

Terms and Conditions for  
Christchurch City Council  
Authorised Water Supply Installers  
to Carry Out Authorised Work

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## INTRODUCTION

On 1 April 2004 the Christchurch City Council introduced the Authorised Water Supply Installers' Register. The purpose of this register is to reduce the potential for contamination of the water supply and the associated public health risk that exists if persons working on the network do not follow procedures and work in a hygienic manner.

Only water supply installers that are authorised under this scheme are permitted to undertake water supply related work for Council involving:

- Council water mains contracts (asset renewals and new main assets).
- Council water submain contracts (asset renewal and new submain assets).
- Installation of fire services and fire service connections.
- New subdivision reticulation works connection to the Council reticulation.
- Connection of a new pump station or reservoir to the Council reticulation.

The following work is specifically excluded as this is done by Council's nominated maintenance contractor:

- Reactive maintenance work on the existing system.
- Temporary connections to the Water Supply system via fire hydrants.
- New metered water connections.

All work carried out needs to conform to the standards set out in the Council's specifications, and all materials used should be Council approved.

The Authorised Water Supply Installers' Register has been established to ensure that the individual controlling the work at a work site is aware of the hygiene, work standards, and Council standards and procedures to be followed.

Each water supply reticulation work site is required to have an Authorised Installer working permanently on site who controls the work. Authorised Installers need to be suitably experienced individual workers who have relevant experience and skills.

To become CCC authorised, applicants need to provide evidence to Council that they:

- Are experienced in carrying out water supply work in accordance with industry best practice.
- Are familiar with Council standards and specifications.
- Have completed the 'National Certificate in Water Reticulation (Planned and Reactive Maintenance Technician) (Level 3)', the 'National Certificate in Water Reticulation (Supervisor) (Level 4)' or the 'NZ Certificate in Utilities Maintenance (Strand Water) (Level 4)', or have committed to ongoing training towards the 'NZ Certificate in Utilities Maintenance (Strand Water) (Level 4)'.
- Have completed temporary traffic management training.
- Have quality assurance and health and safety systems in place.
- Have public liability insurance cover.
- Have the resources to carry out the work quickly and efficiently.

They also agree to be bound by the terms and conditions set out in the documents for the scheme.

## How to become an Authorised Water Supply Installer:

1. Read this document.
2. Complete the application form.
3. Send application form plus the non-refundable application fee per applicant (not per company) and all required documentation to:

As hardcopy:	OR	By email:
Subject: Authorised Water Supply Installer Application		<a href="mailto:aws@ccc.govt.nz">aws@ccc.govt.nz</a>
Christchurch City Council PO Box 73014 Christchurch 8154		

4. Onsite technical assessments will be required before approval can be given in order to confirm that the applicant has the necessary experience and resources to carry out authorised work in accordance with Council regulations and standards.
5. Approval will be given in writing only and is only awarded to the individual and not to commercial entities. It is not transferable and can be withdrawn by the Council upon non-compliance with the rules and regulations as outlined in the Specification.

Please note that the Council requires a minimum of eight weeks processing time (longer if onsite assessments cannot be arranged immediately). Enquiries about the scheme can be made emailing [aws@ccc.govt.nz](mailto:aws@ccc.govt.nz).

## Terms and Conditions of Approval as Authorised Water Supply Installer

- The Council requires all Authorised Work to be performed by Authorised Installers.
- The Authorised Installer agrees to be bound by the following terms and conditions.

### 1 DEFINITIONS AND INTERPRETATION

#### 1.1 Definitions

The following definitions apply in these terms and conditions (unless the context requires otherwise):

3WW	The Three Waters & Waste Unit.
Appeal Committee	A committee consisting of at least three (3) of the following Council representatives: <ul style="list-style-type: none"><li>• Operations and Maintenance Manager; and/or</li><li>• Water and Reticulation Team Leader; and/or</li><li>• Asset Engineer (Reticulation); and/or</li><li>• Works Maintenance Supervisor/Auditor.</li></ul>
Authorised Work	The work described in these Conditions and outlined in Schedule A.
Authorised Installer	An individual approved by the Council to carry out and control Authorised Work, and who has attended and passed a training course organised by Council on water supply hygiene and procedures.
Authorised Installer's Register	A register held by the Council recording the names of Authorised Installers.
Conditions	These Terms and Conditions and extends to include the Schedules attached to these Conditions.
Connection	Any physical joining of any new water pipe to the Council's existing water supply network.
Council	The Christchurch City Council.
CSS	The Christchurch City Council Construction Standard Specifications.
Contractor	The Contractor who employs the Authorised Installer to carry out the Authorised Work.
Effective Date	The date on which the Installer is approved as an Authorised Installer.
IDS	The Christchurch City Council Infrastructure Design Standard.
Maintenance Period	A period expiring: <ul style="list-style-type: none"><li>• In respect to trenches, 12 months after the date the trench is sealed;</li><li>• In respect to all other Authorised Work, six (6) months after the date the work has been completed to a satisfactory standard.</li></ul>
Owner	The person applying to the Council for consent to carry out Authorised Work, and extends to include any other person acting on behalf of the Owner.

Road	All land within the legal boundaries of a road and includes road as defined in the Local Government Act 2002 and reserves for roading purposes under the Reserves Act 1977.
Site	The site at which the Authorised Work is carried out.
Working Day	A day on which registered banks are open for business in Christchurch excluding Saturdays, Sundays and public holidays.
Work Consent	Council's written consent (in the form specified by the Council) for the Owner to carry out specified Authorised Work.

## 1.2 Interpretation

In these Conditions:

- a. Monetary amounts are stated exclusive of Goods and Services Tax unless provided otherwise.
- b. References to legislation include all subordinate legislation, any re-enactment of or amendment to that legislation and all legislation passed in substitution for that legislation.
- c. References to clauses are, unless stated otherwise, to clauses in these Terms and Conditions.
- d. Where the context requires, the singular includes the plural and vice versa.
- e. References to a "person" include a body corporate.

## 2 VARIATION OF TERMS AND CONDITIONS

It is anticipated that over time Council procedures and practices will change. This will involve amendments to this document to reflect these changes.

## 3 APPROVAL AS CHRISTCHURCH CITY COUNCIL AUTHORISED INSTALLER

### 3.1 Approval

When considering an application for approval as an Authorised Installer, the Council will take the following factors into account in accordance with the allocated weights (failure on any one could be cause for declining application):

- a. Technical skills (50%) - The competence and technical skills of the applicant relevant to the Authorised Work and the availability of an adequate quality assurance plan.
- b. Health and Safety (10%) - The health and safety management plan the applicant proposes to use.
- c. Traffic Management (5%) - The procedures the applicant proposes to use to comply with the Council's traffic management requirements.
- d. Resources (10%) - The availability of adequate equipment, facilities and other physical resources to perform the Authorised Work.
- e. Management Skills (5%) - The resources and ability of the applicant to successfully manage the Authorised Work.
- f. Relevant Experience and Training (10%) - The previous experience and training completed relevant to the Authorised Work. See Clause 3.5.
- g. Track Record (10%) - The applicant's past record on completing projects to quality standards and on schedule.

### 3.2 Approval and Conditional Approval

The Council may approve the individual as an Authorised Installer subject to such reasonable conditions (if any) as the Council thinks fit.

### 3.3 Declinature

Where applications are declined, an outline of areas of improvement will be provided.

### 3.4 Appeals

An unsuccessful application, or successful applicant who objects to the conditions of approval, may appeal in accordance with Clause 12.

### 3.5 Training Requirements

The Council requires Authorised Installers to have completed either;

- a. The National Certificate in Water Reticulation (Planned and Reactive Maintenance Technician) (Level 3);
- b. The National Certificate in Water Reticulation (Supervisor) (Level 4); or
- c. The New Zealand Certificate in Utilities Maintenance (Strand Water) (Level 4).

New applicants may be considered if they can provide evidence they are actively working towards completion of the New Zealand Certificate in Utilities Maintenance (Strand Water) (Level 4).

## 4 PERFORMANCE OF AUTHORISED WORK

### 4.1 Work Consent

No Authorised Installer shall commence any Authorised Work without first obtaining a Work Consent. The Authorised Installer shall retain possession of the Work Consent at the Site at all times while the Authorised Work is proceeding.

### 4.2 Standards Required

The Authorised Installer when performing any Authorised Work shall:

- a. Carry out the Authorised Work with all due speed and diligence in a good and workmanlike manner.
- b. Ensure that the performance of the Authorised Work is carried out by or under direct control of the Authorised Installer at all times.
- c. Ensure that the Authorised Installer and all persons used by the Authorised Installer for the performance of the Authorised Work:
  - Exercise all due care and skill;
  - Comply with all relevant statutes, regulations, by-laws, New Zealand and Australian Standards, Guidelines, Codes of Practice and Council Standard Specifications;
  - Comply with all reasonable and lawful directions given by the Council and (to the extent that these are not inconsistent with any other requirement under these Conditions or the Council's directions) to all reasonable directions given by the Owner;
  - Obtain and maintain all licences and permits required by law for the performance of the Authorised Work;

- Not give any warranty or make any representation on behalf of the Council to the Owner, or to any other person;
- Upon completion of the Work, leave the Site and the completed Authorised Work in a clean, tidy and safe condition;
- Except for Authorised Work described in Clause 5 Schedule A, supply, without cost to the Council, all materials, labour, plant and consumables necessary for the performance of the Authorised Work; and
- Be able to be contacted by the Council at all times while performing the Authorised Work and at other times during normal business hours (except in the case of an emergency) by telephone, mobile telephone, facsimile, or other suitable communication device.

#### 4.3 Authorised Work on Property (other than on the Owner's Property)

If it is necessary for the Authorised Installer to enter upon, or restrict access to, property other than the Owner's property, ("neighbouring property") while performing the Authorised Work, the Authorised Installer shall respect the neighbour's right to privacy and unrestricted access. In particular:

- a. The Authorised Installer shall not enter the neighbouring property, nor carry out any work likely to affect that property, without obtaining the neighbour's prior written consent;
- b. Clearly visible personal identification, which must include a photograph, shall be displayed by each person engaged or employed by the Authorised Installer at all times while they are on any neighbouring property;
- c. The Authorised Installer shall ensure that all persons entering neighbouring property deal with the neighbour in a polite and professional manner, and that they carry out the Authorised Work with the least interruption to the neighbour's privacy, access to services and (where appropriate) means of access by foot or by vehicle;
- d. The Authorised Installer shall leave the neighbouring property in a clean and tidy condition at least as good as found.

#### 4.4 Damage to Property

If the Authorised Installer damages any property while carrying out any Authorised Work, the Authorised Installer shall promptly notify the Council and the owner of such property accordingly and shall, at the Authorised Installer's cost, arrange for such damage to be made good to the reasonable satisfaction of the owner and the Council.

#### 4.5 Notification Before Work

The Authorised Installer shall notify the Council Contracts Engineer at least two (2) Working Days prior to commencing Authorised Work, to enable audit inspections to be undertaken by the Council as the work proceeds.

#### 4.6 Traffic Management Plan

The Authorised Installer shall submit a TMP, except in the case of an emergency repair, at least two (2) Working Days prior to commencing Authorised Work if the Site is in a Road, in whole or in part, using the TMP for Christchurch website (<http://tmpforchch.co.nz>).



## 4.7 As-Built Plans

The Authorised Installer shall provide construction and as-built records as specified in IDS: Part 12 – As-Built Records and the relevant part of the IDS (i.e. IDS: DS: Part 7 Water Supply, clause 7.3 – Quality Assurance Requirements and Records).

The particular requirements for as-built records for water supply assets are set out in CSS: Part 4 clause 20.0 – As-Built Records.

## 4.8 Completion Date

Upon completion of the Authorised Work, restoration of the Site in accordance with these Conditions and the removal of all materials and plant from the Site the works will be deemed to be complete, and the maintenance period will begin.

## 4.9 Maintenance

The Authorised Installer will remedy any defects in workmanship or materials, or any slumping to trenches, forming part of the Authorised Works which are notified to the Authorised Installer in writing during the Maintenance Period. Defects shall be remedied within three (3) Working Days (excluding the date of service) of service of the notice identifying the defect or slumping.

## 5 HEALTH AND SAFETY

- a. The Authorised Installer shall comply with the Health and Safety at Work Act 2015, and all reasonable requirements notified by the Council from time to time.
- b. The Authorised Installer recognises that it is imperative that all work is carried out to strict hygiene and cleanliness standards to ensure that there is no risk of contamination to the water supply system. Authorised Installers shall therefore be familiar with and comply with the procedures set out in Schedule D.
- c. The Authorised Installer will provide the Council with a copy of its Health and Safety Management System (manual or overall H&S Plan), a Site Specific Health and Safety Plan (SSSP or similar) prior to work starting, and (if appropriate) a Traffic Management Plan for each Authorised Work, and will comply with such plans.
- d. The Authorised Installer shall report promptly to the Council:
  - Any hazardous or potentially hazardous situation relating to the Site which the Authorised Installer is unable to remedy immediately. The Authorised Installer shall also promptly notify the Owner and the occupier of any neighbouring property which is affected, or may be affected, by the hazard.
  - Any accident or injury to any person resulting from the performance of Authorised Work no later than 24 hours after the event.
  - Any improvement notice given to the Authorised Installer under the Health and Safety at Work Act 2015 within 24 hours of receipt.
  - Any incident that is regarded as notifiable to the Regulator no later than 24 hours after the event.

## 6 COMPLAINTS REGISTER

The Authorised Installer shall:

- a. Deal with any complaints received from any member of the public in a polite and professional manner, investigate all complaints and take appropriate remedial action.
- b. Ensure that a Complaints Register is maintained at all times which accurately and legibly records:
  - The name, address and phone number of the complainant;
  - The time, date and method (i.e. phone, letter or fax) of the complaint;
  - Brief details of the complaint;
  - The actions taken in response to the complaint and the time and date on which that occurred; and
  - Details of any follow up action.
- c. Notify Council of any complaints received and make the Complaints Register available for inspection (or copying at the Council's expense) during normal business hours on any working day during the terms of this Agreement.

For the purposes of this Clause, any complaint, letter or fax shall be deemed to be part of the Complaints Register.

## 7 INSURANCE

- a. The Authorised Installer shall take out and maintain at his own cost at all times while these Terms and Conditions have effect, Public Liability Insurance in the joint names of the Authorised Installer and the Council for any damage, loss, or injury for an amount not less than \$1,000,000 or such other sum as the Council may from time to time reasonably require. The policy shall also be extended to cover claims for vibration and loss of support to a minimum of \$250,000. The policy shall be effected with an insurance company approved by the Council and on terms reasonably acceptable to the Council.
- b. The Authorised Installer will on each anniversary of the Effective Date, or whenever requested by the Council, provide to the Council a copy of the Certificate of Currency for the policy (a broker's certificate is not acceptable for this purpose).
- c. The Authorised Installer will immediately notify the Council if:
  - The policy is cancelled;
  - A claim notification is rejected; or
  - A claim notification is accepted but then rejected.

## 8 INDEMNITY

The Authorised Installer shall keep the Council indemnified against all claims, actions, losses and expenses (including legal expenses on an own Solicitor/client basis) of any nature which the Council may suffer or incur or for which the Council may become directly or indirectly liable in respect of or arising out of, or in connection with:

- Any accident, or injury to any member of the public or damage to property arising from any occurrence in or near the Site wholly or in part by reason of any act error or omission of the Authorised Installer; or
- Any breach of these Conditions by the Authorised Installer; or
- Any failure by the Authorised Installer to comply with the lawful and reasonable directions of the Council; or
- Any breach by the Authorised Installer, in relation to a Site, of any provisions of any legislation, regulations and by-laws, including, but not limited to the Health and Safety at Work Act 2015.

## 9 SUSPENSION OF REGISTRATION

- a. The Council may immediately by written notice suspend the Authorised Installer's registration if:
  - The Authorised Installer is in breach of an obligation under these Conditions and has not acted within the reasonable time stated in a written notice given by the Council to remedy that breach; or
  - The public liability insurance policy effected under Clause 8 is cancelled and replacement cover is not able to be effected immediately; or
  - Pending compliance with the notice or reinstatement of insurance cover.
- b. Upon service of the suspension notice the Authorised Installer may not thereafter commence, or continue to carry out, Authorised Work.
- c. Nothing in Clause 9a shall be construed so as to prevent any other Authorised Installer from being engaged to undertake work for which a consent has been issued or to complete work already begun.

If no action has been taken to resolve the cause of the suspension, or to lodge an appeal under Clause 12, within three (3) months of service of the suspension notice the Council may by notice in writing cancel that Authorised Installer's registration.

## 10 CANCELLATION OF REGISTRATION

- a. If the Authorised Installer:
  - Receives three (3) or more written breach notices (or strikes) in any 12 month period requiring the remedy of breaches with these terms and conditions (notwithstanding compliance with those notices);
  - Is convicted of an offence under the Health and Safety in Employment Act 1992 and the Council reasonably believes that conviction, if it had occurred before registration, would have precluded approval of an application for registration;then the Council may by notice in writing cancel the Authorised Installer's registration.
- b. If registration is cancelled under Clause 10a, that installer may not reapply for registration until after the expiry of 12 months from the service of notice of cancellation.

- c. Clauses 9b and 9c shall apply to a cancellation, with references to “suspension” read as “cancellation”.

## 11 TRANSFER OF WRITTEN NOTICES (STRIKES)

- a. If an Authorised Installer who has received written breach notices changes employers then all notices which were issued to him in the 12 months prior to the transfer will be transferred over to the new employer.
- b. If an Authorised Installer joins a company that has received written breach notices within the 12 months prior to the transfer due to breaches with these terms and conditions at company level (i.e. notices issued to the company rather than the individual) then those written notices will apply to that Authorised Installer.
- c. Written breach notices issued at company level will apply to all newly authorised installers.

## 12 APPEAL PROCEDURE

- a. Any person:
- Whose application under Clause 3.1 is declined or is issued subject to conditions;
  - Whose registration is suspended under Clause 9a;
  - Whose registration is cancelled under Clause 10a;
- shall have a right to appeal to the Appeal Committee.
- b. Any appeal shall be made by notice in writing to the Appeal Committee, setting out the reasons for the appeal, within 14 working days after the date of the Council’s notice, or within such further time as may in any case be allowed by the Appeal Committee.
- c. The Appeal Committee shall as soon as practicable, consider the appeal. The Appeal Committee shall give at least five (5) Working Days’ notice to the Authorised Installer of the commencement date and time, and the place, of a hearing of an appeal.

The Appeal Committee may dismiss the appeal or uphold the appeal wholly or partly and shall give notice in writing to the Authorised Installer of its decision and the reasons for it.

## 13 GENERAL

- a. Assignment - The Authorised Installer’s registration is personal and may not be assigned.
- b. Relationship Between the Parties - Nothing expressed or implied in these Conditions shall constitute either party as the partner, agent, employee or officer of, or as a joint venture with, the other party, and neither party shall make any contrary representation to any other person. The relationship of the Authorised Installer to the Council is that of any independent contractor.
- c. Waiver - No waiver of any breach, or failure to enforce any provision, of these Conditions at any time by the Council shall in any way limit or waive the Council’s right to subsequently require strict compliance with these Conditions.
- d. Prejudice - The exercise by the Council of its rights of suspension under Clause 9a or cancellation under Clause 10a shall not in any way prejudice the Council’s rights in respect of any prior breach of these Conditions.
- e. Future Changes - It is anticipated that over time Council procedures and practices will change. This will involve amendments to this document to reflect these changes.

## SCHEDULE A – SCOPE OF AUTHORISED WORK

### 1 CONSTRUCTION OF WATER MAINS AS PART OF COUNCIL CONTRACTS

This work provides for the construction of all new and renewal water mains involved in Council contracts and their connection to the existing water supply network.

### 2 CONSTRUCTION OF SUBMAINS AS PART OF COUNCIL CONTRACTS

This work provides for the construction of all new and renewal submains involved in Council contracts and their connection to the existing water supply network.

### 3 INSTALLATION OF FIRE SERVICE AND FIRE SERVICE CONNECTIONS

This work provides for construction of a fire service connection for a sprinkler system, and extends from the connection to the existing main to the property boundary.

### 4 CONSTRUCTION OF NEW SUBDIVISION RETICULATION AND CONNECTION TO THE COUNCIL RETICULATION

This work provides for construction of all new water supply mains and submains in a new subdivision and the connection of these to Council's existing water supply network.

### 5 CONNECTION FROM A NEW PUMP STATION OR RESERVOIR TO THE COUNCIL RETICULATION

This work provides for the installation of pipework involved in these projects and its connection to the Council's existing water supply network.

## SCHEDULE B – GENERAL SPECIFICATION OF AUTHORISED WORK

Important note: The Authorised Installer shall be liable and responsible for any consequences in law arising from their actions or any tasks being performed under their direct control or supervision, and shall be responsible for any downstream plumbing problems notified to the Council during the 3 days subsequent to pipe installation work (refer to Council's Standard Specifications CSS: Part 4: clause 7.5).

This is not intended to be a formal technical specification. The Authorised Installer will be expected to use materials, methods and checklists conforming with those set out in the Council's Standard Specifications CSS: :Parts 1 to 7 and in the Infrastructure Design Standard IDS: Parts 1 to 12.

The following matters require special care and attention.

- Safe site practices are to be used at all times;
- Sufficient tools and resources are to be available to adequately perform the tasks without any undue delays;
- Correct notification procedures are to be followed for the work;
- Prior approvals are to be obtained before work starts on site;
- Sufficient technical expertise is to on site and correct methods are to be used to handle and install water pipes (including manufacturers recommended methods of handling and storage of materials);
- Quality assurance checks (adequate to the nature of each individual job) are to be used during the work to ensure that the work has been carried out correctly and that the materials are as specified on Council's Approved Materials' register. Refer to Council's CSS and IDS for QA checklists and hold points;
- A hygiene certificate is to be completed at the completion of the work to certify that the correct hygiene practices have been used throughout (refer to CSS: Part 4: clause 4);
- After a water shut-down the work is to be carried out without meal or tea breaks to ensure work completion as soon possible (refer to CSS: Part 4: clause 7.3).

## SCHEDULE C – PROCEDURE FOR AUTHORISED WORK INVOLVING A NEW WATER SUPPLY SERVICE TO EXISTING COUNCIL RETICULATION AT OWNER'S COST

### (FIRE SERVICE, NEW LATERAL OR SUBDIVISION CONNECTION)

#### WATER SUPPLY SERVICE APPLICATION (for all works)

- a. The Owner (or the developer) or their agent applies to the Council to make a new water supply connection to Council's network. <https://www.ccc.govt.nz/consents-and-licences/building-consents/types-of-projects/inside-and-around-your-property/connection-to-the-council-water-supply>
- b. After assessing your request, an estimate of costs for the installation of the connection on the basis of material required and labour will be made. Commercial water connections will require adequate backflow protection to protect the public water supply from contamination.
- c. Once the estimated fee for the water connection installation is paid the process will commence.
- d. The time frame of the installation process is peculiar to each connection and is subject to factors like the location of the water main, traffic management and the size of connection
- e. It should be noted that subdivision approvals are carried out under a separate process which still requires the above information to be supplied but may take considerably longer for approval to be granted.

#### COUNCIL/CONTRACTOR/AUTHORISED INSTALLER RESPONSIBILITIES

- a. The Contractor will:
  - Complete the application form and pay the fee.
  - Submit a Traffic Management Plan for the works via the TMP for Christchurch website (<http://tmpforchch.co.nz>).
  - Complete and supply the CCC Health & Safety form.
  - Request a Permit to Work if required: <https://www.ccc.govt.nz/consents-and-licences/construction-requirements/permit-to-work/>.
  - Inform the CCC Contracts Engineer of the work and supply the proposed timing for the works. Refer to clause 4.5.
  - Supply proof of Insurance cover (\$1,000,000 Public Liability and \$1,000,000 Motor Vehicle Liability).
  - Submit a Corridor Access Request (CAR): <https://www.ccc.govt.nz/transport/legal-road/corridor-access-requests>.
- b. Before work is to proceed on site the Authorised Installer will:
  - Contact the CCC Contracts Engineer requesting a water shut off, a shut off plan and shut off notices. Timing of the shut off to be approved by the Contracts Engineer.
  - Deliver the shut off notices no less than 1 day and no more than three (3) days before the shut down is to happen (this is to happen no later than 10am that day).
  - Prepare and complete tasks before the shut off as much as practical to minimise the duration of the shut off.
  - Hold all relevant papers on site.
  - Ensure that only CCC Water & Waste stamped plans are used on site.

- Liaise with Customers to ensure that reasonable consideration is given, and resolved, to problems raised.
  - Notify the Customer Call Centre on 941 8999 or 0800 CCC H2O (0800 222 426) when the shut off commences and when water is back on.
- c. The Council will supply the Authorised Installer with the following information:
- Location of properties affected by the shut off.
  - Shut off notices for the work.
  - Approved timing for the works.
- d. While the work is proceeding the Authorised Installer will:
- Notify Council Contracts Engineer and Customer Call Centre of the exact time of the shutdown and when the water is to be turned back on.
  - Work constantly through the shutdown to ensure the least disturbance to customers.
  - Ensure that all workers follow the chain of cleanliness and the worker hygiene principle (refer Schedule D).
  - Ensure that CSS / IDS Quality Assurance check sheets are completed as work proceeds.
- e. When the connection has been completed the Authorised Installer and Contractor will ensure that:
- The water main(s) and / or submain(s) are chlorinated by a CCC Approved Chlorination Contractor: <https://ccc.govt.nz/consents-and-licences/construction-requirements/approved-contractors/chlorination-contractors/>.
  - Water quality samples are collected and analysed by the CCC Laboratory.
  - As-built records of the pipework are taken before backfilling takes place and forwarded to Council as per the requirements in the IDS and CSS.
  - All meter serial numbers and volume readings are recorded and passed on to Council.
  - Trenches are backfilled, compacted, and reinstated as required.
  - The CCC Contracts Engineer is notified when the work is completed.
  - CAR is closed off. This acts as the completion certificate (maintenance period starts from this date).
  - Contractor carries out remedial work during the maintenance period within 72 hours of being notified by Council.
  - Completed Quality Assurance check sheets are signed and returned to Council (CCC Contracts Engineer).
- f. Council will give a clearance for the road reinstatement part of the work following a final inspection at the end of the Maintenance period.



## SCHEDULE D – TECHNIQUES & PROCEDURES FOR PREVENTING CONTAMINATION OF CHRISTCHURCH’S POTABLE WATER SUPPLY SYSTEM

### Introduction

Christchurch’s water supply network is not chlorinated and thus – unlike other water supply systems – does not have a defensive barrier against water borne disease. For this reason it is essential that the possibility of cross-contamination from wastewater or any other source is eliminated.

The objective of these hygiene requirements is to afford a high degree of confidence that, when there is work carried out on the system, the water supply network is not put at unnecessary risk of contamination.

Any occurrence of loss of positive pressure or draining and opening of components in contact with potable water is an opportunity for contamination to be introduced into the system. The key areas where contamination can enter the network are when connections and repairs to the network are carried out.

The following clauses are applicable specifically to instances where pipework, pumps, and other water supply structures are opened up and where there is potential for people, tools or materials to come directly into contact with surfaces that will be in contact with potable water.

### Chain of Cleanliness

The chain of cleanliness is to be established for all equipment and fittings prior to use on all works. The chain of cleanliness requires that all pipes and fittings used in the construction or maintenance of equipment in direct contact with potable water, or that can come into contact with potable water, will be:

- Sealed by the manufacturer under hygienic conditions and not uncovered until immediately before use.
- Fittings are to be kept clean of dirt and debris and thoroughly disinfected as detailed in the “Disinfection of fittings and tools” clause prior to use.
- Pipes are to be kept clean of dirt and debris and sterilised as detailed in the “Sterilisation of new pipework” clause prior to commissioning.

Furthermore:

- Only products approved for use in the water supply system are to be used.
- All new and existing pipework is to be thoroughly flushed to ensure that no suspended solids are left inside the water pipe.
- Standing water should be kept drained from pumps, pipework trenches, etc.
- Vehicle, plant, tools and protective clothing are to be kept clean and may require regular disinfection.

## Worker Hygiene

Steps are to be taken to minimise the potential for workers to be the source of contamination. Such steps are to include:

- Separation of tools, equipment and vehicles for water and sewer work. In cases where this is not possible, they are to be thoroughly cleaned and disinfected before use.
- Workers own hand tools and other general equipment are to be kept clean at all times and disinfected as detailed in the "Disinfection of fittings and tools" clause, if being used on water supply activity after sewage work.
- Individual staff members are to partake in normal good personal hygiene procedures (washing hands after going to the toilet, have clean fresh bandages on cuts and wounds, etc.)
- Workers are not to be employed on both sewer and water supply work in an alternating manner. A stand-down period (overnight) must occur when someone is to be transferred from working on wastewater equipment to water supply equipment. Showering and a complete change of clothing etc. must occur.
- A high standard of cleanliness is to be applied to the maintenance vehicle's interior and anywhere tools, repaired parts or components are held.
- Workers are to immediately report the onset of any gastrointestinal illness. Such a worker is to be placed immediately on work not involving the handling of distribution components until free from diarrhoea for 48 hours, and with specific conditions (including Hepatitis A, Shigella, Typhoid and Cholera), a medical certificate of clearance is to be obtained.
- All workers are to be offered voluntary immunisation for Hepatitis A and B.
- Any worker suspected of having come in to contact with cases of Shigella, Typhoid or Cholera, and who may have become affected, is to be removed from handling water reticulation components until a medical certificate clearing them of the disease is obtained.
- All costs involved in the immunisation programme and medical clearance by a General Practitioner will be borne by the Contractor.

## Contractor's Completion Certificate

Before a Certificate of Practical Completion for contracts is issued or before the release of the 224 certificate for subdivisional work, the Authorised Installer will complete, sign and return to the Council, as part of the documentation required under the Contract Quality Plan, a Contractor's Completion Certificate confirming that during the term of this contract the authorised installer and all people directly involved with the work have adhered to and complied with the provisions of this schedule.

Where the authorised installer is a subcontractor, this certificate shall be provided by the subcontractor to support the main contractor's Contract Completion Certificate.

Refer to Appendix VIII of the Infrastructure Design Standard Part 3 – Quality Assurance for the Contractor's Completion Certificate template.

## Hygiene Certificate

Before a Certificate of Practical Completion is issued, the Authorised Installer shall complete, sign and return to the Council, as part of the as built documentation required under the Contract Quality Plan, a Hygiene Certificate confirming that during the period of these works the authorised installer and all people directly involved with the work have adhered to and complied with the provisions of the

Authorised Water Installer's Specification.

Refer to Appendix 6 of the Construction Standard Specification Part 4 – Water supply for the Hygiene Certificate template.

## Contamination

Clauses "Chain of Cleanliness" and "Worker Hygiene" will apply.

### a. Contamination at the work site

If contamination has occurred or may have occurred, the authorised installer is to undertake disinfection, by the method detailed in the "Disinfection of fittings and tools" clause, of all equipment, pipes and fittings where the contamination is likely or to which it could have spread.

### b. Contamination beyond the work site

If contamination of the water supply system beyond the work area is considered possible, the City Water & Waste Unit (Phone 941-8748) is to be immediately advised by the authorised installer, before the reticulation is returned to service. Council will advise what further treatment or testing is required. All efforts are to be taken by the authorised installer to reduce the spread of any potential contamination.

The City Water & Waste Unit will require bacteriological sampling of the system to be undertaken in the vicinity and will arrange this as detailed in the "Bacteriological sampling and testing" clause.

If bacteriological results fail, Council will advise further action. The authorised installer is to carry out a review of their repair procedures and provide a non-conformance report in accordance with both clause 3.7 - Non-conformance and Quality Improvement in Part 3: Quality Assurance of the Infrastructure Design Standard and with their Contract Quality Plan.

## Repairs under positive pressure

These are generally limited to small diameter pipes and wrap-around repair clamps. Clauses "Chain of Cleanliness" and "Worker Hygiene" are to be complied with.

## Repairs under loss of pressure or line drainage

Clauses "Chain of Cleanliness" and "Worker Hygiene" are to be complied with.

Contamination of the main should be considered likely if:

- There are any foul or stormwater drains or sewers laid near the break,
- There are any septic tanks, sewage treatment plants or pump stations in the immediate vicinity of the break,
- Runoff water from the road or verge has been able to flow into the trench during the excavation and repair.

The main to be repaired is to be isolated and drained through the break. The authorised installer is to undertake disinfection and sterilisation, by the method detailed in the "Disinfection of fittings and tools" clause and in "Sterilisation of new pipework" clause, of all pipes and fittings where contamination has occurred or is likely to have occurred.

If contamination of the main is considered likely, the City Water & Waste Unit (Phone 941-8748) is to be immediately advised by the authorised installer, before the reticulation is returned to service. Council will advise what further treatment or testing is required. All efforts are to be taken by the authorised installer to reduce the spread of any potential contamination.

The City Water & Waste Unit will require bacteriological sampling of the system to be undertaken in the vicinity and will arrange this as detailed in the “Bacteriological sampling and testing” clause.

If bacteriological results fail, Council will advise action. The authorised installer is to carry out a review of their repair procedures and provide a non-conformance report in accordance with both clause 3.7 - Non-conformance and Quality Improvement in Part 3: Quality Assurance of the Infrastructure Design Standard and with their Contract Quality Plan.

## Reservoirs, Tanks and other Storage Vessels

This clause applies when a potable water storage vessel has been emptied and people and/or equipment have entered the vessel. It applies to water storage vessels such as a reservoir, suction tank or storage tank.

In addition to the requirements detailed in the previous sections, before the vessel is put back into service all debris is to be removed. This may require sweeping of the floor area. Consideration should be given to the need to wash down and disinfect the wall and the floor depending on the nature of the work that has taken place.

The vessel is to then be partially filled with water (typically 600 to 900 mm in depth) and to have a concentrated chlorine solution added to the water. The amount of solution added will be calculated so that when the vessel is filled to its normal full working level the concentration of chlorine is between 1 and 1.5 grams per cubic metre (ppm). After the concentrated solution has been added, it is to be left for 15 minutes and then water added to fill the vessel to its full operating level.

Water should be added via the vessel’s main inlet/outlet pipework and practical steps taken to encourage good mixing. Once the vessel has been filled it may be put into service, but chlorine tests, as detailed in the “Chlorine testing” clause, are to be done by the Council’s Authorised Officer to confirm that a positive chlorine concentration still exists.

Operational and practical considerations may require some modification of these procedures, but if the intent cannot be achieved the City Water & Waste Unit must be notified immediately. The City Water & Waste Unit will arrange for bacteriological testing of the reticulation in the vicinity of the vessel to occur immediately after it is put into service as detailed in the “Bacteriological sampling and testing” clause.

## Disinfection of fittings and tools

The authorised installer is to manually apply a chlorine solution of 100mg/l concentration by spray or wash application methods and to submerge smaller items in the above solution.

## Sterilisation of New Pipework

Following pressure testing of the pipework and prior to commissioning of any works with which potable water will come in contact, the authorised installer will engage a CCC Approved Chlorination Contractor to chlorinate the pipework. Refer to <https://www.ccc.govt.nz/consents-and-licences/construction-requirements/approved-contractors/chlorination-contractors/>.

The authorised installer may be required to arrange the provision, installation and removal of all temporary fittings necessary to allow for the introduction of the sterilising solution to, and its removal from, the system.

The authorised installer is to ensure that a minimum of 24 hours notice is given for sterilisation. The process will take approximately 24 hours. The authorised installer is to flush the system to be sterilised

to remove all debris and air. Note that the system must not be drained after flushing unless all high points are 'vented' to allow for complete removal of air.

The Council's nominated contractor will sterilise using a solution of water and chlorine.

- The system will be filled with water containing a free available chlorine (FAC) concentration of  $15 \text{ g/m}^3 \pm 5 \text{ g/m}^3$ .
- It will be allowed to stand for a minimum of 24 hours for all new systems.
- At the end of the 24-hour disinfection period, the FAC concentration must be at least  $10 \text{ g/m}^3$ .
- If the FAC is less than  $10 \text{ g/m}^3$  at the completion of the period, the disinfection will be repeated until a satisfactory result is obtained.

a. Method of Introducing the Sterilising Solution

The sterilising solution will be injected into the system using a portable chlorinator. Under no circumstances will the use of handfuls of hypochlorite powder or chlorine tablets dumped into the pipe and hydrant tees be an acceptable practice.

The sterilising solution should be fed by gravity or pumped into one end of a stem if possible and the 'flushing' water in the system displaced out of the other end of the system to be disinfected until tests carried out show that the water being displaced contains the full FAC concentration.

b. Sterilising Process

- i. Determine the volume of the watermain to be treated.

Length of Main to be chlorinated (m)	Volume of main to be chlorinated (m <sup>3</sup> )
Ø100 mm = x	Sectional Area 0.0078 =
Ø150 mm = x	Sectional Area 0.0177 =
Ø200 mm = x	Sectional Area 0.0314 =
Ø300 mm = x	Sectional Area 0.0707 =
Ø ... mm = x	$0.25\pi D^2 =$
Total Length of Main to be Chlorinated	Total Volume (m <sup>3</sup> ) =

- ii. Determine the period of time that must elapse from the beginning of chlorination of the water main until the test can begin (i.e. the time taken for chlorinated water to travel from the treatment point to the testing point).  
 Time taken for chlorinated water to travel the length of the main to be chlorinated = Total Volume ÷ Flow = (.....m<sup>3</sup> ÷ 0.5 m<sup>3</sup>/min) =.....min
- iii. Connect the dosing system to the new reticulation through the chlorination point. Ideally, the main should be charged from the highest point. Ensure a backflow preventer is utilised to protect the existing reticulation.
- iv. Adjust the flow rate using the flow meter on the terminal fire hydrant on the water main to obtain the required flow rate of 0.5 m<sup>3</sup>/min (8.33l/s).
- v. Apply the liquid chlorine (1% available chlorine) at a rate of 3 litres of liquid chlorine per m<sup>3</sup> of untreated water through the chlorination point.
- vi. Allow the chlorinated water to flow for at least the travel time before carrying out the initial

total residual chlorination test.

- vii. If the initial test complies, close off the main and leave the chlorinated water for 24hrs. If it fails, it will require re-chlorination.
- viii. After 24hrs, carry out the free residual chlorine test. If it passes, continue. If it fails, repeat from step iii).
- ix. Flush the main and dispose of the sterilising solution as detailed in the "Disposal of sterilising solution" clause. A flushing period exceeding the travel time by 15mins should be sufficient. Test for chlorine to confirm the water is at a potable level.
- x. Take a sample for bacteriological testing. If it fails re-sterilise the watermain from step iii.
- xi. Commission the reticulation on achieving a complying bacteriological test.

c. Disposal of Sterilising Solution

After the satisfactory completion of the sterilising process, flush the main well before the services are connected. Flushing shall achieve a concentration of less than 0.2ppm in the Christchurch reticulated system, including Diamond Harbour and Lyttelton. Flushing shall achieve a concentration between 0.2 and 1.0 ppm for Banks Peninsula systems. Dispose of the chlorine solution by either:

- Flushing into the sanitary sewer system after a chlorine test confirms that the FAC is below 5 g/ m<sup>3</sup>;
- Removing off-site; or
- Discharging to ground in a manner approved by the Council.

## Chlorine Testing

Chlorine testing will be carried out by the CCC Approved Chlorination Contractor.

## Bacteriological Sampling and Testing

Any commissioning or re-commissioning of wells, pump, reservoirs, pump stations or pipework, requires the microbiological sampling and complying analysis of the water for E. Coli before being cleared for consumption.

The sampling must be arranged between the Authorised Water Supply Installer and CCC Approved Chlorination Contractor and testing must be carried out by Council's laboratory and must meet the Ministry of Health's 'Drinking Water Standards for New Zealand 2005 (revised 2008)'. Please note that bacteriological samples will have a laboratory turnaround time of 24 hours.