Canterbury Regional Council
Code of Practice for Defences Against Water and Drainage Schemes

June 2015

Everything is connected
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APPENDICES

Appendix A     Work Plan Template (Optional)
Appendix B     Standard Forms (Optional)
1 Introduction

This Code of Practice sets out standards and guidelines for undertaking works within the river bed to install, maintain, use or remove defences against water and for drainage network maintenance activities. It is intended to be used by local authorities and network utility operators who undertake works on flood protection assets and defences against water within the Canterbury Region.

The Canterbury Regional Council’s Land and Water Regional Plan Rule 5.138 provides for the installation, maintenance, use and removal of defences against water as a permitted activity subject to a number of conditions being met. One of these conditions is that the work is undertaken by, or on behalf of, a local authority or network utility operator in accordance with a plan that has been certified by the Canterbury Regional Council as being in accordance with this Code of Practice.

Local Authorities and Network Utility Operators operate a range of assets which are located within the riverbed including flood protection assets such as stopbanks, groynes, rock protection and berm planting as well as infrastructure assets which require protection from flood waters in order to maintain functionality (for example, intake structures, bridge or power pylon foundations). Installation, maintenance, use or removal of these works has the potential to cause adverse environmental effects if it is not managed and undertaken in an appropriate manner. This Code of Practice sets out how such works can be undertaken in a way which avoids, remedies or mitigates potential adverse environmental effects.

Works Covered by this Code of Practice

The works covered by this Code of Practice are works within the beds of lakes and rivers where they are undertaken for purpose of the installing, maintaining, using or removing defences against water and to undertake maintenance activities for drainage schemes where the work is undertaken by, or on behalf of, a local authority or network utility operator.

With respect to this Code of Practice:

- "river" has the meaning defined in the Resource Management Act. This is it "means a continually or intermittently flowing body of freshwater; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)."
- "installation" means any works required to maintain the functionality and design performance standard of an asset or scheme defined as a defence against water. It does not include installation of new capital works to create a new flood protection scheme, nor does it include the installation or improving an existing asset to a higher performance standard. However, new physical works may be installed where there is no change in the scheme’s designed level of service or functionality (eg addition of a groyne to protect existing assets and maintain level of service). Refer also to the discussion below regarding upgrade works under the definition of maintenance.
- "maintenance" has the meaning defined in Canterbury Regional Council’s Land and Water Regional Plan. That is, it “means repairing and keeping a structure, land or vegetation in good and safe condition and includes upgrading and minor alterations as long as any upgrading or minor alteration does not materially increase the footprint, height or external envelope of the structure”. Upgrades to existing assets can occur under this Code of Practice where there is no increase in the design performance standard of the scheme. For example, stopbank upgrades such as buttressing or slope correction do not increase the level of protection (ie design height and design flood event or return period), but do improve the likely performance of the stopbank in an under-design or design flood event. Similarly, stopbank heights may be increased where they currently do not meet the scheme design height (which may occur for example by degradation at vehicle crossing points, river bed aggradation or foundation settlement).
• This Code of Practice notes that the definition of maintenance in the Land and Water Regional Plan does allow for some change to the footprint, height or external envelope of the structure. For the purpose of this Code of Practice a material increase in the footprint, height or external envelope of the structure would be one which has a more than minor effect on flood carrying capacity or river geomorphology.

• “defence against water” has the meaning defined in Canterbury Regional Council’s Land and Water Regional Plan. That is, it “means any structure or equipment, including any bund, weir, spillway, floodgate, bank, stopbank, retaining wall, rock or erosion protection structure, groyne, vegetation (including anchored tree protection) or reservoir, that is designed to have the effect of stopping, diverting, controlling, restricting or otherwise regulating the flow, energy or spread of water, including floodwaters, in or out of a water body, artificial watercourse, or artificial lake. For the purpose of this definition, dams are excluded”.

The Code of Practice only applies to works undertaken within the bed of a river or lake. This has the meaning as defined in the Land and Water Regional Plan, which is, that “Bed”:

“means the space of land extending between the outward extremities of any stopbank or any flood protection vegetation, as shown on the maps which form part of the CRC Flood Protection and Drainage Bylaw 2013, and where there is no stopbank or flood projection vegetation or relevant map in the CRC Flood Protection and Drainage Bylaw 2013, means:

(a) in relation to any river—
   (i)  ...;
   (ii) ... the space of land which the waters of the river cover at its fullest flow without overtopping its banks; and

(b) in relation to any lake, except a lake controlled by artificial means, —
   ...
   (ii) in all other cases, the space of land which the waters of the lake cover at its highest level without exceeding its margin; and

(c) in relation to any lake controlled by artificial means, the space of land which the waters of the lake cover at its maximum permitted operating level”

The area defined as the bed of a river is summarised in the following diagrams.


**Structure of Code of Practice**

This Code of Practice is set out in four sections:

- **Section 1** provides background information as to the purpose of the Code of Practice and how it is to be used. Users will need to review Section 1 to determine if the Code of Practice is relevant to their proposed works and ensure that their proposed works are not excluded from consideration under the Code of Practice.

- **Section 2** sets out general requirements which must be met for all activities to be undertaken under the Code of Practice. The requirements in Section 2 are required for all activities.

- **Section 3** provides guidance on requirements for a range of activities that may be undertaken in the installation, maintenance, use and removal of Defences Against Water. When using Section 3, users should:
  - Check to see if the proposed activity is listed in Table 3 (refer also to the relevant activity description in Section 3.1 for more details)
  - If the proposed activity is listed in Table 3, identify the relevant requirements for that activity as set out in Table 3.
  - Refer to the relevant requirements and develop a work plan which includes these.
  - If the proposed activity is not listed in Table 3, but does fall within the definition of “installation, maintenance, use and removal of defences against water” consider the potential environmental effects of the activity and determine measures required to address those effects.

- **Section 4** provides details of the process for gaining certification of work plans. As set out in Section 4, users are encouraged to submit annual work plans, standard work instructions or Operational and Maintenance Plans where those documents adequately address relevant requirements set out in this Code of Practice. Where such documentation is provided, and sufficiently meets the criteria, Environment Canterbury will issue certification for works to be undertaken for up to three years.

### 1.1 Legislative Context

This Code of Practice has been developed to enable local authorities and network utility operators to undertake works to install, maintain, use and remove defences against water and drainage schemes. Works under this Code of Practice may be undertaken by the local authority or network utility operators themselves, or by third parties (eg contractors) where they are working on behalf of a local authority or network utility operator.

The primary types of work to be undertaken under this Code of Practice are flood protection works carried out by Environment Canterbury and other local authorities within the Canterbury Region as part of their statutory responsibilities for providing defences against water and drainage. In addition, works to defend other infrastructure within the bed of a river or lake from water may also be undertaken under this Code of Practice.

**Statutory Responsibilities for Provision of Defences Against Water**

Under the Soil Conservation and Rivers Control Act 1941, Canterbury Regional Council has a statutory function to minimise and prevent damage by floods and erosion. It also has powers under that Act to maintain and improve defences against water. In some areas, local authorities also provide local drainage and flood protection measures under the Soil Conservation and Rivers Control Act 1941 and Land Drainage Act 1908. In addition, all infrastructure provided by local authorities is subject to the provisions of the Local Government Act 2002 which, amongst other things, requires Council to provide “good quality infrastructure” which is “efficient, effective and appropriate to present and anticipated future circumstances”.

A range of other statutes also govern the provision of river and drainage management activities undertaken by local authorities including:

- Order in Council for Local Government Reorganisation 9 June 1989
- Civil Defence Emergency Management Act 2002
The organisations

While including

functions

and

the

functions

of

them

that:

(1) Use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed; or

(b) excavate, drill, tunnel, or otherwise disturb the bed; or

(c) introduce or plant any plant or any part of any plant (whether exotic or indigenous) in, on, or under the bed; or

(d) deposit any substance in, on, or under the bed; or

(e) reclaim or drain the bed—

unless expressly allowed by a national environmental standard, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.”

There is no national environmental standard which is relevant to the installation, maintenance, use or removal of defences against water.

Within the Canterbury Region, the Land and Water Regional Plan contains a rule which provides for the installation, maintenance, use and removal of defences against water as a permitted activity.

This Code of Practice has been developed to detail how defences against water can be installed, maintained, used and removed in a way which avoids, remedies and mitigates potential adverse environmental effects such that it is appropriate for these works to be undertaken as a permitted activity under this Regional Rule.

While this Code of Practice has been written in a manner to assist in complying with Regional Rules for associated activities for works in river and lake beds, it is the responsibility of those working in accordance with this Code of

Works Undertaken by Network Utility Operators

Network Utility Operator is defined in Section 166 of the Resource Management Act and includes persons or organisations who undertake and provide a range of network utilities including, but not limited to, energy transmission and pipelines; telecommunications and radio communications; electricity distribution; water distribution including irrigation; drainage or sewerage systems; and transportation. Users seeking to undertake works under this Code of Practice as a network utility operator are to refer to section 166 of the Resource Management Act to confirm they meet the specified criteria to be considered as a network utility operator.

The functioning of networks sometimes requires assets to be located within the river bed and such assets may require defences against water to maintain their functionality. Depending on the specific network utility and organisation, a range of statutory powers and or functions may apply.

Resource Management Act

Functions undertaken under all of the above statutes are subject to the provisions of the Resource Management Act. The purpose of the Resource Management Act is to “promote the sustainable management of natural and physical resources”.

Section 13(1) of the Resource Management states that:

- Public Works Act 1981
- River Boards Act 1908
- Ashley River Improvement Act 1925
- Ellesmere Land Drainage Act 1905
- South Canterbury Catchment Board Act 1958
- Waimakariri River Improvement Act 1922
Practice to ensure that they are compliant with the Regional Rules for associated activities (for example refuelling, hazardous substances storage and discharges to air). The Certification Process outlined in Section 4 certifies that work plans are in accordance with this Code of Practice, it does not include certification that work is compliant with all relevant rules.

In developing the Code of Practice, the relevant objectives and policies of the Land and Water Regional Plan have been considered. Please refer to the Land and Water Regional Plan for a list of Objectives and Policies.

**Canterbury Water Management Strategy**

The Canterbury Water Management Strategy sets a vision:

"To enable present and future generations to gain the greatest social, economic, recreational and cultural benefits from our water resources within an environmentally sustainable framework".

The 10 year goals in the CWMS which are relevant to this Code of Practice include:

- ecosystems, habitats and landscapes will be protected and progressively restored, and indigenous biodiversity will show significant improvement
- water quality will be protected and starting to return to within healthy limits for human health and ecosystems
- opportunities to exercise kaitiakitanga and rangitiratanga will be operative, and increasing
- opportunities for recreational activities will be returning and improving."

### 1.2 Objectives and Principles

This Code of Practice has been developed to give effect to the objectives and policies of the Land and Water Regional Plan. It enables local authorities and network utility operators to undertake works associated with defences against water and drainage schemes maintenance in an efficient and effective manner, while at the same time avoiding, remediying or mitigating potential adverse environmental effects.

The objective of the Code of Practice is:

To avoid, remedy or mitigate any adverse effects on the environment associated with the installation, maintenance, use and removal of defences against water and drainage scheme maintenance whilst enabling the efficient and effective operation, on-going maintenance, repair, development and upgrading of infrastructure.

The Code of Practice has been developed on the following principles:

- Environmental and ecological values (eg threatened native fish and their habitat) shall be identified and appropriate measures (such as minimising instream works, avoiding sediment deposition, avoiding or mitigating effects on fish passage) put in place to avoid, remedy or mitigate adverse effects.
- Environmental enhancement opportunities shall be considered and, where practicable, incorporated into the work.
- Cultural matters shall be investigated, sites of significance identified, and appropriate construction and accidental discovery procedures adopted to avoid, remedy or mitigate adverse effects. This should occur through engagement with tangata whenua to identify issues and determine appropriate measures.
- Waterway and riparian amenity and recreational values shall be maintained.
- Waterways shall not be narrowed, restricted, or realigned to a degree that reduces flood capacity, increases erosion risk, or destabilises river alignment.
• River bed levels shall be unchanged or conform with design mean bed level requirements.
• Existing flood and erosion protection infrastructure shall not be weakened.
• Performance of other infrastructure such as bridges, water intakes, and power pylons shall not be adversely affected.
• New flood protection infrastructure shall be maintained on an ongoing basis by the local authority or network utility operator.
• Location, timing, duration and scale of works shall be considered.

1.3 Potential Effects to Be Managed

Potential effects on the environment associated with works detailed in this Code of Practice generally fall within the categories set out in Table 1. It is noted that there are both potential adverse and potential beneficial effects of undertaking activities detailed in this Code of Practice. The procedures set out in Sections 2 and 3 of this Code of Practice are designed to avoid, remedy or mitigate potential adverse effects as far as practicable while at the same time aiming to maximise potential beneficial effects.

Table 1: Potential Environmental effects

<table>
<thead>
<tr>
<th>Effects Type</th>
<th>Potential Adverse Effects</th>
<th>Potential Beneficial Effects</th>
</tr>
</thead>
</table>
| Effects on Flooding and Erosion | • Reduction of flood carrying capacity  
|                             | • Cause areas of potential erosion  
|                             | • Threaten existing flood protection works or other structures  
|                             | • Increased flooding of land adjacent to watercourses                                      | • Enhancement of flood carrying capacity  
|                             |                                                                                           | • Stabilise areas of potential erosion  
|                             |                                                                                           | • Enhance and protect existing flood protection works or other structures  
|                             |                                                                                           | • Reduced flooding of land adjacent to watercourse                                         |
| Effects on riverbed plants and animals | • Spread of introduced exotic species  
|                                                                 | • Removal of fish and large invertebrates (koura, kākahi)  
|                                                                 | • Negative impact on water quality  
|                                                                 | • Destruction or reduced quality of habitat  
|                                                                 | • Loss of ecosystem health  
|                                                                 | • Impede fish passage  
|                                                                 | • Reduction in fish abundance  
|                                                                 | • Disturbance of nesting and rearing sites of species  
|                                                                 | • Interruption of fish spawning                                                           | • Positive impact on water quality  
|                                                                 |                                                                                           | • Potential to create or enhance quality of habitat through appropriate planning of works |
|                                                                 |                                                                                           | • Creation of open gravels for native bird nesting habitat                                  |
|                                                                 |                                                                                           | • Removal of habitat for mammalian predators                                               |
|                                                                 |                                                                                           | • Removal of pest plant species and minimise weed spread                                    |
| Effects on cultural values  | • Reduced abundance of mahinga kai  
|                                                                 | • Disturbance of culturally, historical or archaeologically significant areas.             | • Enhancement of habitat quality  
|                                                                 |                                                                                           | • Protection of culturally, historical or archaeologically significant areas.               |
| Effects on amenity values  | • Declines in amenity values  
|                                                                 | • Visible dirty water  
|                                                                 | • Unsightly vehicles and machinery  
|                                                                 | • Odour from spraying, machinery fumes, weed decomposition                                 | • Potential for enhanced recreational opportunities (eg via Regional Parks)               |
### Effects Type

<table>
<thead>
<tr>
<th>Potential Adverse Effects</th>
<th>Potential Beneficial Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Noise of machinery</td>
<td>• Provide flood protection to communities</td>
</tr>
<tr>
<td><strong>Effects on people and communities</strong></td>
<td>• Enhanced public access</td>
</tr>
<tr>
<td>• Reduction in the quality of recreation opportunities</td>
<td>• Economic benefits (e.g., allowing land to be used for productive purposes)</td>
</tr>
<tr>
<td>• Disruption to recreation areas especially during weekends or public holidays</td>
<td></td>
</tr>
<tr>
<td>• Impacts on artificial structures, including bridges, gauging sites and intakes.</td>
<td></td>
</tr>
</tbody>
</table>

#### 1.4 Users Guide

The following diagram sets out the decision making process for determining if proposed works are able to be undertaken as a permitted activity under the Land and Water Regional Plan and assists users to navigate their way through this Code of Practice.
Are the works within the Canterbury Region?

Yes

Land and Water Regional Plan and Code of Practice do not apply

No

Are the works to be undertaken within the bed of a river or lake?

Yes

No

Is the activity the installation, maintenance, use or removal of a defence against water?

Yes

No

Does the activity prevent access in any way to any lawfully established structures?

Yes

No

Is the activity in, on or under the bed of any river or lake listed as a high naturalness waterbody in Sections 6 to 15 of the Land and Water Regional Plan or salmon and inanga spawning site listed in Schedule 17?

Yes

No

Will the activity prevent any existing fish passage?

Yes

No

Is the activity being undertaken by or on behalf of a local authority or network utility operator?

Yes

No

Design and plan works in accordance with Section 2 - General Requirements of the Code of Practice

If the activity is specified in Section 3, develop work procedures which will meet the relevant activity specific requirements

Submit work plan indicating how compliance with the Code of Practice will be achieved to Canterbury Regional Council prior to undertaking works for certification (refer Section 4)

Canterbury Regional Council certifies plan (refer Section 4)

No

Yes

Undertaking the works in accordance with a plan certified under this Code of Practice will meet permitted activity status (Rule 5.138)

Undertake works in accordance with Certified Plan

Yes
1.5 Exclusions

This Code of Practice is concerned only with HOW activities are undertaken within the beds of rivers and lakes to assist in compliance with permitted activity provisions under the Land and Water Regional Plan.

The Code of Practice does NOT cover any of the following matters and certification of work plans under this Code of Practice in no way provides approval of any of the following matters:

a) Design or performance standards and guidelines. The Code of Practice does not provide any guidance as to WHAT activities should take place or to what standard in order to achieve any specific performance standard for defences against water. Works within this Code of Practice relate to the installation, maintenance, use and removal of defences against water to maintain scheme functionality or asset performance. It is the responsibility of the asset owner to determine the level of maintenance or other works required to maintain scheme functionality and performance.

b) Health and Safety Requirements: It is the responsibility of the local authority or network utility operator undertaking the work to meet all requirements of the Health and Safety in Employment Act.

c) Site access arrangements. Certification of work plans under this Code of Practice does not provide the local authority or network utility operator with legal access to any sites. The local authority or network utility operator is required to arrange all necessary legal access to sites to undertake the proposed works.

d) Any and all other statutory approvals which may be required to complete the works, including but not limited to District Plan requirements.

e) The Code of Practice does not cover activities undertaken in the Coastal Marine Area; gravel extraction activities; or induced river and lake openings.

To facilitate gravel extraction for flooding and erosion hazard control purposes, Environment Canterbury has developed the River Gravel Extraction Code of Practice. This Gravel Extraction Code of Practice enables the extraction of gravel as a Permitted Activity. For further information about how you can extract gravel under this Code of Practice, please visit www.ecan.govt.nz/gravel.

1.6 Flood Protection and Drainage Bylaw

Separate to any certification of works under this Code of Practice, any works within the vicinity of flood protection and flood control works, drainage networks, survey benchmarks and hydrological devices owned or controlled by the Canterbury Regional Council, where those activities have the potential to adversely affect the integrity or effective operation and maintenance of the flood protection and flood control works, benchmarks and hydrological devices require approval under the Canterbury Regional Council’s Flood Protection and Drainage Bylaw 2013.

Further information on the Bylaw can be found at www.ecan.govt.nz/floodbylaw.
2 General Requirements

This section of the Code of Practice details requirements which apply to any works associated with the installation, maintenance, use and removal of defences against water covered by the Code of Practice. Irrespective of the specific work type or activity, the general requirements are to be met.

2.1 Planning the Works

One of the most effective methods of avoiding and minimising potential environmental effects for works in the bed of rivers or lakes is to ensure effective planning of the proposed works. Effective planning of proposed works to be undertaken in accordance with this Code of Practice involves:

1. Planning to undertake the work **AT A TIME WHEN THE POTENTIAL EFFECTS ARE ABLE TO BE MINIMISED**. Consideration should be given to:
   - Avoiding sensitive spawning and migration times with consideration given to locations of native and introduced fish (refer to Section 2.3 for specific details regarding sensitive times).
   - The nesting season and location of native birds.
   - Where works are within recreational areas, avoiding times of high recreational use (eg public holidays, weekends, times when specific events take place). Note that working on Saturdays is not precluded but consideration should be given to effects on recreational users.
   - Long range weather forecasts and whether or not conditions (weather and flow conditions) are likely to be favourable for the duration of the works.

2. Planning to undertake the work **AS QUICKLY AS PRACTICABLE** in order to minimise the length of time that potential adverse effects may occur. Consideration should be given to:
   - Ensuring materials, equipment and machinery are available prior to commencing.
   - Ensuring that once works commence, works can proceed in an uninterrupted manner.

3. Planning to undertake the work in a way which **MINIMISES THE AREA TO BE DISTURBED**. Consideration should be given to:
   - Whether there are any culturally, historically or archaeologically significant areas or sites which may be affected by the works.
   - Whether there are any sites of significant ecological value within the area.
   - How is the site to be accessed.
   - What is the extent of the area that needs to be worked.
   - Whether or not the work can be undertaken outside of flowing water.

4. **PLANNING FOR THE UNEXPECTED**. Consideration should be given to:
   - What will need to happen in the event of unfavourable weather or flow conditions.
   - What will need to happen if there is a spill on site.
   - What will need to happen if archaeological discoveries are made.

Specific details to assist in planning are provided in section 2.3 of this Code of Practice.
2.2 Engagement and Notifications

Users are encouraged to engage with tangata whenua, Fish and Game and Department of Conservation where works are likely to be undertaken in culturally or environmentally significant areas.

Ngai Tahu
Statutory Acknowledgement and Silent File Areas
Persons intending to undertake works as a permitted activity in accordance with this Code of Practice are required to confirm whether or not the work site areas are within Silent Files or Statutory Acknowledgment Areas as identified in the Ngai Tahu Claims Settlement Act 1998. These areas can be checked as follows:

- Statutory Acknowledgement Areas that lie within the Canterbury Region are listed in Schedule 19 of the Land and Water Regional Plan. The Statutory Acknowledgement Areas are also mapped on the ‘Canterbury Maps’ tool available at canterburymaps.govt.nz.
- Silent File areas can be checked using the ‘Canterbury Maps’ tool (canterburymaps.govt.nz).
- Other sites of significance, as identified on the “Significant Site Maps 2006” (note: these will be available on Canterbury Maps, but have not been published as at May 2015).

Note that the Statutory Acknowledgement and Silent File areas are not default layers on the Canterbury Maps tool. These layers need to be added to the individual users viewer in order to become visible. Refer to the help guide on canterburymaps.govt.nz under “Adding other Canterbury Map's Layer”.

Where works are to occur in a Statutory Acknowledgement, Silent File area or another site of significance the Papatipu Rūnanga is to be notified of the intent to carry out the works and the intended type and scope of works, not less than ten working days prior to commencement in order to enable the rūnanga to advise of any sites of significance that may be affected by the proposed works.

Works shall not interfere with any sites of significance identified by Papatipu Rūnanga unless expressly agreed with Papatipu Rūnanga.

Absence of a Statutory Acknowledgement Area or Silent File Area does not necessarily mean that a proposed work site does not have cultural values or is not significant to the Papatipu Rūnanga. Users are encouraged to engage with Papatipu Rūnanga regarding their forward work programme to identify any areas of significance and agree any appropriate measures to avoid, remedy or mitigate any effects and accidental discovery protocols should be in place.

Additional Engagement to be Undertaken by Environment Canterbury
In addition to the above, Environment Canterbury has undertaken to engage with Papatipu Rūnanga to seek input on the appropriateness of measures addressing cultural values and to provide notification of the works to be undertaken in the beds of rivers and lakes. It has been agreed that such engagement will occur via an annual hui to review the Code of Practice and work plans Environment Canterbury is certifying.

Stakeholder Engagement
Environment Canterbury also intends to engage with Department of Conservation and Fish and Game Council on an annual basis to review their annual works programme including, but not necessarily limited to:

- Sites of anticipated significant bed disturbance;
- Channel realignment works; and
- The proposed location, duration and timing of these works.

The purpose of these discussions will be to inform stakeholders of scheduled significant works and to agree, where necessary, appropriate methods of reinstating ecological values where they may be affected. This may include agreeing the need to notify Department of Conservation or Fish and Game prior to specific works being undertaken (eg works in flowing water during trout or salmon spawning seasons). Such notification will generally occur five days prior to commencement of works.
2.3 Work Practices

This section sets out the specific work practices which are required to be followed for all activities undertaken in accordance with this Code of Practice.

In considering these general requirements, as well as the activity specific requirements set out in Section 3, users should be mindful of the overall objectives and principles set out in Section 1 of this Code of Practice. Some requirements are subject to practicability and, in certain circumstances, the environmental effects of following the requirements may be greater than using alternate methodologies. The following factors will be taken into account when deciding if complying with the requirements of the Code of Practice is practicable:

- Increased environmental impacts. The methodology proposed in the Code of Practice may increase the environmental impact of the activity in certain locations (eg bunding around an activity may release more sediment than undertaking the activity itself).
- Weather conditions: adverse conditions may compromise the mitigation methodology (eg revegetation).
- Safety constraints: the site may have particular constraints that will require an alternative methodology in order to be able to work in a safe manner.
- Emergency works: departures from standard procedure may be required to address emergency situations.

It is recommended that alternative methodologies be discussed with Environment Canterbury prior to submittal of work plans for certification.

Note:

The following existing catchment specific plans will be replaced by Sub-Regional Chapters of the Land and Water Regional Plan as they are developed. Please refer to Environment Canterbury's website to determine the current planning framework for your area.

If working within the Pareora Catchment, any diversion of water to maintain, repair or replace existing infrastructure may be subject to Rules in the Pareora Catchment Environmental Flow and Water Allocation Regional Plan.

If working within the Waipara Catchment, any taking, diversion or use of water to maintain, repair or replace existing infrastructure may be subject to Rules in the Waipara Catchment Environmental Flow and Water Allocation Regional Plan.

If works are undertaken within the Waimakariri River; tributary of the Waimakariri River upstream of the Gorge Bridge; or in the Eyre River, refer to Waimakariri River Regional Plan to ensure the activity complies with the requirements of this Plan.

In addition to the Region Wide Rules specified in the Land and Water Regional Plan, there may be additional rules imposed by the Sub-regional Chapters of the Land and Water Regional Plan. Please check the relevant Sub-Regional Chapter for the works area to determine if there are any additional requirements of the Sub-Regional Chapter.
General Requirements: Planning and Work Site Design

All works shall be planned and the work site designed to take account of the following requirements:

- Works should be planned and scheduled to take account of:
  - The likelihood of suitable weather and river flow conditions
  - The spawning and migration seasons and locations of salmon and native fish. Refer to 'General Requirements: Timing of Works' for details
  - The nesting season of native birds. Refer to 'General Requirements: Timing of Works' for details
  - Recreational interests and amenity (including contact recreation)
  - The need to minimise duration and frequency of activity
  - Activities on adjoining properties
  - The availability of suitable plant to undertake the works
  - Access into the work site
  - Safety on and around the site
  - The impact of traffic, dust and noise on the environment
  - The location of key mahanga kai species including koura and kākahi
  - The presence of native fauna and key habitat such as lizards, bats (roosting trees), etc
  - The potential for fire risk

- Where possible, works should avoid areas of cultural or heritage significance.
- The layout of each work site shall be determined prior to commencement of the work and shall be designed and formed to avoid potential environmental effects as far as practicable.
- Where practicable, site work areas shall be accessed via existing tracks and existing stream crossings. Vegetation disturbance shall be kept to a minimum, see commentary below.
- Where practicable, the natural character of the river is to be preserved.
- Works and structures shall not reduce the flood-carrying capacity or cause erosion to the bed or banks.
- Works shall be planned to be undertaken outside of the area of flowing water. Where this is unavoidable, all measures shall be taken to minimise bed disturbance and release of sediment.
- Crossing of the active flowing channel shall be kept to a practical minimum, so that any potential sediment disturbance and impacts on instream habitats will be minimised. For example, use only one crossing point typically upstream of riffles, sediment control or minimisation measures.
- Provide appropriate signage or other controls when the work site is in areas open for public access.
- Risk management measures are to be in place to minimise the potential for damage arising from inclement weather and/ or elevated river levels during the course of the work.
- Risk management measures are to be in place to minimise the potential for the works to start a fire.

Advice Note: River flow conditions can be checked on Environment Canterbury's Website and the River Report 24 hour Infoline (0900 RIVER (74837)). Refer to www.ecan.govt.nz for further information.

Commentary:
Particularly where working in remote areas, access to the work site can be a significant cause of potential environmental effects of undertaking works. Wherever possible, access should be planned to occur via existing access tracks even those these may not necessarily be the most direct route to the work site. Any vegetation disturbance to access the site should be kept to the minimum practicable and shall be determined taking in to account not just the
extent of area disturbed but the type of species and their ecological value. Reinstatement works should plan to restore disturbed vegetation as far as possible. Disturbance of any vegetation which provides a flood protection or attenuation purpose requires prior written approval of the authority responsible for the flood protection scheme (typically Environment Canterbury).

Where there is public access through a work site, design of the work site and access should take in to account how public access can be managed around the work site and / or alternative access can be provided. The need to provide alternative access will need to take in to account the duration of the works proposed, the frequency of use by the public and whether or not it is safe and practicable to provide an alternative access. If access is to be disrupted, consultation should be carried out with the agency responsible for managing the area.

Prior to undertaking works, it is recommended that the site be checked for any historic or culturally significant areas. This can be undertaking by reference to District Plans, search of the Heritage New Zealand register and consultation with iwi groups.

The site should also be checked to identify if the work area is likely to contain any critically endangered fish species. This can be done by consulting the IUCN Red List (iucnredlist.org) and New Zealand Freshwater Fish Database. Particular care should be taken to avoid any effects on critically endangered fish and their habitat.
All works shall be timed to minimise the potential for adverse environmental effects arising from the proposed works. This shall include:

- All practicable measures shall be undertaken to minimise adverse effect on amenity values. This includes:
  - No work (other than emergency works or works required for safety or infrastructure operational requirements) shall be carried out on Sundays or public holidays.
  - Works shall only occur between the hours of 7am and 7pm except in the case of an emergency or if necessary for safety or infrastructure operational requirements.
  - Public access shall not be prevented for longer than is necessary to undertake the works safely.
- If works undertaken in braided rivers involving disturbance of the river bed are to be carried out between 1 September and 1 February, the following shall be undertaken to prevent any disturbance of nesting birds:
  - A suitably qualified person shall inspect the proposed area of works no earlier than 8 days prior to the works being carried out and shall locate any bird breeding sites of birds listed in Table 2 below.
  - The person carrying out the inspection shall prepare a report or site plan that identifies all the located bird breeding or nesting sites.
  - Any person carrying out works within the river bed are to be informed of any bird breeding or nesting sites located. No vehicle or machinery shall operate within 100 metres of any nesting or breeding bird sites.
  - Where work ceases for more than 8 days, the site is to be re-inspected for bird breeding and nesting sites in accordance with the above procedure.
- Where works are not in braided rivers, but involve disturbance of the bed between 1 September and 1 February, the person undertaking the works shall check the work site area, including the area 100 m upstream and 100 m downstream of the site, for any nesting or breeding birds listed in Table 1, prior to commencement. If nesting or breeding birds listed in Table 1 are identified, works shall be planned to ensure that no vehicle or machinery operates within 100 m of any identified nesting or breeding birds.
- Where practicable, work in inanga, salmon or trout spawning areas shall not be carried out during spawning seasons. For inanga, the spawning season is March to May (inclusive). For salmon, the spawning season is April to June (inclusive)

Note: Any works in inanga or salmon spawning sites listed in Schedule 17 of the Land and Water Regional Plan is outside of the Permitted Activity Rule 5.138 and resource consent will be required.

- Where practicable, work in the active river bed or any associated lagoon or drainage habitat shall not be carried out during the opening weekend of duck Shooting Season (1st weekend in May) and Angling season (1 October to 1 November) in any given year.
Table 2: Target Species for Bird Nesting Surveys

<table>
<thead>
<tr>
<th>South Island Pied oystercatcher</th>
<th>Grey Duck</th>
<th>Black Fronted Tern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Stilt</td>
<td>NZ Shoveler</td>
<td>White Winged Black Tern</td>
</tr>
<tr>
<td>Pied Stilt</td>
<td>Grey Teal</td>
<td>Australasian Bittern</td>
</tr>
<tr>
<td>Wrybill</td>
<td>NZ Scaup</td>
<td>Marsh Crane</td>
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<tr>
<td>Banded Dotterel</td>
<td>Black Billed Gull</td>
<td>Spotless Crane</td>
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<tr>
<td>Black Fronted Dotterel</td>
<td>Red Bills Gull</td>
<td>Cormorant / Shag Colonies</td>
</tr>
<tr>
<td>Blue Duck</td>
<td>Caspian Tern</td>
<td>Royal Spoonbill</td>
</tr>
<tr>
<td>Paradise Shelduck</td>
<td>White Fronted Tern</td>
<td>Crested Grebe</td>
</tr>
</tbody>
</table>

**General Requirements: Accidental Discovery Protocol**

This procedure relates to the accidental discovery of archaeological material. It does not replace the requirement to undertake reasonable investigation prior to commencing works in order to ensure that known archaeological sites are not affected by the proposed works.

The user is referred to Heritage New Zealand Pouhere Taonga and the requirements of the Heritage New Zealand Pouhere Taonga Act 2014. Any disturbance of archaeological material is subject to the provisions of the Heritage New Zealand Pouhere Taonga Act 2014.

Note that Environment Canterbury is currently preparing internal policy guidance relating to the accidental discovery of archaeological sites. The following will be replaced by reference to this policy guidance when that policy document becomes available. Local authorities and network utility operators working under this Code of Practice shall ensure they are able to comply with the provisions of the Heritage New Zealand Pouhere Taonga Act 2014.

In the event of any discovery of archaeological material:

1. The operator shall immediately
   i. Cease work in the affected area and mark off the affected area
   ii. Advise Environment Canterbury of the disturbance
   iii. Advise Heritage New Zealand Pouhere Taonga of the disturbance

2. If the archaeological material is determined to be Koawi Tangata (human bones) or taonga (treasured artefacts) by Heritage New Zealand Pouhere Taonga, the person undertaking the works shall immediately advise the office of the appropriate rūnanga (office contact information can be obtained from the Environment Canterbury) of the discovery.

3. If the archaeological material is determined to be Koawi Tangata (human bones) by Heritage New Zealand Pouhere Taonga, the Authorisation holder shall immediately advise the New Zealand Police of the disturbance.

4. Work may recommence if Heritage New Zealand Pouhere Taonga (following consultation with rūnanga if the site is of Māori origin) provides a statement in writing to the Environment Canterbury, that appropriate action has been undertaken in relation to the archaeological material discovered. Environment Canterbury shall advise the person undertaking the works on written receipt from Heritage New Zealand Pouhere Taonga that work can recommence.

*Note 1: This may be in addition to any agreements that are in place between the Authorisation holder and the Papatipu Rūnanga. (Cultural Site Accidental Discovery Protocol).*
Note 2: Under the Heritage New Zealand Pouhere Taonga Act 2014 an archaeological site is defined as any place associated with pre-1900 human activity, where there is material evidence relating to the history of New Zealand. For sites solely of Māori origin, this evidence may be in the form of accumulations of shell, bone, charcoal, burnt stones, etc. In later sites, artefacts such as bottles or broken glass, ceramics, metals, etc, may be found or evidence of old foundations, wells, drains, tailings, races or other structures. Human remains/koiwi may date to any historic period.

It is unlawful for any person to destroy, damage, or modify the whole or any part of an archaeological site without the prior authority of Heritage New Zealand Pouhere Taonga. This is the case regardless of the legal status of the land on which the site is located, whether the activity is permitted under the District or Regional Plan or whether a resource or building consent has been granted. The Heritage New Zealand Pouhere Taonga Act 2014 provides for substantial penalties for unauthorised damage or destruction.

General Requirements: Fuel and Hazardous Materials Management

Note: there are separate rules controlling refuelling and hazardous substances storage in the bed of a river. All persons operating under this Code of Practice shall ensure that they can comply with those requirements in the LWRP otherwise obtain their own resource consent. The following requirements for Fuel and Hazardous Material Management has been written in a manner to assist compliance with the rules relating to refuelling and hazardous substances storage.

All works shall be carried out in a manner which avoids the potential for fuel and any other hazardous materials to enter the water. This includes:

- All practicable measures will be undertaken to avoid the spillage of fuel or any other hazardous materials anywhere in the bed of a river or watercourse.
- Fuel and hazardous materials shall not be stored within:
  - 20 m of a surface water body or bore; or
  - A Group or Community Drinking water Protection Zone as set out in Schedule 1 of the Land and Water Regional Plan.
- The refuelling of machinery is not to take place over the wet bed of a river or lake, or in any area where spills may enter surface water.
- All refuelling and bulk deliveries are to be directly supervised by the equipment operator.
- All mobile plant is to be refuelled in a designated area, on an impermeable base, away from drains or watercourses. Where this is not practicable, drip trays are to be used.
- All non-mobile plant shall have drip trays or other spill containment measures installed.
- A written spill response plan shall be developed and communicated to all persons responsible for fuel storage and refuelling on site. A copy shall be kept on site at all times.
- If a spill occurs, the following steps should be undertaken, in addition to any actions required under the site’s spill response plan:
  i. Be safe
  ii. Identify the spilt material
  iii. Put on the necessary personal protective equipment
  iv. Stop the source if you can to prevent the spill getting any worse or spreading
  v. Try to soak as much of the spill up with appropriate absorbent material
vi. If the spilt material has soaked into the ground, the area of the spill should be scooped up and removed off site and disposed of a suitable disposal facility.

vii. Complete the Spill Response Form and send to Environment Canterbury

viii. If the spill is greater than 1 litre or has the potential to cause harm, contact the pollution hotline immediately (0800 76 55 88).

The above requirements assume temporary work sites and that any fuel or hazardous substances stored are temporary storage measures in approved containers only. Establishment and use of permanent storage sites is not covered by this Code of Practice. Refer to Land and Water Regional Plan for further details.
General Requirements: Pest Species Control

Works shall be undertaken in a manner which avoids the potential for distribution of pest species. This includes:

- Construction material imported from another catchment, such as rock, shall be free of plants and plant seeds prior to depositing on the bed or banks of any water body.
- To prevent the spread of pest species, including but not limited to Didymo, the operator shall ensure that activities are undertaken in accordance with the biosecurity New Zealand’s hygiene procedures and that machinery shall be free of plants and plant seeds prior to use in the river bed.
- If you are moving items between catchments you must, if staff and/or machinery and gear have been in contact with water:
  i. Check: Before leaving the river, remove all obvious plant material, including clumps of algae, seeds and stems. Leave it at the affected site. If you find any later, do not wash it down drains. Treat it with the approved cleaning methods below, dry them and put them in a rubbish bin.
  ii. Clean: Soak and scrub all items for at least one minute in either, hot (60°C) water, a two percent solution of household bleach or a five percent solution of salt, nappy cleaner, antiseptic hand cleaner or dishwashing detergent.
  iii. Dry: If cleaning is not practical, after the item is completely dry to touch, wait an additional 48 hours before contact or use in any other waterway.

Note: when working in the Lower Waitaki Catchment, cleaning of equipment and machinery must be carried out between rivers and tributaries within the catchment (e.g. do not take equipment from the Waitaki River to the Hakataramea River without first cleaning the equipment and machinery).

Commentary:
Didymo has been declared an unwanted organism under the Biosecurity Act 1993. It is an offence to spread an unwanted organism. Didymo is a member of the group of single-celled aquatic plants (freshwater algae) known as diatoms. Although it is microscopic, Didymo can form dense colonies called algal blooms which can be seen with the naked eye. Young colonies look like raised pimplles on the surfaces of river rocks, but as the mucilage elongates to form stalks, the colonies form impenetrable mats which form thick strands and can cover all surfaces, including other plants, logs and debris. It can also form flowing ‘rats tails’ that can turn white at their ends and look similar to tissue paper.

- Colour - Didymo is beige/brown/white but can appear green when filamentous algae grows upon it.
- Touch - Although it looks slimy, it doesn't feel slimy, but rather spongy and scratchy like cotton wool.
- Odour - Live Didymo has no distinctive odour.
- Strength - Didymo is very securely attached to river stones and does not fall apart when rubbed between your fingers.

Definitive identification requires microscopic analysis.
Works shall be undertaken in a manner which minimises, as far as practicable, the disturbance of sediment and its discharge into waterways, and avoids the potential for erosion to occur or be exacerbated as a result of the works. This includes:

- All practicable measures shall be undertaken to minimise the discharge of sediment to the waterway, arising from the works, including the use of sediment traps where practicable.
- Works and structures shall not cause erosion to the bed or banks of any waterway.
- Works and the implemented erosion and sediment control measures shall not prevent the passage of fish or cause the stranding of fish in pools or channels.
- Machinery is to be kept out of water as far as practicable. Where this is unavoidable, all measures are to be taken to minimise bed disturbance and release of sediment (eg use of a single crossing point, sediment and erosion control measures)
- Where the temporary diversion and damming of flow paths is undertaken it shall not cause unplanned erosion of the bed or banks of any water body, and shall be reinstated so that the water body is aligned similarly to that which existed prior to the diversion, unless ecological values are improved by the diversion. Measures shall be undertaken to provide for fish passage through the diversion.
- At all times, use appropriately sized machinery for the works.
- Discharges of sediment or other contaminants (but excluding diverted water) from the site shall not occur for more than 10 hours in any 24 hour period, and not more than 40 hours in any calendar month.

Advice Note: Refer also to Environment Canterbury's Erosion and Sediment Control Guide available on the Environment Canterbury website. This document provides details of techniques and methods for erosion and sediment control for a range of construction activities and operations.
General Requirements: Work Site Reinstatement

Upon completion of works, the site is to be tidied and reinstated to similar, if not better, quality than prior to the works. This includes:

- All unused materials, offcuts and equipment shall be removed from the site as soon as practicable following completion. Areas disturbed by machinery during the course of the work shall be reinstated to match the surrounding area.
- Any natural material disturbed by the works shall be reshaped and formed to a state consistent with the surrounding area, unless agreed otherwise with the landowner.
- All litter and empty containers are to be removed.
- All fences, gates and access ways to be reinstated.
- All grassed areas to be replanted and any areas of vegetation disturbance to be replanted with appropriate species unless agreed otherwise with the landowner. Revegetation responsibilities extend beyond the initial grassing and or planting of areas and include sufficient time to achieve suitable grass strike or plant establishment.

Commentary:
The above requirements relate to completion of works and do not preclude windrowing of material (eg associated with drain clearing activities) when undertaken in accordance with the relevant work type requirements in section 3 of this Code of Practice.
General Requirements: Complaint and Adverse Effects Management

Works should be undertaken in a manner which does not cause adverse effects and, if any effects do occur, these are investigated and addressed in a timely manner. This includes:

- A complaint register shall be kept recording the details of any complaints received and actions taken. Details recorded shall include:
  - the complainant’s name,
  - time of incident,
  - works being undertaken at the time of the complaint,
  - conditions at the time of the complaint (weather, flow),
  - investigations undertaken, and
  - the nature of any remedial action taken.

The complaint register shall be made available to Environment Canterbury upon request.

- If adverse effects are identified during the course of undertaking the works either through complaints or observations / audits on site, actions shall be taken as soon as practicable to address the cause of the effect and undertake any remedial or mitigation measures considered necessary.
General Requirements: Cultural Effects

Te Rūnanga o Ngāi Tahu is the statutory authority representing iwi members and includes ten local rūnanga within Canterbury, known as Papatipu Rūnanga. ‘Papatipu’ refers to ancestral land. Local Papatipu Rūnanga have mana whenua with kaitiaki status (guardianship) over land and water within their takiwā or territory. The following measures have been included throughout this Code of Practice to ensure that any potential effects of works on areas of significance to Papatipu Rūnanga are avoided, remedied or mitigated as appropriate:

- Cultural matters shall be investigated, sites of significance identified, and appropriate construction and accidental discovery procedures adopted to avoid, remedy or mitigate adverse effects. This should occur through engagement with the relevant Papatipu Rūnanga to identify issues and determine appropriate measures.
- Persons intending to undertake works as a permitted activity in accordance with this Code of Practice are required to confirm whether or not the work site areas are within Silent Files or Statutory Acknowledgement Areas as identified in the Ngai Tahu Claims Settlement Act 1998.
- Where sites are within Statutory Acknowledgement Areas or Silent File Areas the Papatipu Rūnanga is to be notified of the intent to carry out the works and the intended type and scope of works, not less than five working days prior to commencement in order to enable the rūnanga to advise of any site of significance that may be affected by the proposed works.
- Works shall not interfere with any sites of significance identified by Papatipu Rūnanga unless expressly agreed with Papatipu Rūnanga.
- Works are to be planned to avoid any adverse effects on the habitat, spawning times or migration of native fish.
- Work sites are to be checked prior to commencement to determine if there are any native nesting birds present. Where such birds are present, works shall be planned so as to avoid any adverse effects on the nesting birds.
- Work is to be planned to avoid disturbance to key mahianga kai species including koura and kākahi, wherever practicable.
- Works is to be planned to avoid disturbance of native fauna and key habitat for species such as lizards and bats (roosting trees) as far as practicable.
- Consideration is to be given to use of native vegetation to restore areas of vegetation disturbance and bank stabilisation and erosion control.
- Accidental Discovery Protocols are required to be in place and work is required to cease in the event that any kōiwi Tangata or taonga are discovered.

Commentary

Environment Canterbury has committed to engage with Papatipu Rūnanga on an annual basis to seek input on the appropriateness of measures in addressing cultural values and to provide notification of works to be undertaken in the beds of rivers and lakes. It has been agreed that such engagement will occur via an annual hui to review the Code of Practice and work plans Environment Canterbury is certifying.

Environment Canterbury will work with Papatipu Rūnanga to discuss and identify needs or opportunities for cultural or environmental training of operators undertaking works, as well as opportunities to promote use of native species for bank stabilisation through the implementation of this Code of Practice or other works undertaken by Environment Canterbury.
3 Activity Specific Requirements

In addition to the general requirements set out in Section 2 of this Code of Practice, there are a range of additional measures that are required depending on the specific activities that are carried out. There is a large range of activities carried out in managing defences against water reflecting the various techniques which can be used including stopbank works, maintenance of flood carrying capacity (eg drain clearing), measures to control and manage the direction and location of flood flows within the river bed (eg rock or other groynes), and measures to protect the berm (eg rock lining, berm vegetation). Despite the large range of activities carried out, the works involved in managing defences against water typically involve the following work types which have potential to cause adverse environmental effects:

- Earthworks and land disturbance
- Works Adjacent to or In Flowing Water
- Maintenance of Culverts and Structures
- Diversions (within the river bed)
- Vegetation Removal carried out in the dry (ie outside of flowing water)
- Vegetation and Silt Removal carried out in flowing water
- Use of agrichemicals

This section of the Code of Practice contains work type requirements that must be followed when undertaking activities which involve any of the above work groups.

To assist users of the Code of Practice, Table 3 provides a linkage between typical activities carried out to manage defences against water and the work type requirements.

Activities not listed in Table 3 may be certified as being in accordance with the Code of Practice provided they meet the general requirements; adequately address the management of potential adverse environmental effects; are not specifically excluded in section 1 of the Code of Practice; and are considered to be activities associated with the installation, maintenance, use and removal of defences against water as defined in Section 1 of the Code of Practice. Certification of work plans for activities not listed within this section of the Code of Practice should, where possible, be discussed with Environment Canterbury prior to submittal for certification.

Note that certification of work plans as being in accordance with the Code of Practice is only one condition required to be satisfied to undertake works as a Permitted Activity under Rule 5.138 of the Land and Water Regional Plan. All conditions of Rule 5.138 must be satisfied to undertake works as a Permitted Activity. If these conditions cannot be satisfied, then resource consent for the works will be required.

In addition, approvals under the Canterbury Regional Council’s Flood Protection and Drainage Bylaw 2013 will also be required for any works within the vicinity of flood protection and flood control works owned or controlled by the Canterbury Regional Council, where those activities have the potential to adversely affect the integrity or effective operation and maintenance of the flood protection and flood control works.

This section of the Code of Practice is set out as follows:

- Table 3 provides an overview linkage between specific activities and the work type requirements that are required to be implemented.
- Section 3.1 provides background information on each of the activities including a description of the activity and potential environmental effects that are to be managed.
- Section 3.2 contains work type requirements that are required to be followed for each of the identified work types.
### Table 3: Activities covered by Work Type Requirements

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Specific Activity</th>
<th>General Requirements (Part 1)</th>
<th>Earthworks and Land Disturbance</th>
<th>Works Adjacent to or In Flowing Water</th>
<th>Culverts and Structures</th>
<th>Diversions</th>
<th>Vegetation, Removal - Dry</th>
<th>Vegetation and Silt Removal - Wet</th>
<th>Use of Agrochemicals</th>
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<tr>
<td>Drain Works</td>
<td>Aquatic Weed Cutting</td>
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3.1 Activity Descriptions

3.1.1 Drain Works

Wherever practicable, drains should be managed as natural waterways and opportunities sought to enhance aquatic and riparian habitat if this can be done without adversely affecting the function of the drainage system.

Works in drains if they are listed as a known or identified inanga spawning site in Schedule 17 of the Land and Water Regional Plan must be avoided during inanga spawning season.

Outside of the spawning season, consideration must be given to undertaking drain works in a manner which minimises the impact on inanga spawning habitats. Some suggested methodologies for different types of drain works have been included in “work type requirements” section below.

Aquatic Weed Cutting

Aquatic weed cutting is generally undertaken using a purpose built weed cutter boat or manually. Weed is generally removed and stockpiled on the berm so that it can dry prior to disposal. Aquatic weed cutting is undertaken to mitigate the effects of excessive aquatic weed growth on waterway capacity and water quality characteristics. In comparison to other available aquatic weed control methods, weed cutting minimises disturbance to the bed and banks of the watercourse and does not require the application of chemicals. Additionally, riparian vegetation is not disturbed and bird life can remain in the vicinity while the activity is carried out.

Potential Effects

- Erosion of the bed and banks of the watercourse at access locations, and where concentrated flows from the drying site re-enter the watercourse
- Destruction of habitat and the removal of a potential food source for aquatic life in the reach where the activity is undertaken
- Capture of fish species from the watercourse
- Temporary loss of public amenity during activity
- Odour and amenity effects from weed drying and decomposition on berms
- Downstream effects on water quality and aquatic fauna resulting from decomposition of cut weed if not removed from the watercourse
- Blockage of downstream flood protection infrastructure, such as flood gates, from cut weed

Work Type Requirements

Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to or in flowing water
- Vegetation and Silt Removal in Water

Chemical Control of Weed

Note: there are separate rules controlling agrichemical use. All persons operating under this Code of Practice shall ensure that they can comply with those requirements in the LWRP otherwise obtain their own resource consent.

This activity involves the use of chemical sprays to control target weed species on beds and banks of waterways. This is a ground based (ie, not aerial spraying) operation that is carried out to maintain drainage capacity and remove pest plants from the riparian margin area. The activity is undertaken using spot spraying techniques, rather than blanket spraying, as far as practicable to avoid, remedy or mitigate potential adverse environmental impacts on the drain bank and aquatic habitats.
Potential Effects
- Potential for adverse effects on non-target species of flora and fauna
- Potential for emergency spill of chemicals into adjacent drain with adverse effects on aquatic life
- Short term amenity effects of dead weeds and chemical spray odours
- Fish abundance and spawning success affected by water de-oxygenation during plant composition
- Removal of aquatic habitat
- Removal of inanga spawning habitat
- Potential for spray drift into waterway or neighbouring properties

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Use of agrichemicals

Mechanical and Hand Weed Clearing
Mechanical weed removal is carried out to maintain effective drainage and channel capacity for conveyance of flood flows. The activity involves clearance of vegetation and the removal of undesirable pest plants which cannot be achieved through the application of herbicides. These works are often undertaken concurrently with the removal of accumulated sediment and reshaping of drainage banks to restore the design capacity of drainage channels.

The activity typically involves excavation of material from the drain using a hydraulic excavator with a cleaning bucket. A slotted, self-drainage weed-clearing bucket is normally used. The excavator typically operates from one bank when clearing a drain, although at times work from both banks may be required for wider channels. Material removed from the drain is disposed of in a manner that ensures it neither re-enters the drain nor impedes surface drainage.

Potential Effects
- Mechanical clearing is non-selective and desirable plant species may be removed
- Removal of fish and invertebrates from the waterway with excavated material
- Loss of cover and spawning vegetation for native fish and invertebrates
- Deterioration of water quality from sediment release which can persist for significant periods and have the following effects on aquatic fauna:
  - Fish and invertebrates killed by water de-oxygenation in heavily silted waterways
  - Fish migrations interrupted
  - Reduced food availability for invertebrates and fish
- Reduced native fish and invertebrate abundance
- Short term adverse visual and odour effects

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Vegetation and silt removal – wet
- Use of Agrichemicals

Silt Removal
Silt removal involves the excavation of material from the bed of a drain using a hydraulic excavator. The purpose is to remove excess sediment deposited on the channel bed to maintain channel capacity, typically in drains with a low
gradient. Excavated material is generally placed adjacent to the drain in windrows where it may remain or for drying prior to disposal.

**Potential Effects**

- Removal of fish and invertebrates from the waterway with excavated material
- Reduced native fish and invertebrate abundance
- Loss of cover and spawning vegetation for native fish and invertebrates
- Deterioration of water quality from sediment release, which can persist for significant periods and have the following effects on aquatic fauna:
  - Fish and invertebrates killed by water de-oxygenation in heavily silted waterways
  - Fish migrations interrupted
  - Reduced food availability for invertebrates and fish
- Short term suspended solids loading in waterway affecting water quality
- Short term disturbance of aquatic habitat
- Potential for damage to drain batters to occur causing erosion and stability issues
- Loss of amenity from restriction of access, placement of windrows and drying of excavated material prior to disposal

**Work Type Requirements**

Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Vegetation and silt removal - wet

**Culvert and Floodgate Installation and Maintenance**

Culverts provide permanent access across drains and natural watercourses, without obstructing water flows or impeding fish passage. Floodgated culverts provide for water to be drained into a water course but prevent backflow through the floodgate in order to prevent flooding of upstream land.

Please refer to the specific regional rules for culvert installation, alteration, extension and use to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for temporary or permanent culverts will require a resource consent to be obtained to authorise the activity.

Culverts and floodgates have a limited life and need to be cleaned, maintained, repaired or replaced so that the function they perform can continue at the design capacity. Inspections of floodgates are required on a regular basis and normally involve removal of any debris that may cause blockages, lubrication of hinges, cutting or spraying excessive bank vegetation, and checking that any safety barriers/signs are in sound condition.

Components of floodgates can be removed for rebuilding or outright replacement. The work is carried out when water levels at the site permit and this can be quite limiting in tidally influenced areas. Hand held tools are used but larger structures can require a crane to be used.

**Potential Effects**

- Reduction of flood carrying capacity
- Erosion at culvert / floodgate structure
- Impede or block fish passage
- Temporary effect on water quality during construction
- Impact on amenity values (construction effects)

**Work Type Requirements**

Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to or in flowing water
- Culverts and Structures

**Drain Maintenance and Battering**

Drain re-construction and battering is undertaken to re-establish, a drain alignment and/or stabilise channel banks. Generally the activity involves excavation, placement, compaction and shaping of material to blend in with the surrounding area. In some instances the importation of fill material may be required. On completion of the earthworks, revegetation of the worksite is undertaken to provide a protective surface to mitigate erosion and scour.

As a maintenance function, this activity can be required as part of restoration work following lateral bank erosion or flood damage. Additionally, stopbanks may be found to have batters steeper than the scheme design batter, which can occur due to stock or vehicle damage, and in older schemes where construction tolerances were inconsistent.

Work should be planned to enable sufficient time for grass re-establishment in favourable weather conditions (typically autumn). If works are undertaken at times when grass re-establishment may be difficult, consideration should be given to use of hydroteching and/or irrigation to facilitate a good quality grass strike in a timely manner in order to minimise potential for batter erosion and scour.

Re-battering should consist of the provision, placement and compaction of suitable material for the construction of the specified batter to restore the line of the drain. Saturated material should not generally be used for this work. Any eroded material or material that has fallen into the drain during the work should be removed and disposed of.

**Potential Effects**

- Short term increased erosion potential in drain and banks prior to vegetation reestablishment
- Temporary effect on water quality from sediment discharge during construction
- Temporary disturbance of aquatic habitat and vegetated banks
- Removal of inanga spawning habitat and eggs
- Temporary impediment of fish passage during construction
- Effects on amenity values in terms of access and dust during construction

**Work Type Requirements**

Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to or in flowing water
- Earthworks and Land Disturbance

**Power Pole and Rock Drop Structure Maintenance**

Rock or power pole drop structures are an erosion control method that is used to control bed scour. Power pole drop structure dimensions are determined by site specific requirements, but typically consist of a horizontal power pole held in place by a series of vertical piles and keyed into the stable channel bank at the upstream and downstream ends. Rock drop structures take a similar form but are constructed from graded rock. Successive drop structures are constructed in steeply graded channels. In this instance, successive drops are separated by a minimum distance along the bed and a scour pad (consisting of boulders or similar material) is constructed on the downstream side of the last drop in the series of drops.

**Potential Effects**
• Temporary disturbance of bed and bank material resulting in sediment discharge
• Obstruction of fish passage
• Temporary loss of amenity during construction

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
• General Requirements (refer Section 2 of this Code of Practice)
• Works adjacent to and in flowing water

**Lateral Erosion Control of Drains**
Lateral erosion control activities are typically carried out where:
• Erosion of the batter will undermine fences or other structures;
• Erosion of the batter will endanger a public roadway;
• Erosion of the batter will cut off maintenance access along the drain; or
• Erosion of the batter will cause a reduction in the capacity of the drain or will induce further erosion.

Lateral erosion control at the erosion site can be undertaken from a selection of methodologies inclusive of rock rip-rap, bulk or stacked concrete riprap, power poles, gabion baskets, or timber boarding, with the resulting structure cross-section keying into the stable channel bank at the upstream and downstream ends.

**Potential Effects**
• Short term adverse effects on water quality from sediment disturbance, and disturbance of habitat
• Short term disturbance of river banks
• Short term amenity effects during construction
• Change of flow paths moving erosion elsewhere, for example at the edge of the worksite if the length of the control is not sufficient

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
• General Requirements (refer Section 2 of this Code of Practice)
• Earthworks and land disturbance
• Works adjacent to and in flowing water
• Culverts and structures

3.1.2 River Works

**Stopbank Construction**
The stopbank construction activity encompasses the building of stopbank structures (including reconstruction of existing stopbanks) and improving the integrity of existing structures (for example raising, widening, relocation, and structural integrity modifications).

Construction typically requires preparation of the work site, followed by the importation, placement and compaction of suitable fill materials. The establishment of grass cover is completed on finished earthworks surfaces.

**Potential Effects**
• Potential for erosion and discharge of sediment from the worksite with adverse effects on water quality
• Disturbance of riparian and aquatic habitats
• Temporary amenity effects from construction in terms of access restrictions and dust
Work Type Requirements
Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance

Stopbank Maintenance
Stopbank maintenance activities are carried out to retain or restore design height, shape and surface conditions. Such work may be required due to degradation at crossing points, foundation settlement, original construction not meeting design height or bed aggradation, for example. Maintenance activities encompass:

- Earthworks to maintain height and shape;
- The maintenance of stopbank carriageways;
- The targeted removal of weeds by spraying; and
- The mowing of grassed surfaces.

Potential Effects
- Potential for erosion and discharge of sediment from the worksite with adverse effects on water quality
- Disturbance of habitats and wildlife
- Potential for adverse impacts on non-target species of flora and fauna, and for spray drift into waterways or neighbouring properties
- Potential for emergency spill of chemicals into adjacent drain with adverse effects on aquatic life
- Temporary amenity effects from construction in terms of access restrictions and dust

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance
- Use of agrichemicals

Channel Realignment / Improvements
River realignment/improvement works are undertaken to increase channel capacity, and mitigate the effects of lateral erosion and bed scour.

The typical approach to realignment is to locally lower a portion of dry riverbed to create a new link to an existing, and preferably flowing, braid. The work is typically carried out in an upstream direction using an excavator, loader, or bulldozer.

Note that this Code of Practice only covers realignments or channel improvement within the river bed.

Potential Effects
- Temporary effects on water quality from the disturbance of riverbed sediments
- Disruption of habitat and wildlife
- Temporary amenity effects during construction
- Generating fish passage barriers
- Possible disturbance to pool-run-riffle sequence
**Work Type Requirements**

Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Diversions

**Placement of Maintenance Rock**

Rock is used in flood protection work to deflect flood waters from potentially vulnerable structures (eg bridge abutments, stopbanks, support and intake structures); to train flood flows to the main flood channel and absorb energy in flood waters. Rock may be placed in a linear formation (eg rock lining of the berm to prevent erosion), around structures (eg to protect pylons or bridge abutments) or at an angle to the main flow (eg rock groynes).

Rock armouring is required to be topped up from time to time as rock settles or following flood events. Rock is carted to the placement site and is either tipped or placed mechanically. The preference is for rock to be placed as there is greater control over placement and hence rock quantities can be optimised. However, mechanical placement is not always possible and tipping may be used.

**Potential Effects**

- Short term disturbance of bed and bank material during placement
- Disturbance of vegetation to access work site
- Machinery working in or close to flowing water has potential for sediment discharge and accidental fuel spillage.
- Short term amenity effects during works

**Groyne Fence Construction and Maintenance**

Groyne fences are used to control bank erosion, and consist of a series of vertical piles and horizontal wires against which whole trees or poles are attached with foliage extending into the stream channel. In Canterbury typical groyne fence constructions include:

- 2 Rope groyne fence;
- 3 Rope groyne fence;
- Unstayed groyne fence; and
- Groyne A-fence.

**Potential Effects**

- Temporary effects on water quality from sediment disturbance during maintenance works
- Temporary disruption of in stream and bed habitats during maintenance works
- Change of flow paths moving erosion elsewhere, for example at the edge of the worksite if the length of the control is not sufficient, or to adjacent infrastructure
- Temporary amenity effects during maintenance works
Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance
- Works adjacent to and in flowing water
- Diversions

Anchored Tree Protection
Light and heavy anchored tree protection measures are used to control lateral bank erosion. Construction typically requires clearance of the site adjacent to the berm edge, and the anchoring of trees or tree bundles in place with anchor ropes and deadmen.

Potential Effects
- Temporary effects on water quality from sediment disturbance during construction
- Temporary disruption of in stream and bed habitats during construction
- Change of flow paths causing moving erosion elsewhere, for example at the edge of the worksite if the length of the control is not sufficient, or to adjacent infrastructure

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Vegetation removal - dry

Rock Groyne Construction and Maintenance
Rock groynes are used to control the location of the active channel within the river bed and to control lateral bank erosion. Groyne construction typically includes the formation of an access track to the site, work to direct flow away from the site, formation of gravel embankments along a proposed protection line, dumping and placement of rock on the proposed protection line and reinstatement of access tracks on completion of the work.

Potential Effects
- Temporary effects on water quality from sediment disturbance during construction
- Temporary disruption of in stream and bed habitats during construction
- Change of flow paths moving erosion elsewhere, for example at the edge of the worksite if the length of the control is not sufficient, or to adjacent infrastructure
- Temporary amenity effects during construction

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance
- Works adjacent to and in flowing water
- Diversions
Rock Stockpiling on River Berms

Rock is stockpiled at strategic locations on berms to ensure that there is a readily available supply during flood events for reactionary measures to be taken to limit the erosion of berms, groynes, or adjacent to flood protection structures. Rock stockpiling is undertaken as: quarry sites are typically located a long distance from the places where the rock is required in an emergency; quarries may have limited or no access during flood events; and the rate of rock supply from quarries to the site is limited to the production capacity of the quarry and the capacity of transportation arrangements.

Proposed rock stockpile sites are cleared of vegetation and levelled so that trucks can manoeuvre both in the dumping phase and later in the loading phase. Typically, the stockpile area is fenced off and a locked gate installed for public safety purposes and to minimise theft.

Potential Effects
- Temporary disturbance to berm habitat during stockpile establishment and replenishment
- Potential for propagation of weed species in stockpile
- Potential for uncontrolled disturbance to berm habitat from theft/uncontrolled removal of stockpiled rock

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Vegetation Removal - Dry

Hayman Protection Erosion or Scour Control

Hayman protection is an erosion/scour control methodology that is typically utilised for controlling bank erosion in small steep sided and graded waterways.

To reduce the deposition of sediment downstream and stabilise the waterway, the construction of Hayman protection involves the placement, fastening and anchoring of vertical poles along a design alignment against which netting is secured. Installation of the poles and netting requires excavation, which is backfilled to typical bed level.

Potential Effects
- Temporary effect on water quality from sediment disturbance during construction
- Temporary disturbance of bed and bank habitat during construction
- Short term amenity effects during construction
- The modification of flow paths has the potential to move erosion elsewhere, for example to the edge of the worksite if the length of the control is not sufficient, or towards other flood protection structures

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance
- Works adjacent to and in flowing water
**Removal of Flood Debris**
Debris in the channel fairway can regrow and cause an increasing restriction of waterway capacity, redirect flows towards the banks.

In braided waterways, removal is carried out in the dry typically using excavators, loaders, trucks or scrapers. The work is timed, and site access obtained, in consideration of wildlife and ecological values. This sometimes dictates the short term stockpiling (up to one week) of the excavated material on the berm. In single thread waterways, debris removal is carried out using an excavator or dragline working from a bank. As with braided waterways the timing, staging and access requirements of the work are determined in consideration of wildlife and ecological values.

**Potential Effects**
- Temporary disturbance of channel bed, banks, or berms
- Potential for temporary water quality effects from the discharge of sediment
- Habitat disturbance to create site access tracks
- Temporary amenity effects on areas of high public use
- Removal of aquatic habitat

**Work Type Requirements**
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Culverts and Structures

### 3.1.3 Tree Works

**Enhancement Planting**
Please refer to the specific regional rules for vegetation planting and removal to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for vegetation planting and removal will require a resource consent to be obtained to authorise the activity.

Enhancement planting is undertaken to improve and maintain ecological values of riparian and in stream habitats, where a variety of species (predominantly natives) are planted among the existing flood protection vegetation. This activity is often undertaken in conjunction with the construction and maintenance of flood protection structures, but is also undertaken as a standalone activity.

Typically, enhancement planting requires the preparation of the work site with the removal of existing weed and grass cover and minor earthworks/landscaping. Preparation is followed by site planting and a maintenance period to assist with successful plant establishment.

**Potential Effects**
- Temporary disturbance of banks/berm resulting in sediment discharges to water
- Temporary disturbance to public access and amenity
- Failure of plants to establish on site has the potential to cause adverse amenity effects in terms of dead vegetation, ongoing erosion and sediment discharge from exposed soil, and the establishment of weed species

**Work Type Requirements**
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance
**Pole Planting and Layering**

Please refer to the specific regional rules for vegetation planting and removal to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for vegetation planting and removal will require a resource consent to be obtained to authorise the activity.

Pole planting is carried out to establish edge protection in areas that have been cleared of vegetation such as gorse, broom, or old man’s beard. In general, where soils have good moisture holding capacity, or the water table is within 600mm or so of the surface, poles are placed in lines made by a bulldozer, loader or excavator. In dryer areas poles are planted at greater depth in holes formed with excavators or bulldozers.

Layering is undertaken to increase the density of existing live edge protection. The tree is felled in a downstream direction with the head in the lowest part of the adjacent bed, and 25 to 30% of the stump circumference is left attached to the parent stump.

Pole planting and layering can help improve water quality and provide habitat improvements by increasing the vegetative buffer between water bodies and adjacent land uses.

Consideration should be given to use of appropriate native species for bank stabilisation and erosion control where possible.

Note: Crack, grey or pussy willow is not to be planted. These species are listed in the Biosecurity NZ Unwanted Organisms Register and Regional Pest Management Strategy are not to be planted or introduced.

**Potential Effects**

- Temporary disturbance of channel bed and banks
- Habitat disturbance to create site access tracks
- Potential for temporary water quality effects from discharge of sediment
- Temporary amenity effects in areas of high public use
- Potential for trees to be carried downstream if anchoring/installation procedures are insufficient
- Create barriers for recreation access to the river

**Work Type Requirements**

Refer to the following work type requirements when undertaking this activity:

- General Requirements (refer Section 2 of this Code of Practice)
- Earthworks and land disturbance
- Works adjacent to and in flowing water
- Vegetation Removal - dry

**Tree Removal**

Please refer to the specific regional rules for vegetation planting and removal to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for vegetation planting and removal will require a resource consent to be obtained to authorise the activity.

Tree removal is typically undertaken as part of the maintenance of channel edge protection or to maintain vegetation health.

Tree removal typically occurs when trees are diseased, too large, or are in locations that restrict channel capacity. Other maintenance activities requiring tree removal can include the removal of windblown trees from access tracks or stopbanks, tree removal in berm plantations heavily infested with old man’s beard and pest species, or flood damaged trees.
Tree removal is typically not carried out in the active channel area, and if trees are felled into the active channel they are quickly removed. The root systems of felled trees continue to support bank stability and are often retained for this purpose.

**Potential Effects**
- Temporary effects on water quality from sediment disturbance
- Temporary disturbance of riparian habitat
- Temporary disruption to amenity and access in the vicinity of the tree removal site
- Potential contamination of surface water from a spillage of chemicals used for poisoning stumps

**Work Type Requirements**
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Vegetation removal – dry
- Vegetation and silt removal - wet

### 3.1.4 Vegetation and Fairway Clearance

*Please refer to the specific regional rules for vegetation planting and removal and for agrichemical use to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for vegetation planting and removal and agrichemical use will require a resource consent to be obtained to authorise the activity*

**Mechanical Clearance**
This activity includes the removal of vegetation, inclusive of roots, and the ripping of the cleared work area. The activity can occur as part of the site preparation works for flood protection measures, or as part of the maintenance of fairway alignment and capacity.

**Potential Effects**
- Temporary effects on water quality from the discharge of sediment from the worksite
- Disturbance of habitat from the works and site access tracks
- Temporary disruption to amenity and access in areas of high public use

**Work Type Requirements**
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Works adjacent to and in flowing water
- Vegetation removal – dry
- Vegetation and silt removal - wet

### Spraying - Riverbeds, Drains and Berms.
This activity involves the use of chemical sprays to control target weed species in fairway, berm, stopbank and drain bank vegetation.

This is a ground based activity, typically undertaken using spot spraying techniques to mitigate potential adverse environmental impacts on riparian and aquatic habitats.

**Potential Effects**
• Potential for adverse impacts on non-target species of flora and fauna
• Fish abundance and spawning success affected by water de-oxygenation during plant composition
• Removal of aquatic habitat
• Removal of inanga spawning habitat
• Potential for spills of chemicals into surface water with adverse effects on aquatic life
• Short term amenity effects of access restrictions, dead weeds and chemical spray odours
• Potential for spray drift into waterways or neighbouring properties.

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
• General Requirements (refer Section 2 of this Code of Practice)
• Use of Agrichemicals

Fairway Edge Clearing
The clearance of vegetation on the edge of the fairway is typically undertaken in preparation for the construction of flood protection measures, as part of the maintenance of fairway alignment and capacity, or to maintain vegetation health.

Potential Effects
• Temporary effects on water quality from sediment disturbance
• Temporary disturbance of riparian habitat
• Temporary disruption to amenity and access in the vicinity of the work site
• Potential contamination of surface water from a spillage of chemicals used for poisoning stumps

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
• General Requirements (refer Section 2 of this Code of Practice)
• Works adjacent to and in flowing water
• Vegetation removal – dry
• Vegetation and silt removal – wet

Fairway Widening - Tree Removal
Tree removal to facilitate fairway widening is typically undertaken in locations where trees are too large, or there is restricted channel capacity. Additionally, tree removal on the fairway may be undertaken to maintain vegetation health. The activity requires access to the target vegetation, and both the vegetation and its roots are typically removed in their entirety.

Potential Effects
• Temporary effects on water quality from sediment disturbance.
• Temporary disturbance of riparian habitat.
• Temporary disruption to amenity and access in the vicinity of the tree removal site.

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
• General Requirements (refer Section 2 of this Code of Practice)
• Works adjacent to and in flowing water
• Vegetation removal – dry
• Vegetation and silt removal – wet
3.1.5 Other

Pest Control
The control of pest animals, such as rabbits, is undertaken to maintain the integrity and function of planting areas and flood protection structures.

Pest control typically involves the laying of bait to poison the target pest species. This has the potential for adverse effects on non-target species in both riparian and aquatic habitats if appropriate measures are not adopted. Additionally, the laying of bait has the potential to adversely impact the amenity and recreational values of a control area for the duration of the activity.

Potential Effects
- Potential adverse effects on non-target flora and fauna in the control area
- Potential for poisons to enter waterways and adversely effecting fish life and aquatic vegetation
- Short term effects on amenity values in the control area.

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)
- Use of Agrichemicals

Fencing, Gates, Signage and Staff Gauges
Fencing, gates and signage are erected and maintained to warn of danger, control activities (for example the lighting of fires, shooting, control vehicle speed, dumping of rubbish), protect flora and fauna, inform, or direct. Staff gauges are installed and maintained to monitor water levels. The construction required by these activities typically involves the erection of posts, and the removal of a small area of vegetation to ensure visibility. In the instance of information panels, a small shelter may also be constructed.

Potential Effects
- Temporary habitat disruption during construction and maintenance actions
- Potential to trap debris, cause localised erosion and act as barriers to species travel
- Potential for amenity effects if inappropriately designed, sighted or constructed

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
- General Requirements (refer Section 2 of this Code of Practice)

Flood Pumping
Flood pumping is undertaken in emergency situations to lower water levels threatening flood protection infrastructure and adjacent land uses.

Flood pumping is undertaken in a planned and controlled manner with the deployment of the flood pumps determined by a deployment protocol that includes gauge specific trigger water levels.

When not in use, flood pumps and the associated fittings are stored under cover at a location removed from any watercourse, for example a depot.

Potential Effects
- Short term erosion at the pump discharge location
- The potential to transfer polluted surface water from a watercourse to the outlet location with adverse effects on fish life and aquatic vegetation
Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
  - General Requirements (refer Section 2 of this Code of Practice)

Road / Track Construction and Maintenance
Road and tracks are formed and maintained to provide access for the maintenance of river protection works, access to infrastructure and for recreational users. Whilst providing access, they also serve as a control to limit the disturbance of habitat and wildlife. Track formation on the berm involves grading topsoil to one side and shaping of the underlying gravel (or the addition of gravel sourced from an adjacent suitable and approved riverbed site). Formation of riverbed tracks is carried out by a grader or dozer levelling riverbed gravel along an alignment that is chosen to avoid disruption to habitat and wildlife.

Potential Effects
  - Discharge of sediment from erosion of road/track surface and soil disturbance during construction
  - Disturbance to habitat during construction
  - Temporary loss of amenity during construction and maintenance activities

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
  - General Requirements (refer Section 2 of this Code of Practice)
  - Earthworks and land disturbance

River Bed Works To Maintain Or Enhance Wetlands And Habitat
Riverbed works that are undertaken to maintain or enhance wetlands and habitat include:
  - Enhancing/management of form and alignment of the watercourse/wetland; and
  - Managing water levels and water quality parameters (for example temperature and oxygen depletion).

Whilst this activity is undertaken to achieve beneficial effects for the worksite, the activity does have the potential to trigger short term adverse effects from construction/maintenance works in terms of erosion, disruption to habitat and amenity effects.

Potential Effects
  - Temporary effects on water quality from the disturbance of bed and bank sediment
  - Temporary disruption to habitat and wildlife
  - Temporary amenity effects during construction/maintenance activities

Work Type Requirements
Refer to the following work type requirements when undertaking this activity:
  - General Requirements (refer Section 2 of this Code of Practice)
  - Earthworks and land disturbance
  - Works adjacent to and in flowing water
3.2 Work Type Requirements

This section sets out the requirements which are to be followed for each of the work types identified in the introduction of section 3 of this Code of Practice. Activities which are carried out to manage defences against water typically require one or more of the following work group activities. Requirements relevant to the work being carried out are to be identified and included in the work plan for certification.
In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works involving earthworks and land disturbance, the following measures are required:

- Erosion control methodology selection and design shall take in to account the worksite specific aesthetic and habitat values.
- Works shall be planned to minimise the area disturbed as far as practicable.
- Design and construction shall take into account transition effects at upstream and downstream ends to mitigate against potential for erosion and scour at these locations.
- Where works are undertaken on or near existing stopbanks, all practicable measures will be undertaken to ensure the integrity of the stopbank is maintained, including any ancillary structures or features (eg culverts).
- The supply, placement and compaction of fill materials, inclusive of site drainage and moisture content adjustment activities shall be undertaken in a manner that minimises adverse effects on wildlife, vegetation and ecological values.
- All practicable measures shall be undertaken to avoid nuisance effects of dust from the site. Note that use of dust suppressants (other than water) must comply with specific rules in the Land and Water Regional Plan in order to be a permitted activity.
- On completion, the site shall be contoured to match in with existing ground levels and drainage features shall be reinstated to avoid potential for ponding of surface water.
- Disturbed areas are to be stabilised as soon as practicable following completion in order to minimise the potential for soil erosion. This may involve grassing or planting with appropriate species. Consideration must be given to ensuring that vegetation cover (whether grass or other planting) is achieved as soon as practicable, including ensuring appropriate planting conditions and watering where necessary to achieve sufficient growth and cover. The grass mix used should be appropriate to the site specific conditions.

Note that for stopbanks administered by Environment Canterbury, slope stabilisation is to be undertaken by grassing rather than planting tree or shrub vegetation as root establishment in stopbanks can undermine their performance.
In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works adjacent to or in flowing water, the following measures are required:

- Select the location of the proposed works carefully to minimise the extent of works and the time spent working in the water.

- Where works are undertaken in water and there is potential for fish to be stranded as a result of the works, the person or organisation undertaking the works will ensure that native and sport fish recovery is conducted for the duration of the works and at least one day after the works have been completed. Fish recovery shall be conducted both instream (for suffocating fish) and bank side (for stranded fish). Recovered fish shall be returned upstream of the targeted section of waterway.

- Where practicable, fish spawning areas should be avoided during fish spawning periods. Refer to General Requirements: Timing of Works for details.

- Fish passage shall be maintained as far as practicable. Where fish passage cannot be maintained at the work site for the duration of works, the period during which fish passage is restricted shall be minimised as far as practicable and fish recovery shall be undertaken where there is any potential for fish stranding.

- Wherever practicable, machinery should work from the watercourse banks (in the dry) rather than in flowing water.

- Discharges from the site shall not occur for more than 10 hours in any 24 hour period, and not more than 40 hours in any calendar month.

- Where temporary diversions are constructed to mitigate potential effects of undertaking the works, these diversions shall be planned taking in to account the current and anticipated flow rates, size of the existing tributary and distributary braids, velocity of water and angles of flow. Work plans shall anticipate rising water levels immediately upstream of any diversion and in channels accepting diverted river flows. Drainage of drying channels is to be checked to ensure that any pools created retain a downstream connection for fish passage.

- Stream crossings, if required, will be constructed to cause minimum disturbance to banks and vegetation. Wherever practicable, temporary culverts shall be installed rather than providing crossing points through flowing water. If crossing points through flowing water are required, these should generally be located upstream of a riffle where possible.

- Avoid disturbing the structure of the bed of waterways, including visible dry channels, wherever practicable.
Work Type Requirements: Culverts and Structures

In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works involving culverts and other structures (including rock protection around structures), the following measures are required:

- Works shall be undertaken in a manner to avoid erosion of the beds and banks of the watercourse.
- Excavation shall be the minimum necessary to safely and efficiently carry out the work.
- Excavated material not removed from the site shall be stockpiled safely outside of the flowing water while awaiting backfilling.
- Stream or drainage channel flows are to be temporarily dammed or diverted away from the site to allow for works to be undertaken in the dry. Where this is not possible, the work is to be planned so that the duration of water in flowing water is kept to a minimum.
- Bed armouring is to be used where there is a risk of scour at the outlet.
- Design and installation to ensure that the capacity of the watercourse is not reduced.
- Ensure adequate founding conditions to prevent settlement of culvert.
- Consider ability to pass debris or mechanisms to prevent blockage in flood events.
- Culverts will not impede fish passage or cause the stranding of fish in pools or channels. Culvert inverts shall be below bed level to allow for fish passage.
- Materials used for construction shall be free of contaminants and suitable for the structure. For example, rock used should be suitable for the purpose (including size, grading, shape and quality specifications) and be free of soil, mud, clay or other soluble debris.
- If rock is being placed, rock should be sourced locally as far as possible, in order to fit in with the surrounding landscape. Rock shall have a similar appearance to existing rock protection works in the vicinity.

For guidance on culvert installation and sediment control during construction, refer to the following publications:

- Christchurch City Council's Waterways, Wetlands and Drainage Guide
- Environment Canterbury's Erosion and Sediment Control Guidelines
- NZTA's Fish Passage Guidance for State Highways
- Auckland Regional Council's Fish Passage Guidelines for the Auckland Region
- Department of Conservation's Fish Passage at Culverts (December 1999).
Work Type Requirements: Diversions

In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works involving diversions of active channels within the river bed the following measures are required:

- Diversions shall be planned taking in to account the current and anticipated flow rates, size of the existing tributary and distributary braids, velocity of water and angles of flow.
- Work plans shall anticipate rising water levels immediately upstream of any diversion and in channels accepting diverted river flows.
- Drainage of drying channels is to be checked to ensure that any pools created retain a downstream connection for fish passage.
- Any temporary diversions shall not be in place for more than 4 weeks in any 12 month period.
- Fish recovery shall be conducted in dry channels and stranded fish returned to flowing water.
- Fish passage shall not be restricted by the works.
- Changes or drying of channels are to be planned having particular regard to nesting bird islands (eg black billed gull, black fronted terns, and white fronted terns) downstream to ensure that these islands remain with flow on both sides to prevent increased access by humans, dogs and predators.

Note: The above covers both temporary and permanent diversions of active channels within the river bed. Permanent diversions may be undertaken, for example, to divert active braids away from defences against water to prevent erosion, scour or undermining.
Work Type Requirements: Vegetation Removal Outside of Flowing Water (Dry)

Please refer to the specific regional rules for vegetation planting and removal and for agrichemical use to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for vegetation planting and removal and agrichemical use will require a resource consent to be obtained to authorise the activity.

In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works involving vegetation clearance outside of flowing water (ie all works in the dry such as on the river berm), the following measures are required:

- Works shall be planned to minimise the extent of vegetation affected.
- All removed material shall be removed off site to an appropriate disposal site or windrowed for composting in an area where it will not cause adverse effects in flood events. This may be within the river bed but outside of areas of active channels/flowing water.
- Berm vegetation which provides a flood protection / attenuation function shall not be disturbed or removed without the prior written approval of the authority responsible for the flood protection scheme.
- Clearing of vegetation shall be undertaken to remove vegetation with its roots intact, wherever possible, rather than smashing vegetation over. This should be achieved by root-raking or a similar process which minimises the volume of riverbed material shifted.
- Site clearance should be carried out so that removed vegetation is not pushed into flowing or ponded water and should occur before seeding takes place.
- Access to lawfully established structures, including flood protection works, or to flood control vegetation is not to be prevented.
- No vegetation used for flood control or bank stabilisation is disturbed, removed, damaged or destroyed except by or on behalf of the person or agency responsible for maintaining that vegetation for flood control purposes.
- No woody vegetation is disposed of other than for in situ decomposition of sprayed weeds that are grown in, on, over or under the bed.
- Introduction or planting of vegetation is not of a species listed in the Biosecurity NZ Register of Unwanted Organisms or the Canterbury Pest Management Strategy.
- Introduction or planting of vegetation in, on or under the bed of any river or lake listed as a high naturalness waterbody in Sections 6 to 15 is only of indigenous plant species that naturally occur in the catchment.
- The disturbance, removal, damage or destroying of any pant or vegetation in, on or under the bed of any river of lake listed as a high naturalness waterbody in Sections 6 to 15 is only of (a) a non-indigenous species; or (b) indigenous species that form the understorey of plantation forest that is being harvested and a minimum 5 m set back from the river or lake is provided upon replanting (if replanting occurs);
- Except for clearance around utilities or existing structure, removal of a species listed in the Biosecurity NZ Register of Unwanted Organisms or the Canterbury Pest Management Strategy, or clearance for the purposes of maintaining existing fence lines, vehicle tracks, firebreaks, drains, ponds, dams or crossing, the activity does not occur in an inanga or salmon spawning site listed in Schedule 17.
- In a flood control rating district scheme area the introduction or planting of any plant, is by or on behalf of the person or agency responsible for maintaining that vegetation for flood control purposes.
- Where vegetation is to be replanted, consideration should be given to the planting of appropriate indigenous species.
Work Type Requirements: Vegetation and Silt Removal in Water

Please refer to the specific regional rules for vegetation planting and removal to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for vegetation planting and removal will require a resource consent to be obtained to authorise the activity.

In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works involving vegetation or silt removal from water, the following measures are required:

- Additional mitigation measures are currently being developed for use in inanga spawning sites (modelled) – to be updated when developed.
- Material removed from the watercourse should be done so without changing the watercourse capacity or damaging any structures.
- Where weed is harvested from the watercourse, consider methodology to avoid sedimentation of watercourse (e.g., cutting of weed rather than pulling roots where these are in sediment base watercourse).
- Provide means of ensuring that disturbed vegetation and debris does not migrate downstream (e.g., use of a debris catcher). Transportation of caught material out of the watercourse also has some potential for water leaking from the caught material to cause erosion or scour of banks. Removal of caught material and transport from the watercourse should be undertaken in a way that avoids scour and erosion.
- Where there is a confining layer between the drain and groundwater, ensure that drain clearance works (vegetation and silt removal) do not breach this confining layer.
- All silt or vegetation removed should be removed from the flowing water and either removed from the site to an appropriate disposal site or stockpiled or windrowed nearby for drying and/or composting in situ.
- It is common for vegetation or silt removed from the watercourse to be dried and / or composted to varying degrees near the work site. If this is to occur, the drying and composting area is to be located and shaped so that it does not allow any concentrated liquid formed during drying or decomposition to enter the waterway directly. This may require contouring of the site and / or installation of leachate collection and treatment areas.
- Ensure that any disturbed vegetation and debris does not accumulate around culverts, fences or other structures. Such structures are to be checked on completion of the activity and any caught vegetation or debris removed.
- Inspect the targeted section of the waterway and identify features such as pools, riffles, woody debris, trout spawning habitat or threatened species habitats that should not be disturbed during excavation and ensure that these features are preserved as far as practicable.
- Where course substrate is present it provides valuable habitat for fish and invertebrates and has the added benefit of being a poor root environment for recolonizing macrophyte. Where practicable only remove fine sediment from the channel.
- Small variations in stream bed profile have minimal effect on hydraulic efficiency and provide habitat diversity. Avoid excessive levelling of the stream bed to preserve these features as far as practicable.
- Where works are undertaken in water and there is potential for fish to be stranded as a result of the works, the person or organisation undertaking the works will ensure that native fish and sport fish recovery is to conducted for the duration of the works and at least one day after the works have been completed. Fish recovery shall be conducted both instream (for suffocating fish) and bank side (for stranded fish). Recovered fish shall be returned upstream of the targeted section of waterway.
• The activity does not prevent access to lawfully established structures, including flood protection works, or to flood control vegetation.

• No vegetation used for flood control or bank stabilisation is disturbed, removed, damaged or destroyed except by or on behalf of the person or agency responsible for maintaining that vegetation for flood control purposes.

• No woody vegetation is disposed of in, on, over or under the bed of a lake or review other than for in situ decomposition of sprayed weeds that are grown in, on, over or under the bed.

• Except for clearance around utilities or existing structure, removal of a species listed in the Biosecurity NZ Register of Unwanted Organisms or the Canterbury Pest Management Strategy, or clearance for the purposes of maintaining existing fence lines, vehicle tracks, firebreaks, drains, ponds, dams or crossing, the activity does not occur in an inanga or salmon spawning site listed in Schedule 17.

• Where vegetation is to be replanted, consideration should be given to the planting of appropriate indigenous species.
**Work Type Requirements: Use of Agrichemicals**

Please refer to the specific regional rules for agrichemical use to ensure compliance with the requirements of those rules. Failure to comply with the Regional Rules for agrichemical use will require a resource consent to be obtained to authorise the activity.

In addition to the general requirements set out in Section 2 of this Code of Practice, when undertaking works involving the use of agrichemicals, the following measures are required:

- Where possible, consider any practicable economic alternative management methods to the spraying of aquatic weeds (eg hand or mechanical clearance).
- The agrichemical being used must be approved under the Hazardous Substances and New Organisms Act and is to be used in accordance with the conditions of the approval.
- Notify rūnanga 10 days prior to weed spraying including the location, chemicals to be used, timing and spray method.
- Agrichemicals may not be mixed, and equipment and containers may not be cleaned or rinsed within:
  - 5 metres of a surface water body or bore
  - In the bed of the river or lake unless the mixing or dilution takes place within a sealed, bunded system that will contain a volume of at least 110% of the largest spray tank to be filled; or the mixing or dilution is for a hand held application technique or method.
- If water used for mixing or dilution is taken from the surfacewater or groundwater, a backflow prevention system is to be in place and operational in order to prevent the agrichemical flowing back into the source water.
- The use of agrichemicals where there is a discharge to surface water may not occur within a group or community drinking water protection zone (as set out in Schedule 1 of the Land and Water Regional Plan) nor may it be into a river or artificial water course within 250 m upstream or 100 m downstream of any surface water intake. Within a lake, the discharge may not be within 250 metres of any surface water intake.
- Staff undertaking spraying are to hold a current and appropriate certification.
- Signs will be erected advising people of the activity and location prior to commencement.
- No spraying is to occur within 250 metres of any school, dwelling or other residential building.
- Spot spray techniques shall be used as far as practicable to avoid the spraying of non-target species, that is, the blanket spraying of weed shall be avoided.
- Consider the potential for spray drift onto nesting birds and undertake works in calm conditions as far as practicable.
- A daily work in progress log book is to be maintained and to be available onsite with the operator. The log book shall include the following information:
  - Operator names;
  - Start and finish time of operation;
  - Location;
  - Target plants;
  - Chemical (including additives) used, manufacturer’s names and mixing rate;
  - Method of application;
  - Plant condition;
  - Estimated wind speed and direction;
- Weather conditions; and
- Rain (start/finish time).

- Avoid spraying vegetation that could provide inanga spawning habitat and egg decomposition sites in the tidal zones of waterways identified as important inanga habitat between December and February wherever practicable.
- To avoid potential negative impact on bees and the honey industry, avoid spraying during the peak of the flowering season wherever possible.
- To reduce the risk of water de-oxygenation spraying of aquatic vegetation over significant areas (ie as opposed to isolated or small area spot spraying) should be conducted in early spring to late autumn when plant biomass and water temperature is low.

Commentary:
Iwi management plans for the Canterbury Region seek to encourage alternative means of vegetation control to the use of agrichemicals. Consideration should be given to alternatives to spraying aquatic weeds including hand or mechanical clearance. Further long term weed control measures should be considered and implemented where practicable including shading and nutrient management and the encouragement of indigenous species such as raupo.
4 Certification of Work Plans

This section of the Code of Practice details the information requirements and process for obtaining Canterbury Regional Council’s certification that proposed work plans are in accordance with this Code of Practice.

The certification process is required for works that would otherwise require resource consent under Section 13(1) of the Resource Management Act and the person undertaking those works is seeking to be able to undertake the works as a permitted activity under Rule 5.138 of the Land and Water Regional Plan.

The activities listed in section 3 of this Code of Practice include a number of activities and work types which would not otherwise require resource consent under Section 13(1) of the Resource Management Act (for example, fencing, flood pumping). Such works have been included in this Code of Practice as they form a significant element of Environment Canterbury’s flood protection routine maintenance works and the activity specific requirements specified provide a good practice baseline for these activities. Certification of work plans for such activities – ie, activities that would not otherwise require resource consent – is not necessary in order to undertake the works.

Note that certification is only required to achieve permitted activity status under Rule 5.138 of the Land and Water Regional Plan. Certification that works plans are in accordance with this Code of Practice is only one element of Rule 5.138. If the other conditions of Rule 5.138 cannot be met, resource consent will be required and certification of work plans is not required. The specific conditions of any resource consent (if granted) will take precedence over the requirements of this Code of Practice.

4.1 Certification of Annual Work Plans or Operational Work Plans

Many of the activities undertaken to manage defences against water are able to be planned in advance as they are routine maintenance activities or regular activities undertaken in response to specific river or stream bed conditions.

To avoid the need for multiple applications for certification of work plans, Environment Canterbury strongly encourages users to submit work plans for their scheme maintenance activities to be carried out under this Code of Practice which are valid for no less than one year.

Where users have documented standard work practices or Operational and Maintenance Plans which detail the measures to be used which are in accordance with the Code of Practice, such documentation may be submitted to Environment Canterbury for certification (ie, it may not be necessary to prepare a separate document for certification purpose). If Environment Canterbury determines that the work practices are in accordance with the Code of Practice, Environment Canterbury will provide written confirmation to that effect. Such written confirmation will be specific that the measures provided in the submitted documentation is determined to be in accordance with the Code of Practice and that the certification is not an endorsement of all aspects of the documentation (ie, it is not certifying the appropriateness of the overall operational or maintenance plan).

4.2 Timeframe for Submittal of Work Plans

Applicants seeking certification of work plans under this Code of Practice are encouraged to submit work plans no later than 30 September in each calendar year. Work plans submitted by this deadline will be processed and outcomes advised to the applicant by 31 October.

Work plans submitted outside of this timeframe will be assessed and determined on a case by case basis.
4.3 **Information to be Submitted**

Work plans requiring certification are to be submitted to Canterbury Regional Council containing all of the following information:

- The local authority or network utility operator for which the work is being undertaken
- Name and contact details including, as a minimum email and cell phone number, for the person responsible for overseeing the work.
- Location of the proposed work, including watercourse name, topographical plan showing location of the proposed works, NZ map grid reference.
- Details of the proposed works to include, as a minimum:
  - Scope and extent of proposed works
  - Reason for works being undertaken
  - Timing, duration and frequency of proposed works
  - How work site will be accessed
  - Sediment and erosion control measures where applicable
  - Methods to be used to manage potential environmental effects
- Identification of the relevant provisions of the Code of Practice and confirmation that these measures will be complied with during the proposed works.

Appendix A contains an optional template form for submission of this information. As noted above, applicants may also submit annual work plans, standard work instructions, or Operational / Maintenance Plans provided the above details are included.

4.4 **Certification Process**

The certification process is a non-statutory process which is undertaken by the Rivers, Parks and Reserves section of Environment Canterbury. The process for certification is as set out in the following diagram.

Note that the process certifies that the work plan is in accordance with this Code of Practice. Conditions are not able to be imposed on the work plan via the certification process.
4.5 Duration of Certifications

The duration of certifications will typically match the duration applied for subject to the duration being less than three years. That is:

- If the application documentation is based on standard work instructions or Operational/Maintenance Plans, the duration of the certification shall typically be three years.
- If the application documentation is based on an annual work plan, the duration of the certification will typically be for one year.
- If the application documentation is based on a single activity, the duration of the certification will typically be of sufficient length to enable the activity to occur in favourable conditions.

4.6 Fees

The Canterbury Regional Council may, by using the special consultative procedure in Section 83 of the Local Government Act 2002, prescribe any fee payable by any person who applies for certification of work plans under this Code of Practice. The Council may in its absolute discretion refund, remit or waive the whole or part of such fee.
4.7 Flood Protection and Drainage Bylaw Approval

Requests for approvals under the Food Protection and Drainage Bylaw and certification of work plans under this Code of Practice may be made concurrently to Environment Canterbury.

4.8 What does Certification Mean?

The certification process solely confirms that the work plan presented has been prepared in a manner which takes into account and addresses the relevant provisions of this Code of Practice. Certification of work plans:

- Does NOT confirm the works are a permitted activity. If there is any concern regarding the permitted activity status of the proposed works the applicant should discuss this with the Environment Canterbury planning officers and may choose to seek a Certificate of Compliance as per section 139 of the Resource Management Act.

- Does NOT provide any comment or approval of the design or construction standards of the proposed works in terms of their functionality or necessity.

- Does NOT provide any other statutory approvals or rights to access land for the proposed works.

- Does NOT provide any approval or comment on proposed measures to address health and safety issues or hazards associated with the proposed works.
5 Code of Practice Monitoring and Review

5.1 Monitoring of Work Practices
The work practices certified under this Code of Practice may be undertaken as permitted activities under Rule 5.138 of the Land and Water Regional Plan, subject to meeting the other conditions of Rule 5.138.

Any work plans certified as being in accordance with the Code of Practice will be provided to the compliance monitoring section of the Canterbury Regional Council in order to inform and assist their undertaking of permitted activity monitoring and enforcement activities under the Resource Management Act.

5.2 Review of Code of Practice
As work practices are improved; there are changes in the requirements for installing, maintaining, using or removing defences against water; or requirements need to be amended to address differing expectations or regulatory requirements, this Code of Practice will need to be updated from time to time.

In order to ensure that the Code of Practice remains current and that the objectives set out in Section 1 of this Code of Practice are met, a review of the Code of Practice will be undertaken by Environment Canterbury. This review will take place at timeframes determined by the Environment Canterbury’s Regional Engineer and is expected to occur on a three yearly basis.

The review will include:

- A review of plans certified under the Code of Practice since the previous review including any complaints, and monitoring or enforcement action undertaken.
- Discussion and invitation of comment and feedback from Ngāi Tahu
- Invitation of comment and feedback from user groups (local authorities and network utility operators) and interested or affected parties (eg Department of Conservation, Fish and Game Council).
- Consideration of any changes to good practice procedures and / or requirements informed by any statutory or regulatory changes since the previous review and expertise within the Rivers section of Environment Canterbury.
- Consideration of the extent to which the Code of Practice has been effective in meeting the objectives set out in Section 1.
- Identification of recommended changes to the Code of Practice to address any issues raised.

A report summarising the above process and recommended changes will be made to Environment Canterbury who shall approve or reject or amend the recommended changes.

Any changes to the Code of Practice shall be implemented as soon as practicable following the Council decision, the changes notified to all affected parties and the updated version of the Code of Practice published on the Regional Council’s website.
6 Useful Links and Guidance Documents

The following documents have been referred to throughout this Code of Practice and provide additional guidance and information for users.

- **Resource Management Act 1991** (and as updated by subsequent amendments). This is available on www.legislation.govt.nz
- **Flood Protection and Drainage Bylaw 2013.** Available on Environment Canterbury’s website: www.ecan.govt.nz
- **Statutory Acknowledgement Areas under the Ngāi Tahu Claims Settlement Act**
  List of areas is included in Schedule 19 of the Proposed Land and Water Regional Plan. The areas are also mapped on canterburymaps.govt.nz. Note that these areas are not default layers on the Canterbury Maps tool. These layers need to be added to the individual users’ viewer in order to become visible. Refer to the help guide on canterburymaps.govt.nz under “Adding other Canterbury Map’s Layer”
- **River Flow Information.** This can be obtained from Environment Canterbury’s website (www.ecan.govt.nz) and from the River Report 24 hour infoline (0900 RIVER or 0900 74837)
- **Canterbury Maps.** This mapping tool is available at canterbury.govt.nz and includes layers which will assist in the planning of works and identification of significant sites.
- **New Zealand Freshwater Fish Database and the IUCN Red List.** These sites can be used to check for the likely presence of rare or endangered fish at proposed work sites. Refer to www.niwa.co.nz and iucnredlist.org.
- **Heritage New Zealand Pouhere Taonga.** This site has information about archaeological and heritage sites (heritage.org.nz)
- **Biosecurity New Zealand’s Hygiene Procedures.** Refer to www.biosecurity.govt.nz
- **Waterways, Wetlands and Drainage Guide, Christchurch City Council.** Available on Christchurch City Council’s website www.ccc.govt.nz
- **Fish Passage Guidance for State Highways, NZTA.** Available on NZTA’s website www.nzta.govt.nz
- **Fish Passage Guidelines for the Auckland Region, Auckland Regional Council Technical Publication 131.** Available on Auckland City’s website www.aucklandcity.govt.nz
- **Fish Passage at Culverts, Department of Conservation.** Available on Department of Conservation’s website www.doc.govt.nz
- **Biodiversity NZ Unwanted Organisms Register.** Available at www.biosecurity.govt.nz
Appendix A: Work Plan Template (Optional)
Local Authority or Network Utility Operator: __________________________________________

Contact Person: Name: __________________________________________________________

Position: ________________________________________________________________________

Address: ________________________________________________________________________

Phone: __________________________________________________________________________

Email: ___________________________________________________________________________

PROPOSED WORK SITE

Location: ____________________________________________________________________

Watercourse: __________________________________________________________________

NZ Map Grid: __________________________________________________________________

☐ Locality Plan Attached

PROPOSED WORK DETAILS

Scope and Extent of Work: _________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

Reasons for Work being Undertaken: ______________________________________________

_____________________________________________________________________________

_____________________________________________________________________________

_____________________________________________________________________________
Timing, Duration and Frequency of Works: 

I attach a site plan and methodology which details site access, sediment and erosion control methods, and proposed methods to avoid, remedy or mitigate potential adverse effects.

In addition to the General Requirements of the Code of Practice for Defences Against Water, the following work type requirements are relevant and the necessary requirements will be complied with:

I also require approval under the Canterbury Regional Council's Flood Protection and Drainage Bylaw. An application for bylaw approval is:

a. Attached  

b. To be submitted at a later date but prior to undertaking works

Name: ___________________________ Date: ___________________________
Signature: ___________________________
Appendix B: Standard Forms (Optional)
CODE OF PRACTICE FOR DEFENCES AGAINST WATER
ACCIDENTAL DISCOVERY FORM ENV 1

Date of Find:   /   /   

Location:   

Map Reference: NZMS 260:  

Details of Find eg Human Remains/Tools/Animal Remains:   

Has Work Stopped: Yes/No

Was a Site Assessment Form Completed for the Work? Yes/No

Was Consultation Undertaken With:  
  Rūnanga   Yes/No
  Heritage New Zealand   Yes/No
  The Police   Yes/No

Rūnanga/Historic Places Trust/Police Notified:  

Date Notified:   /   /   

Details of Conversation:   

Produce to Follow:

1.   
2.   
3.   
4.   
5.   

Any Other Details:   

CODE OF PRACTICE FOR DEFENCES AGAINST WATER
ADVERSE ENVIRONMENTAL EFFECT FORM ENV 2

Reported By:  

Date:  

Details of the Adverse Environmental Effect:

Interested Parties Notified:
1.
2.
3.
4.

Procedure Undertaken:

Corrective Action Required?  Yes/No
Operator’s Names: ____________________________________________________________

Date: / /

Start and Finish Time of Application: __________________________________________

Location: _________________________________________________________________

Target Plants: ______________________________________________________________

Chemicals Used: ___________________________ Manufacturer: ______________________

Mixing Rate: ______________________________

Additives Used: ___________________________ Manufacturer: ______________________

Mixing Rate: ______________________________

Locations Where Mixing Carried Out: __________________________________________

Application Method: ________________________________________________________

Any Water Quality Monitoring Carried Out: Yes/No

Location of Water Quality Monitoring Sites: _____________________________________

Water Quality Monitoring Results: _____________________________________________

Estimated Wind Speed and Direction: __________________________________________

Weather Conditions: _________________________________________________________

Rain (Start/Finish Time): ______________________________________________________

Ground Conditions: _________________________________________________________

Other:
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<th>Finish Time</th>
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<th>Total Used</th>
<th>Additives &amp; Mixing Rate*</th>
<th>Total Used</th>
<th>Location of Mixing</th>
<th>Method of Application</th>
<th>Wind Speed &amp; Direction</th>
<th>Weather Conditions</th>
<th>Rain Start</th>
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*Note - Include Manufacturer’s Name
Name: 

Date: / / Time of Spill: ___________ Time Now: ___________

Your Contact Information: 

Location of Spill (Grid Reference and/or Landmark): 

Type of Substance Spilled: 

Cause and Nature of Spill: 

If Possible, Ascertain: Manufacturer: ____________________________

Chemical Trade Name: ____________________________

UN Number: ____________________________

Availability of Material Data Sheets: ____________________________

Estimate of Quantity of Substance Spilled: 

Status of Spill (Circle as Appropriate): Contained Uncontained Continuing Yes/No

Weather Conditions at Site: 

Is the Spill Likely to Enter a Waterway (Drain, Stream, Lake etc)? Yes/No

Is the Spill Likely to Enter a Public or Stock Water Supply Yes/No

Is there any Injury/Illness Associated with the Spill? Yes/No

Is there Public Access to the Site? Yes/No

Is there a Risk to any Members of the Public? Yes/No

Directions:
2. Contact the Pollution Hotline (0800 76 55 88) to Advise them of the Spill.