such a manner as to prevent the entry of foreign matter into the lines until the works have been handed over on completion.

1.20 Cleaning of services

After installation and prior to testing the piping and storage vessels, each service shall be thoroughly cleaned and flushed out. All valves, seats, tap washer and strainers shall be checked for any foreign matter and cleaned. Damaged seats and washers shall be replaced.

1.21 Guarantees

The Hydraulic Sub-Contractor shall obtain all guarantees, certificates, etc for the work specified to be guaranteed or certified satisfactorily completed and lodge same with the SI on completion of the Agreement. Guarantees shall apply to all existing pipework, equipment etc, that is to remain in the completed development and all new pipework, equipment etc, for the full guarantee period.

1.22 Commissioning

The Hydraulic Sub-Contractor shall be responsible for commissioning the various installations carried out under this sub-contract in accordance with the programme and to the approval of the Proprietor and Local Authorities.

Subject all systems to a commissioning and testing procedure before they are put into service.

Provide all test instruments and other testing facilities required to verify system and equipment performance and to complete all inspection test plan records.

Any work which does not comply with the specification shall be made good.

Allow in the Tender Price to pay the Authorities for any necessary and chargeable testing work.

Give at least two (*2) weeks' notice of the commissioning of any particular system and shall submit a programme of testing and commissioning procedures for that system. Modify the programme as required.

Final tests shall be conducted in the presence of the SI. Provide all necessary instruments, connections, skilled and unskilled labour required for the test. The cost of such provision shall be included in the price.

Commissioning tests shall be concluded successfully, before Authorities inspections.

1.23 Warranty

All plant, equipment and materials supplied under this contract shall be covered by twelve (12) months warranty against faulty manufacture, workmanship and/or materials. The Hydraulic Sub-Contractor shall be responsible for the rectification and/or replacement of any portion of the installation which fails during the warranty period.

The warranty period shall commence as from the date of practical completion or replacement, as applicable but extension of the period shall be made in respect of replaced portions only.

1.24 Defects liability

The Hydraulic Sub-Contractor shall be responsible for the rectification of all defects in the work due to faulty materials and/or workmanship for the duration of the twelve (12) month defects liability period commencing from the date of practical completion. Such defects shall be made good immediately on receipt by the Hydraulic Sub-Contractor on advice from the SI.

Any defects discovered during the defects liability period which are due to default or negligence by the Hydraulic Sub-Contractor in the performance or observance of any of his obligations, shall extend the period to enable such defects to be made good by the Hydraulic Contractor and to allow the whole work after being made good in every way, to be proved satisfactory.

2 Excavation and pipe work requirements

2.1 General

All equipment offered in the tender must comply with the requirements of the specification.

If equipment is offered as complying with the specification and at a later date this is found not to be so then the particular item of equipment will be rejected and replaced with the complying equipment at no extra cost.

The Hydraulic Sub-Contractor is free to submit details for potential cost savings with regards to alternative materials and fixtures in addition to their complying tender.

Attention should be given to the delivery time of equipment and in this respect, tenderers shall only offer equipment that can be delivered in time to work in with the construction programme.

Equipment capacities shall be as scheduled on the drawings or in this specification.

2.2 Workmanship

All equipment to be installed in a tradesman like manner, complying with AS2419.1, the latest relevant regulations, all local requirements, and this specification.

Wherever possible, pipes shall be suspended from slab and walls to eliminate the number of vertical risers from ground to structure. Pipes shall be run parallel with walls, slabs, and each other.

2.3 Trenching

Trenching and all manner of excavation shall be carried out by the Principal.

2.4 Public utilities and existing services

Where underground public utility lines and surface drainage works and underground pipes, conduits or cables exist in the vicinity of the works, the Hydraulic Sub-Contractor must take care to protect such services. Any damage to such services must immediately report to the responsible Authority and to the Proprietor.

The cost of the necessary repairs or renewals shall be borne entirely by the Hydraulic Sub-Contractor, should negligence on the Sub-Contractor's part be proven.

2.5 Dial before you dig.

Before commencing any work on site, the Principal shall undertake a Dial Before You Dig application in order to determine locations of proposed Authority Services in the vicinity of the development.

Where Authorities services are shown to be near the proposed works, the Principal shall obtain the Authorities approval to physically locate and expose the services by potholing in appropriate locations to confirm the exact location, size and depth of the Authority Services. Such work is to be carried out in accordance with the Authorities' requirements and extra care is to be taken when working near any existing Authorities services.

Note that services may not be located exactly as per Dial Before You Dig information.

2.6 Making good

The Sub-Contractor shall be responsible for and shall make good any damage he may cause to the building and surfaces generally and any other works that may be distributed or injured by cartage, work generally or other operations. The reinstatement shall be at least as good as state of repair as before commencement.

2.7 Existing service connections

The Hydraulic Sub-Contractor shall seal off all existing service connections to Authorities mains to their satisfaction.

2.8 Capping off

During construction, temporarily seal open ends of pipes to prevent the entry of foreign matter into pipe systems. Provide purpose-made covers of pressed steel or rigid plastic. Do not use rags, paper, or wood plug.

3 Fire hydrant service

3.1 Generally

Supply, install, test and commission the Fire Hydrant Service from the incoming water main to all fire hydrants required.

Include for all piping, fittings, valves, hydrant valves, pumps, control equipment electrical wiring and other sundry items of equipment as required for the installation in accordance with the Building Code of Australia Part E1.3 and AS 2419. Provide a flow test to comply to AS2419.1.

After commissioning of the installation submit a certificate to the SI certifying the installation as required in Clause 27 (Certification of Essential Services) division 4 of the Local Government (Approvals) Regulation 1993. Provide a flow test certificate to comply to AS2419.1.

Where located in an above ground situation, the service shall be constructed of galvanised mild steel piping jointed by approved patented rolled grooved pipe and fittings equal in all respects to Victaulic pattern.

Where located in below ground situations the service shall be constructed of 180mm PN16 PE100 SDR11.

3.2 Testing of pipework

Test all pipework 1700 kPa for a period of two hours. On completion test the installation under full supply conditions all to the satisfaction of the state fire brigade and the Superintendent. Record pressure and flow results and advise, in writing, to the SI.

3.3 Hydrant pump performance tests

Prior to installation of hydrant pump the Contractor shall forward the completed performance test data certificates.

These certificates shall take the form of those illustrated in AS 2941 – Fixed Fire Protection Installations – Pumpset Systems and shall be issued and signed by the pump supplier.

A certificate shall be provided for the pump and the motor drive.

The hydrant pump shall comply in total with the requirements of AS 2941 – fixed Fire Protection Installations – Pumpset Systems (as amended).

3.4 Pipe supports

All pipes shall be adequately supported and securely fixed in accordance with the drawings and to the satisfaction of the SI. Such supporting and fixing to be carried out without causing any distortion, damage or stress on the pipes or pipe joints.

3.5 Fire hydrant system block plan

Provide a Block Plan in accordance with AS 2419.1. It shall be fixed within or adjacent to the booster cabinet, enclosure, or recess where it can be readily seen by fire fighters and others responding to an alarm or at other positions as required by the regulatory authority.

Provide a 1.6mm thick anodised aluminium PVC laminate with UV properties Fire Hydrant System Block Plan to the requirements of AS 2419.1. Provide an approved PDF drawing to the Manufacturers for engraving.

The Block Plan shall consist of the following: -

1. A layout plan of the protected buildings or open yards and adjacent streets.

2. A diagram of water supplies showing:
    a. Size and location of supply authorities' mains (dimensioned)
    b. Valves and connections for non-industrial purposes
    c. Location and capacities of water storage tanks
    d. Location and duties of pumps
    e. Location and total number of hydrants
    f. Location of booster connections
    g. Location of isolating and non-return valves
    h. Any connections to other installed fire protection systems.
    i. Location of main electrical switch room and or substation
    j. Location of LPG tanks and gas shutdown valve

The year of installation of the system, any major extensions thereto, and any unusual features of the installation, and the names of both the contractor who installed the system, and the organisation responsible for the maintenance of the system, the operational discharge pressure of the system, the

height of the highest hydrant outlet above the lowest booster inlet connections, and where the building or property incorporates hydrants not connected to the booster, the clearly identified location and test pressures.

All other works nominated in AS 2419.1.