14.0 Land Disturbance

14.1 Introduction

Much of the Wairau/Awatere Plan area is hilly and mountainous. Large areas of the hill and mountain country is extremely eroded or vulnerable to the effects of land disturbance activities. Land clearance and earthworks such as burning, crushing, logging and tracking can increase the volumes of sediments and nutrients entering the waterways and increase the amount of debris in streams. If poorly managed these processes can make land even more erosion prone. The Marlborough District has previously had land disturbance controls in place. Firstly under the Soil and Rivers Control Act of 1941 (and subsequent amendments), and more recently a Land Disturbance Regional Plan introduced and made operative by the Marlborough District Council in April 1995. The fundamentals of that Land Disturbance Plan have been incorporated into this Plan and form the basis of the land disturbance objectives, policies, methods and rules contained herein.

14.2 Issue

The potential for land disturbance activities to reduce land production potential, damage the natural and cultural values of the land, or increase likelihood of erosion, flooding or deposition in water.

14.2.1 Effects of Sediments

Soil that has been exposed by vegetation clearance is more exposed to rain, wind and frost. If at the same time, it has been loosened by cultivation or excavation it is more easily eroded by the elements. Eroded soil usually moves downhill (the exception is soil eroded by wind) and eventually enters a river or the sea. There the finer soil will settle, a process called sedimentation. Sedimentation can cause damage to marine and freshwater ecosystems, and may reduce the quality of the water for instream values and uses such as drinking or irrigation. Larger soil particles including gravel and cobbles, can similarly be eroded and deposited in downstream river channels thus reducing the waterway area and leading to flood overflows.

14.2.2 Effects on Natural and Cultural Values of the Land (Including Landscape)

Buried archaeological, cultural and historical artefacts are at risk of destruction from land disturbance. For example, excavation and cultivation may disturb waahi tapu or obliterate pa sites.

Land disturbance can also change the landscape. Excavation and vegetation clearance change landforms and may take years to revegetate. Indigenous forest and grasslands can be destroyed by burning or clearance.

14.2.3 Effects on Natural Hazards

Excavation can destabilise hill slopes. Excavation makes cuts into hill faces which may then collapse. In high rainfall environments, cultivation and removing vegetation may increase the risk from erosion.

Sedimentation can also block waterways and flood channels, thereby increasing the risk of flooding during periods of high flow.

14.2.4 Effects on Land Productivity

The soil's productivity depends on its friability and drainage and on its fertility. Burning can strip nutrients from the land or expose the soil to accelerated erosion. Mechanical land clearance e.g. bulldozing, can remove topsoil, mix topsoil with subsoil, or compact the soil so that it is no longer free draining or well aerated.

14.2.5 Soil Conservation Reserves

14.2.5.1 Wither Hills

The Wither Hills immediately south of Blenheim have particularly high erosion potential due to the nature of the soil.

The consequences of rapid erosion filling stream channels results in flood overflows at the base of the hills with water flowing directly into intensively developed residential areas of south Blenheim.

In recognition of the severity and consequences of this erosion problem some 1000 hectares of the Wither Hills in four catchments have been acquired over 50 years into public ownership and are held by the Council. Soil conservation works have been carried out on the land and the land continues to be managed and maintained to minimise soil erosion. There is no doubt that this work is vital to the safety of Blenheim.

In 1993 the Council prepared a management plan for the Wither Hills setting out in detail its intentions to run it as a farm park to achieve soil conservation aims while providing recreational values and some farm income.

14.2.5.2 Wye Catchment Reserve

Previous authorities have carried out considerable soil conservation works on the Wye Catchment, not only because of the heavily eroded state of that catchment, but as a trial for methods that can be used elsewhere. What is practical to be done has been done and there is little to be gained at present from further pro active soil conservation measures. It is also acknowledged that the existing stands of Pinus Contorta present a seed source for spread of wilding trees and that there is a need for control measures to limit the spread of these trees.

14.3 Objectives and Policies

Objective 1	**The avoidance, remediation or mitigation of the adverse effects of inappropriate land use practices, including those which give rise to loss of those desirable physical, chemical and biological characteristics of soils which enable them to retain their life supporting capacity and to sustain plant growth increased sedimentation of surface and coastal waters, increased risk of erosion and damage to natural and/or iwi values.**
Policy 1.1	Encourage wise land use practices that will avoid, or mitigate the adverse effects of land disturbance and soil erosion.
Policy 1.2	Avoid land use practices that increase the potential for accelerated stormwater runoff.

Policy 1.3	Avoid, remedy or mitigate contaminated run-off arising from land disturbance activities entering the marine ecosystem or wetlands, lakes and rivers.
Policy 1.4	Avoid, remedy or mitigate significant reduction of soil fertility resulting from land disturbance or vegetation removal.
Policy 1.5	Require that known land stability hazards be recognised and provided for before beginning any land disturbance activity.
Policy 1.6	Encourage resource users to check the NZ Historic Places Trust Register for cultural, historical and archaeological sites on the land that they are proposing to disturb. The Council will make information from the register available to resource users.
Policy 1.7	To manage the Wither Hills so as to avoid, remedy or mitigate soil erosion in that area.
Policy 1.8	To liaise with the Department of Conservation in managing erosion prone Crown land for conservation reasons.
Policy 1.9	Require resource users to stop work and report to the Council if historical, cultural or archaeological artefacts or waahi tapu are disturbed, damaged or unearthed during land disturbance or land excavation.
Policy 1.10	Ensure consultation with relevant iwi before carrying out land disturbance requiring a resource consent.

The Council has a responsibility under Section 30 of the Act to control the use of land for the purpose of soil conservation. Unsound land management practices may lead to an unsuitable land use regime.

All the above policies combine to achieve the objective. In the past uncontrolled land disturbance has given rise to significant adverse effects in the Plan area. Control over the effects are necessary to achieve a sustainable land management regime.

The policies will apply to all resource use which involves land disturbance to the land surface. Resource users, in this case, persons wishing to undertake a land disturbance activity, will be required to address the above policies prior to commencing land disturbance work and particularly upon application for a resource consent for this activity.

14.4 Methods of Implementation

Rules

Minor land disturbance will be permitted subject to compliance with specified performance criteria which seek to reduce sedimentation, maintain soil quality, reduce the risk of damage from natural hazards, and protect ecological, cultural and economic values.

Consents will be required for land disturbance activities which fall outside that which is permitted. Conditions will be imposed to avoid, remedy or mitigate the adverse effects of land disturbance on the potential and life supporting capacity of the soil and water resources of the Wairau/Awatere area.

	Consent may be required for land disturbance activities on land over 20° slope, depending on performance standards listed in rules.
Council Activity	To implement the 1993 Council Management Plan for the Wither Hills property, including designating this reserve land as required for soil conservation purposes.
Education	Information and education programmes will be prepared to address land disturbance issues. A guide for land disturbance activity will be produced containing information relating to the effects of land disturbance on the soil resource, surrounding environment, and wetlands, rivers, lakes and the sea. Information relating to less disruptive techniques for disturbing land and means to minimise the effects of land disturbance will also be included. The Council will make this available to farmers, foresters, site developers and the like.
Monitoring	To ensure monitoring of specific land disturbance consents occurs. To monitor by aerial photography and other means the vegetative cover of erodable land (the Wither Hills Conservation farm in particular) to measure sedimentation and gravel build up in streams and rivers downstream of erodable catchments.
Guidelines	Provide information on appropriate land use practices and encourage use of voluntary guidelines and best practices.

An element of land disturbance must be provided for to enable utilisation of the land resource. The rules will provide certainty as to what is and is not acceptable.

Land disturbance is undertaken by farmers, foresters, roading contractors and developers of residential, and other urban, sites. Those people who undertake land disturbance may have little knowledge of the effects of their activities on the soil resource being disturbed or the surrounding environment. This includes the effects on the fresh water draining the area, and wetlands, lakes and rivers and the sea receiving that drainage water.

Often people who understand the effects of their activities will respond to new information by altering their activity to avoid or reduce adverse effects which could prevent sustainable management of the land and water resources of the Plan area.

14.5 Anticipated Environmental Results

Implementation of the policies and methods in relation to soil conservation will result in:

- Maintenance and enhancement, where appropriate, of the natural quality of soil on areas disturbed for farming, forestry and site development;
- The natural clarity of any permanently flowing river, lake, wetland or sea not being conspicuously reduced due to sediment laden run-off water originating from the site of a land disturbance operation;

- Land disturbance which does not result in woody material being left in any permanently flowing river, lake, wetland or the sea; and
- Historical, cultural or archaeological artefacts, sites or values protected from land disturbance.