



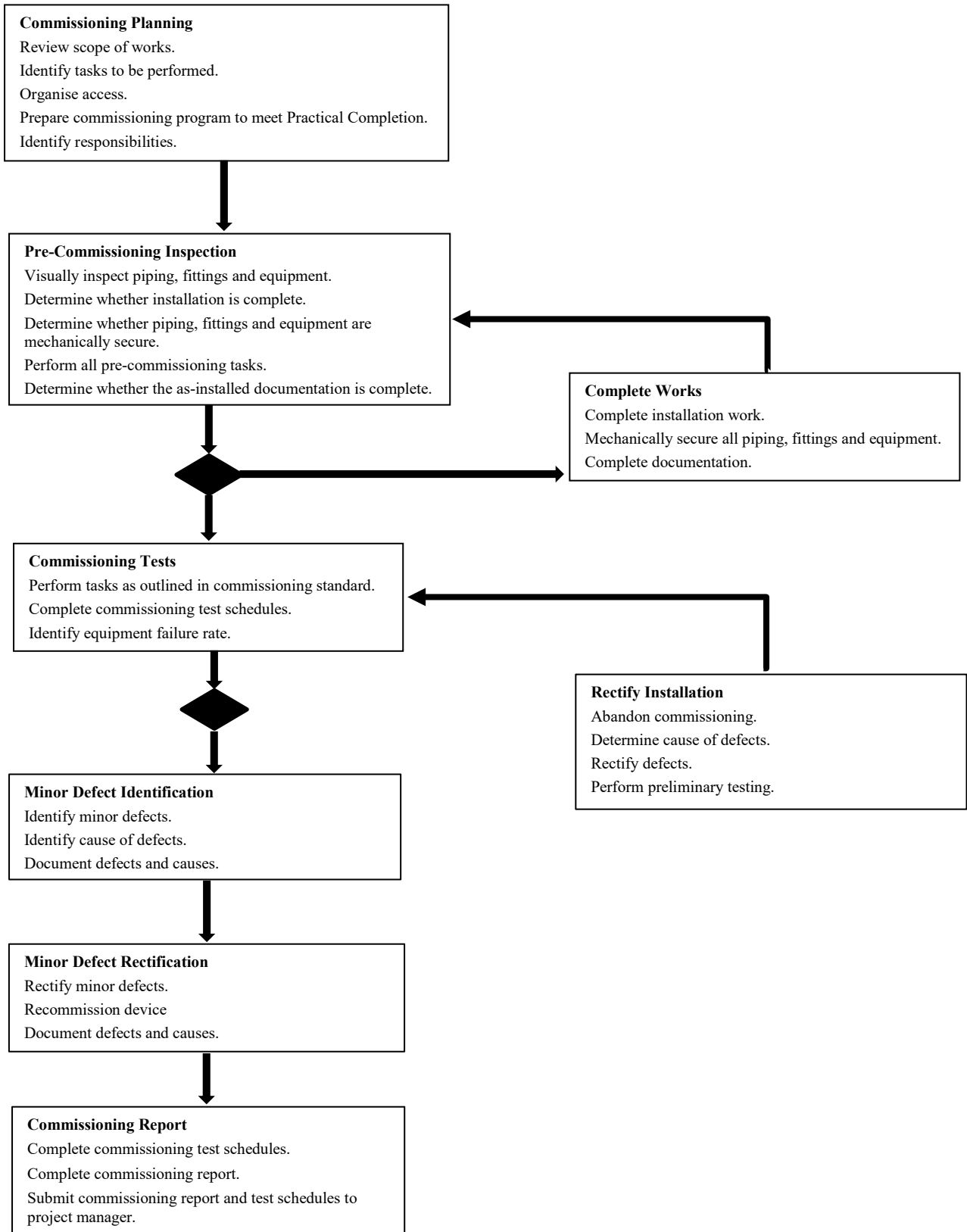
Facilities Management Division / Maintenance

# Hydraulic Services Commissioning Standard Version 4 – September 2019

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# 1 Commissioning Process



## 2 Hydraulic Services

The list is not exhaustive and additional systems are to be included as dictated by individual project requirements. The hydraulic services provide the University of Wollongong with the supply and reticulation of water and gas. Following are the hydraulic services primary systems:

- Potable Water Reticulation Systems;
- Non-Potable Reticulation Water Systems;
- Sewerage and Trade Waste Drainage Systems;
- Storm water Drainage Systems;
- Gas Reticulation Systems;
- Landscape Water Reticulation Systems;
- Rainwater Harvesting and Re-use Systems;
- Fixtures, Tapware, Plant, Equipment and appliances.

### 2.1 Overview

The commissioning standard for the hydraulic services involves the following stages:

<b>Stages</b>	<b>Description</b>	<b>Parties Involved</b>
Stage 1	<i>Unit Testing - Performed by the manufacturer at a component level.</i>	Manufacturer
Stage 2	<i>Installation Inspections - Performed by the project manager during the installation process. The objective is to identify poorly installed equipment or parts of the installation do not comply with the provisions of the design specifications. Provided the defect is identified at an early stage, the cost of remedial work and delays to the project program can be minimised.</i>	Project Manager
Stage 3	<i>Final Commissioning - Performed by the installation contractor and witnessed by the project manager.</i>	Contractor, Project Manager

*Table 1 - Commissioning Stages*

Final commissioning is the most important part of the quality control process. It is at this stage of the project the project manager will determine whether the system is ready to be approved for Practical Completion.

All commissioning tests are critical and shall be performed to ensure all hydraulic services operate correctly. It is the University of Wollongong's objective to complete the commissioning tests with zero defects remaining in the system.

### 2.2 Documentation

The contractor shall submit a complete set of documentation to the project manager no later than one (1) week prior to the planned commissioning date. As a minimum the documentation shall comprise:

- 'Work as Executed' drawings;
- Equipment technical manuals;

- c. Equipment operation manuals;
- d. Trade waste forms.
- e. Commissioning Schedules
- f. Thermostatic Mixing Valve Test Schedules
- g. Backflow Prevention Valve Test Schedules
- h. Test schedules from suppliers for specialist equipment such as fire pumps, reverse osmosis systems, pump stations and the like.

The contractor shall obtain written approval of the documentation before commencing the commissioning tests.

## **2.3 Commissioning Schedules**

The hydraulic services commissioning schedules contained in this document have been provided as examples of the minimum requirements for testing and verifying system operation and compliance prior to practical completion. The contractor shall include commissioning schedules as necessary to include all hydraulic services systems installed in the project. Schedules are to include all items relevant to the project.

At the completion of the commissioning tests, the University of Wollongong shall have one complete set of commissioning schedules containing all equipment that is free of defects.

## **2.4 Commissioning Time & Date**

The contractor shall submit a program to the project manager containing the proposed time and date for each commissioning test at least two (2) weeks prior to the planned commissioning date. The program must contain allowances for defect rectification and remedial works.

The contractor shall obtain written approval of the program from the project manager before commencing the commissioning tests.

## **2.5 Commissioning Tests**

Commissioning tests shall be performed to assess the integrity of the hydraulic services. Each commissioning test is specific to the hydraulic service being tested.

All commissioning tasks shall be performed by persons having qualifications and experience suitable for the testing and inspection tasks and all associated remedial work.

As each commissioning test is performed, the results shall be recorded on the appropriate commissioning test schedule. Any comments regarding abnormal operation in particular to failed tests shall be recorded in the comments section of the commissioning schedule.

If equipment fails a test then the commissioning process shall be abandoned. The contractor shall determine the cause of the defects and retest the equipment. A report shall be provided to the project manager outlining the cause of the failure and the action taken to ensure the remainder of the installation shall not experience the same failure.

## **2.6 Commissioning Procedures**

All tests shall be performed in accordance with relevant Construction Codes, regulations and Australian Standards. Appropriate safety precautions and procedures must be followed at all times.

Following are the general commissioning procedures apply to all systems and equipment:

- a. Verify all systems and equipment have been installed at the location and in the configuration specified in the design documentation and in accordance with manufacturers requirements;
- b. For all hydraulic commissioning tests, a record of the test results shall be maintained (refer to Commissioning Schedules);
- c. For all defects identified, the corrective action must be recorded in the commissioning report and the equipment shall be retested.

### **3 Potable Water Reticulation**

The following commissioning tasks shall be performed for all potable water reticulation systems:

- a. Verify piping is of the specified material;
- b. Verify piping has been correctly fixed in accordance with AS 3500.1 and mechanical protection has been provided to minimise the likelihood of physical damage where specified;
- c. Verify piping connections and joints are of the specified type;
- d. Verify piping connections and joints have been correctly sealed and tested in accordance with AS 3500.1;
- e. Verify piping has been concealed where possible in ceiling spaces, wall cavities or duct risers;
- f. Verify piping has been insulated as specified;
- g. Verify piping has been clearly labelled to comply with AS 1345;
- h. Verify control valves function correctly;
- i. Verify the flow rate of the tapware does not exceed the maximum flow required for water conservation;
- j. Confirm the correct colour tapware buttons are installed;
- k. Test and confirm there are no cross connections with other water services;
- l. Confirm the pipework system has been flushed and disinfected in accordance with AS 3500.1;
- m. Confirm all installed water meters are functioning correctly and are able to be read via the University of Wollongong communications network.
- n. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful.

### **4 Non-Potable Water Reticulation**

The following commissioning tasks shall be performed for all non-potable water reticulation systems:

- a. Verify piping is of the specified material;
- b. Verify piping has been correctly fixed in accordance with AS 3500.1 and mechanical protection has been provided to minimise the likelihood of physical damage where specified;
- c. Verify piping connections and joints are of the specified type;
- d. Verify piping connections and joints have been correctly sealed;
- e. Verify piping has been concealed where possible in ceiling spaces, wall cavities or risers;
- f. Verify piping has been clearly labelled to comply with AS 1345;
- g. Verify the non-potable water treatment plant has been correctly installed/connected;
- h. Verify the operation of protection backflow devices for potable water, e.g. air gaps and backflow protection devices. Provide commissioning reports to both the University of Wollongong and Sydney Water confirming correct operation;
- i. Verify operation of sewer discharge function;
- j. Verify the operation of pressure control stations where installed;

- k. Verify control valves function correctly;
- l. Verify isolation valves function correctly;
- m. Verify the flow rate of the tapware does not exceed the maximum flow required for water conservation;
- n. Confirm the correct colour tapware buttons are installed;
- o. Test and confirm there are no cross connections with other water services;
- p. Confirm the pipework system has been flushed and disinfected in accordance with AS 3500.1;
- q. Confirm all installed water meters are functioning correctly and are able to be read via the University of Wollongong communications network.
- r. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful.

## 5 Hot, Warm and Boiling Water Reticulation

The following commissioning tasks shall be performed for hot water systems and equipment:

- a. Verify piping is of the specified material;
- b. Verify piping has been correctly fixed in accordance with AS 3500.1 and mechanical protection has been provided to minimise the likelihood of physical damage where specified;
- c. Verify piping connections and joints are of the specified type;
- d. Verify piping connections and joints have been correctly sealed;
- e. Verify piping has been concealed where possible in ceiling spaces, wall cavities or risers;
- f. Verify piping has been clearly labelled to comply with AS 1345;
- g. Verify hot water equipment is in compliance with the University of Wollongong's Design Standards;
- h. Verify the equipment has been clearly labelled to comply with AS 3500.1 and AS 1345;
- i. Verify gas burners (where installed) ignite and burn safely and correctly;
- j. Verify associated electrical items and/or electrical hot water units function correctly;
- k. Verify ring main circulating pumps work correctly and confirm the flow and return temperatures.
- l. Verify boiling water flows correctly and safely from the boiling water units;
- m. Verify the temperature of the hot water provided at the hot warm and boiling water outlets is in accordance with the design specifications and relevant Australian Standards.
- n. Confirm the correct colour tapware indicators have been installed.
- o. Verify the flow rate of the tapware does not exceed the maximum flow required for water conservation;
- p. Confirm the correct colour tapware buttons are installed;
- q. Test and confirm there are no cross connections with other water services;
- r. Confirm the pipework system has been flushed and disinfected in accordance with AS 3500.1;
- s. Confirm all installed water meters are functioning correctly and are able to be read via the University of Wollongong communications network.
- t. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful.

## 6 Gas Reticulation

The following commissioning tasks shall be performed for all gas reticulation systems:

- a. Verify piping is of the specified material;

- b. Verify piping has been correctly fixed in accordance with AS 3500.1 and mechanical protection has been provided to minimise the likelihood of physical damage where specified;
- c. Verify piping connections and joints are of the specified type and comply with AS 5601;
- d. Verify piping connections and joints have been correctly sealed and tested in accordance with AS 5601;
- f. Verify piping has been concealed where possible in ceiling spaces, wall cavities or duct risers;
- g. Verify flues have been correctly fitted and terminated and associated penetrations are waterproof;
- h. Certify powered flues and associated services lockouts are working in accordance with manufacturer's instructions;
- i. Verify piping has been clearly labelled (where required) to comply with AS 1345;
- j. Verify control valves function correctly;
- k. Verify design pressures nominated are achieved;
- l. Verify pressure regulators function correctly;
- m. Confirm the emergency shut-off system functions correctly.
- n. Confirm all installed water meters are functioning correctly and are able to be read via the University of Wollongong communications network.
- o. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful.

## 7 Sewer Drainage Systems

The following commissioning tasks shall be performed for all sewer drainage systems:

- a. Verify piping is of the specified material;
- b. Verify piping has been installed at the correct grades;
- c. Verify piping has been correctly fixed in accordance with AS 3500.2 and mechanical protection has been provided to minimise the likelihood of physical damage where specified;
- d. Verify all piping connections and joints are of the specified type;
- e. Verify the integrity of piping connections and joints;
- f. Verify piping has been concealed where possible in ceiling spaces, wall cavities or risers;
- g. Verify piping has been clearly labelled (where required) to comply with AS 1345;
- h. Verify pit covers are of the specified material and have been correctly installed and labelled;
- i. Verify water saving devices have been installed;
- j. Verify automatic flushing for urinals functions as specified in the design specification;
- k. Verify full and half flush for water closets operate correctly;
- l. Verify the sewer pump station (if installed) is functioning correctly;
- m. Verify the sewer macerator (if installed) is functioning correctly;
- n. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful.
- o. Verify drainage achieves the minimum pipe cover requirements;

## 8 Trade Waste Drainage

The following commissioning tasks shall be performed for all trade waste systems:

- a. Verify piping is of the specified material and is suitable for the temperature and chemical resistance parameters specified;
- b. Verify piping has been installed at the correct gradient;

- c. Verify piping has been correctly fixed in accordance and mechanical protection has been provided to minimise the likelihood of physical damage;
- d. Verify provisions have been made for thermal expansion and contraction;
- e. Verify all piping connections and joints are of the specified type;
- f. Verify the integrity of piping connections and joints;
- g. Verify piping has been clearly labelled (where required) to comply with AS 1345;
- h. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful;
- i. Verify drainage achieves the minimum pipe cover requirements;
- j. Verify the trade waste drains are connected to the appropriate trade waste apparatus. Eg: Grease arrestor, dilution pit, etc;
- k. Verify the installed trade waste apparatus is of the correct size and material. Verify it has the appropriate riser, specified lids and is finished flush with the finished surrounding surface level.

## 9 Storm Water Drainage

The following commissioning tasks shall be performed for all stormwater drainage systems:

- a. Verify piping is of the specified material;
- b. Verify piping has been installed at the correct gradient;
- c. Verify piping has been correctly secured and mechanical protection has been provided to minimise the likelihood of physical damage;
- d. Verify drainage lines meet the minimum specified requirement for levels and gradients;
- e. Verify drainage achieves the minimum pipe cover requirements;
- f. Verify all piping connections and joints are of the specified type;
- g. Verify the integrity of piping connections and joints;
- h. Verify piping has been clearly labelled (where required) to comply with AS 1345;
- i. Verify pit covers are labelled, are of the specified material and have been correctly installed.
- j. Verify system tests in accordance with AS 3500.1 and other relevant Australian standards requirements have been successful.

## 10 Landscape Water Reticulation

The following commissioning tasks shall be performed for all landscape water reticulation systems:

- a. Verify piping is of the specified material;
- b. Verify hose taps and irrigation points have been installed in accordance with the University of Wollongong's design standard and the landscape architects requirements;
- c. Verify piping has been correctly secured and mechanical protection has been provided to minimise the likelihood of physical damage;
- d. Verify all piping connections and joints are of the specified type;
- e. Verify the integrity of piping connections and joints;
- f. Verify that piping has been clearly labelled (where required) to comply with AS 1345. Provide additional signage at each hose tap and irrigation control valve. It should be clearly signposted 'Irrigation water - Not suitable for drinking';
- g. Verify all irrigation spray and sprinkler devices distribute water as specified in the design specification;
- h. Verify automatic controls for irrigation systems function as specified in the design specification;
- i. Verify control devices produce the correct signal and where a BMCS is installed ensure that the correct data is transmitted.



j. Verify system tests in accordance with AS 3500.1 and other relevant Australian standards requirements have been successful.

## 11 Rainwater Harvesting & Re-use System

The following commissioning tasks shall be performed for all Rainwater Harvesting and Re-use reticulation systems:

- a. Verify piping is of the specified material;
- b. Verify piping has been correctly fixed in accordance with AS 3500.1 and mechanical protection has been provided to minimise the likelihood of physical damage where specified;
- c. Verify piping connections and joints are of the specified type;
- d. Verify piping connections and joints have been correctly sealed;
- e. Verify piping has been concealed where possible in ceiling spaces, wall cavities or duct risers;
- f. Verify piping has been clearly labelled to comply with AS 1345. Provide additional signage at each outlet. It should be clearly signposted 'Rainwater Reuse water - Not suitable for drinking';
- g. Verify the rainwater reuse filtration and water treatment plant has been correctly installed/connected;
- h. Verify the operation of protection backflow devices for potable water, e.g. air gaps and backflow protection devices. Provide commissioning reports to both the University of Wollongong and Sydney Water confirming correct operation;
- i. Verify the operation of pressure control stations where installed;
- j. Verify control valves function correctly;
- k. Verify isolation valves function correctly;
- l. Verify the flow rate of the tapware does not exceed the maximum flow required for water conservation;
- m. Confirm the correct colour tapware buttons are installed;
- n. Test and confirm there are no cross connections with other water services;
- o. Confirm the pipework system has been flushed and disinfected in accordance with AS 3500.1;
- p. Confirm all installed water meters are functioning correctly and are able to be read via the University of Wollongong communications network.
- q. Verify system tests in accordance with AS 3500.1 and other relevant Australian Standard requirements have been successful.

## 12 Fixtures, Tapware, Plant Equipment & Appliances

Project fixtures are as per the fixtures and tapware schedule and as in the project contract documentation:

The following commissioning tasks shall be performed for all items:

- a. Verify all piping connections and joints are of the specified type;
- b. Verify the integrity of piping connections and joints;
- c. Verify piping connections have been correctly sealed to prevent leakage;
- d. Verify all items have been mechanically secured to protect against continuous operational usage and do not create 'hydraulic shock';
- e. Where 'hydraulic shock' has occurred during testing, verify either the source of the 'hydraulic shock' has been found and rectified, or 'hydraulic shock' arrestors have been installed and have removed the 'hydraulic shock'.
- e. Verify water supply at the required pressure and flow rate is connected to each item;
- f. Verify drainage at the correct size, material and gradient is connected to item;
- g. Verify all items operate in accordance with the manufacturer's requirements and applicable Australian Standards;
- h. Verify all items are provided with correct signage;

### 13. Hydraulic Services Commission Schedule

#### Potable Water Reticulation

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Size & Type	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Insulation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Control Valves	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Taps & Showers	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

### Hydraulic Services Commissioning Schedule

#### Hot Water

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Hot Water Equipment Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Control Valves	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Burners	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Temperature	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Boiling Water Units	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE ONLY  
REFER TO CLAUSE 2.4

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

## Hydraulic Services Commissioning Schedule

### Gas Reticulation

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Size & Type	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Isolating Valves	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Flues	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Control Valves	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Pressure Regulators	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Control Devices	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

### Hydraulic Services Commissioning Schedule

#### Sewer System

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Size & Type	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Pit Covers	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Water Saving Devices	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Automatic Flushing	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Full / Half Flush	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

### Hydraulic Services Commissioning Schedule

#### Trade Waste Drainage

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Size & Type	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Provisions for Thermal Expansion & Contraction	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

**Hydraulic Services Commissioning Schedule**

**Storm Water Drainage**

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Size & Type	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Drainage Lines	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Pit Covers	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

**Hydraulic Services Commissioning Schedule**

**Landscape Water Reticulation**

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Piping Size & Type	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Labelling	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Control Devices	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Irrigation Distribution	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

SAMPLE ONLY  
REFER TO CLAUSE 2.4

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_



### Hydraulic Services Commissioning Schedule

#### Non-Potable Water Reticulation

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_/\_\_\_/\_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Taps	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Basins & Sinks	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Cisterns	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Safety Showers	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_

### Hydraulic Services Commissioning Schedule

#### Rainwater Harvesting & Re-use

Building Number: \_\_\_\_\_

Building Name: \_\_\_\_\_

Commissioning Date: \_\_\_ / \_\_\_ / \_\_\_

Test	Commissioning Results		Test Reference Notes	Defects	Secondary Test		
	Pass	Fail			Date	Pass	Fail
Piping Installation	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Connections & Joints	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Protection	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Taps	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Basins & Sinks	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Cisterns	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
Safety Showers	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>

Commissioning Contractor Name: \_\_\_\_\_

Project Manager Name: \_\_\_\_\_

Commissioning Contractor Representative: \_\_\_\_\_

Project Manager Reference: \_\_\_\_\_