Section Two – The Existing Environment

2.1 Introduction

When considering TrustPower's resource consent application for the continued existence, maintenance and operation of the Scheme, one of the central matters is the nature and magnitude of the environmental effects of the activity on the environment.

In accordance with the approach established in *Contact Energy Limited v Waikato Regional Council (A04/2000)*, the environmental effects of the ongoing operation of the Scheme (taking into account any changes in the operational parameters proposed) have been assessed against the environment as it actually exists now.

The first step in the assessment is an evaluation of the environment as it presently exists, which, in this instance includes the Scheme as it is currently operated, to determine the 'existing environment'. The next step is to assess the effects of the ongoing operation (including any proposed changes to the operation of the Scheme) against that existing environment, and taking into account any proposed mitigation and remediation measures.

Of note is that when establishing the existing environment, past and present effects of the operation are considered as part of the existing environment. Conversely, ongoing effects not fully anticipated at the time of grant are not considered as part of the existing environment.

Past effects of the Scheme include effects that arose from its initial commissioning, that are not now changing to any significant degree. By way of example, the effects arising from the initial damming of the Rangitaiki River and the change in water levels that followed are a past effect.

Present effects are those that arise from the day-to-day or season-to-season operation of the Scheme, where equilibrium has been reached and there is no ongoing adverse trend. The effects of changing water levels in Lake Matahina (under normal operating conditions) on the riparian vegetation is an example of a present effect.

'Ongoing effects' are impacts where a continuing adverse trend is apparent (that is, where no environmental equilibrium has been reached). For example, any ongoing erosion arising from the operation of the Scheme is an ongoing effect. In this regard, the scale of any such effects is carefully considered in this AEE. Consideration is also given to effects that are occurring but which were not fully understood or anticipated at the time the Scheme was consented. This includes effects that may be greater or different in nature to those anticipated when the necessary environmental authorisations for the Scheme were granted.

The following sub-sections describe the existing environment in accordance with the context provided by the preceding paragraphs.

2.2 Existing Resource Consents

The nine resource consents that govern the operation of the Scheme are summarised in Table D (note that the green highlighting within the table is relevant to a later section, Section 2.3).

Table D – Summary of Existing Resource Consents

EBoP Consent Number	Consent Purpose	Date Granted	Date Expires
02 2195/1	Dam The Rangitaiki River at or about map reference V16 447 361 to form a reservoir known as Lake Matahina. Take and use up to 160 cubic metres of water per second from Lake Matahina at or about map reference V16 447 361 for the purpose of generating electricity at the Matahina Power Station. Discharge up to 160 cubic metres of water per second taken from Lake Matahina back to the Rangitaiki River at or about map reference V16 447 362 after use for electric power generation. Discharge up to 1980 cubic metres of water per second from Lake Matahina over the spillway at Matahina Dam to the Rangitaiki River at or about map reference V16 444 361. Discharge up to 140 cubic metres of water per second from the Matahina Dam left abutment-dewatering tunnel to the Rangitaiki River at or about map reference V16 444 361.	16 January 1990 *[consent conditions were amended 08/10/02, 20/06/96, 5/05/97, 13/05/98, 17/02/99, 12/04/99, 31/07/02, 13/05/05]*	30 November 2009
2195/2	Discharge drainage water from the Matahina Dam Spillway and Powerhouse drainage drives to the Rangitaiki River.	16 January 1990	30 November 2009
2195/3	Discharge drainage water from the Matahina Dam Main Drain to the 'Old Rangitaiki River' Channel.	16 January 1990	30 November 2009
2195/4	Discharge water used for cooling purposes at the Matahina Dam Powerhouse to the Rangitaiki River.	16 January 1990	30 November 2009
2196/2	Discharge domestic septic tank effluent from staff facilities at [the] Matahina Power Station Powerhouse into the ground.	16 January 1990	30 November 2009
05 0880	Disturb the bed of, and to erect and use an access ramp, in the bed of the Rangitaiki River.	26 January 1999	30 October 2033
60102	Disturb the bed of, and to erect and use a jetty in the bed of Lake Matahina.	26 January 1999 *[consent conditions were amended*	30 October 2033

		22.12/04]	
63299	Carry out small-scale earthworks in a[n] Erosion Hazard Zone. Remove, place and use a structure in, on, under or over the bed of the Rangitaiki River *[a boat ramp and rip-rap below the Scheme]*	06 December 2005	31 August 2040
63388	Use, erect, place, alter and extend two existing boat ramps and a jetty on Lake Matahina. Disturb the bed of Lake Matahina. Discharge sediment contaminated stormwater to Lake Matahina.	11 February 2006.	31 October 2040

The existing resource consents are attached as **Annexure D**.

2.3 The Scheme and Its Existing Operation

History and Key Attributes

The report entitled "Matahina Dam Reconsenting Civil and Geotech AEE Assessment" (Tonkin and Taylor, May 2009) provides a useful description of the Scheme and its component parts. Figure A shows the Scheme.

Figure A – The Scheme

Figure B – Lake Matahina – Looking Towards Intake

The construction of MAT was authorised by an Order in Council dated the 14th of January 1959. The construction of the Scheme was completed in 1967 by the New Zealand Electricity Department. The Electricity Corporation of New Zealand ultimately assumed responsibility for the Scheme and secured the resource consents shaded green in Table D. TrustPower purchased MAT from the Electricity Corporation of New Zealand in 1999.

The dominant feature of the Scheme is the Matahina Dam. At some 80 metres high it is a significant structure. Lake Matahina is impounded by the Dam. It is some 6km long, has a surface area of approximately 2.5km^2 and consists of some 55,000,000m^3 of water. Due to the height of the intakes, spillway crest and the constraints imposed by the existing resource consent the Scheme may only use a portion of impounded water. As Tonkin and Taylor note, the Dam has been repaired and strengthened.

Figure C – Lake Matahina – Looking Upstream