



## INFORMATION REQUIREMENTS FOR RESOURCE CONSENT CONSTRUCT, USE OR REPAIR A DAM OR WEIR

When submitting your application to the Northland Regional Council for a resource consent to construct, use or repair a dam structure or weir, you need to ensure that sufficient information is supplied in support of your application.

The Council has specific forms to help you supply the required information. When applying to construct a dam/weir, please ensure all the relevant questions in AEE 4 are answered fully. Supplying this information will enable Regional Council staff to assess your application in terms of the Resource Management Act 1991, and any relevant resource management plans.

If all the necessary information is not supplied with the application then the Regional Council may return your application or request further information (pursuant to Section 92 of the Resource Management Act 1991). This will lead to delays in the processing of your application.

**If the effects of the proposed dam or weir are considered to be minor**, then the Regional Council is likely to process your application without public notification provided written approvals are gained from all parties that may be adversely affected by the activity. Details of the consultation required are presented later in this document.

If you are unable to supply the necessary written approvals from the affected parties, or if the effects of the dam or weir are more than minor, then the Regional Council must publicly notify the application. This can result in significant delays in the processing of your application and additional processing costs.

If you have any doubts as to who you need to provide written approvals from, or what information should be supplied with your application, then you should contact Regional Council staff to discuss the matter.

The following information relates to questions asked in Construct Dam/Weir – AEE 4, and is provided to assist you with answering the questions.

### Note

You may also need to apply for more than one resource consent for the works associated with the construction of your dam. This may include a water permit to dam a watercourse, a land use consent for the dam structure and earthworks for constructing the dam.

If you are proposing to take water from the dam reservoir for purposes such as irrigation, you may also need to fill out Surface Water Take AEE 2 relating to water takes.

## A – Description of the Proposed Activity

In this section you should answer all the questions between **A.1-A.9**.

### Questions A.1

If your application is a replacement of an existing consent, the easiest way to find out the name of the stream or catchment is by checking your existing resource consent. The consent will specify the stream or catchment in which the dam is located. If you are unsure of the name of the stream or catchment, please contact a Regional Council staff member who will be able to assist you.

### Question A.2

Please note the general slope of the land and any area of instability in the general vicinity of the dam and reservoir, and areas of wetland.

### Question A.3

This information can be obtained from the Department of Survey and Land Information (DOSLI) maps or Regional Council offices. Where more than one soil or rock type is involved, please provide all relevant information.

### Questions A.4

Note the type of vegetation present, including grass, native bush or scrub, exotic weed species or wetland species. A recent aerial photograph of the dam and reservoir may be a useful aid in answering this question.

### Question A.5

Please provide the relevant details concerning the dimensions of the dam.

The **height** of the dam is the maximum height above streambed level or gully floor.

The **length** of the dam is the maximum length from one side of the valley to the other at top dam level.

The **volume** of earthworks can be determined once the dimensions of the dam, including the upstream and downstream batter slopes are known. Also include in this figure any excavated unsuitable materials from below the base of the dam.

The **surface area** of the reservoir and **volume of water stored** behind the dam will require survey work to determine water levels when the dam is at full capacity.

A plan showing the dimensions of the dam are required in Part B of the form.

### Question A.6

Details of the dam site are necessary to determine whether there is likely to be any effect on stream values.

For a **dry gully**, water would only be flowing during and immediately following rainfall.

For an **intermittently flowing stream**, there is likely to be a short period of the year when the stream does not flow (usually late summer), compared to a **permanently flowing stream** that flows all year.

The design minimum flow (DMF) of the stream is equivalent to the flow in the stream during a drought that occurs within a period of time (ie. a 1 in 5 year drought event). Regional Council staff can assist you with making this determination, where it is required.

### **Question A.7**

Catchment area can be determined from topographical maps or aerial photographs available from the Regional Council offices.

Flood flows are determined from engineering calculations, and need to be included with any application to justify these figures.

Tick the boxes that characterise the land use in the area of your proposed dam. You may wish to also include a description of the land uses on the map supplied with your application.

### **Question A.8**

Start and completion dates will be dependent upon a number of factors including weather, availability of contractors, financial matters and consent timing. A best estimate should be provided where this is known, along with the length of time required for completion of the project. Any large dam construction needs to be carried out during the drier months of the year. Where earthworks are being carried out over more than one construction season, it is essential that appropriate mitigation measures are included to avoid adverse effects on the environment, such as the overtopping (or collapse) of partially completed dams, and downstream sediment discharges.

Details of construction activities and proposed mitigation measures are discussed further in Question C.3.

Where known, a description of the method of carrying out the works, including the type of machinery to be used should be provided together with the name of the proposed contractor, if known.

Should a resource consent be issued, you will be required to provide more accurate details on the timing of construction activities.

## **B – Location Maps and Plans**

The following are suggested as being an appropriate guide:

### **Question B.1**

Maps showing the location of the property, proposed dam site, and contributing catchment area boundaries can be provided on a 1:50,000 topographical map. For more detailed information including property boundaries in the vicinity of the dam, a legal survey plan or aerial photograph may be more appropriate. Large dam structures should also include comprehensive contour plans of the dam site and reservoir.

### **Question B.2**

The more detailed plans need to include the extent of the reservoir when full, and its relationship to adjacent properties. Both plans, cross-sectional and long-sections of the dam structure should be provided, showing all relevant details at an appropriate scale.

## **C – Assessment of Effects on the Environment**

In this section you need to consider what effects your proposed dam will have on the environment. For the purposes of this section, you need to consider the effects of your proposed dam under the “*worst case conditions*”.

If you are proposing to dam a stream and you wish to reduce the flow downstream of your dam to below the design minimum flow (DMF), then you will need to contact the Regional Council as there are additional information requirements that need to be provided with your application.

The word “*environment*” includes the water body itself, downstream water uses, and local iwi. The information below will help you answer the questions of this section.

### **Question C.1**

The items listed in this question are those that may be affected by the damming of a stream. You need to consider if any of the matters listed are present in the vicinity of your proposed dam and if they are, then you will need to discuss how your proposal will affect those values.

### **Fisheries Values**

Damming of the stream may affect the upstream and/or downstream movement of fish species, or alter the habitat values that currently exist in the stream. This is especially important for dams proposed in lowland areas with few obstacles (such as waterfalls) to fish movement.

## **Wetland Areas**

Damming of a wetland area may also adversely affect habitat values of those areas, however, this may be offset by the creation of additional or alternative wetland areas.

### **Indigenous Vegetation**

The presence of indigenous vegetation at the dam site, or in the area to be flooded by the proposed reservoir may result in a loss of native habitat. Any such areas of vegetation would need to be removed prior to filling of the reservoir, otherwise the rotting of such vegetation will have an adverse affect on future water quality. Other undesirable effects resulting from leaving trees and other vegetation in the reservoir include a reduction in aesthetic values and interference with possible future recreational usage of the lake.

### **Slope Instability**

Slope instability at the dam site or areas around the proposed reservoir need to be identified, as these sites may affect the future integrity of the dam, or elevated water levels may lead to instability of surrounding slopes. If these are matters that may affect your dam, it is recommended that you obtain a geotechnical engineering report before proceeding further with your proposal.

### **Question C.2**

The type of construction activities, their method and timing all have a potential to either minimise, or create greater adverse effects on the environment. Where dams are proposed within the beds of streams, the following matters may need to be taken into account during construction.

## **Cofferdams**

These are often utilised as temporary structures upstream of the main dam to absorb peak flood flows during initial construction activities in the bed of the stream. Their function is to allow works to proceed in a 'dry' streambed.

## **Pipeline Bypass**

These facilities are usually installed within the dam to allow flows to continue downstream during the construction of the dam. The dimensions and flood flow capacity of the pipeline needs to be adequate to accommodate a storm event for dams constructed over one construction season, and have an adequate design for those constructed over more than one construction season.

## **Sediment Control**

Sediment control measures could include a range of devices including sediment detention ponds, silt fences, diversion drains and runoff controls. Unless the catchment is relatively small, the use of sediment detention ponds in the bed of the watercourse is not recommended. For larger dams an appropriate Erosion and Sediment Control Plan will be required; a draft plan being prepared as part of the original application, with a more detailed plan being provided prior to the commencement of construction. Sediment detention ponds need to be sized with a guideline capacity of not less than 100 m<sup>3</sup> per hectare of contributing catchment.

For more information on this subject, reference to the Auckland Regional Council's – 'Erosion and Sediment Control Guidelines for Land Disturbance' (TP 90), or the relevant Northland Regional Council officer is recommended.

## **Revegetation**

Revegetation of bare areas of land will be necessary at the completion of each earthworks season. This will usually involve covering with topsoil and oversowing with appropriate grass and legume species. Where works are proposed to be carried out over more than one construction season, temporary revegetation or mulching of bare areas of land may also be required.

## **Question C.3**

The Resource Management Act 1991 requires applicants to consider "alternatives" and discuss why they have made that choice.

## **Question C.4**

There are a number of possible "positive" effects that dams can provide. These can include the creation of wildlife habitats and recreational values, and economic benefits if the dam is for water supply purposes.

## **Question C.5**

The amount of monitoring likely to be required will depend upon the size of the dam and amount of earthworks involved, size of catchment, and whether or not the dam is to be constructed in the bed of a dry gully or a flowing watercourse. For any dams constructed over more than one construction season, extra mitigation measures will be required to ensure that over-wintering facilities are put in place to minimise possible storm events. Monitoring will be required to ensure that these measures are put in place at the end of the construction season, and maintained over the winter. Following construction, downstream flow measurement recording, water quality and/or biological monitoring may be required.

## Question C.6

You need to consider whether your proposed dam will have any effect on upstream and downstream users. This may include the effects of sediment discharges during dam construction or possible failures of the structure itself during or following construction, and the potential adverse effects on neighbouring properties. If the reservoir has a potential to flood onto neighbouring properties, even for short periods of time, or downstream neighbours who use the stream for their water supply, the written approval of those persons is required if the application is to be processed without public notification.

## Question C.7

Tick the boxes that correspond to the parties with whom you have consulted regarding your proposed dam. The Regional Council can advise you of those parties considered to be "affected" and can also supply you with a list of appropriate iwi contacts.

***If you have any queries relating to information requirements, please contact the Northland Regional Council.***

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