

# **Plan Effectiveness Monitoring Report:**

## **Regional Soil Plan**

### **FOR FURTHER INFORMATION**

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# Contents

<b>1.</b>	<b>Introduction</b>	<b>7</b>
1.1	History of the Regional Soil Plan	7
<b>2.</b>	<b>Methodology</b>	<b>7</b>
2.1	Information sources	8
2.1.1	Regional plan requirements	8
2.1.2	State of the environment monitoring for soils	9
2.1.3	Complaint statistics	10
2.1.4	Regional rule feedback forum	11
2.1.5	Resource consent assessment process and compliance monitoring	11
2.1.6	Plan method implementation database	11
2.1.7	Feedback on Plan	12
2.1.8	Newspaper information sources	12
<b>3.</b>	<b>General provisions</b>	<b>12</b>
3.1	Objectives	12
3.2	Implementation and effectiveness of general policies and methods (excluding rules)	13
3.2.1	Promote the adoption of sustainable land management (Policy 4.2.5)	13
3.2.2	Encourage the ethic of stewardship in sustainable land management (Policy 4.2.4)	14
3.2.3	Encourage whole of catchment and sub-catchment control schemes (Policy 4.2.3)	14
3.2.4	Recognise the inherent susceptibility of landforms to erosion (Policy 4.2.1)	15
3.2.5	Managing the adverse effects on the soil resource (Policy 4.2.2)	15
<b>4.</b>	<b>Management provisions</b>	<b>15</b>
4.1	Objectives	16
4.2	Implementation and effectiveness of policies and methods	16
4.2.1	Provide research and monitoring for sustainable land management (Policy 4.2.6)	16
4.2.2	Develop National Sustainable Land Management Strategy for region (Policies 4.2.7 and 4.2.8)	17
4.2.3	Volunteer action in sustainable land management (Policies 4.2.9, 4.2.10 and 4.2.11)	19
4.2.4	Subdivision provisions in city and district plans (Policy 4.2.12)	19
<b>5.</b>	<b>Tangata whenua</b>	<b>20</b>
5.1	Objective	21
5.2	Implementation and effectiveness of policy and method	21
<b>6.</b>	<b>Vegetation cover</b>	<b>22</b>
6.1	Objectives	22
6.2	Implementation and effectiveness of policy and method	22
6.2.1	To promote maintenance and enhancement of vegetation in erosion prone areas (Policy 4.2.14)	22
6.2.2	To promote conversion of erosion prone areas to forestry or soil conservation woodlots or regeneration (Policy 4.2.14)	23

6.2.3	To promote riparian management (Policy 4.2.14)	24
6.2.4	To promote compliance with industry standards for the logging industry (Policy 4.2.14)	25
6.2.5	To promote maintenance and retention of erosion control plantings (Policy 4.2.14)	25
6.3	Rules for vegetative cover	26
6.3.1	Rule 3 – Vegetation disturbance on erosion prone land	26
6.3.2	Rule 4 – Vegetation disturbance on erosion prone land	27
<b>7.</b>	<b>Soil Disturbance</b>	<b>28</b>
7.1	Objective	28
7.2	Policies	28
7.2.1	Regulate soil disturbance	28
7.2.2	Land rehabilitation techniques	29
7.3	Rules for soil disturbances	30
7.3.1	Rule 1 – Roading and tracking	30
7.3.2	Rule 2 – Soil disturbance on erosion prone land	32
<b>8.</b>	<b>Summary of effectiveness</b>	<b>33</b>
8.1	General provisions	33
8.2	Management provisions	33
8.3	Tangata whenua	34
8.4	Vegetation disturbance	34
8.5	Soil disturbances	35
<b>9.</b>	<b>Recommendations</b>	<b>36</b>
<b>10.</b>	<b>References</b>	<b>38</b>
	<b>Appendix 1 Regional Rule Feedback Forum</b>	<b>39</b>
	<b>Appendix 2 – Consents Issued - Regional Soil Plan</b>	<b>46</b>
	A2.1 Consents Database (COCO)	46
	A2.2 Incidents Database	47
	<b>Appendix 3 Dominion Post extracts</b>	<b>49</b>

## **1. Introduction**

Section 35 of the Resource Management Act 1991 (RMA) requires every local authority to monitor the effectiveness of the policies, rules and other methods in its policy statement and plans, and to prepare a report on the results of this monitoring every five years. Councils must then take appropriate action when their monitoring indicates that is necessary.

Monitoring the effectiveness and efficiency of policies, rules and other methods is an on-going process from plan implementation to plan review. Such monitoring helps determine when different actions are required, and whether the level of policy intervention needs to be changed so that the objective can be achieved.

This report describes the results of monitoring the effectiveness of the policies and methods, including rules, in the Regional Soil Plan for the Wellington region (the Plan).

### **1.1 History of the Regional Soil Plan**

The Proposed Regional Soil Plan for the Wellington Region was publicly notified on 26 April 1997. After the submission period, Greater Wellington prepared a summary of the submissions and notified the availability of the summary in September 1997. The opportunity to make further submissions closed on October 1997. Hearings for the Plan were held in August 1998 and decisions notified in September 1998. Some of the decisions were subsequently appealed. After appeals were resolved the Plan was made operative on 9 October 2000.

Plan Change 1 to the Regional Soil Plan was notified on 9 February 2002 for a change to the definition of soil. Submissions closed on 15 March 2002, with the submissions summary notified on 4 May 2002. Further submissions closed on 7 June 2002, and hearings held in November 2002. Decisions were notified on 25 January 2003 and the changes made operative on the 1 September 2003.

The Plan has a narrow RMA planning focus. The Plan was developed to manage erosion prone land only (that is land defined by steep slopes) in the region. All other land is controlled by city and district councils including small and large earthworks, subdivisions, and major roading projects. There is only one other Greater Wellington control on earthworks which is through Rule 2 (stormwater) from the Regional Freshwater Plan. This rule controls earthworks associated with vegetation clearance over 300 square metres. Contaminated land is also a soil related issue but this is controlled by the Regional Plan for Discharges to Land.

## **2. Methodology**

Section 9.2 of the Plan describes the procedures for monitoring the effectiveness of the Plan. The section is in three parts and includes a list of aspects of the environment that would be monitored, how the results of the

monitoring are to be evaluated, and the monitoring techniques to be used in individual circumstances.

Section 35(2) (b) of the RMA requires every council to monitor the efficiency and effectiveness of policies, rules or other methods in its policy statement or its plan. This requirement is different to what is specified in Section 9.2 of the Plan, and this change is the methodology that is addressed this report – see section 3.

The effectiveness of policies, rules and other methods has been assessed by comparing the results of state of the environment monitoring, complaint statistics data, and feedback from interested groups with the implementation of the methods (including rules). Provisions have been deemed to be effective if implementation of the provisions has contributed to achieving the plan objectives, as measured by the state of the environment monitoring, complaint statistics data, feedback from interested groups, non Greater Wellington publications (such as the Dominion newspaper), and comments received from Greater Wellington officers.

The Council does not have any facility to monitor plan efficiency and this has not been addressed in this report.

## **2.1 Information sources**

### **2.1.1 Regional plan requirements**

Section 9.2 of the Plan sets out the monitoring and evaluation techniques to be used to monitor the effectiveness of the Plan. The section states that information be collected about the following sources;

1. The nature and extent of use of soil within the region.
2. The natural and physical resources, including land, soil, water and vegetation.
3. Ecosystem characteristics, including existing physical disturbance of soil and land, water, essential natural environment processes, plants and animals.
4. Any risk to human life, property, or other aspects of the environment from natural hazards (particularly flooding and erosion).
5. The costs and benefits of compliance with the provisions of the Plan.

The information to assess the effectiveness of the Plan has been obtained from Greater Wellington databases, including the state of the environment monitoring results, pollution complaints, regional rule feedback, and resource consents. We also used information from our regional plan method implementation database.

Information reported in *Soil and Minerals Background Report* (Denton, 2005), which reported on the achievement of the soil and mineral objectives in the Regional Policy Statement for the Wellington Region, has also been used.

Greater Wellington did not have a specific programme to monitor compliance with permitted activity rules until 2006-07.

## 2.1.2 State of the environment monitoring for soils

Greater Wellington's state of the environment monitoring programme checks the state of the natural resources of the region. Aspects of the programme relevant to soil are outlined below.

### (a) Soil quality

Soil quality is sampled at 116 sites approximately every five years and is checked for physical, chemical and biological properties. The sites are located where soil pressures are high – usually from intensive horticulture and dairying. Most of the soil monitoring sites are on the Kapiti Coast and Wairarapa plains.

Results from the last five years show that under intensive cultivation soil structure has less aggregate stability, is more friable and does not easily form larger aggregates. A friable soil structure can also mean the soil retains less moisture (through having larger macropores) and organic carbon and other nutrients are able to leach from the soil. To compensate, land managers apply more phosphate fertilizer to bring the soil up to a higher nutrient level for their crops. This has resulted in high levels of available phosphorous (Olsen P) recorded in soil samples.

Dairy pastures are showing signs of increased compaction from animals and machinery, reducing the macropores in the upper soil horizon. The soil compaction problem worsens over the winter months when soils become waterlogged. Agresearch New Zealand, along with livestock agencies, is working on farm management techniques to minimise and ameliorate soil compaction. A common technique for minimisation is the use of feed lots over the wetter months.

### (b) Heavy metals

Heavy metals are found naturally in our soils, usually at concentrations that are not a concern for human health or the environment. Investigation into our soils showed that the background concentrations of heavy metals in all soil groups of the region are very low in heavy metals in comparison with other soils groups in New Zealand. None of the soil groups exceeded the human health guidelines.

### (c) Soil conservation

Soil conservation is about managing land use to prevent erosion and soil loss. Erosion can occur for many reasons, there are natural causes like heavy rain and flooding leading to slips, and human causes like over grazing and poorly

managed earthworks. Earthworks can produce large amounts of sediment (silt). If allowed to run into waterways this silt reduces the habitat for fish and invertebrates. Silt eventually settles out into low energy environments like lakes, wetland and coastal estuaries.

The state of soil conservation (conversely the area of eroding land) is not regularly monitored. As part of the background report for the state of the environment report (*Measuring up 2005*), Greater Wellington commissioned a survey into soil intactness for the region. This was the first time that a comprehensive statistical survey has ever been undertaken to show the amount of soil that has been disturbed in different land uses and land covers.

The summary results of the survey are as follows:

About 45 per cent of the region can be described as having 'intact soils' - soils with some form of vegetative cover (grasses or trees). Of the intact soils, seven per cent shows signs of soil disturbances by land uses such as cultivation, timber harvesting, roading and tracks and excavations. The actual percentage of disturbed land within intact soils is only 0.6 per cent of the region.

About 31 per cent of the region has erosion-prone land that is currently stable. Of the 31 per cent, about 27 per cent contains intact soils and only four per cent contains soil disturbance by land uses. The actual percentage of disturbed soil within erosion-prone land is 0.4 per cent of the region.

About 18 per cent of the region is eroding land – land with signs of active or recent erosion. About nine per cent is now recovering and showing sign of revegetation. The other nine per cent has fresh erosional scars, interspersed with natural or modified plant cover. About 0.4 per cent of eroding land is bare land with no plant cover.

Overall, about 1.3 per cent of the region's soil is currently degraded and requires restoration through soil conservation measures. Of this, probably less than one per cent can be attributed to poor land management practices, and the remainder is due to erosion by natural forces.

### 2.1.3 Complaint statistics

Greater Wellington records complaints reported to Greater Wellington's Pollution Hotline on its pollution incident database. Staff record the location, type of incident, response and the effect on the environment of all reported incidents. Information from the consents database is summarised for soils in Appendix 2 - 12.2. Soil incidents are those related to land and sediment in the database.

There are two incident databases. The original database has the records of all incidents from 1995 to February 2003. A new database was set up in February 2003 with additional information such as which Plan (or rule) was breached (or not) in an incident. The 2003 database also has a record of what follow-up work was done after the incident. The Incident database has no direct links to the Consents and Compliance database COCO, and like COCO, it was not set

up to assess regional plan provisions. A review of the all databases was completed in March 2006 and a new integrated database is in the process of being developed for release in late 2008. Information from the incident database is summarised in Appendix 2.

#### 2.1.4 Regional rule feedback forum

Greater Wellington maintains a regional rule feedback forum on its intranet. This allows officers to record problems with implementing the rules, for example:

- a rule is too complicated to apply in the field
- a rule overlaps with another rule, lacks integration with other rules
- a rule is not practical or enforceable
- a rule is irrelevant and never used.

Staff in the Environment Division have recorded comments about all rules in the Regional Soil Plan. A complete list of all comments is given in Appendix 1.

#### 2.1.5 Resource consent assessment process and compliance monitoring

In 2005/06 an assessment of resource consents issued under the Regional Plan for Discharges to Land was carried out. One of the findings was that the consents and compliance database (COCO) does not contain sufficient information to allow the efficiency and effectiveness of regional plan rules to be assessed. This finding remains true for consent data for other Plans being reviewed in 2007 - Regional Soil Plan, Regional Air Management Plan and the Regional Coastal Plan.

Like the incidents database, COCO was not set up to assess regional plan provisions. A review of all databases has been completed and a new integrated database is in the process of being designed.

Appendix 2 shows the results from the COCO database for the Regional Soil Plan. As the rule number for the consent granted is not recorded in the database, there is no exact way of telling what rules are being used. However, because the number of consents granted for the Plan is low (less than 70 consents) it has been possible to make a calculated guess at what rules have been used for the granting of consents. This is by no means ideal and is subject to a certain amount of interpretation error.

#### 2.1.6 Plan method implementation database

Greater Wellington maintains a database to record the actions that officers and others, such as the Ministry for the Environment, have taken to implement each method in each plan since the plan was made operative. The database is updated annually.



### 2.1.7 Feedback on Plan

Section 9.2 of the Plan requires certain techniques to be used for monitoring plan effectiveness. These include ongoing surveys and analysis of feedback compliments received through the media, meetings, correspondence and other resource users. This report has not specifically sought feedback from interested groups, but as part of the review of the Regional Policy Statement, a discussion document was produced – *Our region, their future* (May 2006), which included feedback on soil and mineral issues. The discussion document was sent to all stakeholders, including environmental groups, public health, territorial authorities, iwi, farmers and industry groups. The document sought comments from people on the issues to be addressed in the next regional policy statement. Nine-two submissions were received on the document and 12 of those related to soil and minerals.

### 2.1.8 Newspaper information sources

Another source of information on soils in the region is newspaper articles. The *Dominion* newspaper has a regular farming section on Thursdays of each week written by farming editor, Jon Morgan. These articles have proved to be an invaluable source of information and commentary about the farming sector. In particular they show how the farming community is coping with erosion prone land and how effective are the sustainable land management methods employed by this council and other councils in the North Island. Some of these articles have been copied and are presented in Appendix 3.

## 3. General provisions

There are three general soil issues identified in the Plan, as follows:

**The adverse effects of human land use activities on the soil resource are compounded by the fact that significant parts of the Region are inherently susceptible to high levels of erosion.**

**Inappropriate land use activities can reduce the potential of the Region's soils to provide for a range of uses for present and future generations.**

**A long term reduction in soil quality can result from land use practices.**

### 3.1 Objectives

There are three objectives designed to address soil issues. The objectives are:

*4.1.1 Land use practices reflect the inherent susceptibility of some landforms to erosion*

*4.1.2 The potential of the region's soils to provide for a full range of uses for present and future generations is maintained or enhanced.*

*4.1.3 The life supporting capacity of the Region's soils is maintained.*

Objective 4.1.1 promotes the use of land that is fit for the purpose. The eastern Wairarapa has approximately 400,000 ha that are erosion-prone and susceptible to land uses that may trigger soil erosion. Objective 4.1.2 looks at the potential of soils or soil quality so they can maintain their productive capability into the future. The region has limited high quality soils and these are under threat from growing urbanisation and rural residential developments. Objective 4.1.3 paraphrases section 5 of the RMA 1991.

### **3.2 Implementation and effectiveness of general policies and methods (excluding rules)**

The Plan has five policies and nine methods to achieve the general objectives. A description of what has been done to implement the policies and methods and evaluation of effectiveness is given here.

#### **3.2.1 Promote the adoption of sustainable land management (Policy 4.2.5)**

Greater Wellington ran a series of workshops about sustainable land management in 1999. These workshops resulted in agreement to a number of actions:

1. An inventory of all sustainable management activities undertaken in the region by a large variety of groups,
2. Land management practices that could be further implemented in the region as identified in the strategy, and
3. The agreement of other councils to promote sustainable land management initiatives in the region.

Greater Wellington has worked towards implementing some of these measures by forming good working relationships with neighbouring councils (Hawke's Bay Regional Council and Horizons Regional Council), and developing new practices to promote sustainable land management practices in the rural community. Methods 6.1.3, 6.1.4 and 6.1.7 require Greater Wellington to organise and run workshops, seminars, field days on different aspects of sustainable land management. Method 6.1.3 requires workshops and seminars to be organised on such issues as sediment runoff and riparian management. The *Muddy Waters* programme was an initiative led by Greater Wellington to increase awareness and support for territorial authorities, consultants, and contractors to improve their erosion and sediment control devices and practices on major earthwork sites about the region. The programme includes workshops, field days to promote new techniques and procedures for silt control. *Muddy Waters* is now an ongoing work item for Greater Wellington.

Other practices adopted by Greater Wellington for sustainable land management since 1999 include farm plans, catchment schemes, *Take Care* groups, workshops and field days on various aspects of sustainable land management. Method 6.1.5 promotes and supports the use of Landcare and Community Catchment control schemes to raise community awareness. The individual farm plan has been promoted and used by Greater Wellington as one

of the main methods to promoting sustainable land management practices at the farm level. About 500 farm plans are in existence and are designed to involve landowners in land use practices that prevent further erosion on farms. *Take Care* is a community environmental programme. Through *Take Care*, Greater Wellington makes financial support and specialist assistance available to community groups to look after their local environment. The programme has proved very popular with over 30 *Take Care* groups in existence making a difference to streams, dunes and estuaries.

**Effectiveness of provision:** It is difficult to assess how effective this policy has been in making a difference towards sustainable land management objectives 4.1.2 and 4.1.3. However there is evidence from other sources (see Appendix 3) and generally from Greater Wellington officers that there has been a good take-up of sustainable management practices by some land managers and land owners.

### 3.2.2 Encourage the ethic of stewardship in sustainable land management (Policy 4.2.4)

Method 6.1.2 implements policy 4.2.4 – to encourage users to adopt the ethic of stewardship for future generations. The ethic was to be fostered through a publicity and education programme. Greater Wellington did not proceed with the publicity and educational programme as such but promotes the ideals of sustainable land management through field days, workshops and other information sessions.

**Effectiveness of provision:** Comments received from Greater Wellington staff do suggest that they foster the ethic of sustainability during their work with land managers and at public gatherings. Therefore the policy is likely to be making some contribution towards achievement of objective 4.1.3.

### 3.2.3 Encourage whole of catchment and sub-catchment control schemes (Policy 4.2.3)

Method 6.1.5 implements policy 4.2.3 to encourage the implementation of catchment control schemes, sub-catchment or single property schemes for soil conservation purposes. Method 6.1.5 requires support for control schemes in the region to further the principles of sustainable land management. There are six catchment control schemes in the Wairarapa as well as various community-based catchment management programmes centred on waterways and soil conservation. The catchment control schemes are administered by Greater Wellington in consultation with local communities and there are a range of works undertaken to protect farmland, community assets from soil erosion and flooding.

The explanation to the policy states that support may include providing financial assistance, targeting erosion prone soils, providing advice of soil conservation plant species, and promoting sustainable land management. Greater Wellington provides subsidised plant species for soil conservation purposes. These are provided to landowners where there is a high likelihood of soil erosion on their land. The plants (willows and poplars) are provided as part

of a farm plan. These farm plans are an opportunity for Greater Wellington officers to promote sustainable land management and provide advice on soil erosion and at the farm level.

In 2007, Greater Wellington restructured its organisation to make catchment management more of a focus of its activities and have a division dedicated to implementing catchment management work.

**Effectiveness of provision:** Greater Wellington does not specifically monitor the effectiveness of planned soil conservation initiatives (policy 4.2.3). It is therefore difficult to assess effectiveness of soil conservation plantings or any other aspect of this policy.

Although no monitoring of these schemes is undertaken, it does appear that landowners believe they are making a difference. This is verified through articles in Appendix 3.

### 3.2.4 Recognise the inherent susceptibility of landforms to erosion (Policy 4.2.1)

Policy 4.2.1 promotes land management practices that recognise the inherent susceptibility of some landforms to erosion. This policy, similar to policy 4.2.4 (promoting the ethic of stewardship) is promoted through the various schemes and programmes for soil conservation and riparian management in the region. There are good opportunities to advocate for soil conservation in areas that would be inherently susceptible to future erosion when Greater Wellington officers prepare farm plans for landowners.

**Effectiveness of provision:** This policy is not monitored therefore it is difficult to assess whether the policy is having the desired effect of recognition that some landforms have a susceptibility to erosion. The policy is probably having some effect through Greater Wellington officers providing advice during the normal course of their work. It is likely the policy has contributed towards the objective.

### 3.2.5 Managing the adverse effects on the soil resource (Policy 4.2.2)

Policy 4.2.2 directs decision makers when considering land use activities that have the potential for irreversible effects on soils, to have regard to locating those activities on sites of low soil versatility. This policy is implemented through Rules 1, 2 and 4. These are discussed below.

## 4. Management provisions

There are three issues relating to soil management identified in the Plan, as follows:

**There is sometimes incomplete or limited information about soil resources and the effects of activities on the soil resource to determine whether some land uses are unsustainable.**

**Land users are often unaware of the effects of their activities on the environment.**

**Uncertainty about the respective rules and responsibilities of land stakeholders groups, including land users, industry and local government, has the potential to lead to uncoordinated and ineffective sustainable land management initiatives.**

The policies and methods to address these issues and achieve the objectives are to ensure people and communities are informed about the principles of sustainable management so that informed decisions are made for land use practices.

## **4.1 Objectives**

The Plan has three objectives designed to address the management of sustainable land uses and these are:

*4.1.4 There is sufficient information available to make sound resource management decisions.*

*4.1.5 People and communities are informed about sustainable land management and soil conservation.*

*4.1.6 Land users and those who provide support services have a clear understanding of their respective roles and responsibilities for achieving sustainable land management.*

## **4.2 Implementation and effectiveness of policies and methods**

The Plan has seven policies and fourteen other methods to achieve Objectives 4.1.4 to 4.1.6. A summary of the policies and methods implementation and an evaluation of effectiveness, is given here.

### **4.2.1 Provide research and monitoring for sustainable land management (Policy 4.2.6)**

The Plan has one policy to provide for research and monitoring to further the objectives for sustainable land management - policy 4.2.6. This policy is implemented by Methods 6.2.1, 6.2.2, 6.2.6, 6.2.7, 6.2.8, and 6.2.9.

Methods 6.2.1 and 6.2.2 require Greater Wellington to initiate investigations into determining suitable indicators for monitoring sustainable land management with priority given to developing indicators for hill country erosion and agricultural impacts. Methods 6.2.6 – 6.2.9 describe in detail how monitoring sites and soil indicators are to be developed in the region.

In September 1999, the Ministry for the Environment contracted Landcare Research to set-up and manage a national soil quality monitoring programme. The programme called - *500 Soils* was based on the *100 Rivers* monitoring programme (a national river monitoring programme using identical water quality indicators for 100 rivers in New Zealand).

Soil quality monitoring sites were selected based on land uses that were known to have soil quality issues (e.g., over compaction and overcultivation). A new set of soil quality monitoring indicators was developed for the programme and regional councils, including Greater Wellington became involved. The Ministry for the Environment only funded the programme for the first four years, and after that time regional councils were encouraged to take on future soil monitoring based on this programme. Greater Wellington developed its own soil quality monitoring programme with over 100 permanent sites. These sites have all been monitored once (2005). Greater Wellington is now beginning repeat monitoring with 25 sites sampled each year. The soil quality monitoring programme has not been extended to include hill country erosion.

In 2004, Greater Wellington commissioned a soil intactness research project. The purpose of the project was to establish a baseline for soil intactness in the region to be repeated in 2009. Soil intactness provides an overview of where land is stable (not currently eroding) and where land is vulnerable to erosion. The project proved useful, although could be improved with spatial representation of the results.

Landcare Research through Envirolink funding, is developing an erosion-risk assessment model. This model will use information from regional councils, including soil intactness, SPOT satellite imagery, aerial photography, New Zealand Land Resource Inventory (NZLRI), and theoretical models of rainfall intensity and predicted erosion potential. Greater Wellington will be a recipient of this model which could be useful in future soil conservation monitoring.

**Effectiveness of provision:** Greater Wellington has increased work in the field of soil quality monitoring, visual soil assessments and soil intactness. These projects will over time begin to improve the level of sustainable land management decision making, and community information. However, at this stage the research is limited and there is no monitoring of current practices. Further research and monitoring work is required to be fully confident that there is sufficient information available to make sound resource management decisions (objective 4.1.5). The soil monitoring programme is probably making a promising start in this regard. Once the further research and monitoring work has been completed and publicised, people and communities will be better informed (objective 4.1.5). Greater Wellington's Annual Report Cards for soil quality are an important medium where this type of soil science information can be distributed to a wider audience. Therefore, whilst the policy has been implemented there is no evidence to suggest that information is so pervasive that all land managers are content with their knowledge. More work would be required to discern this and suggest that the policy has been effective. The policy has made a contribution towards the objective.

#### 4.2.2 Develop National Sustainable Land Management Strategy for region (Policies 4.2.7 and 4.2.8)

The Plan has two policies for developing the principles of the National Sustainable Land Management Strategy – policies 4.2.7 and 4.2.8. The policies direct Greater Wellington to have regard to the National Sustainable Land

Management Strategy and work with agencies to determine roles and responsibilities to achieve the strategy.

Methods 6.1.1, 6.1.3, and 6.1.7 implement policy 4.2.7 and method 6.3.1 implements policy 4.2.8.

In 1996, the Government adopted the National Sustainable Land Management Strategy. The purpose of the strategy was to enable land users and those who support and service land users to work more effectively together. The strategy set out priorities for action and stated the outcome the government sought. It also described what the government could do to assist land users to improve land use practices by improving the support system that underpins management practices.

In 1999, the strategy was discussed in a series of meetings and workshops held by the Resource Policy Department. As a result, the Regional Soil Plan has as its focus the principles of the national strategy.

Some of the practices adopted by Greater Wellington for land management since 1999 include, farm plans, catchment schemes, *Take Care* groups, and workshops and field days on various aspects of sustainable land management. An example of this work is the *Muddy Waters* programme with its associated workshops and field days promoting erosion and sediment control best practice for consultants, contractors and resource planners. More recently, the Ohariu Incentive programme is another approach to sustainable land management where field days have been held to promote the benefits of biodiversity on farms and lifestyle blocks.

Method 6.3.1 implements policy 4.2.8 which requires Greater Wellington to work with other agencies to promote a coordinated approach to sustainable land management. This method has been implemented through Greater Wellington continuing to work with leading agencies including Landcare Research, Ministry of Agriculture and the Ministry for the Environment. Closer working arrangements have been made through non-government national organisations such as the New Zealand Association of Resource Management (NZARM) and Federated Farmers.

**Effectiveness of provision:** Policies 4.2.7 and 4.2.8 directs Greater Wellington to have regard to the National Sustainable Land Management Strategy and to work with other agencies for promoting and achieving sustainable land management objectives. As discussed above, Greater Wellington adopted approaches for sustainable land management in existing work programmes. Most of the approaches adopted are still current and are working towards sustainable land management. One of the most publicised work programmes – *Muddy Waters*, has achieved a greater awareness of sustainable land management practices for subdivisions in western Wellington. Although recent high profile discharges by contractors suggests that this work will need to be ongoing to ensure actions of contractors remain sustainable. Further monitoring work is required on the other sustainable management initiatives (farm plans, catchment plans etc.) to be enable an assessment of effectiveness for this

policy. Overall, the policies and methods are making some progress to achieving sustainable land management objectives.

#### 4.2.3 Volunteer action in sustainable land management (Policies 4.2.9, 4.2.10 and 4.2.11)

Policies 4.2.9, 4.2.10 and 4.2.11 recognise that land managers and land owners have the prime responsibility for achieving sustainable land management and their actions are the preferred approach to sustainable land management rather than regulation. Greater Wellington promotes these policies with land owners either on an individual basis through farm plans, or to a larger audience with field days and workshops on sustainable land management. Greater Wellington has also produced information and support material to assist land owners. This has been done through Policy 4.2.11, which recognises the need to supply information and support material to achieve a voluntary change in landowner behaviour towards sustainable land management. The policy is implemented by methods 6.1.1, 6.1.2, 6.1.3, and 6.1.7. Method 6.1.1 – the production of sustainable land management guidelines has not been implemented. Method 6.1.2 directs implementation of an education programme to increase community understanding and awareness of the ethic of sustainable land management. An education programme has not been developed, however, a series of new initiatives were developed around sustainable land management and these include – the *Take Care* programme, riparian strategy, publications on wetlands, streamside plantings, maintaining bush blocks on private land, farm environmental awards and ad-hoc field days organised by Greater Wellington and other agencies (MAF, Hort-Research, and Agresearch).

**Effectiveness of provision:** To assess the take-up of responsible and voluntary action by land owners towards sustainable land management would require further research and assessment. This has not been done, and therefore it is difficult to establish the effectiveness of these policies towards the achievement of the objectives.

Greater Wellington, however, continues to work with other agencies to further sustainable land management objectives. Landcare Research and the Ministry of Agriculture have been key research partners, with the Ministry for the Environment, and Federated Farmers. Closer working arrangements have been made through national organisations – New Zealand Association of Resource Management (NZARM). All of these groups and organisations assist Greater Wellington with research and project work to continue a coordinated approach to sustainable land management. These relationships contribute to the achievement of objective 4.1.6.

#### 4.2.4 Subdivision provisions in city and district plans (Policy 4.2.12)

Policy 4.2.12 directs territorial authorities to adopt subdivision provisions in their plans, and include conditions to avoid, remedy and mitigate the effects from or soil disturbance and vegetation clearance from subdivisions. To be compliant with this policy, territorial authorities should include as consent conditions the requirement to comply with the provisions of Wellington



Regional Council's guidelines for Silt Control Associated with Mass Earthworks (1988). There is no method for this policy.

City and district councils have included provisions for silt control from subdivisions in their plans. However, the level of control is variable and in many cases the controls have failed to mitigate off-site effects, e.g., in 2000, there were some well publicised discharges of silt into Pauatahanui Inlet from poorly controlled subdivisions in Whitby. This situation prompted Greater Wellington to update the erosion and sediment control guidelines to industry best practice in 2002. Further guidelines were developed for small sites to cover those earthwork situations that could potentially create soil disturbances – usually building sites and other non-subdivision situations. The introduction of the revised guidelines was followed-up by a series of workshops, field days and reviews of working practice around earthworks in the region. The consultation on earthworks has now developed into its own programme called *Muddy Waters*. This programme continues each year with internal workshops to up-skill planners and contractors with techniques and best practice for erosion and sediment control from earthworks.

Recently, Wellington City Council has recently reviewed the soil disturbance provisions for earthworks in their district plan. This has resulted in new provisions to be included for small to very large earthworks. These provisions replace their bylaw for earthworks and will be notified in 2008.

The Draft Greater Wellington Regional Policy Statement (2008) has policies to direct city and districts councils to have provisions in their plans to control erosion and sediment from earthworks. This is where such a provision fits best as district plans are not required to give effect to (or even have regard to) regional plans.

**Effectiveness of provision:** This policy has been partially effective as city and district councils have adopted subdivision provisions in their plans and have included conditions on subdivision consents to protect waterways from sediment. Problems have arisen over city and district compliance of large and small subdivisions in the region. This has not always been effective and there still remains a lack of compliance in some cities. The erosion and sediment control guidelines have assisted city and district councils to make this policy more effective in meeting objective 4.1.6.

## 5. Tangata whenua

It is recognised in the Plan that use of the soil resource (i.e., soil disturbances) can adversely affect the cultural and spiritual values of tangata whenua. The Plan identified the following issue:

**Use of the Region's soil resources can adversely affect cultural and spiritual values. Therefore, the management of soil resources needs to take into account the issues of significance to tangata whenua.**

## 5.1 Objective

The Plan has one objective designed to address this issue:

*4.1.7 The principles of the Treaty of Waitangi are taken into account in the management of the region's soil resource.*

## 5.2 Implementation and effectiveness of policy and method

There is one policy and one method to achieve Objective 4.1.7.

Policy 4.2.13 directs Greater Wellington to encourage resource consent applicants to consult directly with any affected tangata whenua group where a resource consent application is immediately adjacent or in a site of significance to tangata whenua. As part of this consultation the applicant should determine whether granting of the resource consent will have any effects on the values that cause the site to be significant, and how the effects of the soil disturbance will be avoided, remedied or mitigated.

Method 6.2.3 requires Greater Wellington to investigate with tangata whenua methods of identifying, recording, and protecting sites of significance, possibly establishing protocols for managing information, including a table of sites of special value to tangata whenua in the Plan and developing a framework with tangata whenua to assess applications involving sites of significance.

Greater Wellington and tangata whenua work together on resource management issues through Ara Tahī - an inter iwi representative group made up of two iwi representatives from each iwi and two from the Council. There are six iwi tribes represented at Ara Tahī. For non-notified consents, Greater Wellington provides iwi with a copy of the resource consent so they can provide feedback to their staff looking at the applications. Greater Wellington encourages applicants to consult with iwi for works that are nearby known sites of significance. In most cases these requests are complied with.

To date, Greater Wellington has funded two iwi projects to identify and map sites of significance. One of these projects is with the Tenths Trust and the other with Rangitāne o Wairarapa. There are protocols for the use of this information.

**Effectiveness of provision:** There has been no specific monitoring of policy 4.2.13 and method 6.2.3. Therefore, it is difficult to assess effectiveness of this policy. However, as part of the background research for *Measuring up 2005*, surveys were conducted for all iwi in the region. This showed that most iwi say the level of feedback on non-notified resource consents has dropped. Iwi said this was because they either receive no feedback for Greater Wellington about how their views are taken into account, or their views are totally ignored. According to *Measuring up 2005*, while there is work on-going to improve the relationship with iwi, Greater Wellington is not taking the principles of the treaty into account in a systematic way. Greater Wellington needs to look to see how this objective can be better achieved.

## 6. Vegetation cover

There are three issues relating to vegetation cover in the Plan. These are:

**Vegetation clearance on some landforms may result in accelerated erosion leading to a significant effect on the soil resource.**

**The removal of riparian vegetation may accelerate streambank erosion and reduce the effectiveness of streambanks to trap sediment and nutrient runoff.**

**Erosion may be triggered if erosion control plantings are removed or poorly maintained.**

### 6.1 Objectives

The Plan's objectives for vegetation clearance are:

*4.1.8 Any adverse effects of accelerated erosion are avoided, remedied or mitigated.*

*4.1.9 On erosion prone areas vegetative cover is maintained (including maintained through revegetation), enhanced or established; or*

*Where the retention of vegetation is not practical, other methods are used so that the adverse effects of erosion are avoided, remedied or mitigated.*

*4.1.10 Riparian vegetation cover is maintained, enhanced or established, so that erosion and sediment deposition is minimised in and around water bodies.*

These objectives aim to address a range of situations where vegetation may be cleared - the most common is plantation forestry harvesting, and to a lesser extent clearance of vegetation for pastoralism. The objectives also require that, where practical vegetation is retained and enhanced on erosion prone land, including riparian zones.

### 6.2 Implementation and effectiveness of policy and method

There is one policy (five parts) and one method for vegetation clearance to achieve Objectives 4.1.8, 4.1.9 and 4.1.10.

A summary of the five part policy and method implementation, and an evaluation of effectiveness is given here.

#### 6.2.1 To promote maintenance and enhancement of vegetation in erosion prone areas (Policy 4.2.14)

Policy 4.2.14 (part 1) directs that the adverse effects of vegetation disturbance are avoided, remedied or mitigated by promoting the maintenance and enhancement of vegetation on erosion prone land. Greater Wellington

promotes the use of farm plans, shelter belt plans, and catchment schemes to maintain and enhance vegetation on erosion prone land. Farm plans include the planting of soil conservation trees (willows and poplars) on land that is eroding or likely to erode. Greater Wellington has approximately 500 farm plans in the region.

**Effectiveness of provision:** Greater Wellington does not monitor and has no information about how effective the promotion of the various soil conservation schemes have been. It is not possible to assess whether this policy has been effective in meeting the objective.

#### 6.2.2 To promote conversion of erosion prone areas to forestry or soil conservation woodlots or regeneration (Policy 4.2.14)

Policy 4.2.14 (part 2) requires that the adverse effects of vegetation disturbance are avoided, remedied or mitigated by promoting the conversion of erosion prone areas to forestry or soil conservation woodlots. Greater Wellington Land Management officers promote and advise on soil conservation plantings. There are approximately 500 farm plans where soil conservation work has taken place.

Eastern Wairarapa has been the focus of large forestry operations for over 30 years. Plantings are mostly on New Zealand Land Resource Inventory (NZLRI) Class 7 and 8 land and were established when government subsidies for land clearance and fertiliser were removed in the 1980's. In the 1990's corporate forestry companies purchased large pastoral stations for further expansion of plantation forestry. Some of these forestry operations have reached their term and companies have begun extensive harvesting operations. Greater Wellington has plantation forestry operations on its own land in the eastern Wairarapa and western Wellington. The eastern Wairarapa plantations were planted for soil conservation purposes. Greater Wellington promotes the plantation of forestry blocks and other woodlots for soil conservation.

Greater Wellington does not monitor plantation forestry. However by comparing LANDSTAT Land Cover Data Base (LCDB) versions an indication of forestry cover can be obtained. The LCDB shows that plantation forestry is slowly decreasing in the region. Steep land that was not used for plantation forestry was left to revert to scrub and gorse and native cover. LCDB shows that reversion reached a peak in the 1990's but has reversed in recent years.

**Effectiveness of provision:** Because Greater Wellington does not monitor plantation forestry operations on erosion prone land it is difficult to assess whether this policy has been totally effective in meeting the objective. It is possible that this policy has made a difference to land that is susceptible to soil erosion as demonstrated by the expansion of plantation forestry and pine wood lots in the past ten years, most of it on steep erodible land.

### 6.2.3 To promote riparian management (Policy 4.2.14)

Policy 4.2.14 (part 3) requires that the adverse effects of vegetation disturbance be avoided, remedied, or mitigated by promoting riparian management. Method 6.1.6 implements this policy.

The method requires Greater Wellington to produce and distribute riparian management guidelines for maintaining and enhancing vegetated riparian margins. The guidelines are to target landowners and will provide information on the benefits of riparian areas to water quality and stream bank erosion.

In 2002, the Council adopted a riparian strategy to minimise the impacts of rural land uses on freshwater. The strategy included pilot projects at the Enaki Stream near Carterton, the Kakariki Stream near Waikanae and the Karori Stream in Wellington City. The strategy directed financial assistance to high quality catchments through the *Streams Alive* programme Ration and Glendu creeks, the Waitohu, Karori, Owhango, and Waihora streams, and the Otaki, Mangaroa, Wainuiomata, Kaiwhata, Waiohine and Upper Ruamahanga Rivers all qualify for funding through the *Streams alive* programme. In other catchments Greater Wellington provides advice and information on riparian management. *Streams Alive* will over time reduce the effects of run-off entering waterways and protect streambanks from erosion, but at this stage there is no evidence to show that water quality has improved.

Greater Wellington has prepared a series of booklets for promoting biodiversity. *Mind the stream – a guide to looking after urban and rural stream in the Wellington region* (2004), promotes good land management practices in terms of good riparian management.

Through Greater Wellington's social marketing campaign *Be the Difference* we have raised the awareness of harmful effects of urban stormwater on streams and promoted personal action amongst residents to help keep streams clean.

Regional councils around the country are parties to the Dairying and Clean Streams Accord with Fonterra, the Ministry for the Environment and the Ministry for Agriculture and Fisheries. Greater Wellington and Fonterra have drawn up an Action Plan to implement the Accord.

Greater Wellington established the *Take Care* programme to fund and support community environmental projects. Currently there are 25 fresh water projects such as riparian planting and wetland restoration.

*Take Charge* has a fresh water focus for businesses and other organisations to prevent pollution and improve environmental performance.

*Take Action* is Greater Wellington's environmental programme for schools. A five to six week programme aimed at eight to 12 year olds. Greater Wellington has environmental educators that work with schools showing them ways to improve their local environments and how to care for water and the environment.

**Effectiveness of provision:** Greater Wellington is undertaking a review of the *Streams Alive* programme and the effectiveness of riparian management in the twelve nominated catchments. At this stage it is not possible to assess the effectiveness of the various programmes however it is assumed that some benefit can be attributed to water quality from riparian plantings, especially if there is an overland flow component. The riparian programme in its various forms is making some progress in achieving objective 4.1.10, but it is too early to state whether the policy has been effective in meeting this objective.

#### 6.2.4 To promote compliance with industry standards for the logging industry (Policy 4.2.14)

Policy 4.2.14 (part 4) requires that the adverse effects of vegetation disturbance be avoided, remedied, or mitigated by promoting compliance with industry standards for the logging industry. Greater Wellington promotes the logging industry guidelines (LIRO), and the recently updated *New Zealand Environmental Code of Practice for Plantation Forestry (2007)*. The code is promoted by Greater Wellington officers, and forms part of consent conditions for logging operations in the region. The code is also adhered to for harvesting Greater Wellington plantation forests.

**Effectiveness of provision:** The extent to which the above codes have been complied with cannot be determined. The Pollution Response database indicates less than full compliance with the code (Ohariu Valley logging operation 2007/08). Whilst there are individual cases of non-compliance, Greater Wellington land management officers believe that there is general acceptance of the code. Many corporate logging companies also have their own environmental code of practice that is adhered to. This policy has been reasonably effective in meeting objective 4.1.9.

#### 6.2.5 To promote maintenance and retention of erosion control plantings (Policy 4.2.14)

Policy 4.2.14 (part 5) requires that the adverse effects of vegetation disturbance be avoided, remedied, or mitigated by promoting the maintenance and retention of erosion control plantings. Greater Wellington promotes soil conservation plantings on erosion prone land and has approximately 500 farm plans. Maintenance and retention of soil conservation plantings is promoted by Greater Wellington to landowners, however Greater Wellington does not monitor the success of plantings. It is evident that some landowners do maintain plantings and embrace the ideals of sustainable land management and are willing to maintain the soil conservation plantings on their land (see Appendix 3).

**Effectiveness of provision:** Greater Wellington does not monitor the success or otherwise of soil conservation plantings. Verbal reports from Greater Wellington Land Management officers suggest that soil conservation plantings have a beneficial effect in binding the soil and preventing slips and slumps. This policy has been reasonably effective in meeting objectives 4.1.8 and 4.1.9.

## 6.3 Rules for vegetative cover

There are two rules that control vegetation clearance. Rule 3 allows vegetation clearance on erosion prone land as a permitted activity subject to conditions. Rule 4 requires land use consent for any vegetation clearance activity that does not comply with the conditions in Rule 3.

### 6.3.1 Rule 3 – Vegetation disturbance on erosion prone land

Rule 3 is a permitted activity rule that controls vegetation clearance of less than one hectare on erosion prone land. The rule has four conditions, the first condition requires written notification to the regional soil conservator, the second that erosion prone land is re-established with woody vegetation, and the third requires compliance with LIRO and finally, no slash greater than 100mm diameter can be left in the bed of a watercourse.

The following summarises comments recorded on Greater Wellington's regional rule feedback for rule 3:

- Condition 4 of the rule requires that slash greater than 100mm be removed from any watercourse and be placed so it cannot re-enter a watercourse. This condition implies that any slash under 100mm can remain in the watercourse. The RMA 1991 restricts all deposition of substances into the bed of rivers and lakes, and there is no rule in the Regional Freshwater Plan that allows this to occur. If 'slash' is a 'substance' then this rule is inconsistent with the Regional Freshwater Plan because substances cannot be deposited on the bed of a river without resource consent.
- There is some difficulty in discerning if one hectare of vegetation on a particular slope is erosion-prone (>28 degrees) as slope can be variable.
- There is no official record of notification to the regional soil conservator for condition 1.
- The rule allows vegetation clearance associated with subdivision. This exclusion means vegetation clearance can occur on erosion prone land with no controls over the adequacy of conditions on the subdivision consent.
- The position of regional soil conservator does not exist in Greater Wellington. The condition did not place any powers to impose any conditions on persons undertaking vegetation clearance activities.
- A change to the Regional Freshwater Plan (2003) for stormwater (rule 2) means the threshold for vegetation clearance is 3000 square metres. There is a need for some consistency in bringing rule 3 of the Regional Soil Plan into alignment with the Regional Freshwater Plan. Also the Regional Plan for Discharges to Land, rule 2 creates another

inconsistency which effectively makes the 300 square metre clause redundant.

**Effectiveness of rule 3:** There is no information recorded by Greater Wellington to assess effectiveness of this rule except the comments recorded on the rules feedback forum. This rule has environmental standards to prevent adverse effects on the environment, but they are not monitored and so there is no way to determine whether they are complied with.

Comments on the regional feedback forum that suggests it could be amended to work better. In particular the subdivision exclusion means that vegetation can be cleared on erosion prone land without any regard for the adverse effects. The trigger of one hectare is difficult to determine on hilly terrain. An explanation to this part of the rule would be beneficial. The one hectare trigger is also not consistent with the 3000 square metre threshold in rule 2 of the Regional Freshwater Plan. Some consistency should be arrived at between these rules because they are controlling similar land uses and potential effects on waterways.

Condition 1 of the rule requiring regional soil conservator notification is unusual for a permitted activity standard. The condition requires formal written advice of the vegetation clearance location and timing, and presumably other information the 'vegetation clearer' may wish to impart. The rule was designed to allow Greater Wellington to receive information and provide advice but there is nothing in the rule that requires that advice is required. The condition could also be seen as a default method to monitor the rule.

Condition 4 of the rule is not consistent with the Regional Freshwater Plan and remains a problem for both plans. This rule requires review to make it more meaningful and useful for vegetation clearance operations on erosion prone land.

Given the recorded problems with this rule and the lack of permitted activity monitoring of this rule it is not likely to be effective in meeting the objectives 4.1.8 and 4.1.9.

### 6.3.2 Rule 4 – Vegetation disturbance on erosion prone land

The COCO consents database records 12 consents granted for rule 4. The majority of consents granted are for logging operations in the eastern Wairarapa.

The following summarises comments recorded on Greater Wellington's regional rule feedback for rule 4:

- The rule is restricted discretionary and should be changed to full discretionary as the existing matter for discretion does not have regard for indigenous vegetation. This situation occurred in subdivision applications in Porirua City where remnant vegetation on erosion prone could not be assessed as part of the consent. This vegetation was significant for the district.



- Large forestry operations in the eastern Wairarapa apply for consent irrespective of the trigger levels as it is simpler for them to obtain the multiple consent that to waste time determining whether (or not) the thresholds have been met.
- A large forestry harvesting operation in the Ohariu Valley, Wellington received multiple complaints by members of a local care group.
- Staff in the Wairarapa report that these consents are not working well as consents are frequently retrospective and require “vegetation management plans” for effective consent processing and connecting the conditions back to these management plans.

**Effectiveness of rule 4:** There appears to be some interpretation issues with this rule and other rules of the Plan for forestry companies working in the eastern Wairarapa. The rules may require further clarification with the logging companies. Apart from this issue the rule appears to be effective in meeting the objective 4.1.9.

## 7. Soil Disturbance

There are two issues for soil disturbance identified in the Plan. There are:

**There are concerns within the community that the life supporting capacity of soils may be lost or reduced during and following soil disturbance activities.**

**Sediment-laden run-off can have an adverse affect on the receiving environment during and following soil disturbance activities.**

### 7.1 Objective

Objective 4.1.11, which deals with soil disturbance, is:

*4.1.11 Land management practices are adopted for the effective control of sediment run-off to water bodies.*

### 7.2 Policies

The Plan adopted two policies and no methods to achieve the objective for soil disturbances.

A summary of the policies implementation and an assessment of effectiveness is given here.

#### 7.2.1 Regulate soil disturbance

Policy 4.2.15 requires Greater Wellington to regulate soil disturbances to ensure they are unlikely to have significant adverse effects on erosion rates, soil fertility, soil structure, flood mitigation structures and works, water quality, downstream locations, bridges, culverts and other water crossing structures, aquatic ecosystems, and historic sites and cultural values. Policy 4.2.15 is

implemented through rule 1 (roading and tracking) and rule 2 (soil disturbance on erosion prone land).

**Effectiveness of provision:** Policy 4.2.15 includes a provision to ensure that soil fertility is not adversely affected during soil disturbances. It is unlikely that such a provision could always be complied with for soil disturbance activities.

## 7.2.2 Land rehabilitation techniques

Policy 4.2.16 requires Greater Wellington to ensure that there are appropriate land rehabilitation techniques available to avoid, remedy or mitigate adverse effects from soil disturbances. The policy provides a comprehensive list of known and accepted techniques including, erosion and sediment control guidelines, topsoil mining guidelines, quarry management plans, stabilisation techniques, and many other techniques associated with restoring and rehabilitating land after disturbance.

Greater Wellington revised the erosion and sediment control guidelines for mass earthworks in 2002. The revised guidelines were based on Auckland Regional Council's Technical Publication 90. The revised guidelines were introduced to the public and city and district staff with a series of workshops and field days. As subdivision activity increased in the region from 2002, there was a need to increase understanding of erosion and sediment control techniques among Greater Wellington and city and district council staff, and also contractors and consultants. This culminated in the *Muddy Waters* programme, which is ongoing with yearly workshops and other information sharing sessions.

The *Muddy Waters* programme promotes an extensive array of techniques that can be used for situations to prevent adverse effects from soil disturbances. These techniques are constantly updated and improved.

The New Zealand Forest Owners Association revised the New Zealand code of Forest Practice (LIRO, 1993) to the *New Zealand Environmental Code of Practice for Plantation Forestry (2007)*. The revised code is more extensive covering in detail areas of planning, rehabilitation, environmental values, water issues, historic and cultural sites, fertiliser applications, earthworks, and recreational values. This code will become part of forestry operations and contractors working on plantation harvesting.

**Effectiveness of provision:** City and district councils are responsible for subdivisions in the region. During hearings for the Regional Soil Plan, some councils made submissions indicating that they had the appropriate expertise to control erosion and sediment control from subdivisions in the region and the Plan did not require any provisions for sediment control in relation to subdivision. Hence the Plan has exclusion clauses for subdivisions for all rules.

From 2000 it became evident that some cities and districts did not have the appropriate expertise or sufficient understanding of sediment control for large subdivisions and roading projects. The newly revised erosion and sediment control guidelines produced at this time (2002) proved beneficial in educating

city and district council planners, and contractors and consultants on the most appropriate techniques and procedures for managing large earthwork projects.

There has been a marked improvement in all districts on the standards required to avoid, remedy or mitigate adverse effects on waterways from soil disturbances. However, there is still more work that is required to ensure all people working in the field of soil disturbances educated on new techniques and provided with revision courses. Overall, the work on guidelines with the associated workshops and training session has been effective in meeting objective 4.1.11.

The *Muddy Waters* programme has provided a general upskilling of council staff, contractors and consultants in other areas of land rehabilitation including techniques on revegetation, stabilisation, quarry site management, retaining walls, channel and drainage, and inspection and maintenance procedures. This policy has been effective in meeting objective 4.1.11.

The new environmental code for plantation forestry should provide the industry with the necessary new techniques, procedures and skills required to ensure soil disturbances avoid or mitigate the effects on waterways. Over recent years some industry operations have not been compliant with regards to off-site effects – discharges to waterways of slash and sediment. These new guidelines could provide the necessary agent for change in the industry. The draft Greater Wellington Regional Policy Statement (2008) has policies and methods to ensure that recent codes and guidelines are given higher importance to assist in the protection of waterways.

### **7.3 Rules for soil disturbances**

There are two rules that control soil disturbances. Rule 1 permits the construction of roads and tracks according to the relationship between length of upslope batter and batter height and rule 2 controls soil disturbances on erosion prone land. Policy 4.2.15 provides limited guidance for these rules.

#### **7.3.1 Rule 1 – Roading and tracking**

Rule 1 is a restricted discretionary activity to control situations where a road or track is cut into a hill slope that could cause further soil erosion. The rule was designed for plantation forestry operations in the eastern Wairarapa. In other parts of the region the rule has created problems of interpretation for applicants and council alike. The COCO consents database records that 41 consents were granted for rule 1 (see Figures 1 and 2, Appendix 2).

Greater Wellington's regional rule feedback forum page lists the following problems with rule 1:

- The rule has an extraordinary high threshold at which consents are required.
- Consent should be required for the entire road or track, not just the portion where the rule batter height is exceeded.

- By definition the roading and tracking rule should include upgrades. The upgrade is further defined elsewhere to be 20 per cent change in road width. This arrangement has been the cause of confusion for staff, and could cause indefinite road upgrades so long as the width is less than 20 per cent.
- Spoil or cast-off from road construction is arguably one of the main effects, especially if the road is on steep land near waterways. This appears to be poorly controlled by the matters of the rule.
- Having a 12 month period in the rule creates confusion – when does it begin and end, and what does a timeframe have to do with environmental effects?
- The rule effectively permits sections of road or track to be cut, say up to 199 metres length, and be within the rule, yet have the same environmental effect. Having a numerical standard of this type has encouraged flouting of the rule.
- The rule gives no interpretation for slope orientation. This can have an important effect – south facing is more stable, north facing is less stable and should require more control.
- The rule gives no consideration for geology – whether the strike and dip of the land would enhance road or track construction or whether it would actually cause erosion.
- Subdivisions are excluded from this rule. This undermines a major area of earthworks in the region, one that historically has caused problems for erosion and sediment control.
- The COCO database does not record the length of road or track cut, which could have provided some useful information on the total lengths that are subject to this rule.
- The COCO database does not record the amount of total soil disturbance for road construction. This figure would provide an indication of the effects of the road or track construction

**Effectiveness of rule 1:** Rule 1 generally controls roads and tracks on steep farm and forestry land where batter cuts need to be made. There have been instances outside these areas which have seriously questioned the effectiveness of the rule e.g., Happy Valley landfill access road.

Where the intent of the rule has been met – forestry operations in the eastern Wairarapa, the rule appears to work adequately well (per comms. Dave Cameron). In other instances where a road can be easily shortened the rule is completely avoided, but it could be a potential situation damaging the environment.

The exclusion clause for subdivisions on erosion prone land is another situation where the rule is bypassed and has led in many cases to discharges of sediment to waterways.

The rule is not effective in all the situations and should be amended to include a wider range of roading and tracking activities.

### 7.3.2 Rule 2 – Soil disturbance on erosion prone land

23 consents have been granted for rule 2 (see Figure 1 and 2, Appendix 2).

Greater Wellington's regional rule feedback forum page lists the following problems with rule 2:

- The rule excludes subdivisions. This is seen as a major oversight as many earthwork sites are subdivisions on erosion prone land.
- Clause 2 is specifically about root raking. Apparently root raking does not take place in the region, although it was common in the mid 1980's.
- Clause 1 has a threshold of 1000 cubic metres per 10,000 square metres of soil disturbance. The 1000 cubic metres in some locations is seen to be too high. A figure of 500 cubic metres is seen to be more appropriate.

Rule 2 has fewer problems than rule 1. The rule allows soil disturbances on erosion prone land, which is an important rule to include in the Plan, given that over two thirds of the land is described as erosion-prone.

The rule has an exclusion clause for subdivision consents, similar to rule 1. This has been commented by staff as an oversight, as it allows subdivision consents on erosion prone land without appropriate controls. This has become a problem in subdivisions that are part of the Pauatahanui Inlet catchments – Whitby estates. These subdivisions are large and contain mobile clays that are difficult to control.

A recent change to the Regional Freshwater Plan – rule 2 has meant that more subdivisions are captured up by this change. As discussed above the threshold for rule 2 in the Regional Freshwater Plan should be consistent with rule 3 of this Plan. Further work between these two rules and rule 2 of this Plan may be required to correct any inconsistencies.

The consents database (COCO) records that for many rule 2 consents, they are associated with subdivision consents. This may not be totally correct – although in many situations earthworks precede the subdivision by a matter of years in some cases.

The rule threshold for clause (1) of the rule may be set too high at 1000 cubic metres and a more realistic figure is 500 cubic metres. Clause (2) of the rule appears redundant as root raking greater than 10,000 square metres rarely takes place if at all in the region.

**Effectiveness of rule 2:** Overall, where the rule has worked it has been effective in preventing further soil erosion on erosion prone land.

The objective for soil disturbances has one central aim – to ensure land management practices are such that discharges to waterways are effectively controlled. The policies and methods are achieving the aims of this objective the rule may not be totally effective in all situations that have developed since the Plan was made operative.

## **8. Summary of effectiveness**

### **8.1 General provisions**

The Plan has three objectives, five policies and 10 methods to manage land use activities that may have an adverse effect on soil in the region.

The ‘general policies’ cover promotion and encouragement of the principles of sustainable land management, promotion of land management practices that recognise instability of the land, promotion of the ethic of stewardship, encourage whole of catchment and individual farm land management schemes.

Greater Wellington has made some progress in each of these broad areas. The methods require promotion and encourage through various means – workshops, field days, publications, guidelines, strategies, and schemes on a catchment and farm scale. This represents a large amount of work from staff over many years from different parts of the organisation and progress has been made in changing perspectives towards sustainable land management practices in both the rural and urban parts of the region. Implementation of many policies and methods also rely on the farm plan. However, for the general policies and method it is not possible to state if they have been effective in meeting the objectives of the Plan as there is no monitoring.

### **8.2 Management provisions**

The Plan has three objectives, seven policies and ten methods to manage land use activities to further sustainable land management in the region.

The policies and methods include research and monitoring, working with other agencies and recognising voluntary actions, information and support services are necessary to ensure adoption of the sustainable land management principles.

Greater Wellington has made progress with all the policies and methods to recognise and promote sustainable land management in the region. Like the general policies described above, the principles of the National Sustainable Land Management Strategy have been promoted and encouraged through various means of farm plans, catchment schemes, workshops, field days and other information sessions. Greater Wellington does not monitor or survey how effective this has been in meeting the objectives of the Plan, but there are documented improvements in awareness and knowledge of these matters (see Appendix 3). Since *Measuring up* 1999, Greater Wellington has started a soil

monitoring programme and small research projects to further sustainable land management. These are planned to be expanded and developed to take account of other land uses not previously monitored. This information will assist landowners to make better decisions for sustainable management of their land. The work on the *Muddy Waters* programme has lifted the awareness of appropriate erosion and sediment control devices for subdivisions and other earthworks in the region. The programme has a series of publications with various information and training sessions for council staff, consultants, contractors and other involved in earthworks. This work has made significant progress towards raising the awareness and making policy 4.2.12 effective in meeting objective 4.1.6.

Overall, the management policies and methods have been effective in meeting the objectives of the Plan.

### **8.3 Tangata whenua**

This provision requires consent applicants to consult with iwi before undertaking earth works or other soil disturbances to prevent any disturbance or destruction of significant sites. Greater Wellington requests that this policy be adhered to for all consent applications, although there has been no surveys or monitoring of consents to ensure this provision is complied with at all times.

### **8.4 Vegetation disturbance**

The Plan has three objectives, one policy, and two rules to manage vegetation clearance on erosion prone land.

The policies and methods for vegetation disturbance include planting and maintenance of soil conservation plantings on erosion prone land, plantation forestry (ensuring the industry adheres with the code of practice), and riparian management.

Greater Wellington has been involved with soil conservation plantings on erosion prone for over 50 years. Landowner and managers approach Greater Wellington for advice and support to restore eroding or potentially erodible hillslopes. Greater Wellington provides the poles – poplars and willows for planting on eroding land and ongoing advice. There are approximately 500 farms plans in existence. Greater Wellington does not monitor the success or otherwise of the pole plantings, or if the landowner continues with any form of aftercare. A monitoring programme is important to establish the effectiveness of pole plantings on different geology, soil types, slope aspects, and planting species. Comments received from Greater Wellington Land Management officers and newspaper reports shows that farmers do embrace the concept of conservation plantings and these appear to be partially effective (on a local farm scale) against further soil erosion on steep slopes.

Plantation forestry has the potential to create soil erosion and soil disturbances that may lead to sediment entering waterways. Greater Wellington promotes plantation forestry and other forest lots on hill country farmland to mitigate soil erosion. The problems occur when the forest is harvested close to waterways or

the underlying geology is made up of soft sediments. Greater Wellington promotes compliance with the industry codes of practice for harvesting and provides advice on best practice techniques through rule 3 of the Plan. The Incident database shows that not all companies are compliant with the industry code and there have been some well documented breaches of the code with discharges to waterways. These breaches have all been in the western part of the region. District Plans have varying approaches to plantation forestry – some require adherence to the code of practice, others provide no guidance.

Greater Wellington promotes riparian management through the riparian strategy and the *Streams Alive* programme. There are other forms of riparian promotion as well, *Take Care*, field days and workshops. Work on promotion of riparian management has been effective however the overall task is large compared to the total number of streams that require some form of riparian cover.

Rules 3 and 4 of the Plan control vegetation clearance on erosion prone land. Rule 3 a permitted activity - it is difficult to establish how well this works, but the rule does have a clause that requires contact with Greater Wellington's soil conservator. The rule is important for the Plan, as district plans have no controls over erosion prone land. The rule requires improvements to be more effective and useful to apply in the field.

To assess the effectiveness of the Plan for vegetation clearance there needs to be monitoring of soil conservation plantings and their effects in the region. Improvements to rules 3 and 4, and monitoring of rule 3, would also assist in Plan effectiveness.

## **8.5 Soil disturbances**

The Plan has one objective, two policies, and two rules to manage soil disturbances from roads and tracks and on erosion prone land. Both rules exclude earthworks associated with subdivisions in the region.

The two policies for soil disturbance provide some guidance for rules 1 and 2 and ensure that recognised erosion control and land rehabilitation techniques are used. Greater Wellington has promoted the use of guidelines for subdivisions and small sites earthworks to developers and city and district councils. There has been some progress with this work, and ensuring that city and district councils require compliance with the guidelines for all earthworks in the region. It appears that this work will need to be ongoing for Greater Wellington and city and district councils as the nature of consultancy and contractor businesses is of high staff turnover.

The rules for soil disturbance control roading and tracking, and soil disturbance on erosion prone land.

Rule 1 is a complicated rule requiring specific lengths and heights of a track or track before the rule can be applied. Field operators can easily adjust their measurements to be 'under' the rule by a few metres in some instances. This rule, like rule 2, excludes subdivisions. This is an important rule in the Plan as



the city and district plans have no controls covering roads or tracks outside subdivisions and sometimes poor controls for consents controlling sediment from subdivisions. However to help achieve objective 4.1.11, the rule could be changed to include more situations where roads and tracks may contribute sediment to waterways.

Rule 2 fares better than Rule 1 for ease of interpretation and effectiveness. The threshold limits in the rule may be set too high and could be made more restrictive for erosion prone land. District plans do not provide any controls for soil disturbances on erosion prone land therefore this rule is important as over 30 per cent of the region is deemed to contain unstable land. The rule excludes soil disturbances associated with subdivisions. This, like rule 1, is where discharges have occurred to waterways from inadequately controlled subdivisions. The exclusion clause could be reversed, allowing increased effectiveness of rule 2, to help achieve objective 4.1.11.

## **9. Recommendations**

The Regional Soil Plan has a narrow planning focus. The Plan only controls erosion prone land in the region with the city and district councils controlling all other land use. The Plan's provisions are directed towards the sustainable management of land – farming and plantation forestry. These provisions cover a range of issues from promoting riparian management through to planting soil conservation trees on eroding steep hill country slopes. For the most part the provisions have been met with some success from landowners and land managers as is evident by the take-up of sustainable practices and improvements to eroded land. Perhaps the largest gain has been in the promotion of improved erosion and sediment control practices for subdivisions and in the cities. This has seen the largest turnaround in acceptance by people working in this field and a positive environmental result.

The Plan has four rules to control activities on erosion prone land. The rules are complicated to follow for land managers and are all numerically based which has allowed easy flouting of the rules. Overall, the rules have made a difference to the way land is managed for some land uses – mostly in plantation forestry and large soil disturbances. However, it appears all of the rules would benefit from at least minor changes to increase their effectiveness.

The COCO consents database is the main storage and retrieval system for consents (rules) in the council. This database is currently under review. Having a useful and informative database to track rule effectiveness in the future will be important.

The following should be considered as part of the formal Plan review that is anticipated to occur in the next two years:

- ensure that vegetation disturbance rules in the Regional Soil Plan are consistent with policies and rules for fresh water and discharges to land, particularly for vegetation disturbance around water bodies

- begin monitoring and assessment to determine whether the existing practical soil conservation practices on erosion prone are effective
- survey land managers and land owners to assess the most effective methods for promoting and encouraging sustainable land management practices.

## 10. References

Denton, P (2005) *Soil and Minerals Background Report*. Greater Wellington.

Denton P (2006). *Evaluation Report for the Soils and Minerals Chapter of the Regional Policy Statement*. Greater Wellington.

Greater Wellington (1999). *Measuring up: The state of the environment report for the Wellington region 1999*. Greater Wellington.

Greater Wellington (2005). *Measuring up: The state of the environment report for the Wellington region 2005*. Greater Wellington.

Greater Wellington (2008). *Draft Regional Policy Statement for the Wellington Region 2008*. Greater Wellington.

## Appendix 1 Regional Rule Feedback Forum

### Rule 1

28 May 2003 (Kirsten Forsyth and Howard Markland)

Spoil from tracking that is compliant with Rule 1 may be dumped on the downhill side and there's no controls to stop that spoil reaching water. The spoil will be highly unstable and we can't take any enforcement even if it starts to slip. Sometimes the land was rock solid before the tracking, now we have allowed the creation erosion.

When does the year start and stop? Are we interested in the time period or the stability of the disturbed land?

6 October, 2003 (Kirsten Forsyth and Paula Pickford)

The rule should state clearly that consent is required for the entire track, not only the section where the batter exceeds 1.5 metres. This is analogous to someone taking 40,000 litres of water. We require a consent for 40,000, not 20,000 (notwithstanding Permitted Baseline, and not having regard to the effects of the first 20,000, at our discretion, of course).

14 April, 2004 (Kirsten Forsyth and Paul Jolly)

Roading and tracking is controlled by this rule. By definition, roading and tracking includes "upgrade", which is separately defined. This makes it extremely difficult to understand and enforce what the rule covers. What use is this?

15 April, 2004: Kirsten Forsyth. On reflection, I reckon the rule means that the activity has to result in a 200 m continuous upslope batter over two metres high and if the road existed before, and the activity widens the road by more than 20% **and now causes** a 200 m continuous upslope batter over two metres high, the rule is triggered.

I think that if the road existed before, and the roading and tracking causes a 200 m continuous upslope batter over two metres high **but they haven't increased the road width** by more than 20% in any 12 month period, then perhaps the rule isn't triggered. Because if they haven't increased the road width by more than 20%, then the activity, by definition, isn't roading and tracking.

So, it allows incremental road widening that causes the upslope batter to be greater than 2 metres, every 12 months, forever.

8 May 2004 (Nic Conland)

Great difficulty with this rule is it has no clear intentions...

Was it aiming to prevent the exposure of large batter faces to weathering and silt runoff to adjacent water bodies?

Was it aiming to prevent erosion of landforms in conditions described above?

The difficulty of understanding which if both or perhaps another outcome was intended is that the rule expressly disallows up slope batters of 2 metres (or 1.5m in certain areas) for a unbroken distance of 200metres. This while easy to understand seems to overlook any desired environmental outcome from the rule. For instance

It is possible to have several contiguous sections of 198metres of up slope batter greater than 2 metres with a short break usually where the track edges around a ridgeline. (Very common in western region landforms)

It makes no interpretation for slope orientation. I.e. South facing slopes receive effectively the same erosion potential but have far less opportunity for drying out and creating a stable surface. (A local farmer pointed this out to me...)

A five-kilometre track as recently visited can be surveyed to have nearly 10,000 metres of exposed batter face but fall outside the tracking rule completely and by doing so misses Rule 2 as well

2 August 2004 (H Markland)

The exclusion of track work in conjunction with subdivision activity undermines the intent of this rule if the subdivision consent does not apply a similarly strict performance standard.

## **Rule 2**

19 December 2000 (email from Nicki Kinghorn)

Peter H and Paula P have asked **whether Rule 2 of the Soil Plan (Soil Disturbance) applies to Quarrying operations.**

The short answer from Kirsten, Murray and me is that new quarrying operations on erosion prone land that disturb greater than 1000m<sup>3</sup> require a consent. The definition of Soil is ambiguous and will be amended in the next plan change.

The long answer ...

The definition of **soil disturbance** was amended by the following council decision on submissions:

Report 20, p. 99 (if you look at the actual report, the rule numbering was different - in the proposed plan it was rule 3):

*The Committee has accepted an amendment to the definition of soil disturbance so that existing mining and quarrying operations are excluded from the definition of soil disturbance. As a consequence, existing operations should not require resource consents under Rule 3. There is no reason why new operations should not be subject to the provisions of the Plan. The range of effects related to a mining or quarrying operation, such as water quality, off-site slope stability and site rehabilitation, can be significant and justify intervention by the Council.*

Clearly, the intent was that Rule 2 would capture quarry operations on erosion prone land that disturb greater than 1000m<sup>3</sup> of soil. The question remaining is whether "soil" includes the rock beneath. Unfortunately, the definition of soil is ambiguous. At face value, the current definition of soil can include the parent material. The Council decision on submissions (below) also appears to conflict with the above decision about quarrying:

Report no. 3, page 13.

*The current definition of soil should be clearer. New wording is suggested to clarify that it is the pedagogical interpretation of soil which is the focus of the Plan. The current wording suggests that the underlying rock material is also subject to the provisions of the Plan. However, this would be inconsistent with the objectives and policies because they are directed at the "life supporting" capacity of soils. The amended wording should make the pedological interpretation of soil more clear.*

The primary purpose of the soil disturbance rule is to avoid/mitigate slope instability and run off caused by the activity. Disturbance of large volumes of parent material on erosion prone land (i.e., steep land) has the potential to cause significant slope instability, and sediment run off. On a effects basis, the rule should capture disturbance of rock as well as soil.

The roading and tracking rule would capture an activity that exceeded the thresholds, regardless of whether it was soil, or parent rock being disturbed. To be consistent we'd expect rule 2 would not distinguish between soil and underlying rock either.

Therefore, Kirsten, Murray and I agree that the rule, and current wording of the definitions, captures quarrying operations. We also agree that the definition of Soil should be amended in the next plan change to remove ambiguity. This e-mail will be file in the plan review file.

**NICKI KINGHORN**

Environment Division  
Wellington Regional Council  
Ph 04 384 5708 ext. 8749

## **Rule 2**

22 January 2004 (Kirsten Forsyth).

This rule allows the earthworks associated with the subdivision on Owhiro Road, opposite Butt Street, because they are being done in accordance with a subdivision. The subdivision consent issued by WCC doesn't require proper silt ponds and has insufficient silt retention measures but cannot be enforced under any regional rules. Even the requirements on the subdivision consent are being breached but have been poorly enforced by WCC. The stormwater discharges from this site are going into the stormwater drain and therefore allowed by the DtL plan. Rita O'Brien is writing a paper to present at the stormwater conference about how these events slip through the rule network.

7 March 2006 (Paul Denton)

The subdivision clause for Rules 2 and 3 is nonsense. Please remove in next plan review. These rules are totally ineffective. Here is a copy of an email that shows the silliness in all this subdivision work today.

I've followed up this matter with Miranda Robinson at GW and Jo Standbury at WCC. I can confirm that as a resource consent was issued for the subdivision, which required that the erosion & sediment control plan be implemented in conformance with GW requirements. I have the following comments to make:

- As a WCC consent has been issued for this subdivision, rules 2 and 3 of our Regional Soil Plan do not apply (which is consistent with Miranda's earlier comments to you).
- As the erosion and sediment control plan shows that run-off from this site will be discharged into the WCC stormwater system, this activity falls under the WCC consent. As such, rule 1 of our Regional Plan for Discharges to Land does not apply.
- All sediment control features should be in place prior to earthworks/clearance commencing on erosion prone land. This was not the case at the time of my visit at 09:09 today (although I was assured by Peter Tangney of HRS that they would be functioning by the end of today).

Given the above, I confirm that Greater Wellington has no requirement for resource consents for this subdivision. However, I shall be revisiting this site in the near future to evaluate progress with installation of the sediment pond.

Thank you for your co-operation.

**Howard Markland** (Pollution Control Co-ordinator)

Greater Wellington Regional Council  
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[www.gw.govt.nz](http://www.gw.govt.nz)

18 April 2007 (Kirsten Forsyth)

Sediment control on all earthworks may need extra guidance with realistic information about what can be achieved with silt ponds, and what can't. Perhaps some extra research is needed here.

### Rule 3

Kirsten Forsyth (12/01/01) and Paul Denton (18/05/01).

Rule 3 requires vegetation or slash more than 100 mm in diameter to be removed from watercourses after vegetation disturbance on erosion prone land. This implies that vegetation or slash less than 100 mm in diameter can remain in the river, but the Act restricts all deposition of substances in, on or under the bed of rivers and lakes, and there is no rule in the Regional Freshwater Plan allowing this.

So, if "slash" is a "substance", this rule is inconsistent with the Regional Freshwater Plan because **substances** cannot be deposited on the bed of a river without land use consent.

Condition (4) of Rule 3 is not necessary to avoid, remedy or mitigate adverse effects. It seems to have been adopted to stop people removing riparian vegetation (see decisions on submissions).

Pollution Response (January 2003)

Soil conservator notification rarely occurs. Is 1 hectare by slope face or plan area on a map? Rewrite, & incorporate into Land Plan.

Kirsten Forsyth and Paul Jolly (18 June 2003)

The 28 degree slope condition in this rule is impossible to determine on a hectare of hill because the slope is so variable. This makes this rule impossible to apply to most situations.

Kirsten Forsyth and Trecia Smith (15 September 2003)

Unless there is a record of the notification and consequent advice given in compliance with this rule, the notification requirement is not useful.

Kirsten Forsyth and Bruce Croucher (15 March 2004)

This rule allows vegetation clearance associated with the subdivision but there is no way we can control the adequacy of the conditions imposed on the subdivision consent.

The position of Regional Soil conservator no longer exists. This condition didn't actually give us any powers to impose any obligations on the person undertaking the activity anyway.

Should the one hectare be brought into line with the earthworks limit of 3000 square metres?

#### **Rule 4**

Kirsten Forsyth (19/02/07) and Jeremy Rusbatch.

This rule has restricted discretion and so the consent officer cannot have regard to the values of indigenous vegetation. A subdivision consent in Pauatahanui required a vegetation clearance consent from us yet the land to be cleared had been identified as an Ecosite by PCC. This rule should not have restricted discretion. See copy of email.

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**From:** Tim Park  
**Sent:** Tuesday, 13 February 2007 01:28 p.m.  
**To:** Ling Phang  
**Cc:** Kirsten Forsyth  
**Subject:** RE: Staithe Dr Development Ltd

In the Application to the GRWC, the report refers to section 4.7.4 in the application made to PCC in relation to the same subdivision, stating that the development will vest 10 ha of land as reserve - ensure that the forest will remain protected, it does not state that the development will actually destroy the most valuable part of ecological site 126, or that in fact they are fragmenting the site by destroying the core of the natural area and vesting the remaining scraps as reserve. In my opinion this statement disproportionately glorifies the mitigation measures the propose. The application severely downplays the impact of this application

This is the one of the largest remaining ecological sites in the Pauatahanui inlet catchment, that it has an inextricable ecological linkage to the Pauatahanui Inlet, which is listed as an Area of Significant Conservation Value in the Regional Coastal Plan. The main issue facing the Inlet is increased sedimentation and contamination from stormwater runoff. It is my understanding that, to date, there has been no sediment control plan that has completely captured sediment throughout the development process. Unless the applicants can prove that the proposed works will not release any sediment, it should not be approved.

Although the proposed permanent wetland feature may remove some of the anticipated increases in pollutants and contaminants, the effectiveness of a system



such as this has yet to be proven and preliminary studies have shown that the results are at best, highly variable. There will need to be close monitoring of the state of the stream below the wetland as well as the sediment and vegetation contained in the wetland area.

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**From:** Ling Phang  
**Sent:** Monday, 5 February 2007 03:45 p.m.  
**To:** Tim Park; Kirsten Forsyth; Natasha Hayes; Paul Denton; Alastair McCarthy  
**Subject:** Staithes Dr Development Ltd

Hi all,

Just to recap what we talked about on Thursday 1/2/07, the proposal involves the following aspects:

92 residential lots  
Utility reserve (lot 60 for drainage)  
New roads (lots 203-205)  
Recreation reserve (balance lots 200-202, 206)  
Extension of PCC walkways  
Permanent wetland feature  
Earthworks (6 cut areas; cuts and fills)

The overall status of the proposal is a **discretionary activity**.

### **Designation**

A large part of the subject site is currently designated for '*proposed scenic reserve*' (K1007) until 1/11/2009. It is known as Ascot Park. The purpose of this designation is '*for the development and operation of facilities and services for which the Council has financial responsibility*'. As a result of the proposal, the area of designation will be reduced to make way for the residential development. There is an existing linkage to Makora Grove to the west of the site.

### **Wetland/ecology :**

The site has been identified as ecosite 126. My understanding from the discussion we had was that this currently has no legal status in the PCC District Plan.

The subdivision will remove the bulk of the forest from the lower ridges. However, it proposes the construction of a stormwater pond/wetland (appendix 11) which will act as a permanent wetland feature. The sediment detention pond is designed to perform its intended function while at the same time acts as a valuable ecological resource (refer page 1, appendix 11 - John Campbell's assessment). It is proposed to be located on Lot 38 DP 16813. The effects of earthworks on the existing on-site vegetation on the tributary streams and downstream have been discussed in appendix 11. The mitigation measures include roughing the exposed surfaces of cut and fill areas, hydroseeding, and possible tree planting. The detention pond was recommended as a favourable measure to control downstream effects.

I can't find a proposed landscaping plan? It is good practice to have a concept plan showing how the areas of cut will be restored to the natural landform, if possible, as a minimum.

The application states that Council intend to appoint a suitably qualified individual to peer review the ecology assessment.

### **Tim Park**

Check out appendix 11 (Volume II) , pages 8 & 9 (Application to PCC for Resource Consent) for information on Wetland.

After you have reviewed the relevant sections, please provide me with an assessment which should focus on the following:

Are the effects of the proposal likely to have adverse cumulative effects on ecological processes which cross boundaries?

Is the proposal consistent with our ecosystem policy to actively protect indigenous ecosystems (read the Ecosystem chapter, RPS). (How much of the subject site is covered in indigenous vegetation?)

Should the effects be dealt with by PCC?

We need to be mindful of the fact that the ecosite has no legal status at this point in time. More importantly, assess and see if the proposed mitigation measures are adequate to mitigate any adverse effects on ecosystem.

**Natasha**

Check out appendix 16 and see how the development fits with our land transport policies in terms of consistency with the RLTS and whether it has any impact on the State Highway network and infrastructure. I'll bring the appendix up to you on Wednesday.

**Kirsten**

Scan your eyes over appendix 14 "engineers report" for information on stormwater.

**Paul**

Since you have scanned over the relevant sections on earthworks, geotechnical report etc, I won't list them out for you!

A few points for you to think about:

Will the proposed works accelerate soil losses thus leading to increased sedimentation of waterways?

Are the proposed techniques for soil erosion and sediment control for the proposed earthworks consistent with our regional policies for minimising surface, river and stream bank erosion?

Has attention been given to the national best practice techniques for erosion and silt control?

Are the mitigation measures adequate in mitigating the adverse effects of the proposed activities on the wider environment?

**Alastair McCarthy**

GW's Water supply, Strategy and Assets has been identified as an affected party due to the proposed earthworks over GW's water mains. Filling over water main is considered as undesirable and this matter is currently being worked through, between Alastair McCarthy and TCB.

Alastair, please keep me informed of the outcome of your discussions.

**Ling**

The application has stated that *'there are currently no rights of public access to the site or any recreational activities undertaken on the site apart from those typical of the occupants of a rural/residential property'* (page 22, Application to GWRC).

Given the presence of water bodies in the area, the implications of the current status of the 'Scenic Reserve' and the potential for new public access as a result of this proposal, will need to be carefully assessed, having regard to s.6 of the Act.

Please can I have your comments by next Monday **12 February**.

If it's deemed that inadequate consideration has been given to the potential region wide impacts of the development in the Wellington region, we should make a submission to PCC.

Ling

## Appendix 2 – Consents Issued - Regional Soil Plan

The data extracts from COCO – the consents database are incomplete and inaccurate. These data should only be viewed for indicative purposes only.

### A2.1 Consents Database (COCO)

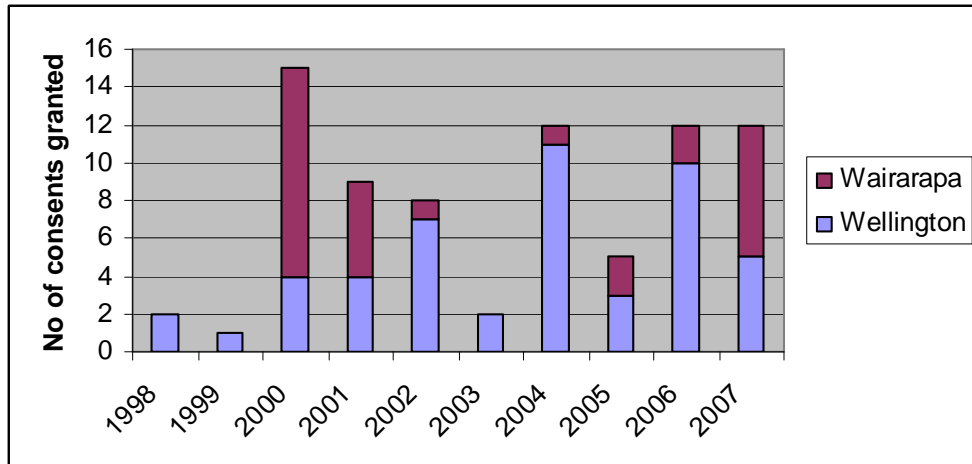


Figure 1: Number of consents granted since 1998 – when the Transitional Plan was operative. The Transitional Plan was finally superseded by the Regional Soil Plan in 2003. The Regional Soil Plan was operative from 2000 onwards, hence the increase in total consents. The increase in consents from 2001 for Wellington can be attributed to the high number of subdivisions, road projects and infill housing earthwork consents.

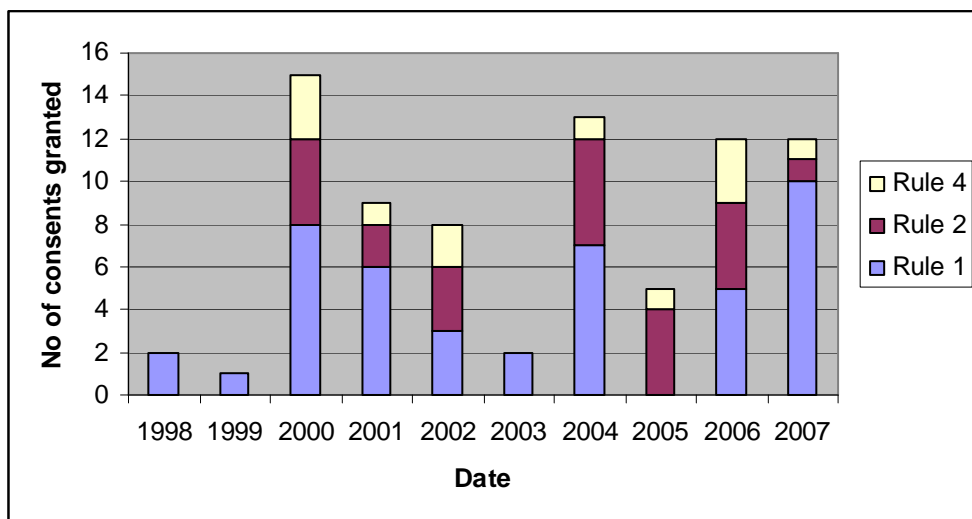


Figure 2: Using the total number of consents in Figure 1 above it is possible to assign which rule was issued. This information is not recorded on COCO and has been inferred. Rule 1 – roading and tracking dominates the consents granted. There are 44 (56 per cent) consents granted for rule 1, peaking in 2000 and again in 2007. This rule covers all land in the region whereas the other two

rules are only for erosion-prone. This may indicate why there is higher numbers of consents granted. Twenty three consents (29 per cent) have been granted for rule 2 – soil disturbances on erosion prone averaging about 3 consents per yr. Only 12 (15 per cent) consents have been granted for rule 4 – vegetation disturbance on erosion prone land.

### A2.2 Incidents Database

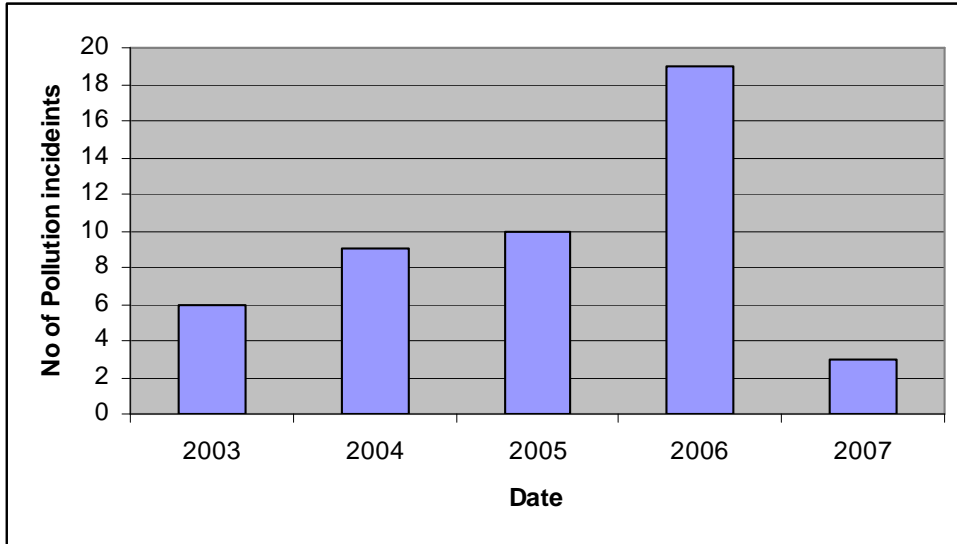


Figure 3 shows the incidents recorded from the new database - 2003 to 2007. The extract is for 'land' and 'sediment'. This is interpreted to be all the incidents that are land based with a sediment result – in other words are likely to affect soils in the region. The total number of incidents for sediment is not high compared with the total number of incidents recorded. Most incidents are attributed to water. Sediment incidents reached a peak in 2006 with a dramatic decline in 2007, 2008 has no sediment incidents recorded so far (at the time of writing this report). It is difficult to postulate why there is such a decline in 2007, perhaps to do with the dryness of the year. In 2006, it was a very wet year with notable landslides and earth movements on hill properties in western Wellington.

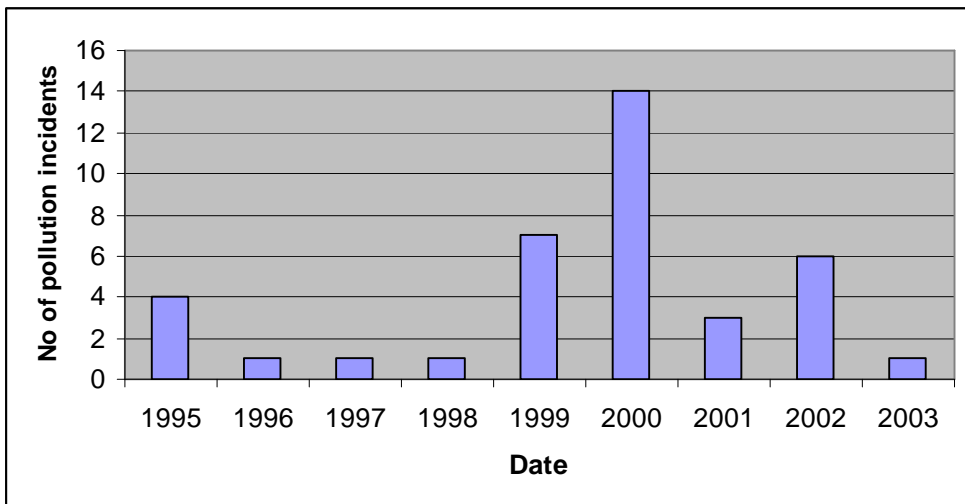


Figure 4 shows incidents for 'silt' to 'land' (various categories) from the old pre-2003 database. A large peak in incidents occurred in 2000. This year was marked by an increase in subdivisions in the Whitby area that had less than adequate sediment control devices – leading to an increase in incident call outs. The other years represent the background number of incidents for silt from land – about 4 per year. The databases were separated in 2003 – with incidents recorded in the same year in different databases.

## Appendix 3 Dominion Post extracts