

PAKANUI STRUCTURE PLAN

Volume One



**PREPARED IN FULFILMENT OF SECTION 32 OF THE RESOURCE
MANAGEMENT ACT 1991**

AND

**AS A GUIDE TO FUTURE PROCESSING OF RESOURCE CONSENT
APPLICATIONS IN THE PAKANUI STRUCTURE PLAN AREA**

NOVEMBER 2002

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TABLE OF CONTENTS

1.0	Introduction	4
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2.0	Pakanui Catchment Description	5
3.0	Pakanui Structure Plan Methodology	9
4.0	Statutory Framework	10
4.1	Resource Management Act 1991	10
4.2	Auckland Regional Policy Statement	13
4.3	Waitakere City Proposed District Plan	14
4.3.1	Strategic Direction	14
4.3.2	Objectives and Policies for Foothills Environment	14
5.0	Development Constraints Assessment	
5.1	Landscape and Visual Assessment	20
5.1.1	Introduction	
5.1.2	Methodology	
5.1.3	Pakanui Catchment Landscape Character	
5.1.4	Landscape Constraints and Opportunities	
5.1.5	Development Opportunities and Recommendations	
5.2	Ecological Assessment	22
5.2.1	Introduction	
5.2.2	Methodology	
5.2.3	Pakanui Catchment Ecological Values	
5.2.4	Vegetation Characteristics	
5.2.5	Riparian Values	
5.2.6	Recommendations	
5.3	Archaeological Assessment	24
5.3.1	Introduction	
5.3.2	Methodology	
5.3.3	Archaeological Sites	
5.3.4	Findings	
5.3.5	Recommendations	
5.4	Catchment Analysis and Stormwater Management	26
5.4.1	Introduction	
5.4.2	Methodology	
5.4.3	Stormwater Management Recommendations	
5.5	Geotechnical Assessment	28
5.5.1	Introduction	
5.5.2	Methodology	
5.5.3	Geotechnical Zones and Risk Classification	
5.5.4	Geology	
5.5.5	Findings and Recommendations	
5.5.6	Site Specific Geotechnical Investigations	
5.6	Wastewater Assessment	33
5.6.1	Introduction	
5.6.2	Methodology	
5.6.3	Findings and Recommendations	

5.7	Traffic Impact Assessment _____	34
5.7.1	Introduction	
5.7.2	Methodology	
5.7.3	Findings and Recommendations	
6.0	Consultation _____	36
6.1	Landowner Consultation	
6.2	Community Consultation	
6.3	Te Kawerau a Maki	
6.4	Ngati Whatua O Orakei	
6.5	Auckland Regional Council	
6.6	Waitakere City Council	
6.7	Rodney District Council	
6.8	Royal Forest & Bird Protection Society	
6.9	Waitakere Ranges Protection Society	
7.0	Pakanui Structure Plan _____	39
7.1	Proposed District Plan Variation	
7.2	Proposed Changes to District Plan Maps	
7.3	Section 32 Analysis	
Appendix One:	Landscape and Ecological Assessment – Boffa Miskell Limited	
Appendix Two:	Cultural Heritage Assessment – Clough & Associates Limited	
Appendix Three:	Catchment Analysis and Stormwater Management – Applied Geographics Limited	
Appendix Four:	Geotechnical Assessment – Ormiston Associates Limited	
Appendix Five:	Geotechnical Investigation – Sunnyvale Road, Massey – Soil & Rock Consultants Limited	
Appendix Six:	Wastewater Assessment – Soil & Rock Consultants Limited	
Appendix Seven:	Traffic Report – Traffic Planning Consultants	
Appendix Eight:	Consultation	
Appendix Nine:	Proposed District Plan Policies, Objectives & Assessment Criteria	
Figure One:	Pakanui Structure Plan Area	
Figure Two:	Pakanui Structure Plan Human Environment	
Figure Three:	Pakanui Structure Plan Natural Environment	

1.0 INTRODUCTION

The Pakanui Structure Plan has been prepared in response to a privately initiated landowner directive within the Pakanui Catchment. The structure plan accords with the relevant structure plan provisions of the Waitakere City Proposed District Plan 1995.

Structure plans establish guidelines for development, balancing land capability constraints and environmental and amenity values with economic feasibility and development objectives. They identify zones suitable for different levels of development intensity, recognising community needs and the character of the land.

This structure plan is the result of extensive environmental assessments across the Pakanui Catchment and consultation with stakeholders including local residents, the wider community, local iwi, Waitakere City Council, Rodney District Council and Auckland Regional Council. This report has been prepared in fulfilment of the requirements of Section 32 of the Resource Management Act 1991, and as a guide to future development within the structure plan area, and the associated resource consent process.

2.0 THE PAKANUI CATCHMENT

The Pakanui Catchment is a discrete north facing area of land, bounded to the south by McEntee Road, the west by Amriens Road and the east by Sunnyvale Road. The northern boundary of the catchment is delineated by the Rodney District Council territorial boundary, as detailed in Figures One, Two and Three. The catchment comprises 170 hectares of land in various land use practices, including intensive poultry farming, horticulture and pasture.

The topography of the catchment ranges that from gently undulating land at the northern end of the catchment, to steeply rolling in land in the southern and upper reaches of the catchment.

The density of development within the Pakanui Catchment varies from small land holdings of 3000m² in area, up to 30 hectares in area at the Bromley Hatcheries site. The overall average site density within the catchment is about 5.0 hectares.

The two major watercourses within the area are the Pakanui and Copedo Streams, which both originate from the upper southern reaches of the catchment. The headwaters of the Massich Stream, which drains into the Kumeu Catchment, is located in the north-eastern corner of the Pakanui Catchment.

The area is serviced by three main roads, Amriens, McEntee and Sunnyvale Roads, with a private road off Sunnyvale Road accessing four properties. These roads are rural in nature, with no footpaths and no reticulated stormwater conveyance infrastructure.

The Pakanui Catchment is located a short distance from the Waitakere and Swanson townships, which provide community facilities such as the Waitakere and Swanson Primary Schools, and local shops.

FIGURE ONE – PAKANUI STRUCTURE PLAN AREA

FIGURE TWO – PAKANUI STRUCTURE PLAN AREA HUMAN ENVIRONMENT

FIGURE THREE – PAKANUI STRUCTURE PLAN AREA NATURAL ENVIRONMENT

3.0 PAKANUI STRUCTURE PLAN METHODOLOGY

The Pakanui Structure Plan has been prepared on a catchment wide basis, which facilitates the protection and enhancement of natural features and resources which contribute to the rural character of the area, and assessing the impact of development on the catchment and local environment. The methodology utilised is consistent with the guidelines contained in the Waitakere City Proposed District Plan and the Auckland Regional Policy Statement, which includes assessment of:

- the natural character of the land (steepness, flood proneness, propensity to erosion, vulnerability of ecosystems, and existing vegetation patterns);
- the existence of features or values which warrant protection or preservation (such as sites of significance to Maori, indigenous vegetation, sensitive areas such as stream valleys and estuaries);
- the location and scale of infrastructure, such as water and sewerage systems, and the adequate treatment of stormwater;
- the location and scale of infrastructure, such as water and sewerage systems, and the adequate treatment of stormwater.

In addition, regard has been had to:

- retaining rural character
- protecting native vegetation
- protecting streams and water quality
- protecting heritage
- protecting amenity and the environment
- avoiding increasing flood risk

All properties within the Pakanui Catchment have been considered in the preparation of the structure plan. However, only those properties which are larger than

approximately 2.0ha and/or do not have environmental constraints such as extensive native vegetation, (such as the “Luckens Block” at 4-14 McEntee Road), have had development potential identified.

Two layers of structure plan maps are presented. The Boffa Miskell “Catchment Concept Plan 4” (refer Appendix One and at the end of this document) identifies potential building platforms and vehicle access, and indicative lot boundaries, which have been developed in cognisance of ecological, landscape character, archaeological, wastewater, stormwater and traffic constraints – i.e. all constraints with the exception of geotechnical issues. The second structure plan map, “Preliminary Pakanui Structure Plan 5”, identifies the number of additional lots provided for each property, taking into account geotechnical constraints. It is considered that this two layered approach will ensure that future subdivision applications can clearly demonstrate their consistency with the objectives of the structure plan. Furthermore, where development additional to that provided for on the “Preliminary Structure Plan 5” is sought, it will be easy to identify which constraints precluded further development. It is not envisaged that there will be development beyond that shown on “Catchment Concept Plan 4”.

4.0 STATUTORY RESOURCE MANAGEMENT FRAMEWORK

4.1 Resource Management Act 1991

The Resource Management Act 1991 (RMA) is the principal legislation for the management of New Zealand’s natural resources – land, air, water, ecosystems, soils, geology and the built environment. The purpose of the RMA is detailed in Section 5, which states:

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) In this Act, “sustainable management” means managing the use, development and protection of natural resources in a way or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety while-*
 - (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
 - (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

The RMA therefore provides for the integration of the biophysical environment, and recognises the existence of various and competing resource values and provides for a public process to establish community objectives and goals.

In achieving the purpose of the RMA, Section 6 sets out matters of national importance that shall be recognised and provided for:

6. Matters of National Importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection

of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development:*
- (b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development:*
- (c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*
- (d) The maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers:*
- (e) The relationship of Maori and their culture and traditions with their ancestral lands, water, site, waahi tapu and other taonga.*

Section 7 of the RMA sets out other matters which require particular regard, including:

- (a) Kaitiakitangi:*
- (b) The efficient use and development of natural and physical resources:*
- (c) The maintenance and enhancement of amenity values:*
- (d) Intrinsic values of ecosystems:*
- (e) Recognition and protection of the heritage values of sites, buildings, places or areas:*
- (f) Maintenance and enhancement of the quality of the environment:*

...

Section 8 of the RMA requires that the Principles of the Treaty of Waitangi be taken into account in relation to managing the use, development and protection of natural and physical resources.

Part III of the RMA sets out Duties and Restrictions for, amongst other things, the subdivision of land. Section 11 states that no person may subdivide land unless the subdivision is expressly allowed by a rule in a plan or resource consent is obtained. Furthermore, Section 17 states that every person shall avoid, remedy or mitigate any adverse effect on the environment arising from an activity carried on by or on behalf of that person, whether or not that activity is in accordance with a rule in a plan or a resource consent.

Section 31 of the RMA defines the functions of territorial authorities for giving effect to the RMA in its district, which are as follows:

- “(a) The establishment, implementation, and review of objectives, policies, and methods to achieve integrated management of the effects of the use, development, or protection of land and associated natural and physical resources of the district,*
- [(b) The control of any actual or potential effects of the use, development, or protection of land, including for the purpose of the avoidance or mitigation of natural hazards and the prevention or mitigation of any adverse effects of the storage, use, disposal, or transportation of hazardous substances,*
- (c) The control of subdivision of land,*
- (d) The control of the emission of noise and the mitigation of the effects of noise,*
- (e) The control of any actual or potential effects of activities in relation to the surface of water in rivers and lakes,*

(f) *Any other functions specified in this Act.”*

Territorial authorities are also required to consider alternatives, and assess the benefits and costs of any objectives, policies, rules or other methods, prior to adoption into the district plan, and have regard to the following:

- “(i) The extent (if any) to which any such objective, policy, rule, or other method is necessary in achieving the purpose of this Act; and*
- (ii) Other means in addition to or in place of such objective, policy, rule, or other method which, under this Act or any other enactment, may be used in achieving the purpose of this Act, including the provision of information, services, or incentives, and the levying of charges (including rates); and*
- (iii) The reasons for and against adopting the proposed objective, policy, rule, or other method and the principal alternative means available, or of taking no action where this Act does not require otherwise; and*
- (b) Carry out an evaluation, which that person is satisfied is appropriate to the circumstances, of the likely benefits and costs of the principal alternative means including, in the case of any rule or other method, the extent to which it is likely to be effective in achieving the objective or policy and the likely implementation and compliance costs; and*
- (c) Be satisfied that any such objective, policy, rule, or other method (or any combination thereof)-*
 - (i) Is necessary in achieving the purpose of this Act; and*
 - (ii) Is the most appropriate means of exercising the function, having regard to its efficiency and effectiveness relative to other means.*

Part V of the RMA, with respect to District Plans, requires that Plans shall not be inconsistent with, amongst other things, a regional policy statement, or any regional plan.

Specific circumstances under which a consent authority cannot grant a subdivision consent are set out in Section 106 of the RMA, and are as follows:

- “(a) Any land in respect of which a consent is sought, or any structure on that land, is or is likely to be subject to material damage by erosion, falling debris, subsidence, slippage, or inundation from any source; or*
- (b) Any subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to that land, other land, or structure, by erosion, falling debris, subsidence, slippage, or inundation from any source –*

Unless the consent authority is satisfied that sufficient provision has been made or will be made in accordance with subsection (2).

- (2) *A consent authority may grant a subdivision consent if it is satisfied that the effects described in subsection (1) will be avoided, remedied, or mitigated by one or more of the following:*
- (a) *Rules in the district plan:*
 - (b) *Conditions of a resource consent, either generally or pursuant to section 220(1)(d):*
 - (c) *Other matters, including works.*

Section 220 enables territorial authorities to impose conditions of consent for the protection of land against erosion, subsidence, slippage, or inundation.

4.2 Auckland Regional Policy Statement

The Auckland Regional Policy Statement (ARPS) is an “umbrella” document for the integrated management of the use, development and protection of the natural and physical resources of the Auckland Region.

The ARPS identifies as an issue that “*the region will need to accommodate continued population growth and economic development in the foreseeable future*” (Issue 2.3.1). It is also acknowledged that “*rural resources enable people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety. However, the effects of some activities on the resource and the environment of rural areas, including cumulative effects, can be significantly adverse*” (2.3.3).

The ARPS also states that “*the Waitakere foothills are an important visual foreground to the bush clad hills...Development in the Kumeu, Oratia, Opanuku and Swanson catchments would need to address the potential for effects on or by flooding in those catchments*” (2.3.2).

A strategic direction is provided for rural areas, which states that “*Countryside living is to be subject to constraints as to location, scale and extent so as to avoid remedy or mitigate adverse effects.*” Countryside living is defined as “*low density residential development on rural land. It includes concepts of rural-residential development, scattered rural lots, farmlets, residential bush lots, retirement lots, large-lot residential development and the like. It is similar to low density residential development where it occurs in residential areas*”. Policies relating to countryside living include avoiding significant adverse effects on the environment, the effect of countryside living on rural character, prematurely foreclosing options for accommodating future urban growth, and incompatibility between uses and outcomes.

Where a new area of countryside living, as defined by the ARPS, is proposed, Method 2.6.2.8 requires that these new areas be provided for through a structure planning process, or similar method. The application of a structure planning process is also provided for by the Auckland Regional Growth Strategy 2050. Structure planning is further explained in Appendix A of the ARPS, which states that “*the process will produce a plan, which guides development, so that the form and intensity of development is appropriate to the character of the land*”.

4.3 Waitakere City Proposed District Plan 1995

4.3.1 Strategic Direction

The Pakanui Catchment is located within the Foothills Environment of the Waitakere City Proposed District Plan (the 'Plan'). The area contains both General and Managed Natural Areas, a number of non riparian streams, and there are 7m Riparian Margins associated with the Pakanui and Copedo Streams, as shown in Figures Two and Three.

The Foothills Environment of the Plan occupies a key position between the urban area of the City and the Waitakere Ranges. The containment policies of the Plan do not provide for the intensification to an urban density of development within the Foothills. Development thresholds are however identified in the strategic direction of the plan, and include:

- protection of identified vegetation;
- avoidance of steep and erosion-prone land;
- avoidance of riparian margins;
- protection of amenity and character of the Environment;
- protection of the Waitakere Ranges landscape;
- protection of significant native vegetation and fauna from pests and weeds;
- providing for opportunities for regeneration and restoration of resources;
- maintenance of dwellings/population in the Foothills which is consistent with infrastructure and servicing standards.

Whilst the Plan contains a minimum site size method to achieve its containment policies, development flexibility is provided for through the structure plan process, which is further explained in the strategic direction as *“relating development potential to the specific environmental and physical constraints and opportunities on each site. As part of the subdivision consent certain areas identified on the structure plan will require enhancement (revegetation, restoration or streamside revegetation) or protection through fencing or the placing of covenants or encumbrances on titles. Any site is assessed in terms of its characteristics and what the catchment or structure plan area can sustain.”*

4.3.2 Objectives and Policies for the Foothills Environment

The following is an outline of the main objectives and policies for development in the Foothills Environment:

Effects on Water Quality & Quantity

- *Policy 1.1*
Settlement should be of a type and density that avoids, remedies or mitigates adverse impacts on water quality.

Analysis:

This policy seeks to ensure that development is located away from sensitive watercourses and areas prone to flooding, and to avoid the spread of urban development outside identified urban areas. Development outside the urban area is possible, if adverse effects on water quality are avoided.

- *Policy 1.4*
Settlement within the Foothills Environment should be designed and located, and be of a density that recognises their key positions in relation to protecting the valued natural resources, including freshwater quality and quantity. Particular regard should be had for the cumulative impacts of settlement, the comprehensive design and management of settlement, and the relationship of individual sites with the surrounding catchment and natural and physical resources.

Analysis:

This policy seeks that subdivisions are of a quality that takes account of likely subsequent development processes (such as the construction of accessways, buildings, infrastructure etc), and the relationship between subdivision design and development impacts.

- *Policy 1.5*
Activities should be managed in a way that avoids further clearance and damage to native vegetation within the margins of watercourses.

Analysis:

The policy seeks that vegetation is not removed from riparian margins. As the Pakanui and Copedo streams are not well vegetated, and grazed by stock, the structure plan process will incorporate protection and restoration of riparian areas.

- *Policy 1.7*
Activities should be managed in a way that encourages the absorption of rainfall and surface water runoff onsite, avoids the creation or exacerbation of stormwater flooding problems offsite and minimises the runoff of surface water into stream catchments and waterways.

Analysis:

Stormwater runoff from development can result in surface erosion, scouring of soil, sedimentation of stream networks, with contaminants from roads and other hard surfaces being deposited into streams and harbours. This policy seeks that the highest possible level of onsite absorption is achieved. Hydrological neutrality is generally regarded as achievement of this policy, and is proposed for the Pakanui Structure Plan area through the recommendations of the Applied Geographics Catchment Analysis and Stormwater Management assessment.

- *Policy 1.8*
Activities should be carried out in a way that avoids, remedies or mitigates, so minimising, the movement of soils and sediment and other contaminants into receiving waters.

Analysis:

Development with its associated earthworks for building platforms, foundations, access ways and infrastructure, can result in the erosion and subsequent sediment run off from the site into watercourses. The structure plan process of identifying indicative building platforms therefore takes into account the minimisation of earthworks to form building platforms and access ways, and therefore minimises land disturbance and the potential for sediment laden run-off into streams.

- *Policy 1.9*

Activities should avoid the modification of the structure and form of watercourses, and riparian margins. Particular regard should be had for avoiding the piping and culverting of streams, and the effects of earthworks.

Analysis:

The modification of watercourses, including the removal of riparian vegetation, reduces their ability to support instream biota and instream structures such as culverts or pipes can prevent fish passage. This is similar to Policy 7.1, which seeks that development is located away from riparian margins. The modification of watercourses is to be avoided within the Pakanui Structure Plan, with remedying of existing fish passage obstructions. In some instances culverting will be required for vehicle access and these should be designed to ensure fish passage is enabled.

□ *Policy 1.14*

The disposal, movement and storage of solid waste and sewage should be designed and managed in a way that avoids mitigates or remedies any discharge or leakage of contaminants into watercourses.

Analysis:

Soil and Rock Consultants have undertaken an assessment of the potential of land within the catchment to ensure that sites can adequately deal with onsite effluent disposal will ensure that no discharge or contaminants are discharged into watercourses.

□ *Policy 1.17*

Subdivision and development within structure plan areas should be designed and managed in a way that emphasis is given to the protection and enhancement of streams and their margins in the development, restoring low quality areas of vegetation or revegetating bare areas along waterway margins.

Analysis:

The intensification of development must not result in the degradation of streams and where possible restoration and enhancement of native vegetation alongside watercourses should be undertaken to avoid, remedy or mitigate potential adverse effects. The Pakanui Structure Plan has assessed the quality of the streams within the catchment, and identified those for protection and restoration.

Effects on Native Vegetation and Fauna Habitat

□ *Policy 2.2*

Settlement with the Foothills Environment should be designed and located and be of a density, that recognises their key positions in relation to surrounding natural and physical resources.

Analysis:

This policy is intended to ensure that subdivision and development does not have adverse impacts on native vegetation and fauna habitat, and it is anticipated that development through structure plans will result in an improvement in the overall resilience, biodiversity, integrity and extent of existing native vegetation and fauna habitat. Future development under the Pakanui Structure Plan will include revegetation of riparian margins, enhancement of ecological linkages, and large

areas of bush planting to meet stormwater mitigation requirements, as recommended in the Boffa Miskell Ecological Assessment.

Effects on Lands and Soils

- *Policy 3.4*
Activities should be carried out in a way that does not exacerbate slipping, subsidence, and / or erosion of soils and any natural hazard event within an identified natural hazard area.

Analysis:

This policy seeks that activities which have the potential to create natural hazards or exacerbate existing natural hazards are avoided. A geotechnical overview of the Pakanui Catchment has been prepared by Ormiston Associates, and has identified areas of potential geotechnical hazard, and development within these areas will be avoided unless further detailed geotechnical investigations can demonstrate the suitability of the land for rural residential development.

Effects on Ecosystem Stability

- *Policy 5.4*
Activities including subdivision should be designed, be of a nature and scale, be located and managed in a way that avoids or minimises adverse effects on the overall resilience, biodiversity and ecological integrity of the Green Network.

Analysis:

This policy seeks to ensure that activities are assessed against their potential to impede regeneration and the establishment of ecological linkages. The structure plan process has identified areas for protection, restoration and development of ecological linkages, which will ensure that future development enhances the resilience, biodiversity and ecological integrity of the Green Network.

- *Policy 5.5*
Activities within structure plan areas must have regard to ecosystem stability, should be designed in a way that protects and enhances the quality of natural resources, including native vegetation and amenity plantings and the re-establishment of linkages between areas of native vegetation and fauna habitat.

Analysis:

Structure plans should protect the overall resilience, biodiversity and ecological integrity of ecosystems. An ecological assessment of the Pakanui Catchment has identified areas for protection, restoration and regeneration, and will result in an improvement in the ecological functioning and integrity of the catchment as a result of future development.

Effects on Outstanding Landscapes

- *Policy 9.2*
Structure plans within the Foothills Environment should provide for opportunities to protect and enhance the outstanding landscape qualities, and reflect a density of development that does not compromise the significance of the foothills as an ecological and visual buffer between the urban areas of the City and the

Waitakere Ranges. The level of intensification of development must be appropriate to the capacity of the landscape to absorb that level of development without degrading the essential landscape qualities of the area.

Analysis:

A catchment wide assessment of landscape and visual qualities has been undertaken by Boffa Miskell for the structure plan area. This has identified visually sensitive areas, and placed indicated building platforms outside of these areas, and formulated a suitable density for development that will ensure that landscape quality of the area is not eroded. Enhancement planting has been identified in areas that will reinforce the landscape character of the area.

Effects on Amenity Values – Landscapes, Local Areas and Neighbourhood Character

□ *Policy 11.1*

Development with the Foothills Environment should be in keeping with the complex, varied and overall natural character of the area.

Analysis:

The natural character of the Pakanui Catchment contributes to the local residents and general communities appreciation of its aesthetic qualities, and intrinsic values. The Pakanui Structure Plan has been developed with cognisance of the visions and values of the local community.

□ *Policy 11.29*

Subdivision within structure plan areas should be designed so that subsequent development is compatible with the landscape character, amenity values and the noted landscape features of the area, including the protection of amenity values and privacy of each lot, protecting the amenity and character of the structure plan area, retaining and protecting areas of native vegetation, enhancing and restoring areas of native vegetation, providing for a density of development that does not compromise the Councils urban containment policies, and does not engender expectations of further subdivision at a later time.

Analysis:

The Pakanui Structure Plan has been formulated to ensure that future lots have sufficient onsite amenity and privacy, enhancement of the overall visual quality and amenity of the catchment, and the protection of significant landscape features such as sensitive ridgelines, native bush areas and watercourses.

Effects on Heritage Values:

□ *Policy 12.2*

Activities should be carried out in a way that ensures the avoidance of the destruction or partial destruction of listed heritage items. This is also related to Policy 8.5, which requires that activities do not adversely affect the historical, cultural or spiritual significance of any site or waahi tapu of significance to iwi.

Analysis:

An archaeological assessment of Maori and European occupation of the Pakanui Catchment has been undertaken by Clough Associates Limited, and did not find any heritage items.

5.0 DEVELOPMENT CONSTRAINTS ASSESSMENT

5.1 LANDSCAPE AND VISUAL ASSESSMENT

5.1.1 Introduction

Boffa Miskell Limited have undertaken a landscape and visual assessment of the Pakanui Catchment, with the objective of assessing the existing landscape character of the area, the opportunities and constraints within the catchment, and development of a concept plan for further rural residential development within the identified constraints. The Boffa Miskell report is attached at Appendix One to this document.

5.1.2 Methodology

The landscape assessment was prepared within the framework of the RMA, ARPS, the Plan, and the 1995 Waitakere City Landscape Assessment (Boffa Miskell Ltd & D.J Scott Associates). The assessment of landscape constraints included the review of aerial photographs, catchment topography, and a detailed site walkover investigation of the catchment, and assessment from the surrounding areas.

5.1.3 Pakanui Catchment Landscape Character

The Pakanui Catchment is a discrete north facing area of land comprising approximately 170 hectares of land in private ownership, varying in size from 3000m² to 30 hectares, with the average land holding being approximately 5.0 hectares. The majority of land is in pastoral land use, with some horticultural activities, and the central land holding of Bromley Park Hatcheries being an intensive poultry raising activity.

The existing landform of gently undulating to steeply rolling topography, and varied vegetation patterns, creates a landscape character which is pleasant as a result of the variations in landform, remnant native vegetation and a relatively dispersed settlement pattern. The landscape character of the catchment is not however remarkable.

5.1.4 Landscape Constraints and Opportunities

Areas of significant vegetation, watercourses and steep slopes (including significant ridgelines identified in the district plan) have been identified as the most significant constraints to further development within the catchment.

Enhancement of landscape quality is provided for through weed eradication, riparian planting to enhance the natural landscape pattern, and the vegetation of gullies to link existing bush areas.

5.1.5 Development Opportunities

A limited amount of development is able to be absorbed into the Pakanui Catchment, through the careful placement of building platforms, the implementation of bush protection areas, and the enhancement of riparian margins and gullies. A catchment concept plan has been prepared, which identifies indicative building platforms and lot boundaries for each property, based on the landscape (and ecological) constraints of the area, bush protection and indicative revegetation areas. These revegetation areas are also in fulfillment of the stormwater mitigation requirements of the hydrological assessment of the catchment. Whilst these indicative building platforms and lot boundaries are not identified on the final structure plan, they provide guidance for future subdivision and development, and clearly demonstrate the development potential of each property. The building platforms and lot boundaries were identified with regard to the provision of outdoor living areas, separation distances between proposed and existing dwellings, allowance for sufficient area for stormwater mitigation planting and enhancement planting, and in consultation with individual land owners.

The implementation of the recommendations of the landscape and visual assessment, including bush protection, enhancement planting and the careful siting of building platforms will result in the protection of the landscape character and visual qualities of the Pakanui Catchment.

5.2 ECOLOGICAL ASSESSMENT

5.2.1 Introduction

An assessment of the existing ecological values of the Pakanui Catchment has been undertaken by Boffa Miskell Limited, as part of an integrated landscape and ecological study. The Boffa Miskell report is attached at Appendix One to this document. This ecological assessment has identified opportunities and constraints to development and recommendations for protection and enhancement of both terrestrial and aquatic habitats.

5.2.2 Methodology

The ecological assessment was prepared with regard to the RMA, ARPS, the Plan, Protected Natural Areas Programme (Auckland Regional Council), NIWA fish database, and extensive field work. This field work included detailed site walkovers of the catchment, physical habitat assessment for the streams, terrestrial habitat assessment

5.2.3 Pakanui Catchment Ecological Values

The Pakanui Catchment contains three distinct ecological units, bushland, rural-residential farmland, and land-based industry. The catchment is located within the Tamaki ecological district of the Protected Natural Area Survey (Auckland Regional Council), and is identified as an area which in the past contained a mosaic of forest types but is now dominated by pasture with some young kanuka bush remnants.

5.2.4 Vegetational Characteristics

Manuka-kanuka shrublands which comprise much of the bush remaining in Pakanui, are rich in species, and critical for the development of more mature podocarp forest. An assessment of the typical species within the catchment shows the successional condition of the bush remnants.

There are two substantial bush areas, one large bush area and five small woodlots within the catchment. Each of these areas were analysed with regard to their significance, ecological value and value in relation to the Plan, which are detailed in Section 3.14 of the ecological report. None of these bush areas are considered to be significant in terms of the Plans standards, but all have high local values and the

potential to be enhanced to provide greater biodiversity, ecological linkages, and enhanced botanical and habitat values to the structure plan area.

5.2.5 Riparian Values

The Pakanui Catchment contains two major watercourses, the Pakanui and Copedo streams which both originate within the catchment. Both streams were fished as part of the aquatic habitat assessment. However, no fish species were caught. Fresh water invertebrates were also sampled for, but no species indicative of good habitat or water quality were found.

The Pakanui Stream was assessed based on the lower stream system which is located outside of the Pakanui Structure Plan area, against the upper stream systems within the structure plan area. The lower Pakanui Stream displays reasonable conditions and habitat conditions, with the majority of organic debris however being exotic and not a good resource for native invertebrates. The Copedo and Pakanui Streams, located within the structure plan area, are small, shallow clay based headwater streams.

Both of the streams converge into a pond located at the catchment boundary with Rodney District Council, and through a dam overflow and culvert down into the lower Pakanui Stream. The dam embankment is approximately 2-3 metres high, 30-40m long and impounds water for a distance of approximately 200m upstream. An onsite meeting was held with Jonathon Moores of Auckland Regional Council regarding the status of this pond, and the Councils' opinion on the pond remaining within the catchment. Auckland Regional Council records indicate that the pond is not a legalised structure. Mr Moores has advised that Council would wish to see the dam decommissioned and removed, as it may compromise fish passage and restoration. This will be pursued separately to the proposed Plan Change, and it is envisaged that the pond will be removed at such time that development occurs on the site within which it is contained (47-49 Amriens Road).

Overall the Pakanui and Copedo streams are in poor condition, with limited aquatic function, low biodiversity, heavy sedimentation resulting mainly from grazing practises, and fish passage barriers (pond at the structure plan boundary). The watercourses however remain the most important ecological feature within the landscape, and are therefore of some relative importance.

5.2.6 Recommendations

The Structure Plan applies a 10 metre riparian margin to the Pakanui and Copedo Streams (the district plan identifies a 7m riparian margin), which is to be revegetated to improve water quality, shading, reduction in sediment loads. Areas additional to that already protected under the Natural Area rules of the Proposed District Plan have also been identified for bush protection, and enhancement. In addition, the planting required to achieve hydrological neutrality has been located in indicative revegetation areas, which will aid in the restoration of ecological linkages, and reduction of fragmentation.

Overall from an ecological perspective, a limited amount of further rural-residential development is considered to be within the ecological capacity of the catchment, subject to the implementation of the revegetation and restoration recommendations, and in fact will ultimately result in long term ecological benefits through the protection

of riparian margins and marked improvement in water quality and stream habitat, and locally significant vegetation.

5.3 ARCHAEOLOGICAL ASSESSMENT

5.3.1 Introduction

Clough and Associates Ltd have undertaken an archaeological and waahi tapu (defined by the Plan as modified sites of significance to tangata whenua holding manawhenua status in Waitakere City) assessment of the Pakanui Catchment, with the purpose of identifying any historic or archaeological constraints to development. Clough and Associates Ltd have also undertaken a heritage assessment for Waitakere City Council in 2000, in association with the Swanson Structure Plan.

5.3.2 Methodology

The Pakanui Catchment assessment was undertaken by researching the New Zealand Archaeological Association Site File, the Auckland Regional Council Cultural Heritage Inventory, and plans at Land Information New Zealand. Field work was also undertaken by visual inspection and probe and spade testing. This report is attached at Appendix Two to this document.

5.3.3 Archaeological Features

The district plan does not identify any scheduled sites, archaeological features, or heritage items within the Pakanui Catchment area. The district plan does however note that further survey work is required within the Foothills Environment to ascertain archaeological and waahi tapu sites. Furthermore, while there are no recorded archaeological or waahi tapu sites within the catchment, the Historic Places Act 1993 protects all archaeological sites (including waahi tapu) whether recorded or unrecorded.

5.3.4 Findings

No archaeological sites relating to pre-European Maori occupation have been recorded in the Swanson area. While the forest cover present would have afforded resources such as food and materials, the subsequent occupation by European settlers for tree felling, gum digging, farming and other activities would have destroyed any evidence of Maori occupation.

The European history of the area is diverse, with the kauri forests providing a timber milling and gum digging enterprise, and the land being used afterwards for horticulture, viticulture and farming.

The wider Swanson area contains five recorded archaeological sites which relate to the timber milling industry, and a number of historic buildings. However, none of these sites or buildings are located within the Pakanui Structure Plan area, and no further archaeological sites were found in the structure plan area as a result of the Clough and Associates assessment. The Pakanui catchment and land immediately adjacent is therefore considered to have low archaeological value.

5.3.5 Recommendations

Whilst no archaeological or waahi tapu sites were identified during this assessment, the visual inspection undertaken cannot necessarily identify all subsurface archaeological remains. Therefore, in accordance with generally accepted practice, should any archaeological features or koiwi (human remains) be encountered during future development works, all work should cease immediately, and the Historic Places Trust and local iwi contacted.

5.4 CATCHMENT ANALYSIS AND STORMWATER MANAGEMENT

5.4.1 Introduction

Land use within the Pakanui Structure Plan area has remained unchanged for some time, and to some extent an equilibrium is achieved with regard to the hydrology of the catchment. When land use practices change, the factors which affect stormwater run off change also, such as vegetation cover and impermeable surfaces, which in turn cause the hydrological regime of the land to alter, which can produce adverse effects such as:

- Stream bank erosion in watercourses,
- Sedimentation in watercourses and downstream environments,
- Increased potential for more severe flooding and increased areas of flooding,
- Increased contamination of receiving environment, both in local streams and in the marine environment,
- Adverse impacts on aquatic resources.

(Source: URS – ‘Countryside and Foothills Stormwater Management Code of Practice’, April 2002, Prepared for EcoWater Solutions).

To ensure that these potential adverse effects are avoided, Waitakere City Council has adopted a policy of ‘hydrological neutrality’, which means that the flows, volumes and time of concentration of stormwater runoff from area during rainfall is the same both before and after development has occurred.

The principles of hydrological neutrality are as follows:

- Stormwater disposal should mimic, to the extent possible, the natural drainage processes of an area,
- Modifications to existing natural drainage patterns should be kept to a minimum,
- Stormwater should not be discharged directly into streams from a piped system,
- Impervious areas should be kept to a minimum, and
- Appropriate methods to hold stormwater back (detention) before disposal into waterways should be employed.

(Source: URS – ‘Countryside and Foothills Stormwater Management Code of Practice’, April 2002, Prepared for EcoWater Solutions).

5.4.2 Methodology

An assessment of the Pakanui Catchment hydrology and recommendations for the management of stormwater generated by additional development in the catchment, has been provided by Applied Geographics, and is attached at Appendix Three to this document. This assessment was prepared using the US Army Corps of Engineers Program HEC-HMS, with analysis undertaken for the 50%, 10% and 1% AEP events. This was then reviewed with regard to ensuring hydrological neutrality was maintained within the catchment, with recommendations for development mitigation measures required to achieve this concept, whereby there will be no significant change to the time of runoff and the magnitude of flood peak and flood volume. The assessment and recommendations are consistent with the ARC principles of low impact design.

5.4.3 Stormwater Management Recommendations

URS Limited on behalf of Waitakere City Council has prepared a “Countryside and Foothills Stormwater Management Code of Practice” (April 2002), and which recommends 2000m² of compensatory bush planting for stormwater mitigation. This has been accepted by Auckland Regional Council (ARC) in the Proposed Regional Plan: Air, Land and Water; and in correspondence from the ARC regarding the Pakanui Structure Plan (refer letter 18.12.2002 in Appendix Eight). It is therefore considered appropriate that stormwater mitigation planting in the Pakanui Catchment also be required at a ratio of 2000m² per additional lot.

Stormwater mitigation planting will be required at an average density of 1 plant per 1.5m², and of species consistent with that recommended in the Boffa Miskell Landscape and Ecology report (refer Section 5.0) and those plants recommended within the Puriri-Kereru Warm Lowlands Ecosystem of Waitakere City (refer “A Guide for Planting & Restoring the Nature of Waitakere City “, 1997, Waitakere City Council).

5.5 GEOTECHNICAL OVERVIEW

5.5.1 Introduction

A geotechnical overview of the Pakanui Catchment has been prepared by Ormiston Associates Limited, and is attached at Appendix Four to this document. The purpose of the geotechnical overview is to provide an assessment of geotechnical constraints to development. The catchment displays slopes which exhibit evidence of both active and relict movement in the form of soil creep, shallow instability, slumping and deep seated failures. The geotechnical overview found that some properties were located within an area defined as “Probably Unsuitable for Development”. Subsequent to this overview assessment, three landowners within Sunnyvale Road commissioned site specific geotechnical investigations to determine if stable building platforms were available. Details of this investigation are discussed in Section 5.5.6.

5.5.2 Methodology

The following methodology was used to develop a zonation of geotechnical constraints over the study area:

Stage One: Aerial Photograph Assessment

- Examination of stereographic photographs from 1976 and 2000, with mapping of geomorphic features and identification of arcuate landforms, scarps, hummocky topography and other features indicative of slope movement,
- Review of Waitakere City Council records,
- Preparation of preliminary categories/zones for land development.

Stage Two: Catchment Walkover Inspection

- Walkover inspection of entire catchment by Engineering Geologist to refine findings of aerial photograph assessment. An assessment of slope angles, potential instability, bedding orientations, surface seepage, hummocky and arcuate landforms and relict and recent instability was made.

Stage Three: Reporting

- Preparing of geotechnical overview report, with discussion of landform and zonation of the catchment into three broad categories of geotechnical stability.

5.5.3 Geotechnical Zones & Risk Classification

The geotechnical constraints of the catchment were classified with regard to the recent recommendations for structure plans and land development zones, at the New Zealand Geotechnical Society 2001 Symposium by Beca Carter Hollings and Ferner Ltd. The following three land capability zones were recommended:

Zone A – Suitable For Development

Area of land that can be developed subject to a geotechnical site investigation of the area to verify slope stability and soil conditions, and to give recommendations for development. Classified as land suitable for residential development with a very low risk of instability, without engineering improvements.

Zone B – Probably Suitable for Development

Area of land that can be developed subject to a site specific geotechnical investigation of building platforms to determine foundation options and the requirement for remedial measures. Zone B is classified as land considered generally suitable for residential development, with a medium risk of instability, and is likely to require some stabilisation works.

Zone C – Probably Unsuitable for Development

Area of land considered probably unsuitable for development due to the occurrence of recent/relict instability or marginally stable ground. This zone also includes areas adjacent to eroding watercourses and land subject to uncontrolled filling or land filling. Zone C is classified as land which may not be suitable for residential development, having a high to very high risk or instability, and requiring significant stabilisation works.

A fourth zone, Zone D, has also been included in the Pakanui geotechnical overview, and comprises areas precluded from development due to bush or riparian protection.

The risk classifications associated with each zone are consistent with that recommended for New Zealand and Australian draft guidelines by Crawford and Millar (1998).

5.5.4 Geology

The Pakanui catchment is underlain by residual soils of the Cornwallis Formation, a subgroup of the Waitakere Group of volcanic derived sedimentary deposits, and typically comprises firm to very stiff clays, silts and sands. On steeper slopes these soils are prone to a translational failure when they become saturated. Movement of the soils generally occurs at contact between the weaker soil mantle and the underlying harder material.

5.5.5 Findings and Recommendations

The Ormiston Associates geotechnical overview has found areas classified as geotechnically suitable, probably suitable and probably unsuitable for development, as identified on the Development Zonation Plan attached to their report at Appendix Four.

The catchment as a whole is suitable for rural residential development. This is subject in most instances to specific geotechnical investigations, with the required intensity of investigation dependant on the zonation.

It should be noted that while land located within Zone C has not been identified in the overall structure plan as being suitable for further development, this does not preclude future development of these sites if it can be demonstrated by a site specific geotechnical investigation that a building platforms are possible. Three property owners at Sunnyvale Road commissioned further site specific investigations, which are discussed in the Section 5.5.6 below.

The Covich Landfill is also identified entirely within a Zone C geotechnical area due to the presence of unengineered fill. Subject to site specific geotechnical investigation of sufficient detail to identify a building platform(s), then development to a density as indicated on the Boffa Miskell 'Catchment Concept Development Plan 4", with regard to ecological and landscape constraints, would be consistent with the structure plan objectives and guidelines for development.

Indicative building platforms have been identified for each site within the catchment, to ensure that each additional site is capable of containing a building platform that is feasible in terms of both geotechnical, landscape, ecological and all other environmental constraints. Whilst these building platforms are not shown in final structure, they are included in the Boffa Miskell Landscape and Ecological Report, attached at Appendix One to this document, and are intended as a guide to future subdivision and development.

5.5.6 Site Specific Geotechnical Investigations

Three properties at 28, 30 and 32 Sunnyvale Road have been identified in the Ormiston Associates Limited Geotechnical Overview as being entirely located within a Zone C geotechnical zone, which is "probably unsuitable for development". These

landowners have subsequently commissioned site specific geotechnical investigations by Soil and Rock Consultants, to determine if stable building platforms are present on the property. The findings of this investigation are attached at Appendix Five to this document.

The site specific investigation included the following:

- Walkover geotechnical inspections;
- Review of aerial photographs;
- Review of the Ormiston Associates Geotechnical Overview for Pakanui Catchment, the Tonkin & Taylor Swanson Structure Plan Geotechnical Constraints Report and Birdwood Special Area Geotechnical Constraints Report, the Beca Carter Hollings & Ferner Birdwood Concept Plan: Land Stability Assessment;
- Reference to geological maps to assess underlying geology and subsoil conditions;
- Drilling of 18 hand augerholes, 5 machine boreholes, and installation of 7 standpipes in augerholes and 9 standpipe piezometers in the machine boreholes to monitor groundwater conditions.

These investigations confirmed the presence of past geological instability features as identified in the catchment wide geotechnical overview by Ormiston Associates. The ancient landslide mass over the properties appears to be in equilibrium, with no evidence of movement over at least the last 22 years. The localised areas of shallow instability have possibility been triggered by groundwater seepage and surface runoff.

The following remedial measures have been recommended in association with the two building platforms identified for each site, to address the potential for instability and reduce the associated risk level to “low to medium”, therefore placing the sites within Zone B of the Ormiston Associates Geotechnical Overview:

1. Recontouring of steeper slopes to improve long term slope stability;
2. Installation of deep subsoil drainage following recontouring;
3. Removal of existing ponds;
4. Interception of stormwater runoff;
5. Specific foundation design with regard to soil creep;
6. Further site specific geotechnical investigations for specific dwelling designs at the time of building consent application;

Subject to these remedial measures being implemented and monitored, it is the opinion of Soil & Rock Consultants that the level of risk for instability on these sites will be low to medium, and the identified building platforms have therefore been included in the Pakanui Structure Plan. It should also be noted that the investigation by Soil & Rock was limited to two platforms per site due to financial constraints. Therefore, if the landowners wish to undertake further investigations in the future to determine additional building platforms, provided that they are consistent with the constraints identified in all other catchment wide studies, then additional development on these properties would be consistent with the intent of the Pakanui Structure Plan. For this reason, the Catchment Concept Plan in the Boffa Miskell Landscape and Ecological Report shows building platforms which are appropriate in terms of landscape, ecological, traffic, hydrological, wastewater and archaeological constraints. Whilst some of these platforms have not been identified in the final structure plan as the geotechnical overview has placed them within Zone C, further site specific geotechnical investigations such as have been undertaken for 28-32

Sunnyvale Road, may determine that suitable stable building platforms are available subject to remedial measures. Provided that these site specific investigations are cognisant of the other environmental constraints, and do not exceed the density depicted in the Catchment Concept Plan, then this would be consistent with the intent of the Structure Plan and would only require the site specific geotechnical investigation to support a future subdivision application for a density greater than that shown on the final structure plan.

5.5.7 Covich Property – 40 Sunnyvale Road

The Covich landfill at 40 Sunnyvale Road has been identified within Zone C of the Ormiston Associates assessment, due to the unknown nature of the fill material. As such, no additional lots have been identified on the draft structure plan. However, the site is suitable for further development with regard to ecological, landscape, stormwater, wastewater, roading and archaeological constraints, as demonstrated by the four indicative building platforms identified on the Boffa Miskell Catchment Concept Development Plan 4. Therefore, if further specific geotechnical investigations are undertaken on the property and determine stable building platforms can be achieved, then further development on this property is considered to be appropriate and consistent with the structure plan. This would need to be achieved however through a private plan change process.

5.6 WASTEWATER ASSESSMENT

5.6.1 Introduction

An assessment of the onsite wastewater disposal capabilities of the sites contained within the Pakanui Structure Plan area has been prepared by Soil & Rock Consultants Limited, and is attached at Appendix Six to this document. This assessment was carried out having regard to the Auckland Regional Council Technical Publication Number 58.

5.6.2 Methodology

The assessment included a detailed geotechnical walkover appraisal of the Pakanui Structure Plan area, and the drilling of ten hand augerholes. Measurement of undrained shear strengths, visual tactile field classification of subsoils, and measurements of the groundwater table were undertaken from the augerholes.

5.6.3 Findings and Recommendations

The subsoil conditions of the Pakanui Catchment were found to be within Soil Category 6, being sandy clay, non-swelling clay and silty clay, being slow draining. The catchment is underlain by residual soils of the Cornwallis Formation, a sub-group of the Waitakere Group of volcanic derived sedimentary deposits. It is therefore likely that the uppermost clayey soils have poor permeability with an increased risk of slope instability if wastewater is disposed of via soil percolation with conventional trenches. Therefore systems that dispose of treated effluent via evaporation and evapo-transpiration are recommended, such as treatment plants or sand filter systems. It is also likely that an elevated groundwater table will be present during winter months, and therefore a clearance will be required between the base of the disposal area and the critical water table level.

Based on these findings, the following recommendations have been made:

- (i) Septic tank systems for first stage treatment will be adopted on most if not all sites within the catchment;
- (ii) All wastewater disposal systems will require specific design with respect to their influence on slope stability;
- (iii) The specific design shall take into account exposure to sun, wind, vegetation cover, and proximity to watercourses;

- (iv) An average applied hydraulic load of 2mm-3mm per day should be adopted for the design of wastewater disposal fields, but should take into account the elements stated in (iii).

Overall, it is considered that the geological characteristics of the structure plan area, and proposed density of development under the structure plan, will allow for satisfactory onsite wastewater disposal, subject to the recommendations outlined above.

5.7 TRAFFIC IMPACT ASSESSMENT

5.7.1 Introduction

Traffic Planning Consultants have undertaken a traffic impact assessment of the Pakanui Catchment with regard to the proposed structure plan and future development potential. This report is attached at Appendix Seven to this document.

5.7.2 Methodology

The traffic impact assessment was prepared with regard to the development potential identified for catchment, the existing roading network and their characteristics; a review of the accident history of the local roads, and recording of traffic flows on the principal roads. Visibility at the proposed accessways was also assessed with regard to the geometry of the local roads.

5.7.3 Roothing Capacity

The generation of additional traffic as a result of the future development of the Pakanui Catchment was assessed with regard to the capacity of the existing roading network, particularly with regard to the McEntee/Amriens Road and Sunnyvale/Red Hills Road intersections.

The development potential identified for the catchment will result in the order of 600-750 additional vehicle trips per day, once fully developed. Of this volume, approximately 10% would occur during peak hours. The impact of this volume of traffic was assessed against traffic flow counts for the morning and afternoon peak periods of the day. This assessment found that the key intersections presently perform well, and that the additional traffic generated by future development would have no more than minor effects on the safety and efficiency of these networks.

5.7.4 Access Alignments and Visibility

The catchment concept plan developed by Boffa Miskell shows indicative building platforms and vehicle access as a guide to future development. An assessment of these likely access points has been made with regard to the existing traffic environment, travel speed, vertical and horizontal alignments of the road and subsequent visibility.

In general visibility is adequate for the majority of the properties. However, at the time of future subdivision, when vehicle accessways are confirmed,

regard should be had to visibility and any remedial measures such as the trimming of vegetation. The properties accessed off the private road on Sunnyvale Road are located close to significant horizontal and vertical curves near the access locations. At the time that the access locations are accurately defined, regard should be given to possible remedial works to the road to improve visibility. It is also recommended that Council consider assuming responsibility for this road as a public road.

5.7.5 Conclusions

The development potential identified for the Pakanui catchment will be able to be accommodated by the existing roading network and associated intersections, with no more than minor impacts on the safety and efficiency of this network. Individual access to properties will need to be assessed and discussed with Councils Traffic Engineers at the time of subdivision proposals to ensure that visibility is adequate, with identification of any remedial works required to achieve suitable visibility.

6.0 CONSULTATION

6.1 Land Owner Consultation

Consultation with land owners within the Pakanui Structure Plan area has been ongoing since the inception of the project in 1999/2000. Consultation processes have been undertaken as follows:

- Land owner and Pakanui Development Group progress meetings
- Site meetings with individual landowners with landscape architect, ecologist, geotechnical engineer, to discuss land owner visions for their property, included property owner development plans;
- Review of indicative building platform and lot boundary layout with geotechnical engineer and land owners;

All participants in this consultation process have expressed general support for the Pakanui Structure Plan, its objectives and principles, environmental management approaches, and proposed density of development.

6.2 Community Consultation

A mail drop was undertaken in the vicinity of the structure plan area, advising of the Proposed Draft Pakanui Structure Plan (refer Appendix Eight) with an invitation to attend a drop-in night at the Waitakere Hall. The drop-in centre was intended to enable interested landowners and residents to discuss the proposed structure plan with Cato Bolam Consultants staff, and landowners within the structure plan area. Those people unable to attend the drop-in centre were provided with a comment form, with comment forms also available at the drop-in night. No comment forms were received by post. Approximately 10 people attended the drop-in night, and their queries were addressed on the night.

6.3 Te Kawerau a Maki

The Proposed Draft Pakanui Structure Plan was forwarded to Te Kawerau a Maki on 29th April 2002, with follow up on 5th July 2002. No response was received to this correspondence.

6.4 Ngati Whatua O Orakei

The Proposed Draft Pakanui Structure Plan was forwarded to Ngati Whatua O Orakei on 29th April 2002, with follow up on 5th July 2002. No response was received to this correspondence.

6.5 Auckland Regional Council

A meeting was held with Auckland Regional Council (ARC) staff on 9th July 2001, following completion of the stormwater catchment analysis for the catchment. This meeting included discussion of the draft "Countryside and

Foothills Stormwater Management Code of Practice" (COP), prepared by URS for EcoWater Solutions. ARC advised that this COP had not been signed off yet, and needed revision. It is understood that the COP has been approved by ARC, with the 2000m² replanting calculation accepted.

The final draft Proposed Pakanui Structure Plan investigations were provided to Auckland Regional Council on 23rd May 2002. Correspondence was received from Auckland Regional Council on 19.07.2002, commenting on stormwater, wastewater, and natural heritage. With regard to stormwater, ARC comments were made that a catchment management plan would be required for the wider Kumeu Catchment, by Rodney and Waitakere District Councils'.

Comments made with regard to wastewater and natural heritage have been addressed by the appropriate consultants, and are attached as addendum's to their respective reports.

6.6 Waitakere City Council

Consultation with Waitakere City Council staff, in particular Council's Locality Planner, has been undertaken throughout the structure plan process, with provision of technical information at various stages of the structure plan to ensure that the structure plan is prepared in a consistent manner to those structure plans prepared by Council for other areas within Waitakere City.

Discussions were also held with Council's Ecologist in July 2002 with regard to the ecological assessment for the catchment. General support for the structure plan was indicated with some revision of the ecological linkages of the structure plan proposed. These revisions were subsequently made by Boffa Miskell Ltd, and form part of the proposed structure plan.

It is understood that the Ormiston Associates and Soil & Rock Consultants geotechnical reports were reviewed by Tonkin and Taylor on behalf of Waitakere City Council, and no further information was requested or queries made.

6.7 Rodney District Council

The Proposed Draft Pakanui Structure Plan was forwarded to the Rodney District Council (RDC) in June 2001, and again on 29th April 2002 and 18th July 2002 . A written response was received from the RDC on 23rd August 2002, and is attached at Appendix Eight to this report. General comments were made with regard to strategic growth and consistency with the Auckland Regional Growth Strategy; and stormwater management. It was noted that the proposed structure plan had not been considered in any detail by Rodney District Council staff. In response to these comments, further correspondence was sent to the RDC on 27th August 2002 reiterating the strategic context and consistency of the proposed structure plan within the Auckland Regional

Growth Strategy; and the proposed methods of stormwater management to achieve hydrological neutrality, thereby containing effects within the catchment and not affecting the downstream environment. Correspondence was received by RDC on the 11th December (refer Appendix Eight of this report), confirming their support of the structure plan, and also seek that their comments with regard to stormwater are taken into consideration.

6.8 Royal Forest and Bird Protection Society

The Proposed Draft Pakanui Structure Plan was forwarded to the Waitakere Branch of the Royal Forest and Bird Protection Society (RFBPS) for review and comment. RFBPS advised that they did not oppose in principle the proposed structure plan, but may make further comments at the time of the plan change application regarding fish habitat and passage, stormwater and wastewater disposal, weed removal and planting. Their correspondence is attached at Appendix Eight to this document.

6.9 Waitakere Ranges Protection Society

The Proposed Draft Pakanui Structure Plan was forwarded to the Waitakere Ranges Protection Society on 23rd May 2002, and follow up correspondence sent on 5th July 2002 (copies attached at Appendix Eight). No response was received.

7.0 PAKANUI STRUCTURE PLAN – PLAN CHANGE TO THE PROPOSED DISTRICT PLAN

7.1 Pakanui Structure Plan

The proposed Pakanui Structure Plan is shown as “Preliminary Structure Plan 5” within the Boffa Miskell report, and is attached at page 40 of this report. The following features are proposed to ensure the sustainable management of the catchment:

- Bush Protection Areas;
- Revegetation Areas (including that for hydrological neutrality purposes);
- Riparian Protection and Restoration Areas;

- ❑ Provision of 68 additional lots within the existing property boundaries of the catchment, subject to the implementation of revegetation areas for hydrological neutrality, ecological and landscape requirements, which will involve the revegetation of approximately 5.25 hectares of riparian margins, and general revegetation to provide for ecological linkages and amenity planting of approximately 10.3 hectares;
- ❑ Subdivision in accordance with the density of development provided for in the structure plan will be a Limited Discretionary Activity, consistent with the Proposed District Plan provisions for the Oratia Structure Plan, and the Proposed District Plan changes under the Birdwood Structure Plan;
- ❑ Subdivision proposals which exceed the density of development provided for in the structure plan would be a Prohibited Activity.

Insert structure plan

7.2 Proposed District Plan Change

The proposed plan change seeks to include the Pakanui Structure Plan within the Waitakere City Proposed District Plan, by the inclusion of the Pakanui Structure Plan map to the appendices of the Proposed District Plan Maps, and changes to the Human and Natural Environment Maps to reflect the natural features identified in the structure plan development constraints assessment.

The Birdwood Structure Plan was notified by Waitakere City Council as a Variation 87 to the Proposed District Plan in January 2002, and subsequently adopted on 17th May 2002 . This variation included amendments to the Plan policies, rules and assessment criteria, which are attached to this document at Appendix Nine. These changes amended the policies, rules and assessment criteria to reflect rural structure plans in the Foothills Environment, and not make specific reference to the Oratia Structure Plan.

The changes adopted under the Birdwood Structure Plan, are consistent with that required to implement the Pakanui Structure Plan, with the exception of the incorporation of the Pakanui Structure Plan map to the Plan Maps appendices. No changes to the objectives, policies or assessment criteria of the Plan are sought under this plan change.

It is understood that Waitakere City Council is currently reviewing the Foothills Environment objectives and policies, with a view to strengthening these with regard to structure plan development.

7.3 Amendments Sought to the Waitakere City District Plan Policies, Explanations, Foothills Environment Subdivision Rules and Assessment Criteria Arising from the Pakanui Structure Plan.

The following are the detailed changes proposed to the Foothills Environment Subdivision Rules. Text introduced by this plan change is indicated in bold.

Rule 7.2 Limited Discretionary Activities

Subdivisions meeting the following Performance Standard are Limited Discretionary Activities.

- (a) *Any subdivision not meeting the standards of Rule 7.1(a) where the subdivision creates sites generally coinciding with the location of the proposed lot boundaries or in accordance with the densities identified for each existing lot shown on a structure plan forming part of the Plan (see Structure Plan Area(s) on the Resource Management Maps) provided that any Protection and Enhancement Areas shown on the structure plan will have the required planting established and are protected by way of covenant, encumbrance or consent notice.*
- (b) *Any subdivision in the Oratia Structure Plan area not meeting the standards of Rule 7.1(a) which has the same or fewer number of lots as is shown in the Oratia Structure Plan for the site concerned, but with different lot boundaries.*
- (c) *Any subdivision which is otherwise a Controlled Activity not meeting the standards in Rule 7.1(c).*
- (d) **Any subdivision in the Pakanui Structure Plan area not meeting the standards of Rule 7.1(a) where the subdivision is of the same density as that shown on the structure plan map.**

ADDITION TO FOOTHILLS SUBDIVISION NOTES:

Add:

- 11. With respect to the Pakanui Structure Plan, reference should be made to the Pakanui Structure Plan report and accompanying technical information available at Council offices.**

7.4 Section 32 Analysis

When proposing a new objective, policy, rule or other method into a plan, a territorial authority is required to consider alternative methods to achieve the desired outcome, and assess the benefits and costs before adopting any such change. Section 32 of the RMA requires that territorial authorities shall

(a) “Have regard to-

- (i) *The extent (if any) to which any such objective, policy, rule, or other method is necessary in achieving the purpose of this Act; and*
 - (ii) *Other means in addition to or in place of such objective, policy, rule, or other method which, under this Act or any other enactment, may be used in achieving the purpose of this Act, including the provision of information, services, or incentives, and the levying of charges (including rates); and*
 - (iii) *The reasons for and against adopting the proposed objective, policy, rule, or other method and the principal alternative means available, or of taking no action where this Act does not require otherwise; and*
- (b) *Carry out an evaluation, which that person is satisfied is appropriate to the circumstances, of the likely benefits and costs of the principal alternative means including, in the case of any rule or other method, the extent to which it is likely to be effective in achieving the objective or policy and the likely implementation and compliance costs; and*
- (c) *Be satisfied that any such objective, policy, rule, or other method (or any combination thereof)-*
- (i) *Is necessary in achieving the purpose of this Act; and*

- (ii) *Is the most appropriate means of exercising the function, having regard to its efficiency and effectiveness relative to other means.”*

The Pakanui Structure Plan has been prepared in accordance with the structure plan provisions of the Proposed District Plan. The structure plan does not require the adoption of any new objectives, policies, or assessment criteria, as these have already been adopted for the Birdwood Structure Plan.

The Pakanui Structure Plan has been prepared on the basis of a series of environmental and technical assessments to determine the carrying capacity of the catchment. The density of development proposed is a direct result of the landscape character, ecological, geotechnical, archaeological, traffic impacts, stormwater and wastewater management assessments carried out of the catchment.

The format of the structure plan, which shows the number of additional lots appropriate for each property, is consistent with the recently amended format approved for the Birdwood Structure Plan, which removed the indicative lot boundaries previously used for the Oratia Structure Plan. However, indicative lot boundaries and building platforms were identified as part of the structure plan investigations, and forms part of the background material. The structure plan also provides for riparian protection and enhancement areas, bush protection areas, and revegetation areas, which is consistent with the Council's Green Network Strategy.

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