

Assessment of Environmental Effects

Pegasus Town
North Canterbury

Land Use Application
Waimakariri District Council

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Prepared by

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partnerships

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1 INTRODUCTION

1.1 PROPERTY DESCRIPTION AND LOCATION

This Assessment of Environmental Effects (AEE) is provided in accordance with the requirements of section 88 of the Resource Management Act 1991 and the Fourth Schedule to the Act. It is in support of applications made by Pegasus Town Limited for resource consent to authorise earthworks at the already zoned Pegasus Town. The legal description of the land subject to this proposal is contained in the table below:

Legal Description	CT
RES4055	CB443/94
RS35652	CB134/39
RS35509	CB23F/1056
RS35487	CB30F/235
RS11319	CB30F/238
RS34931	CB30F/237
RS35503	CB10K/269
RS13758	CB443/10
RS11316	CB45C/1288
PT RS11317	CB45C/1288
PT RS34845	CB45C/1288
RS11318	CB45C/1288
RS19096	CB45C/1288

Copies of the relevant Certificates of Title are attached as **Appendix A**.

Pegasus Town is located approximately 25 kilometres from the centre of Christchurch City to the north of Woodend township. The site has a total area of approximately 285ha. A Location Plan is attached as **Appendix B** to this report.

1.2 BRIEF OVERVIEW OF THE CONSENT APPLICATION

This is an application for land use consent to undertake site wide earthworks to form roads, allotments, lake and wetland, and as are required for the installation of roading, drainage and services for Pegasus Town. Of specific interest to this application are the earthworks required to make provision for the proposed stormwater management system. The site wide stormwater management system is described in detail in this document. Whilst rules relating to stormwater are triggered by subdivision, and the opportunity for formal assessment is thus limited, it is sensible at this juncture to provide

Council with detail of the stormwater management system in tandem with the earthworks required to provide for it. This has been discussed with Council.

The overall master plan for the development of Pegasus Town has been prepared by Boffa Miskell Ltd and is attached as **Appendix D**.

A consent period of ten years is sought to allow the activities listed above to be completed in full.

The following documents are attached as appendices:

Appendix A	Certificates of Title
Appendix B	Location Plan
Appendix C	Site Feature Plan
Appendix D	Masterplan
Appendix E	Consultation Report
Appendix F	Hydrology Report
Appendix G	Construction Management Report
Appendix H	Cultural Impact Assessment
Appendix I	ECMA Management Plan
Appendix J	Archaeological Report

2 PROJECT DESCRIPTION

PROJECT APPROACH

Pegasus Town is provided for in the Waimakariri District Plan via specific Pegasus zones. It is proposed that Pegasus Town will be developed in general accordance with the zoning as a comprehensive town of around 5000 residents, along with associated business, recreational, education and conservation activities.

This subject application for land use consent is to undertake site-wide earthworks in order to prepare the site for subdivision, servicing and construction and to provide for the Eastern and Mudfish Conservation Management Areas. The shaping of the site is in part driven by the design requirements of the proposed stormwater management system. This document describes the system and assesses its anticipated environmental effects. Applications associated with the construction and use of the stormwater management system, and the restoration of the adjoining conservation area have been lodged concurrently with Environment Canterbury.

It is proposed that development of the town will occur in a number of stages. A proposed staging plan is included as an appendix to the Pegasus Construction Management Report prepared by Beca Infrastructure and included as **Appendix G**. It is intended that applications for each stage of the subdivision will be lodged with Waimakariri District Council, in February 2006, and construction will subsequently occur as defined by these applications. These stages will typically encompass between 60 and 130 residential allotments along with associated roads, services and other infrastructure. This

method will allow for allotments to be progressively constructed and released to market.

The first area proposed for subdivision and construction is adjacent to the Western Ridge Conservation Area where the Main Access Road meets the Residential 6 zone. It is then proposed that construction will then proceed progressively east and north to encompass the commercial area. Whilst the staging plan shows discrete stages, the earthworks will be undertaken more or less continuously until finished.

It is the applicant's intention that site-wide earthworks will be completed in approximately two years from commencement, with full development completed in approximately five years.

EXISTING LAND USE

The Pegasus Town site is dominated by forestry plantation over sand dunes with open areas of low-grade pasture suitable for summer grazing in the interdunal areas, and willow dominated wetlands.

EXISTING LANDSCAPE CONTEXT

Location & Site Character

The site and surrounding area is located on part of the Ashley River floodplain. The natural processes of the Ashley River floodplain have interacted with the coastal fringe dunes along Pegasus Bay to form the landscape surrounding the subject site. The resulting topography of the area is undulating with evidence of levees, remnant backswamp areas, streams and flood channels of the Ashley River.

The underlying natural topography has been altered by farm tracks and drainage channels. The landscape of the site and the surrounding area is generally flat with some meandering swales and waterway channels apparent. Tutaepatu Lagoon is located to the south east of the site.

Landcover

In pre-Polynesian times, much of the area would likely have been covered in a mix of podocarp forest and swamp wetland. Native plant communities would have included matai, totara, kanuka, kahikatea, flax, *Carex secta*, cabbage trees, lemonwood, kowhai, mingimingi and *Hebe salicifolia*.

Prior to European settlement much of the forest was probably cleared, and a network of meandering streams would have contributed to a fertile wetland environment. Much of the wetland area in the vicinity of the site was substantially reduced through draining of wetlands downstream of the site. A general lowering of the water table through water extraction is also likely to have had an influence on wetland extent. Early stock grazing of the dunes probably lead to extensive sand drift causing the de-stabilisation of these areas and pines were likely planted to both re-stabilise the dunes and to provide a commercial crop.

Surrounding Landuses

Land uses in the locality are diverse, and reflect the pattern of the region. Uses include pastoral farming, mixed cropping, market gardening, forestry, orchards, townships with suburban residential housing, rural residential

clusters and isolated farm dwellings. Road and rail corridors bisect the landscape. The proposed "Mapleham" golf course and residential development is located immediately to the west of the Pegasus site.

Historical and Cultural Values

The subject site and surrounding area has significant Maori history with the Kaiapoi Pa reservation being located to the north west of the site. The Pa and surrounding lands upon which much of the development site sits is the ancestral home of Ngai Tuahuriri, one of the principal hapū (sub-tribes) of Ngai Tahu. The area which includes both the Pegasus and adjacent Mapleham sites was extensively populated by Ngai Tuahuriri's ancestors, Ngai Tuhaitara. Their occupation of this area ended, however, following warfare between Ngai Tahu and the North Island based Ngati Toa in the early 1830s. As such, the area is of historical and cultural significance to the local tangata whenua.

The proposed development is located within the traditional boundaries of Ngai Tuahuriri who, as kaitiaki of this area, are responsible through their representative body to assess the effects of any activity on the associated cultural, spiritual and traditional values of the people to this area. A description of the cultural significance of the site is contained in the Cultural Impact Assessment prepared by Cultural Advisor, Te Marino Lenihan, and contained at **Appendix H**.

Archaeological Values

Areas of archaeological interest are known to be present particularly in the dune margins of the back swamp areas. The ridge at the western extent of the Pegasus site includes the Hohoupounamu site, and there are over 50 other identified sites on the Pegasus and adjoining Mapleham land. No rare or unique sites are to be destroyed, and the archaeological investigations carried out to date conclude that there are extensive representative examples of all the site types which would be impacted. It is understood that collectively these sites are of major archaeological importance, and as such a holistic approach has been undertaken in an assessment carried out by Dr Dan Witter of Witter Archaeology.

An application to destroy, damage or modify archaeological sites during the construction phases has been prepared by Dr Witter and has been submitted to the Historic Places Trust. This application contains detailed mitigation strategies and protocols for discoveries, and was submitted with support from the local runanga. This application was granted in October 2005, and a full copy is contained in **Appendix J**.

ECOLOGICAL VALUES

The ecological values of the site were extensively traversed at the time the town was provided for in the District Plan. It is not considered necessary to revisit these issues in detail in this assessment. The values associated with the 100ha conservation area at the eastern extent of the site are however detailed in the Eastern Conservation Management Area (ECMA) – Management Plan prepared by Boffa Miskell Limited and attached to this application as **Appendix I**.

EARTHWORKS, ACCESS AND SERVICES

Earthworks

There are a number of different operations and areas of earthworks to be carried out and these are described below. Refer also to the earthworks drawings contained as an appendix to the Pegasus Construction Management Report prepared by Beca Infrastructure Ltd (**Appendix G**).

There are a number of areas that will need to be specifically protected during the construction phases. These include the Western Ridge Conservation Management Area and various localised areas of native vegetation which will be identified and retained. A permanent post and wire fence will be constructed around these areas before construction commences to prevent accidental damage during construction.

Site Clearance and Topsoil Stripping

Site clearance will proceed ahead of earthworks, and involves removal of trees, fences and other elements that are not to be retained. This stage is typically carried out using excavators and trucks. The western half of the site is currently in pine plantation of variable quality and maturity. Beneath the pine trees, gorse, broom and other scrub covers the site. Removal of the pine trees began on October 2005. This work is being carried out by specialist forestry contractors. The scrub beneath the trees is being carefully removed using root rakes. The trees will then be felled and milled for timber or firewood, and minor branches will be mulched. In recognition of the cultural and archaeological significance of the site, all work is being carried out in accordance with the requisite authority from the NZ Historic Places Trust and under supervision of an archaeologist and Tuahuriri Runanga representatives. This work will be completed before the earthworks at Pegasus Town commences.

The eastern half of the site is generally covered in exotic tussock grasses, although there are areas of native vegetation which require protection. The bulk of the existing vegetation will however be stripped with the topsoil when earthworks begin. Within the eastern portion of the site there are areas of historic wetland which are now predominantly overgrown with willow and other introduced invasive species. Following earthworks, these areas are to be restored and enhanced as is detailed in the ECMA Management Plan included as **Appendix I**.

Following the clearance of surface vegetation, topsoil will be stripped from the works area (to either stockpile or its final position) to expose the sand beneath. This usually involves plant such as motor scrapers or bulldozer and scoop, although in confined areas excavators might be used.

On the western half of Pegasus Town (the area currently covered in pine plantation), no topsoil is present, while approximately 200mm of topsoil covers the eastern half of the site. Following topsoil stripping, bulk earthworks will begin. This phase is described in the following sections.

Lake Construction

The development includes a lake with a water surface area of approximately 14 ha. This lake will be constructed by excavating below the existing water table to form a groundwater lake. It is envisaged that the lake will have gently sloping edges (approximately 1V:10H) down to a maximum water depth of

3.5m. The lake will be excavated using either motorscrapers or a bulldozer and scoop above the water table, and excavators and trucks for excavation below the water table. Depending on the rate of groundwater flow into the excavations it may be necessary to complete the excavations below water table using a dredge. A small (500m²) trial lake was excavated in early October 2005 and this indicated that most of the excavation of the main lake may be feasible using only excavators. Sand from excavation of the lake will generally be placed as compacted fill to the north and east of the lake to raise these areas above flood levels, as per the District Plan requirements.

Eastern Conservation Management Area (ECMA)

Development of the ECMA will involve shallow 'scraping' to clear out and enhance historic wetland areas. Given the more sensitive nature of this often wet area, this work will likely be carried out using excavators to carefully peel back the soil which will then be loaded into trucks or motorscrapers. The soil will be transported to stockpiles nearby for later re-spreading. Detailed construction methodologies and reference to the ongoing management regime is contained in the Construction Management Report (**Appendix G**) and ECMA Management Plan (**Appendix I**).

Cut to Fill – Other Areas

The remainder of the site will be generally re-contoured to allow the eventual construction of roads and building platforms. This will generally involve relatively shallow cuts and fills, and will most likely be carried out using motorscraper or bulldozer and scoop.

Topsoil Re-Spreading

Following earthworks completion in any one area, topsoil will then be respread on building platforms, again with motor scraper or bulldozer. As soon as possible on completion, each area will be revegetated, generally in grass, although extensive planting is proposed in the ECMA.

Other Works

Other construction such as drainage, roads and services installation would generally begin during earthworks. These operations would be completed as per the proposed staging plan contained in Appendix B of the Construction Management Report (**Appendix G**).

It is Pegasus Town Limited's intention to undertake bulk earthworks across the entire site continuously, as a means of minimising the construction period. Ideally, the earthworks will be carried out in approximately two years from commencement. In order to achieve this, relatively large tracts may need to be open at any one time. Given the amount of plant required to complete the earthworks in this period, it is anticipated that up to 100ha may need to be open at any one time.

Access and Rooding

It is proposed to construct an all weather construction access road from SH1 to Pegasus along the alignment of the future permanent road before starting any earthworks at Pegasus. This construction access road will include a fully sealed right turn bay on SH1. This is consistent with the Waimakariri District Plan requirement for such a road to be constructed before any earthworks

begin on the Pegasus Town site. A resource consent for this road was granted by Council in December 2005.

Stormwater

Given the intent for Pegasus Town to have a high quality lake as an aesthetic feature, the development of an ecologically viable ECMA wetland, as well as the value of the downstream receiving environment as a source of mahinga kai, the approach to stormwater management has been focussed on achieving a higher level of treatment for stormwater than would typically be required. A Stormwater Management Report has been prepared by Beca Infrastructure Ltd (**Appendix F**) which describes the site wide system proposed at Pegasus. The salient features of this system are as follows:

- The effects of up to a 100-year storm are managed on site.
- Ten-year runoff discharged to ground for roads and residences.
- Roads use planted swales to achieve the level of treatment required by Council, and treats the 'first flush' of stormwater with the highest potential load of contaminants.
- Further treatment is achieved for residential and road runoff as water moves through the ground, the lake and/or the ECMA, and ECMA wetland.
- Town Centre runoff is collected and treated using sand filters to achieve the level of treatment required by Council. Flows are then dispersed via a rock filter into a wetland entry area before eventual discharge into the lake.
- Secondary flow is directed along roads, into the lake or ECMA via small wetland pre-treatment areas.

The approach is summarised in Figure 5 of the Stormwater Management Report (**Appendix F**).

3 RELEVANT DISTRICT PLAN PROVISIONS

3.1 THE WAIMAKARIRI DISTRICT PLAN

The subject site is located within the schematically zoned Business 1, Residential 6, Residential 6A and Pegasus Rural zones at Pegasus Town in the Waimakariri District Plan ('the District Plan').

3.2 PLAN WEIGHTING

The Waimakariri District Plan was made fully operative on 28 November 2005. Transitional provisions thus no longer need be considered.

3.3 LAND USE APPLICATION – ACTIVITY STATUS

22 Land and Water Margins

22.1.1.1 *No soil shall be stockpiled where it can be directly deposited in, or left in a position where it can be carried into, a water body.*

22.1.1.2 *Stockpiling of soil over vegetation shall not cover more than 1000 square metres at any one time on any one site.*

- 22.1.1.3** *There shall be no earthworks:*
- i. *Within 20 metres of any river or lake; or*
 - ii. *Within 50 metres of any wetland.*
- 22.1.1.4** *There shall be no vegetation clearance:*
- i. *Within 20 metres of any river or lake; or*
 - ii. *Within 50 metres of any wetland.*
- 22.1.1.7** *Earthworks, including the extraction of minerals, in any Residential Zone or Business Zone, shall not involve the extraction or redistribution of more than 300 cubic metres, per 1000 square metres, of soil and/or rock on any one site.*
- 22.1.1.8** *Earthworks, including the extraction of minerals, in the Rural Zones, other than in the bed of any river, shall not involve the disturbance of more than 1000 square metres of soil and/or rock per any one hectare.*

[Rule 22.1.2.4 states that earthworks in the Residential 6 and 6A Zones and Pegasus Rural Zone are exempt from complying with Rules 22.1.1.3 to 22.1.1.8.]

This proposal is to undertake earthworks associated with the eventual subdivision and development of Pegasus Town. This report describes in detail the strategies which will be employed to minimise the adverse effects associated with earthworks. No soil will be left in a position where it can be carried into any waterway.

- 22.1.1.11** *During any site preparation activities or subdivision construction, protection measures shall be put in place to prevent contaminated stormwater or run-off entering the "Eastern Conservation Management Area" or "Mudfish Conservation Area" as shown on District Plan Map 142, except when the works are being carried out for the purpose of the restoration and enhancement of these areas in accordance with Rules 31.1.1.35 and 31.1.1.37.*

The proposal entails significant shaping of the land form to create the ECMA and earthworks to create the Mudfish Conservation Area. This notwithstanding, sediment control ponds located within the ECMA and a sediment control bund around the perimeter of the town area will ensure that any contaminated runoff is managed to avoid any unnecessary runoff to these areas during construction elsewhere.

- 22.1.1.12** *Within the Residential 6 and 6A Zones, no earthworks or other site development works shall take place in the "Residential Area" or "Town Centre" as shown on District Plan Map 142, unless the "Main Access Road" between State Highway No 1 and the "Residential Area" has been formed to an all-weather standard for its full length and sealed for the first 30 metres from the State Highway.*
- 22.1.1.13** *There shall be no access to the Residential 6 and 6A Zones or Pegasus Rural Zone from Gladstone Road for site preparation and subdivision construction purposes.*

An application to construct a construction access road over the alignment of the Main Access Road to Pegasus was lodged with the affected party approval of the Tuahuriri Runanga and Transit New Zealand. As noted previously, resource consent for this road was granted in December 2005.

This road will be formed to an all weather standard and sealed for at least the first 30m from the intersection with the State Highway. Accordingly, no access is proposed from Gladstone Road.

Earthworks - Residential 6 and 6A Zones and Pegasus Rural Zone

22.2.1 *Within the Residential 6 and 6A Zones and Pegasus Rural Zone, the following activities shall be controlled activities:*

- i. *Earthworks within the areas shown on District Plan Map 142 as "Lake", "Eastern Conservation Management Area", "Western Ridge Conservation Area" or "Mudfish Conservation Area".*
- ii. *Any earthworks on land, outside the areas referred to in i above, which are not the subject of an approved resource consent for subdivision.*

This proposal includes earthworks for the entire site, including those required to form the lake, the Eastern Conservation Management Area and the Mudfish Conservation Area. The proposal does not include any earthworks associated with the Western Ridge Conservation Area. Whilst the subject proposal is the precursor to future subdivision and associated land development, it does not include any subdivision component. Whilst subject to standards and terms, these earthworks are in principle, assessed as controlled activities.

24. Indigenous Vegetation, Fauna and Habitats

24.1.1.1 *The overall abundance and health of identified rare plant species, as identified in Table 24.1 shall not be reduced.*

Table 24.1: Identified Rare Plant Species	
<i>Pomaderris phyllicifolia</i>	<i>var. ericifolia</i>
<i>Coprosma intertexta</i>	
<i>Coprosma obconica</i>	
<i>Coprosma pedicellata</i>	
<i>Carmichaelia kirkii</i>	<i>(climbing broom)</i>
<i>Olearia lineata</i>	
<i>Ricciocarpus natans</i>	<i>(liverwort species)</i>
<i>Lepidosperma australe</i>	<i>(Four Square Sedge)</i>

Isolated stands of four-square sedge and matagouri exist in the dunes in the west side of the ECMA. The exact extent of these areas will be identified on site before construction begins and a post and wire fence will be constructed around these areas to prevent accidental damage during construction.

26 Natural Hazards

26.1.1.10 *Within the Residential 6 and Residential 6A Zones, the floor level of all habitable rooms shall be not less than 3.85 metres above mean sea level, measured from the underside of the bearers or from the finished floor level in the case of concrete slab floors.*

The proposed earthworks are intended to create a site profile where this condition can be complied with on all future residential lots.

26.1.1.11 *Within the "Residential Areas" and "Town Centre" of the Residential 6 and Residential 6A Zones as shown on District*

Plan Map 142, all sites shall have a finished ground level of not less than 3.5 metres above mean sea level; except for sites adjoining the "Lake" or a "Conservation Area", as shown on the Pegasus Bay Outline Development Plan, where the finished ground levels on the sites shall be such as to provide a gradual transition between the 3.5 metres level and the ground level at the edge of the lake or the conservation area.

The earthworks proposed will achieve this standard.

26.1.1.12 *Within those parts of the "Residential Areas" and "Town Centre", of the Residential 6 and Residential 6A Zones, as shown on District Plan Map 142, where the land had a ground level of greater than 4 metres above mean sea level at 20 June 1998, the ground on any site may be shaped to enable the use and development of the site, but the ground levels shall generally remain the same as existed at that date. No sand shall be removed from those parts of the "Residential Areas" or "Town Centre".*

The site will be shaped to best effect the use and development of the proposed town and accordingly accounts for such factors as effecting efficient drainage and runoff. The proposed shaping and contouring of the site will mean that aside from areas of specific excavation (the lake), ground levels across the site will not differ markedly from the existing. The excavated material from the lake will be used to fill residential areas to the north of the site to achieve the finished ground level standards outlined in the rules above. Comprehensive earthworks drawings which demonstrate the extent and proposed staging of earthworks, areas of cut to fill and other salient features are contained within Appendix D of the Construction Management Report (**Appendix G**).

30 Health Safety & Wellbeing

Construction Noise

30.11.1.11 *Construction noise in any zone shall not exceed the recommended limits specified in, and shall be measured and assessed in accordance with, the provisions of NZS:6803: P1984 "Measurement and Assessment of Noise from Construction, Maintenance, and Demolition Work". Adjustments and exemptions provided in clause 6 of NZS:6803: P1984 shall apply.*

Construction noise associated with the proposal will be required to comply with this standard, and it is proposed that this shall be enforced as a condition of resource consent.

Hazardous substances

30.13.1.3 *All sites, or parts of sites, where any hazardous substance below the maximum quantities set out in Table 30.3 are permanently used or stored shall:*

- i. Have all use, handling, and storage areas sealed from the ground with impervious materials; and*
- ii. Provide protection measures to contain a spill or release of hazardous substance within a bunded or other secure area.*

- 30.13.1.4** *No hazardous substance shall be stored, used or disposed of in a manner in which it can be deposited or carried into any stormwater system, or water body.*

Bulk fuel storage required to facilitate machinery operation will be limited to one location, not within 20m of a watercourse, external site boundary or Conservation Management Area. The fuel storage area will be bunded to prevent and spillage contamination. All dispensing units shall have drip trays and drip containers in place at all times. As such, these standards will be complied with. Appropriate conditions of consent are proposed.

Pegasus

- 30.22.1.7** *Any earthworks associated with the subdivision and development of land within the Residential 6 and 6A Zones and Pegasus Rural Zone shall be carried out in such a manner as to mitigate dust nuisance. In particular:*
- i. The area being stripped of topsoil at any one time shall not exceed 5 hectares.*
 - ii. On completion of an earthworks operation on any part of the site, topsoil cover will be placed immediately and grass sown to bind the soils.*
 - iii. A water cart will be available on site during working hours to be used to help prevent dust, sand and other materials being blown about and causing a dust nuisance.*
 - iv. Contractors will be required to take such measures as the brooming, watering and removal of debris, etc, to prevent the accumulation of dust, sand and other materials.*
 - v. Where material is stockpiled on the site, measures will be taken to prevent a dust nuisance from the stockpiles, such as the compaction and shaping of the stockpiles to allow access by a water tanker.*

The proposed earthworks will be carried out in a manner designed to mitigate potential dust nuisance. Whilst the areas to be stripped of topsoil at any one time will exceed 5ha, an extensive suite of management techniques including re-vegetation as soon as is practicable, regular watering, and careful location of stockpiles will mitigate any dust nuisance.

- 30.22.1.8** *At any boundary of the Residential 6 Zone and Pegasus Rural Zone, other than at the boundary between these two zones, the sound level from any site preparation activities or subdivision construction shall meet the limits recommended in, and be measured and assessed in accordance with, New Zealand Standard NZS6803P:1984, "Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work". Adjustments and exemptions provided in clause 6 of NZS:6803: P1984 shall apply.*

The site is generally remote from adjacent residential neighbours. As noted previously, it is proposed that all activities on site will be required to comply with the requisite standards in this regard.

31 Subdivision

The subject proposal does not include an application to subdivide, and the following standards cannot be formally assessed as part of this application. Earthworks effectively define the characteristics of the stormwater management system. It is therefore appropriate that the

provisions which relate to stormwater be traversed in this document as a means of demonstrating to Council the principles and effectiveness of the site wide stormwater management system, prior to staged subdivision applications being lodged beginning 2006.

Stormwater

31.1.1.30 *Any new allotment in any Residential or Business Zone, other than in the Residential 6, 6A and Business 1 Zones at Pegasus, or any area subject to an Outline Development Plan, shall be:*

- i. serviced by a reticulated stormwater disposal utility where it is available at the boundary of the allotment, or*
- ii. where no such utility is available, provided with an on-site stormwater disposal facility.*

A reticulated stormwater management system is proposed.

31.1.1.34 *In the Residential 6, 6A and Business 1 Zones at Pegasus and Pegasus Rural Zone:*

- i. Stormwater from hard surfaces within any allotment shall either:

 - *be discharged on to the surface of the ground in a manner which ensures discharge into the ground within the allotment; or*
 - *be discharged to a road.**

No stormwater from any hard surface which may be used for the movement or parking of vehicles shall be discharged into or on to ground within 20 metres of the margin of any waterway or the "Lake" or any "Conservation Area" as shown on District Plan Map 142.

- ii. All stormwater from roads is to be discharged to dedicated soakage and ponding basins situated within legal road, reserve or other land to be vested in the Council. The soakage and ponding basins are to be designed to accommodate, and be able to discharge to ground, the runoff from a 1:100 year storm without causing flooding on to any other allotments. This shall include all runoff from roads, driveways and any other paved areas on allotments which are likely to contribute runoff to roads. The soakage and ponding basins are to be located throughout the Residential 6, 6A and Business 1 Zones in such a manner as to provide for even distribution of groundwater recharge.*

The location and design of the soakage and ponding basins are to take into account:

- *the minimum depth to groundwater at the location;*
- *the permeability of the soil and underlying sand at the location;*
- *the ability of the water to move vertically downwards and laterally away from the basin once it reaches groundwater;*
- *the need to provide a first stage basin to collect the majority of the silt and its ease of periodic cleaning;*
- *the maintenance of the long term permeability of the infiltration system;*
- *the need to avoid vehicles having access to the basin.*

The design of the stormwater system is also to make provision for methods of dealing with flows resulting from storms of greater intensity than a 1:100 year storm. This can include provision for overflow routes via roads, reserves and other public open space to surface water bodies, such as the "Lake" and waterbodies within the "Eastern Conservation Management Area" as shown on District Plan Map 142.

The characteristics of the Stormwater Management system are described in detail in the report prepared by Beca Infrastructure and contained at **Appendix F**. The proposal achieves the principles of the District Plan in that the effects of stormwater generated on the site are managed within the boundaries of the site, but varies in a number of design aspects to the highly prescriptive standards imposed by the Plan. The salient features of the system are described in Chapter 2 of this document and in Chapter 4 of the Beca report at **Appendix F**.

31.1.1.37 Archaeological Sites Protocol

Conditions shall be imposed on any subdivision consent within the Residential 6, 6A and Business 1 Zones at Pegasus and Pegasus Rural Zone to bind a consent holder to comply with the following protocol:

- i. A consulting archaeologist shall monitor all earthmoving activities associated with any subdivision within the Residential 6, 6A and Business 1 Zones at Pegasus and Pegasus Rural Zone and shall advise on methods to be undertaken to ensure that adverse effects on archaeological values are avoided, remedied or mitigated. The consent holder shall consult with Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga regarding the appointment of the archaeologist.*
- ii. The consent holder shall provide the consulting archaeologist, Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga, the following information no less than 25 working days prior to any earth-moving works:*
 - A schedule of the dates of all significant earthmoving events, their sequence and duration;*
 - A summary of all measures being undertaken to ensure that adverse effects on archaeological values are avoided, remedied, reduced or mitigated.*
- iii. The consent holder shall invite Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga to attend any episode of monitoring or earthmoving activity.*
- iv. The consent holder shall provide Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga and the New Zealand Historic Places Trust with a copy of all archaeological monitoring and investigation results which are required by the conditions of this consent with an invitation to respond, comment or meet to discuss any results.*
- v. The consent holder shall notify the District Council of all information provided to Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga and any responses received. If appropriate, the District Council, with the agreement of the consent holder and Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga, shall convene meetings/hui should any of the information or issues require further discussion.*

31.1.1.38**Waahi taonga, waahi tapu and urupa protocol:**

A protocol approved by Te Ngai Tuahuriri Runanga and Te Runanga o Ngai Tahu, which shall include the following conditions, shall be imposed on any subdivision consent within the Residential 6, 6A and Business 1 Zones at Pegasus and Pegasus Rural Zones, to bind a consent holder, in addition to the archaeological sites protocol.

- i. A representative of Te Ngai Tuahuriri Runanga shall be engaged to be present during construction and excavation of the subdivision to act as advisor to the developer on identification or protection of waahi tapu, waahi taonga, urupa or historic cultural sites.*
- ii. The consent holder shall consult with Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga to determine, in accordance with tikanga Maori, if there are any matters of protocol which tangata whenua wish to undertake in relation to the commencement of any development works, significant events or the commissioning of the completed works.*
- iii. The consent holder shall ensure that staff involved with earthmoving activities have received training and are aware of the requirement to monitor earthmoving activities in a way that enables the identification of waahi tapu, waahi taonga, urupa or historic cultural sites. Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga shall be contracted to provide appropriate training to such staff.*
- iv. Immediately that it becomes apparent that an urupa, waahi tapu, waahi taonga or suspected historical site has been uncovered, earthmoving operations shall stop. The contractor will shut down all machinery or activity immediately, leave the area and advise the consent holder of the occurrence.*

In cases other than suspected koiwi tangata (human remains):

- v. The representative of Te Ngai Tuahuriri Runanga will be consulted by the consent holder of the site to determine what further actions are appropriate to safeguard the site or its contents, and to avoid, reduce, remedy or mitigate any damage to the site.*

Where koiwi tangata (human remains) are suspected:

- vi. The consent holder will take steps immediately to secure the area in a way that ensures the koiwi tangata are untouched.*
- vii. The consent holder shall be responsible for notifying the Te Ngai Tuahuriri Runanga, the Police and the Historic Places Trust and that it is suspected koiwi tangata have been uncovered.*
- viii. The consent holder of the site will see that staff are available to meet and guide kaumatua, Police and*

Historic Places Trust staff to the site, assisting with any requests that they may make.

- ix. *Earthmoving operations in the affected area will remain halted until the kaumatua, the Police and Historic Places Trust staff have marked off the area around the site and have given approval for earthmoving operations to recommence.*
- x. *If the kaumatua are satisfied that the koiwi tangata are of Maori origin the kaumatua will decide what happens to the koiwi tangata and will give their decision to the Police, the archaeologist and the consent holder.*

The standards and requirements of these rules are understood and are proposed as conditions of consent. It is noted that an application has been granted by the New Zealand Historic Places Trust to destroy, damage or modify archaeological sites. This application was made following extensive consultation with, and the support of, Ngai Tuahuriri Runanga.

31.1.1.39 Ground Levels and Filling

- i. *Within the “Residential Areas” and “Town Centre” of the Residential 6, and 6A Zones and Pegasus Rural Zone, as shown on the District Plan Map 142, all allotments shall have a finished ground level of not less than 3.5 metres above mean sea level; except for allotments adjoining the “Lake” or any “Conservation Area”, as shown on the Pegasus Outline Development Plan, where the finished ground levels on the allotments shall be such as to provide a gradual transition between the 3.5 metre level and the ground level at the edge of the lake or the conservation area.*

The earthworks proposed are guided by, and will achieve this standard. Comprehensive earthworks drawings are contained within Appendix D of the Construction Management Report (**Appendix G**).

- ii. *No earthworks carried out as part of any subdivision development in the Residential 6 and 6A Zones and Pegasus Rural Zone shall increase the risk of floodwaters entering the town from the west, as a result of a 500 year return period flood breaching or overtopping the Ashley River/Rakahuri stopbanks.*

This standard is achieved by the proposal.

- iii. *Within those parts of the “Residential Areas” and “Town Centre” of the Residential 6 and 6A Zones, as shown on District Plan Map 142, where the land had a ground level of greater than 4.0 metres above mean sea level as at 20th June 1998, the ground may be shaped to enable the subdivision of the area, but the ground levels shall generally remain the same as existed at that date. No sand shall be removed from those parts of the “Residential Areas” or “Town Centre”.*

The site will be shaped to best effect the use and development of the proposed town. However, the proposed shaping and contouring of the site will mean that the ground levels will remain generally the same as those

existing. The excavated material from the lake will be used to fill residential areas to the north of the site to achieve a finished ground level which achieves the standards contained in these rules. Comprehensive earthworks drawings are contained within Appendix D of the Construction Management Report (**Appendix G**).

31.1.1.40 **Liquefaction**

- i. *The layout, design and construction of any subdivision in the Residential 6 and 6A, Business 1 Zones at Pegasus and Pegasus Rural Zone shall take into account the potential for earthquake-induced liquefaction of the ground within these zones, and the potential effects of associated ground settlement and lateral spreading of the ground on structures and utility services.*
- ii. *Liquefaction mitigation measures shall be designed and constructed to achieve the standards set out in Table 31.3 below:*

Table 31.3 Liquefaction Mitigation Design Standards		
	Maximum Permanent Ground Movement	
Design Earthquake Return Period	Settlement	Lateral Movement
150 years	100mm	250mm

Predicted settlements during the 150 year event indicate that the majority of the site is susceptible to less than 100mm of settlement. Appropriate treatments are proposed to control lateral movements, and detailed engineering design will be provided at time of subdivision as is required.

Conclusion

Earthworks not associated with subdivision are assessed as a **controlled activity**. As noted previously however, as a means of completing the requisite site works in an efficient and sensible fashion which minimises disruption, the area which will be stripped of topsoil will be more than 5ha at any one time. This 5ha rule is understood to be primarily geared toward mitigating dust nuisance.

It is emphasised that a comprehensive suite of industry standard techniques will be tailored to the site and we propose to achieve compliance with the discharge to air standards contained in the Transitional and Proposed Regional Plans. These techniques are described in Chapter 2 of this report and in the Construction management Report contained at **Appendix G**. These methods have been tested in consultation with Environment Canterbury and are assessed to achieve Rules 30.22.1.1.ii – v.

However, Rule 30.22.1.7.i will not be complied with, and the proposed earthworks activity technically becomes a **non-complying activity** in accordance with Rule 30.23.1.

3.4 PLAN OBJECTIVES AND POLICIES

The Plan contains a number of relevant objectives and policies to the Council's assessment of the application in terms of section 104(1) of the Act. They are listed within the following sections of the Plan:

- Chapter 2 Maori
- Chapter 3 Water
- Chapter 4 Land and Water Margins
- Chapter 6 Indigenous Vegetation, Fauna and Habitats
- Chapter 7 Coastal Environment
- Chapter 8 Natural Hazards
- Chapter 9 Heritage
- Chapter 10 Notable Plants
- Chapter 12 Health, Safety and Wellbeing
- Chapter 14 Rural Zones

Outlined below are each of the relevant objectives and policies of the District Plan.

Chapter 2 Maori

This chapter lists the following objectives and policies relevant to this application:

Policy 2.1.1.2 *Provide for the participation of tangata whenua in the management of the District's natural and physical resources.*

Objective 2.1.2 *Recognition and provision for the manawhenua concept and practice of kaitiakitanga in the management of natural and physical resources.*

Policy 2.1.2.1 *To have particular regard to manawhenua and spiritual kaitiakitanga in the management of natural and physical resources.*

Objective 2.1.3 *Recognition and protection of waahi taonga that is culturally, spiritually and/or physically important to Ngai Tuahuriri.*

Policy 2.1.3.1 *To identify waahi taonga recognised by Ngai Tuahuriri.*

Policy 2.1.3.3 *Protect koiwi tangata (human bones) and Maori artefacts from violation and desecration.*

Policy 2.1.3.5 *In the case of the development and occupation of Pegasus:*

- (a) *To recognise and provide for the important relationship between each of Ngai Tuahuriri and Ngai Tahu and the natural and historical resources and cultural values of the site of the town and its surrounding land and waterways.*
- (b) *To avoid, remedy or mitigate adverse effects of the subdivision and development of Pegasus on the cultural values and waahi taonga, waahi tapu and urupa of Ngai Tuahuriri and Ngai Tahu.*
- (c) *To ensure that the subdivision and development of Pegasus does not adversely affect the setting and significance of Kaiapoi Pa.*

- (d) *To protect the archaeological sites, and other waahi taonga, waahi tapu and urupa of Ngai Tuahuriri and Ngai Tahu, from disturbance or loss through the subdivision and development process. Where disturbance or damage to other archaeological sites is authorised by the Historic Places Trust, to implement measures to mitigate the adverse effects of such activity.*

Objective 2.1.4 *Recognition of the importance of mahinga kai to Ngai Tuahuriri and provision for protection of associated resources and access to them.*

Policy 2.1.4.1 *Enable the enhancement of mahinga kai and surrounding taonga, consistent with the principles of kaitiakitanga, to provide a sustainable resource that meets the needs of future generations.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the heading 'Effects on Cultural, Heritage & Archaeological Values'.

Chapter 3 Water

This chapter lists the following objectives and policies relevant to this application:

Objective 3.2.1 *The maintenance and enhancement of the natural character and ecosystems of water bodies, and their margins*

Policy 3.2.1.1 *Avoid, remedy or mitigate the adverse effects of land use activities on the:*

- *water quality,*
- *natural character of water bodies and their margins,*
- *ecosystems of water bodies and their margins,*
- *habitat of trout and salmon,*
- *significant amenity and recreational values of rivers and their margins, and*
- *Mahinga kai resources, waahi taonga of significance to Maori, and the Mauri of water.*

Objective 3.5.1 *Maintenance and enhancement of the quality and natural functioning of the waterways (both ground and surface) associated with the development and occupation of Pegasus.*

Policy 3.5.1.1 *In the case of the development and occupation of Pegasus:*

(a) *To safeguard the ecological integrity and natural functioning of the natural and restored waterways and wetlands of the site and their adjoining land, from adverse effects as a result of the development of the town.*

(b) *To ensure that the stormwater management and treatment systems, at both the construction stage and for the completed development, protect water quality in groundwater, streams, wetlands and coastal waters.*

(c) *To recognise and provide for the close relationship between surface and groundwater on the site in the design, construction and management of stormwater*

and wastewater services within the town, particularly in regard to water quality and surface water ponding levels during wet periods.

- (d) *To use the stormwater from the town to supplement the wetlands with clean water, which is treated in a sustainable system.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the headings 'Construction Effects' and 'Services – Stormwater Management System' and 'Natural Hazards'.

Chapter 4 Land and Water Margins

This chapter lists the following objectives and policies relevant to this application:

Objective 4.1.1 *Maintain and enhance the life-supporting capacity of the land resource in the District.*

Policy 4.1.1.1 *Promote sustainable land management practices that avoid or mitigate environmental impact such as soil loss, soil structure deterioration, soil nutrient depletion, land contamination, and non-point pollution of waterways.*

Policy 4.1.1.3 *Land use activities should avoid, remedy, or mitigate adverse effects on environments susceptible to degradation such as river and stream margins, aquatic habitats, wetlands, coastal dunes, areas of significant indigenous vegetation and significant habitat of indigenous fauna.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the headings 'Construction Effects' and 'Positive Effects'.

Chapter 6 Indigenous Vegetation, Fauna and Habitats

This chapter lists the following objectives and policies relevant to this application:

Objective 6.1.1 *Safeguard indigenous biological diversity and ecosystem integrity, and recognise and provide for the protection of significant indigenous vegetation and significant habitats of indigenous fauna.*

Policy 6.1.1.1 *Identify areas of significant indigenous vegetation and significant habitats of indigenous fauna.*

Policy 6.1.1.4 *Avoid or remedy adverse effects of activities on the ecological integrity of areas of significant indigenous vegetation and significant habitats of indigenous fauna including Vegetation and Habitat Sites identified in the District Plan.*

Policy 6.1.1.5 *Avoid, remedy or mitigate the adverse effects of activities on the intrinsic values of indigenous ecosystems, including effects on:*

- *integrity, form, functioning and resilience;*
- *Indigenous vegetation, habitats and indigenous fauna.*

- Policy 6.1.1.6** *Maintain and enhance the ecological integrity of Vegetation and Habitat Sites identified in the District Plan and the attributes which make them significant.*
- Policy 6.1.1.7** *Identify, maintain and enhance ecological corridors which connect areas of significant indigenous vegetation and significant habitats of indigenous fauna.*
- Policy 6.1.1.8** *In the case of the nature conservation values associated with land forming and adjoining Pegasus Bay town:*
- (i) *To ensure that the subdivision and development of Pegasus Bay town avoids, remedies or mitigates adverse effects on the nature conservation values of the site and its surrounding area, in particular the values associated with the aquatic ecosystems, the waterway margins, and the coastal environment.*
 - (ii) *To restore and create a self-sustaining system of diverse and often linked habitats which:*
 - *support healthy populations of indigenous plants and animals typical of this part of coastal Canterbury;*
 - *restore the Mauri of the wetlands;*
 - *provide mahinga kai;*
 - *are valued by residents of the town, Ngai Tahu and the wider District.*
 - (iii) *To provide waterways, wetland and adjacent habitats to protect and enhance the short finned eel/tuna population both within the site, and in adjoining areas including Tutaepatu Lagoon.*
 - (v) *To provide additional habitat for those birds which use the network of lakes, ponds and gravel pits along the Canterbury coast, without compromising the water quality of the wetlands, nor the amenity values of the new lake.*
 - (vi) *To provide habitats for local, coastal indigenous birds, fish, lizards and invertebrates through providing for a planned network of suitable habitats across the whole town, and connections with suitable areas outside the town.*
 - (vii) *To protect and enhance the populations of indigenous plants which are unusual in this park of the Region or District.*
 - (viii) *To restore the diverse wetland, waterway and dune plant communities and ecosystems of the site to a predominantly indigenous composition, through progressively providing improved habitat conditions for their survival and restoring the natural ecological processes*
 - (xiv) *Through the process of the subdivision and development of Pegasus Bay town, to retain and enhance the values of the site for birdlife.*
 - (xv) *To enhance the ability of the natural resources of the site to sustain mahinga kai.*
 - (xvii) *Through the process of the subdivision and development of Pegasus Bay town, to provide a continuity of ecological linkages between those areas of the site and its adjoining land, which are of importance for their natural conservation values.*
- Policy 6.2.1.2** *Promote understanding and awareness of wetlands and aquatic habitats.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the headings 'Positive Effects', 'Construction Effects' and 'Effects on Cultural, Heritage and Archaeological Values'.

Chapter 7 Coastal Environment

This chapter lists the following objectives and policies relevant to this application:

- Objective 7.1.1** *The protection and enhancement of the natural character of the coastal environment.*
- Policy 7.1.1.5** *Maintain and enhance the sand dune ecosystems and the ecological integrity of areas of significant indigenous vegetation and habitat of indigenous fauna in the coastal environment.*
- Objective 7.3.1** *A standard of water quality in the coastal environment that maintains natural water quality, protects aquatic ecosystems, and natural character, and provides recreational, cultural, social and economic benefits for present and future generations.*
- Policy 7.3.1.1** *To promote the management of margins of water bodies and estuaries to avoid, remedy, or mitigate the adverse effects of land use on the coastal environment.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the headings 'Positive Effects', 'Services – Stormwater Management System' and 'Natural Hazards'.

Chapter 8 Natural Hazards

This chapter lists the following objectives and policies relevant to this application:

- Objective 8.2.1** *The community's desired level of protection from flood events is achieved through an appropriate combination of measures to modify the level of flooding, modify susceptibility to damage and deal with the consequences of floods.*
- Policy 8.2.1.7** *In the case of the development and occupation of Pegasus:*
- (i) *To avoid, remedy or mitigate any adverse effects of flooding or stormwater ponding as a result of the subdivision and development of Pegasus.*
 - (ii) *To ensure that all private properties are predominantly dry and useable throughout each year.*
 - (iii) *To ensure that the subdivision and development of Pegasus does not result in any material aggravation of surface ponding or flooding problems on any land beyond the town, other than any neighbouring land which is proposed to be managed as wetland.*
 - (iv) *To avoid any floodwaters entering or adversely affecting the habitable rooms of buildings in Pegasus in*

the event of a 500 year return period flood, taking into account the potential effects of wave action.

- (v) *To ensure that any earthworks carried out as part of the development of Pegasus do not increase the risk of floodwaters entering the town from the west, as a result of a 500 year return period flood breaching or overtopping the Ashley River stopbanks.*

Objective 8.3.1 *Increase Council and community understanding of the earthquake risk and associated natural hazard.*

Policy 8.3.1.1 *Identify areas which are at risk from liquefaction, associated ground damage effects, and amplified ground shaking.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the 'Natural Hazards'.

Chapter 9 Heritage

This chapter lists the following objectives and policies relevant to this application:

Objective 9.1.1 *Recognise and protect those heritage sites, structures, places and areas which reflect the social, cultural and economic history of the District.*

Policy 9.1.1.1 *Identify heritage sites, structures, places and areas that meet any of the following criteria:*

- A. *Historical and social significance*
The heritage resource has value or significance associated with a notable person, event, time period or activity. The item represents an important reflection of the social patterns of its time.
- B. *Cultural and spiritual significance*
The heritage resource contributes to the distinctive characteristics of a way of life, philosophy, religion or other belief. A particular group or community holds or has held the item in high esteem; this includes items of special significance to tangata whenua.
- E. *Archaeological significance*
The heritage resource provides important archaeological information and physical evidence of pre-1900 human activities.

Policy 9.1.1.2 *Raise public awareness of heritage sites, buildings, places and areas, and educate the community about its responsibility to maintain the heritage values of these resources.*

Policy 9.1.1.3 *Maintain an Appendix list of heritage resources, and an archival register of heritage resources lost through development, modification and alteration.*

Policy 9.1.1.5 *Avoid, remedy or mitigate adverse effects on heritage fabric.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the headings 'Cultural, Heritage and Archaeological Effects'.

Chapter 10 Notable Plants

This chapter lists the following objectives and policies relevant to this application:

Objective 10.1.1 *Recognise and protect notable plants that contribute to the character, amenity values, and quality of the rural and urban environments identified in the District Plan.*

Policy 10.1.1.1 *Identify notable plants that meet any of the following criteria:*

- A. *Historical significance*
The plant has value or significance associated with a notable person, event, time period or activity.
- B. *Cultural and spiritual significance*
The plant has significant value for customary use or is important to a group for their traditional activities.
- C. *Botanical significance*
The plant is a significant example from a scientific or botanical viewpoint.
- D. *Group and setting significance*
The plant is part of a group that has a degree of unity in terms of scale, space, form, texture and colour in relationship to its setting or surroundings.
- E. *Landmark significance*
The plant is an important landscape feature of a particular area and in the community consciousness.
- F. *Functional significance*
The plant is effective in providing biological, engineering and climatic benefits to the general public, or screening.

Policy 10.1.1.2 *Maintain an Appendix list of notable plants, and an archival register of notable plants lost through site development or land use.*

Policy 10.1.1.3 *Avoid or remedy the loss of, or adverse effects on, the amenity values of sites and the character and quality of environments, arising from the loss of notable plants.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the heading 'Construction Effects'

Chapter 12 Health, Safety and Wellbeing

This chapter lists the following objectives and policies relevant to this application:

Noise

Policy 12.1.1.7 *Control noise to a level that is not unreasonable, measured against the character and circumstances of the zone.*

Policy 12.1.1.8 *Avoid noise adversely affecting the amenity values and health and safety of people on neighbouring sites or zones.*

Hazardous substances

Policy 12.1.1.10 *Hazardous substances should be securely contained during storage, use, or transportation, and monitoring and contingency procedures established, to minimise the risk of spillage or leakage and contamination of land and water.*

Policy 12.1.1.11 *Hazardous substances should be used in locations and by methods that avoid or mitigate adverse effects on the environment and health and safety.*

Air

Objective 12.1.3 *Protect people, vegetation, animals, and other natural and physical resources, from the adverse effects resulting from the discharge of contaminants to air.*

Policy 12.1.3.1 *Locate and/or design activities that lead to the discharge of contaminants to air, so that any adverse effects on people, vegetation, animals and/or other natural and physical resources are avoided or mitigated.*

Policy 12.1.3.2 *Avoid dwellinghouses and other sensitive land uses locating near to where contaminants are already being discharged to air, unless any adverse effects of the discharge are avoided or mitigated.*

Plants

Objective 12.1.4 *The retention of plants that contribute significantly to the amenity of a site, or the character or quality of the surrounding environment.*

Policy 12.1.4.1 *Plants that contribute significantly to the amenity of a site, or the immediate area, shall be recognised and provided for in any work or subdivision of land, including being protected as a condition of consent.*

Policy 12.1.4.2 *Retention and protection of significant plants will be taken into account in determining the extent of adverse effects in assessing land use and development.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the heading 'Construction Effects'.

Chapter 14 Rural Zones

This chapter lists the following objectives and policies relevant to this application:

Objective 14.4.1 *Protect the life-supporting capacity of soil, air and water resources in the Pegasus Rural Zone.*

Policy 14.4.1.1 *Maintain and enhance the nature conservation and cultural values of the Pegasus Rural Zone.*

Discussion

These matters are assessed within the Assessment of Environmental Effects section of this report, under the headings 'Positive Effects' and 'Services – Stormwater Management System'.

4 STATUTORY CONTEXT

4.1 RELEVANT RESOURCE MANAGEMENT ACT 1991 PROVISIONS

The application has been lodged after the enactment of the Resource Management Amendment Act 2003. Therefore the provisions of the Act as amended apply to the determination of this application.

4.2 SECTION 104 CONSIDERATIONS

Subject to Part II of the Act (the Purpose and Principles) in considering this application the Consent Authority is required, pursuant to Section 104 of the Act, to have regard to:

- *(Section 104 (1)(a)) - Actual and potential effects on the environment of allowing the activity;*
- *(Section 104 (1)(b)(iv)) – Any relevant provisions of a plan or proposed plan;*
- *(Section 104 (1)(c)) - Any other matters the consent authority considers relevant and reasonably necessary to determine the application.*

4.3 SECTION 104B DETERMINATION OF APPLICATIONS FOR DISCRETIONARY OR NON-COMPLYING ACTIVITIES

After considering an application for a resource consent for a non-complying activity, a consent authority—

- (a) may grant or refuse the application; and*
- (b) if it grants the application, may impose conditions under section 108.*

The exercise of the discretionary judgment to grant or refuse consent under Section 104B is to serve the purpose of the Act of sustainable management of natural and physical resources, and is to be informed by the provisions of Part II.

4.4 SECTION 104D PARTICULAR RESTRICTIONS FOR NON-COMPLYING ACTIVITIES

Section 104D stipulates that a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that the adverse effects on the environment will be no more than minor, or the application is for an activity which will not be contrary to the objectives and policies of either the relevant plan or the relevant proposed plan.

4.5 PART II CONSIDERATIONS

Under Section 5(2) of the Act, “sustainable management” means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing 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.*

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 (section 6):

- (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, sites, waahi tapu, and other taonga.*
- (f) *The protection of historic heritage from inappropriate subdivision, use, and development.*

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 have particular regard to (section 7):

- (b) *The efficient use and development of natural and physical resources:*
- (c) *The maintenance and enhancement of amenity values:*
- (d) *Intrinsic values of ecosystems;*
- (f) *Maintenance and enhancement of the quality of the environment:*
- (g) *Any finite characteristics of natural and physical resources:*
- (h) *The protection of the habitat of trout and salmon.*

To “have particular regard” requires that matters must be considered, but not that they are requirements or standards that must be fully met.

Although there are tensions inherent in the provisions of Part II, the provisions broadly indicate the level of weight to be given, effectively establishing a hierarchy by giving priority to the matters of national importance in Section 6 over the matters set out for consideration in Sections 7 and 8.

4.6 THE PERMITTED BASELINE

The effects of an activity on the environment should be considered in relation to the ‘permitted baseline’. That is, an application must be assessed in relation to the existing environment overlaid with development that could take place on the site as of right, but excluding development that is fanciful.

The zoning of Pegasus Town for residential, commercial and conservation activities, does not preclude continuance of the current use. The site is currently used for grazing and growing pine trees. These established rural uses could continue as of right. Similarly, earthworks to re-contour the site to better facilitate these established activities (e.g. to improve drainage, to install

forestry roads or landing sites, to strip and replace topsoil and re-vegetate) could be undertaken as a permitted activity on this site. The effects associated with these works are thus envisaged, to some degree, by the District Plan.

As is established in section 104(2), in assessing the actual and potential effects likely to be associated with the proposed activities, the consent authority may disregard any adverse effects on the environment associated with the activity if the District Plan permits an activity with that effect. The effects likely to be associated with the proposed earthworks could occur on the site as of right, and are thus relevant in accounting for the permitted baseline.

5 ASSESSMENT OF ENVIRONMENTAL EFFECTS

Subject to Part II of the Act (the Purpose and Principles) in considering this application the Consent Authority is required, pursuant to Section 104(1)(a) of the Act, to have regard to any actual and potential effects on the environment of allowing the activity.

The sustainable management of natural and physical resources includes recognising and providing for changes in the environment of an area as a result of land use development and changes in the resource management expectations the community holds for the area. Inseparable from these cornerstones of effective resource management is the requisite responsibility of the applicant to discuss and effectively anticipate the actual and potential effects of land use and development.

The following sections contain discussion and assessment of how the proposal might impact upon the natural and physical resources at Pegasus Town, and how any potentially adverse effects will be managed in a sustainable and integrated way to ensure they are avoided, remedied or mitigated.

The proposal is considered to raise the following actual and potential effects on the environment:

- Positive Effects
- Construction Effects
- Services – Stormwater Management System
- Effects on Cultural, Heritage & Archaeological Values
- Natural Hazards

Subject to Part II of the Act, those actual and potential adverse effects likely to result from this subdivision and development proposal have been considered in accordance with Section 104(1)(a) of the Act. The nature, scale and intensity of these effects are described and assessed in the sections below.

5.1 POSITIVE EFFECTS

In terms of evaluating the overall result of an activity, it is appropriate to evaluate all matters which relate to effects, including any benefits from the activity. This approach accords with the broadly-drafted definition of 'effect'.

The proposal will give rise to a number of positive effects. These are discussed in turn below:

Improved Flood Storage Capacity

As the groundwater in the interdune area is typically near the surface, frequent ponding can occur in short duration rainfall events as well as the area being subject to larger flooding associated with the Ashley River overflow and closure of the floodgates. The development of the lake at Pegasus provides sufficient additional storage capacity to offset the loss in storage associated with filling in the interdune area and the increased runoff volume from the town.

A critical component of the overall development earthworks (including the creation of the ECMA) combined with the formation of the lake means that the lake is able to provide sufficient attenuation to local flows whilst still providing additional flood storage capacity to the interdune area. The increase in the overall flood storage capacity is beneficial as additional storage means a higher level of protection for downstream neighbours and communities compared to the existing scenario.

Creation of a 100ha Conservation Area

Realising the vision of the ECMA entails the creation of the diverse wetland, waterway and duneland ecosystem dominated by indigenous species. This will occur via the progressive provision of improved habitat conditions and the restoration of natural ecological processes. Central to this vision is the intention to improve and protect water quality both within the Pegasus site, and as it leaves the site.

Biodiversity management includes providing for diverse ecosystems and habitat types, and the development of the ECMA areas will reflect this. Additionally, the ECMA is intended as a recreational resource. Pedestrian boardwalks and pathways and cycleways will be constructed throughout the area, with strategic links into the town. Some of the waterways in the wetland areas will be navigable by kayaks.

The positive ecological, recreational and cultural components of the ECMA are thus manifold. The provision of such a natural resource next to an urban area will doubtless present some challenges over time, but through careful management, the area will become a first class resource for residents of both Pegasus, and the wider North Canterbury community. The enhancement work in the wetlands and waterways will provide for long-term indigenous biodiversity benefits to the coastal area and to the whole Region.

A Positive Stormwater Solution

In addition its inherent positive environmental effects, it is suggested that by proposing a site wide stormwater solution prior to subdivision applications (as is required in the District Plan), the proposal offers a level of certainty to stakeholder groups (including Council) as to the longer terms effects of the development, than would be available if a piecemeal (staged approach) to stormwater was offered by the applicant.

The stormwater management system is an integrated system, which will be constructed by the developer in a comprehensive way from site to point of discharge, so that the system is integrated and built and operated to high

standards. The stormwater management system design, infrastructure, operation and management set standards above the norm for the area, and provide an example of best practice in a sensitive environment.

Timing of Earthworks

The proposal as presented provides the opportunity to undertake earthworks across the site in a way, which will minimise the extent and duration of any associated adverse effects. This method will for example, reduce the period that heavy machinery will be required which has attendant benefits in terms of construction traffic and noise. This will be of tangible benefit to those residents who are the first to settle in the newly subdivided and constructed initial stages of the development. Additionally, a concerted programme of earthworks over a defined, finite period allows increased certainty in the management of waterways and ecologically sensitive areas within the site.

5.2 CONSTRUCTION EFFECTS

As an overarching site management tool, each construction contract let on this project will require the Contractor to prepare an Environmental Management Plan (EMP). The purpose of the EMP is to identify how the contractor will manage construction in terms of meeting all applicable consents and any other applicable regulations. The construction contracts will require the Contractor to prepare this plan and submit it for approval to the developer's Engineer, before work begins on site. Compliance with the plan will be regularly monitored by the developer's representatives during construction. The preparation of an EMP is proposed as a condition of consent.

Construction Traffic

Construction will generate temporary traffic due to construction staff travelling to and from the site, and construction and delivery vehicles accessing the site on an intermittent basis. The construction access road will provide the only access point to the site. It will be formed to an all weather surface, and in accordance with Transit NZ maintenance requirements, will be sealed for the first 30m from the point where the road adjoins the State Highway. This will minimise the spread of any gravel or dust onto the State Highway. The intersection at the state highway during this initial construction phase will be in the form of a T-intersection. The volumes of vehicles using the state highway intersection are assessed to be well below the capacity of the proposed layout.

The transportation of materials to and from the site will be minimised by seeking to achieve an earthworks balance on site. Supplies such as aggregate, concrete and pipes will however need to be brought in by road. The level of construction traffic will vary depending on the types of operations being undertaken on site and the contractor's resource requirements. Construction traffic is of a temporary nature and will be controlled to appropriate standards. The volumes of traffic associated with the construction phase will be only a small proportion of the existing highway flow in this area. For this, and the reasons detailed above, any adverse effects associated with construction traffic are anticipated to be no more than minor.

Site Clearance and Re-vegetation

The western half of the site is currently in pine plantation of variable quality and maturity. The groundcover is comprised of gorse, broom and other scrub. Removal of the pine plantation by specialist forestry contractors has commenced. The scrub beneath the trees is being carefully removed using root rakes. These trees will then be felled and milled for timber or firewood, and minor branches will be burned or mulched. All work is being carried out in accordance with a NZ Historic Places Trust Authority and under supervision of an archaeologist and Tuahuriri Runanga representatives. This work will be completed before the earthworks commence.

The dry parts of the eastern half of the site are generally covered in exotic grasses and sedges, predominantly marram and pastoral species. This vegetation will generally be stripped with the topsoil when earthworks begin. Within the eastern area of the site there are also areas of open water and wetland now overgrown with willow and other (mainly exotic) species. These areas are to be cleared and planted as part of the proposed wetland and duneland habitat proposed in the ECMA.

Cleared vegetation will either be milled for timber, disposed as firewood, recycled as mulch material to be used on site, burned (subject to further resource consent) or disposed of away from the site. Earthworks will be completed in a staged manner and each area will be re-vegetated as soon as practicable. This is intended to stabilise areas of the site and reduce the area 'open' at any one time. The majority of the site will be planted in grass, although extensive planting of appropriate species as identified in the Management Plan is to be carried out in the ECMA. The proposed use of the site is consistent with its zoned purpose. No specific mitigation is thus required for the majority of the area. The exception is a number of pockets of significant vegetation which will be identified and fenced for protection during the earthworks phase of construction. In particular, the pockets of coastal matagouri and the four square rush will be subject to these measures.

Noise

The construction phase will require the use of vehicles and machinery which will generate some noise and vibration. The site is however generally remote from neighbouring properties. Three general groups have been identified as being potentially affected by construction noise and vibration. The properties immediately adjacent to the State Highway are over 1 km from the Pegasus site and are separated from the works by the Western Conservation Management Area and the Mapleham site. The second group are the Kaiapoi Pa and surrounding dwellings, which are approximately 200m from the northwest corner of the site. This separation and the presence of a high dune system between these dwellings and the earthworks will provide a buffer from the construction work. The third group are residents of Woodend. No adverse effects are anticipated on this group, due to the minimum 1km separation.

Dust

The published data on wind along the Canterbury coast indicates that the prevailing winds are the easterly or north easterly sea breezes from which the site is well sheltered. These are typically relatively gentle winds. The other common wind in summer is the north-westerly. This is typically a stronger

wind, but is much more infrequent. Wind from this direction will not transport dust to Woodend as the site is located northeast of the town.

A prominent ridge covered in thick pine plantation runs along the length of the western site boundary. These trees reduce the potential for dust to be transported, and will be retained. In the long term the development will likely lead to a reduction in dust generated at this site. However, to ensure that no objectionable effect is caused beyond the boundary during the construction phase, a comprehensive suite of industry standard techniques have been specifically tailored for use. These measures include re-vegetating as soon as practicable, regular watering of the site, locating stockpiles at least 50m away from the external property boundaries and ceasing work and wetting down the site in the event of high winds. These measures are referred to in the Construction Management Report (**Appendix G**). No adverse effects beyond the site boundary are anticipated.

Construction Run-off

During construction, areas of the site will be cleared of vegetation and will become more prone to erosion during rainfall. There is thus potential for some runoff from the site. The site drains via a series of man-made farm drains northeast towards Waikuku Beach. The receiving environment is therefore the network of farm drains and eventually the Ashley River.

The site is reasonably flat, and generally free draining. These characteristics significantly reduce the velocity of stormwater runoff, and reduce the potential for erosion of the soils. It is also noted that the North Canterbury rainfall is also relatively low, and high intensity rainfall events are infrequent. In view of the above conditions, it is anticipated that the runoff potential for this site is low, and that runoff will therefore be relatively easy to manage using industry standard methods.

A low bund will be constructed along the entire boundary between the township part of the site and the Eastern Conservation Management Area prior to any earthworks starting. This is depicted in Appendix E of the Construction Management Report (**Appendix G**). Run-off is not likely to occur, because of the pervious nature of the sandy soils. However, the bund will prevent run-off into the wetlands during extreme rainfall events. Additionally, sediment ponds will be constructed inside the wetlands (at points selected in discussion with an ecologist) to contain silt disturbed by removal of willows, contouring for planting, or any other works within the wetlands. This is described in more detail in the ECMA Management Plan (attached as **Appendix I**).

The use of contour drains, bunds or silt fences to minimise the site length, water velocities and flows reaching each treatment device. The temporary sediment control devices shall have outlet structures that control and dissipate discharges so that the potential for scouring or other environmental effects are minimised. Temporary cut-off drains, bunds or similar will be installed in all areas to divert clean water around all earth worked areas. It is also proposed that monitoring be undertaken during construction as a means of ensuring that sediment discharge levels are appropriately managed. These measures are described in full in the Construction Management Report at **Appendix G**.

It is considered that the potential for runoff from the site is very low due to the prevailing climate, the site's gentle gradient and generally free draining soils.

Coupled with the comprehensive suite of preventative measures described above, it is considered that any adverse effects associated with run-off during the construction phase will be no more than minor.

Hazardous Waste

Construction and land development works on the site will require potentially hazardous materials, such as fuels, to be used and stored on site. Any spills or leakage of these materials into soil or waterways could have an adverse effect on aquatic and soil organisms. The effect of such a spill is dependent on the material involved, the volumes and the location. Careful management of potentially hazardous materials will substantially reduce the risk of spills.

It is proposed that bulk fuel storage will be limited to one location on the site and will not be located within 20m of a watercourse and 50m from any external site boundary. The fuel storage area will be bunded to prevent and spillage contamination. All dispensing units shall have drip trays and/or drip containers in place at all times. Sealed waste bins will be provided for the collection of waste drums, oily rags, oil filters and similar. Further, a spill management procedure shall be developed as part of the Contractors' Environment Management Plan. The storage of all dangerous or hazardous substances will comply with the Dangerous Goods Regulations and any other relevant legislation. This includes obtaining the relevant licences. With these measures in place, it is considered that any adverse effect associated with hazardous substances during the construction phase is no more than minor.

The construction phase is of temporary duration only, and whilst there may be times when there are effects that may be experienced outside of the boundary it is concluded that overall, these can be avoided, remedied or mitigated by employing the strategies described above to a point where they are considered to be no more than minor.

5.3 SERVICES – STORMWATER MANAGEMENT SYSTEM

The stormwater management system has been specifically designed to effectively deal with the volumes calculated within the Stormwater Management Report prepared by Beca Infrastructure Ltd (**Appendix X**). The system is primarily driven by the need to maintain the quality of both surface and ground water, and to manage stormwater within the site so that there are no effects on neighbouring properties or communities. The following sections briefly discuss potential environmental effects associated with the proposed stormwater management system, and how the design of the system avoids, remedies or mitigates these effects.

Surface Water

Quality

The level of treatment proposed for stormwater at Pegasus is well in excess of industry standards. The system provides multiple barriers for surface flows which typically carry a higher risk of contamination. Grass swales designed in accordance with ARC's TP10 standard (as required by WDC Code of Practice) have been designed to treat the runoff from the residential road and carpark areas. The 'first flush' of stormwater runoff has the highest contaminant loading, and 25mm of runoff is taken as the water quality volume. The grass swales have been designed to treat the first 25mm and the provision of soakage for up to the 10-year event means that a higher level

of treatment is provided as water moves through the ground towards the Lake and ECMA.

Residential runoff is to be treated using coarse grit traps and infiltration to ground to provide treatment. Industry standards do not require residential roof runoff to be treated so a higher standard than is typically required is being applied to Pegasus. Similarly, treatment of the Town Centre runoff will use sand filters that are sized in accordance with industry standards but will also include a wetland entry area to provide a higher level of treatment before treated flows discharge to the lake. For flows above the 10-year event, pre-treatment is provided in the form of wetland entry areas that will be used to slow and disperse flows. This will provide opportunities for coarse sediments to be settled prior to discharge to the lake or ECMA. The runoff from Pegasus Town will be subjected to further treatment through the biological and chemical processes, and aeration as the water travels through the Lake (where applicable) and ECMA (effectively all runoff from the developed site). These measures are described in full in the Stormwater / Hydrology Report prepared by Beca Infrastructure (**Appendix F**).

The stormwater management system minimises discharges to the surface water environment and effectively attenuates flows to pre-development conditions. Given the various measures associated with the management system, it is considered that any adverse effects on the surface water environment as a result of the development will be less than minor.

Quantity

The lake provides sufficient additional storage to offset the loss in storage associated with filling in the interdune area. The combined earthworks across the site (including the excavation of the lake), means that the lake can be operated in isolation from the interdune area up to a level of 2.0m RL, whilst still providing for additional flood storage capacity to the interdune area.

The combination of putting ten-year discharges to ground, and utilising of the lake and ECMA to buffer against peak flows will mitigate any potential effects associated with the development, in particular, increases in peak flows resulting from increased impervious areas. As a consequence, it is considered that there will be no effect on Ashley River floodwaters and flooding of adjacent properties as a result of the development.

Groundwater

Quality

Shallow groundwater quality will be protected through the use of treatment devices (planted swales, infiltration areas, grit traps prior to discharge), and by minimising contaminant discharge to the groundwater. Stormwater runoff will be treated to WDC Code of Practice and ARC's TP10 requirements, at a minimum. The treated stormwater will enter the shallow groundwater system and will generally enter the Lake and ECMA. The effects on the shallow groundwater are expected to be no more than minor.

Quantity

A principal objective for the stormwater management system is to ensure that stormwater runoff is discharged to ground evenly across the site as a means of allowing for the even recharge of the shallow groundwater. This is effected

through the discharge of the ten-year runoff to ground, and by the network of sub surface gravel-filled soakage trenches across the site.

As detailed in the Hydrology Report (**Appendix X**), modelling has been used to demonstrate that the impact on groundwater levels in the interdune area will be less than minor and to confirm that soakage is a practical option given the high groundwater table currently within the area. Accordingly, it is anticipated that the effects on the groundwater receiving environment will be less than minor.

5.4 EFFECTS ON CULTURAL, HERITAGE AND ARCHAEOLOGICAL VALUES

Cultural Effects

The Cultural Impact Assessment (**Appendix H**) has been prepared by Te Marino Lenihan in consultation with Te Ngai Tuahuriri Runanga. The proposed development is located within the traditional boundaries of Ngai Tuahuriri who are kaitiaki of this area, and as such are responsible through their representative body to assess the effects of any activity on the associated cultural, spiritual and traditional values of the people to this area. Te Ngai Tuahuriri Runanga and Te Runanga o Ngai Tahu have identified a number of spiritual, cultural & natural heritage values associated with the site for recognition, consideration and, where reasonable and practicable, integration into the design and development. Earthworks will by definition alter the profile of the site to some extent, as well as having the potential to uncover heretofore concealed objects and the like, some of which may be of significance to the kaitiaki. These values are discussed in turn below.

Spiritual Heritage

Spiritual heritage encompasses the concept of whakapapa, which establishes the origins and creation of all things, connecting people not only to their ancestors, but also to the land and natural resources around them. From a Maori world-view perspective, all things are believed to have mauri, and it is this which provides every place and all living things with a unique personality or aura. The key point to note about with respect to environmental management is the importance of not altering the mauri of a resource or location to the extent that it is no longer recognisable or able to sustain life. Ultimately, it is preservation of the mauri which controls the sustainability of that resource. Water is viewed as a living entity with a mauri of its own. The issue of water quality and quantity – particularly as it relates to stormwater discharges and construction runoff is of fundamental importance to both Ngai Tuahuriri and Ngai Tahu whanui. Where water types are incompatible, it is quite inimical to Maori thought that those waters be mixed.

All natural and physical elements of the Maori world are related to each other. The principal role of kaitiaki (guardian) is to ensure that the mauri of their taonga is healthy and strong. In order to uphold their mana, the tangata whenua, as kaitiaki, must do all in their power to restore the mauri of the taonga to its original strength. The restoration of former wetland areas in the ECMA is a tangible way in which this could occur.

A bottom line for tangata whenua is not to adversely alter the mauri of a resource or location to the extent that it can no longer support or sustain life.

Natural Heritage

The area around Kaiapoi pa was traditionally famous for mahinga kai and was a primary reason why the area was originally settled. The three main methods of extracting kai were hunting, gathering from the forest and agriculture. Wetlands are an important source of mahinga kai. A variety of plants such as harakeke (flax), raupo and tutu can be gathered from wetlands, and used to make material resources such as clothes and utensils, for medicinal purposes and for food. The Pegasus site was once extensively covered in wetlands, and those who lived nearby would have gathered mahinga kai resources from this area. Aside from their value as food resources or sources of material culture, native flora and fauna are regarded as important in terms of their ability to indicate the relative mauri of any given ecosystem.

Cultural Heritage

Waahi tapu is a term applied to all sacred sites associated with tapu (sacredness) or areas held in reverence according to tribal custom and history. Urupa (burial sites), rua koiwi (burial grounds) and other forms of body deposition are permanent waahi tapu and considered to be the most significant in this class. Waahi taonga is the term that Ngai Tuahuriri substitute to convey the meaning and intent of waahi tapu. To Ngai Tuahuriri, the term taonga refers to the whakapapa of the natural resources of the world. Waahi taonga are the various parts of it, and is defined as all those resources that sustain life, that are culturally, spiritually, physically and historically important to Ngai Tuahuriri and Ngai Tahu whanui.

The importance of water to the Ngai Tuahuriri Runanga is acknowledged. The design of the stormwater system has been mindful of these concerns which are associated with both the quality and quantity of water discharged from the site and the value inherent in the now degraded wetlands to the north of Tutaepatu and the and linkages with the groundwater resource. The proposed stormwater system treats stormwater discharges through a combination of low impact treatment devices including swales, vegetated filter strips, and a combination of rock and sand filters. These mechanisms will ensure that there are no adverse effects on the water resource, and in fact, the proposal will result in a net ecological benefit to the ECMA by ensuring all contaminants are removed to recognised (ARC TP10) standards, as well as preserving a base flow of water to the wetland and to Tutaepatu lagoon.

Heritage and Archaeological Effects

An application under Section 12 of the Historic Places Act (to Destroy, Damage or Modify Archaeological Sites) and associated report has been prepared and submitted to the New Zealand Historic Places Trust by consultant Archaeologist Dr Dan Witter of Witter Archaeology (**Appendix J**). The application was granted in October 2005. The document includes a comprehensive research strategy and mitigation measures. Further archaeological investigations will be carried out in parallel with much of the development work on the site. There are obvious synergies in adopting such an approach, and the land development works present an opportunity for a level of archaeological investigation that would otherwise have been difficult to undertake.

The report divides the site area into two zones and six sub zones for mitigation (refer to Figure 5.1 in **Appendix J**). These are discussed below.

Sand Dune Pine Plantation Zone A

This area comprises pines trees at varying stages of growth. The under storey and ground cover is variable and large areas have limited foot access.

Main Plantation Area (Zone A1)

This is the largest area of planted pines. The known archaeology in this area consists of midden only. Apart from different shell fish species, there is little variation between midden deposits. This area was root raked prior to recording in 1997. It is assessed that this was sufficient to ensure the likely discovery of any sites present. It is thus likely that this is a realistic assessment of the distribution of archaeology. Further testing, in association with the logging operation is recommended, and is currently underway.

The logging is anticipated to create relatively little ground disturbance. No new tracks are required for vehicle access associated with the logging activity. The site contains 25 recorded sites. Twelve of these would be destroyed, and 13 are located where fill is proposed. A number of these sites are located in areas of planned open spaces (including the school grounds). Archaeological testing and investigations will continue throughout the logging and subsequent earthworks phases.

Southern Old Growth Area (Zone A2)

This area predominantly consists of trees up to 80 years old. Most of the readily saleable timber has been removed previously. There is in parts dense groundcover, consisting of broom, blackberry and wilding pines. There are thus likely to be a high number of unidentified sites, and further testing at the time of root raking and logging is currently underway.

This area contains five recorded midden sites. Four of these will be destroyed and one preserved. Archaeological testing and investigations will continue throughout the logging and subsequent earthworks phases.

Western Ridge (Zone A3)

This area contains the Hohoupounamu site, and is the site of the proposed Western Ridge Conservation Area. There are currently no earthworks proposed for this area, and accordingly, this AEE document does not address this area. It is proposed that ongoing consultation with tangata whenua is undertaken as a means of deciding upon an appropriate way in which to approach works in this area.

Eastern Pasture Mitigation Zone C

The following 'Zone C' areas are predominantly sand plain marsh and swamp area with dunes and pine trees to the west and coastal dunes to the east. These areas have never been ploughed and are covered in a mixture of grasses. The abundance of shell middens is not as great as elsewhere on the site.

Lake Area (Zone C1)

This area is relatively level and grass cover generally light. It has been largely disturbed by livestock and rabbits. The few sites in this area are likely to have intact oven and midden deposits. It has not been ploughed and it is therefore

possible that there are undisturbed *in situ* deposits. There are however only two recorded sites in this area. The surface will be initially scraped with a grader and appropriately monitored until below the level of potential archaeological sites.

Central & Eastern High Ground (Zone C2)

Most of this area will be built up using sediments extracted from the lake area. No soil stripping is planned here because of the poor nature of the topsoil. There is no need to clear the vegetation. It is assessed that the building up of this area with fill would ensure long term protection for the seven known, and any further archaeological sites that may be present. This area will be initially scraped with a grader and appropriately monitored.

Eastern Conservation Area (Zone C3)

The majority of this area will be managed as part of the ECMA. This is the site of an historic wetland and would have been important as a mahinga kai resource. There will be excavations required in order to create waterways and remove existing vegetation (including invasive willow species). There are two known sites in the ECMA which will not be disturbed.

The historical and cultural importance of the Pegasus Town site and its surrounds to local tangata whenua is well understood. Indeed, the recognition of these cultural and heritage values has been a key influence in guiding the design process. By adopting a rigorous set of accidental discovery protocols, the protection of koiwi tangata and waahi taonga will be protected from violation and desecration. These standards have been discussed with the Ngai Tuahuriri Runanga and are proposed as conditions of consent. Any adverse effect in this regard can thus be avoided, remedied or mitigated.

The importance of mahinga kai to Ngai Tuahuriri is recognised. The existing interdune and former wetland area is a much degraded environment. This is due to a combination of agricultural practices, the invasion of pest species and historic alterations to the natural flow patterns of the surface and ground water. The restoration of the ECMA as detailed in the Management Plan included at **Appendix I** represents a significant improvement to the ecological and cultural / historical values of the area. This will both enhance the natural and aesthetic values of these areas, and the planting of native species will attract birds and other wildlife and restore many aspects of the mauri of the ecosystem. The enhancement of the mahinga kai resource is consistent with the guiding principles of kaitiakitanga, which requires the provision of a sustainable resource.

The policies and recommendations contained in the Cultural Impact Assessment prepared and included as **Appendix H** this application will form the basis for ongoing dialogue with the runanga. For the reasons discussed above, it is considered that any adverse effect on the cultural, historical or archaeological values of the Pegasus site can be avoided, remedied or mitigated to a point where it is no more than minor.

NATURAL HAZARDS

As detailed in the Stormwater & Hydrology Report (**Appendix F**), the main surface water systems relevant to the subject site are the Taranaki Stream and its tributaries, the network of interdune drains and Ashley River, and Tutaepatu Lagoon.

The Taranaki Stream and the ephemeral stream within Mapleham Block drain to the northeast, towards Waikuku Beach and the Ashley River. Floodgates control flows from Taranaki Stream into the Ashley River during floods and high tides. The lower reaches of Taranaki Stream also receive flow from drains leading from the interdune area.

The interdune area consists of a network of farm drains that collect ground and surface water and generally drain in a northerly direction towards the direction of Ashley River. Depending upon the levels, flows from the interdune areas, will enter Taranaki Stream and from there, enter the Ashley River. When levels in Taranaki Stream are high (due to tide cycles and/or flooding) flows from the interdune will pond and may receive flows from Taranaki Stream, depending on how much the stream is backing up. As the groundwater in the interdune area is typically near the surface, frequent ponding can occur in short duration rainfall events as well as being subject to larger flooding associated with the Ashley River and the floodgates.

To the south of the interdune area lies the Tutaepatu Lagoon. This lagoon is thought to be primarily supplied from groundwater. It is understood that the levels within the lagoon have dropped in recent time, probably as a consequence of drainage of surrounding land and increased shallow groundwater takes in the area.

Overland flow from the Pegasus Town site drains to the east towards the interdune area, and is then intercepted by the drains and eventually moves to the north. In general, however, it is expected that much of the surface flows (under smaller, more frequent rainfall events) are captured in localised gullies on-site and will soak into the ground. At present there is one discharge point from the Pegasus site and that is via the interdune drain.

The low dune portion of the site is currently at risk of flooding in larger events, mainly due to flooding resulting from breaches in the Ashley River stopbanks. Given the undeveloped nature of the site, there are no significant consequences associated with flood events under this existing scenario.

As shown in the earthworks drawings attached to the Construction Management Report (**Appendix G**), the development of the northern portion of Pegasus will require filling as a means of achieving the necessary minimum build platforms. To maintain building platforms at above the 500-year flood level required in the District Plan, some filling of the low dunes area will be required. This has the potential, if not mitigated, to reduce floodplain storage within the interdune area which could result in increased flood levels downstream. The capacity of the lake has therefore been increased as a means of compensating for those areas currently subject to ponding, which will be filled to increase minimum floor levels.

Figure 4 in the Stormwater & Hydrology Report (**Appendix F**) depicts the areas used in assessing flood storage analysis. This shows that water from the interdune is able to enter the lake when interdune water levels rise above the normal operating level of the lake. Given that the area of the lake is slightly larger than the area used for ponding, the current flood storage capacity of the site is increased, and the status quo improved upon.

In summary, the development of the lake provides increased storage capacity for flood flows when compared with the existing scenario. The isolation of the lake both provides more operational control for runoff from the site whilst

continuing to allow for floodwaters from the interdune area (as a consequence of an Ashley breach) to flow back into the lake for increased storage. Excess capacity is provided for, and thus the adverse downstream effects associated with the earthworks proposed for the site are considered to be no more than minor.

6 PROPOSED MITIGATION STRATEGIES

6.1 THE VALUE OF MITIGATION

In exercising its broad judgement when considering the resource consent application in terms of s104, the consent authority is not required to be satisfied that there is no net effect on the environment or that all effects are compensated for in some way. The then Planning Tribunal in Treble Tree v Marlborough District Council W103/96 stated that:

“The idea of mitigation is to lessen the rigour or severity of effects. We have concluded that the inclusion of the word “mitigation” in section 5(2)(c) of the Act, contemplates that some adverse effects from developments such as those we have now ascertained may be considered acceptable no matter what attributes the site may have. To what extent the adverse effects are acceptable is however, a question of fact and degree.”

“One of the fundamental elements of sustainable management is controlling the adverse effects on the environment, which is provided for by section 5(2)(c), the key words being “avoid, remedy, or mitigate”.

In Mangakahia Maori Komiti v Northland Regional Council, it was held that:

“each paragraph of s5 is to be accorded full significance and applied accordingly in the circumstance of the particular case so that the promotion of the Act’s purpose may be effectively achieved”.

While in the wording of the subsection the words “avoid, remedy, or mitigate” follow a continuum, we are of the view that the grammatical construction is such, that the words are to be read conjunctively and with equal importance.

Accordingly, whether emphasis is given to avoidance, remedying or mitigation will depend on the facts of a particular case and the application of section 5 to those facts. A judgement is required to be made which “allows for a comparison of conflicting considerations and the scale or degree of them, and their relative significance or proportion in the final outcome”.

In some cases mitigation of an adverse effect is sufficient. In other cases avoidance may be required”. (See paras 16-18, pp6-7 & paras 24-25, p8).

Good design incorporates sufficient mitigation to ensure that the adverse effects are no more than minor. The following sections describe mitigation that has been factored into the earthworks and stormwater systems.

Construction

A cut / fill balance will be achieved on site. This means that additional materials are not required. Construction hours are limited, and there are a suite of measures proposed to control noise, dust, runoff and hazardous substances.

The contractors will be required to manage the site to reduce the potential for sediment runoff by undertaking a number of standard industry practices tailored to the Pegasus site. Initially the contractors will prepare and implement an Environmental Management Plan which address:

- Location of stockpiles
- Use of sediment control devices:
- Daily inspection and maintenance of the operating integrity and efficiency of the devices
- Keeping a record of all inspections and items actioned.
- Checking (and maintaining where necessary) sediment control devices during storm events.
- Storage of all potentially hazardous substances

Stormwater Management System

To mitigate against potential on-site flooding, design criteria include:

- A conservative infiltration rate of 10mm/hr to discharge flows to the ground for events up to the 10-year event has been used.
- Groundwater levels are expected to be at least 1.35m below the building platforms for residential developments.
- The development of the Pegasus Lake provides increased overall flood storage capacity in the interdune area when compared with the existing scenario.

Mitigation of potential water quality effects from stormwater has been built into the basic design of the stormwater management system and includes:

- Grassed swales and pipes which collect stormwater and direct its flow;
- A series of grit traps and gravel soakage areas which treat stormwater;
- Vegetated strips and wetlands around the lake to treat stormwater;
- Further stormwater treatment through the ECMA wetlands.

Cultural Considerations

The significance of the site to local tangata whenua is acknowledged. A concerted programme of consultation has been undertaken with representatives of local iwi groups. This process has been aided in no small way by the appointment of Te Marino Lenihan as Cultural Advisor to the project. An application has been made to the NZ Historic Places Trust to disturb sites of potential archaeological interest, and robust accidental discovery protocols have been adopted. An ongoing relationship with Te Ngai Tuahuriri Runanga and Ngai Tahu is proposed, and the initial dialogue undertaken with these groups has created a strong foundation for this to occur.

Ecological Restoration

The creation of the ECMA represents a significant initiative which once fully developed, will have a significant benefit to biodiversity values in the area. The extensive planting proposed and the use of stormwater to preserve base flows to the wetland will achieve an environment that represents the previous ecological, cultural and historic values of the interdune area. The proposed construction management measures described above have been formulated

to ensure that there are no significant adverse effects on the natural environment during construction.

6.2 ALTERNATIVE LOCATIONS AND METHODS

The subject site is zoned for development of Pegasus Town. As a zoned activity, this represents a sustainable use of natural and physical resources and is an appropriate activity for this location. The earthworks and stormwater management system described in this document are necessary to give effect to the intended use of the site.

Earthworks could be carried out in a piecemeal fashion across the site. This would entail an extended period of site development which is undesirable. Similarly, a piecemeal approach to stormwater could have been adopted and proposed in tandem with the staged subdivision applications. This would not however give Council and other stakeholder groups the certainty to assess the potential overarching environmental effects as this application has done.

It is not anticipated that the construction and development stages will give rise to any adverse effect which cannot be avoided, remedied or mitigated to a point where it is no more than minor.

7 SECTION 104 CONSIDERATIONS

Section 104(1)(b)(iv) of the Act requires consideration of the relevant objectives, policies, rules or other provisions of a plan in determining an application.

Chapter 3 of this application has identified all relevant objectives and policies and rules applicable to determining subdivision and development within the Pegasus zones.

7.1 OBJECTIVES AND POLICIES DISCUSSION

The Plan provides a number of objectives and policies to guide decision makers on suitable locations for development.

Maori and Heritage

Chapter 2, Maori notes the need for recognition of the relationship of Maori, their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga. The proposal recognises the relationship that the people of Ngai Tuahuriri Runanga, the manawhenua in this area, have with the Pegasus site and surrounds. In particular, the proposal has been formulated with specific acknowledgement to the former uses of the site, its use for food gathering and cultivation, its history of conflict and the possibility of accidental discoveries during construction. Overall, the design is sensitive to these issues and has been guided by close consultation with the local tangata whenua. It is considered that the archaeological assessment which accompanied the application to the New Zealand Historic Places Trust has successfully identified those sites currently known to have heritage significance. In addition, this document contains various mitigation and preservation strategies for sites that may be uncovered during development. The combination of steps which have been undertaken to date and the various ongoing responsibilities are considered to satisfy the objectives and

desired policy outcomes as contained in Chapter 9. Overall, the proposal is considered to be consistent with the objectives and policies expressed in these chapters.

Land and Water

The further loss or degradation of the natural character and ecosystems of surface water bodies, or the degradation of the water quality of ground water, are recognised as undesirable, and the objectives and policies of Chapter 3 are designed to protect these. Similarly, the goals of Chapter 4 are to encourage appropriate land use and land management as a means of avoiding adverse effects on land and water margins, and Chapter 6 seeks to avoid the loss or degradation of indigenous vegetation, fauna and habitats as might arise from inappropriate land use.

Safeguarding the quality and quantity of both surface and groundwater has been of central importance in formulating the stormwater concept for Pegasus Town. An ecologically sound, low impact stormwater management system is designed to protect the receiving environment from any adverse effects associated with discharges. The existing site is zoned for development as is eventually proposed. The intention is to engage in a concerted programme of wetland and duneland restoration and proactive management. This is considered to serve as a site wide ecological gain, and an extremely positive outcome for the local terrestrial and aquatic ecology. Overall, the proposal is considered to be consistent with the objectives and policies expressed in these chapters.

Natural Hazards

The use proposed for the site, and particularly, the requisite earthworks and proposed stormwater management system are not considered to contribute in any way to exacerbating risk associated with flooding or any other natural hazard. The earthworks proposed for the site will have no adverse effect on the capacity of the area to act as flood storage during major flood events. The potential consequences of damage and injury associated with earthquake have been examined and it is acknowledged that whilst liquefaction is a potential issue, it can be mitigated against, and that this is more appropriately dealt with at subdivision and servicing stages of the development. Overall, the proposal is considered to be consistent with the objectives and policies contained within Chapter 8.

Health, Safety and Wellbeing

Avoiding adverse effects associated with a loss in amenity values and/or quality of the environment as a result of inappropriate development is recognised as a key issue in the District. The proposal seeks to manage construction effects in a fashion which mitigates any adverse effect as it may be experienced beyond the site boundary. Similarly, the filling proposed does not reduce the existing flood storage capacity and as such, is considered to have no negative outcomes on surrounding people and communities. The stormwater management system manages the effects within the site.

Rural Zone

The land development works and the implementation of the proposed stormwater management system are both geared toward achieving an ecologically and functionally important and sustainable Eastern Conservation

Management Area. The stormwater system contains effects on site, and is designed to ensure that the natural and life supporting capacity of the soil and water resource in the zone is not degraded. In this respect, the objectives and policies of the zone are achieved.

Summary

Section 104D stipulates that a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that the adverse effects on the environment will be no more than minor, or the application is for an activity which will not be contrary to the objectives and policies of either the relevant plan or the relevant proposed plan. The courts have determined that if an application is not able to pass through either of these 'gateways', the application must fail.

Those actual and potential adverse effects likely to result from this proposal have been considered in accordance with Section 104(1)(a) of the Act. The actual and potential effects likely to be associated with this proposal have been discussed at length in the various sections contained within Chapter 5 of this report. Overall, it is concluded that the proposal as described is considered to have an adverse environmental effect on the environment which is no more than minor. Additionally, and for the reasons described in this Chapter, the proposal is considered to be generally in accordance with the objectives and policies contained in the District Plan. It is therefore contended that both the gateway tests of section 104D have been met.

8 CONCLUSIONS

Consideration of those matters in section 104(1) of the Act are subject to Part II.

The application raises some section 6 matters (being matters of national importance) which have been specifically recognised and provided for as part of this subdivision and development proposal.

The proposal meets the standard imposed by section 6(a), which is to recognise and provide for the protection of wetlands from inappropriate use. The proposed restoration of the ECMA as is evidenced in the accompanying Management Plan represents a sustainable and thus appropriate use of this area. Additionally, the proposed stormwater management system provides for water flows which are treated to a standard which ensures the ongoing health and wellbeing of this proposed conservation area. Similarly, the land development works and stormwater system which are the subject of this application, facilitate an environment where tracts of significant indigenous vegetation and fauna can be appropriately managed and provided for. This is consistent with section 6(c) of the Act.

These matters also include section 6(e) and 6(f) of the Act which require the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga and the protection of historic heritage from inappropriate use and development. As expressed within this document, a central feature of the project has been the acknowledgement of the cultural attachment Te Ngai Tuahuriri Runanga, the manawhenua of this area have to this site and its surrounds.

A comprehensive consultation process involving representatives of Ngai Tuahuriri Runanga and Ngai Tahu has been undertaken. These discussions have influenced the design and development methodology in no small way. The importance of the water resource within the site is recognised as being of key cultural importance. The overall conclusion in this respect, is that the quality of both the ground and surface water within the site will be protected during the construction phase, and eventually improved as a result of the stormwater management system proposed. Appropriate measures are in place to ensure that hereto unknown features of cultural or historic significance that may be discovered during the construction period are protected from inappropriate use and development.

The proposal has had particular regard to a number of section 7 considerations.

- (b) The efficient use and development of natural and physical resources:*
- (d) Intrinsic values of ecosystems;*
- (f) Maintenance and enhancement of the quality of the environment:*

The site is zoned for development as proposed. The earthworks and stormwater proposals are thus considered a sustainable use of the land resource, and fundamental in providing for the eventual development of Pegasus Town. As evidenced in the Management Plan for the ECMA, the proposal provides an opportunity for the enhancement of both the terrestrial and aquatic components of the interdune ecosystems.

The exercise of the discretionary judgement is to be informed by the statutory purpose of promoting the sustainable management of natural and physical resources. The elaboration of the term 'sustainable management' in section 5(2) of the Act refers to enabling people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety. It is not considered that the present proposal would imperil the values described in paragraphs (a) and (b) contained within section 5 of the Act and that appropriate conditions of consent will sufficiently mitigate any adverse effects of the activity on the environment.

The particular restrictions ascribed to non-complying activities have also been evaluated. For the reasons discussed in Chapter 5, the adverse effects associated with the proposed land use have been demonstrated to be no more than minor. In addition, the detail contained in this proposal demonstrates how the proposal is generally consistent with the relevant objectives and policies of the District Plan.

In conclusion, it has been identified through this comprehensive assessment that this development will provide for the purpose and principles of the Act, in that the activity will promote the sustainable management of the natural and physical resources involved, while enabling people and communities to provide for their social, economic and cultural well being and for their health and safety.

9 CONSULTATION

A Consultation Report prepared by Mitchell Partnerships is contained in **Appendix E**. This report describes the strategies, participants, and outcomes of the consultation process which first introduced Infinity's vision for Pegasus to the wider North Canterbury community in early 2005. The report is derived from a consultation database that has been managed by Mitchell Partnerships from the project's inception. The consultation effort over recent months has been geared predominantly toward the subject proposal. In brief, the consultation effort has included:

- Identification of stakeholder groups
- Letter of introduction to stakeholder groups
- Community Open Day at Woodend
- Advertorial and introduction to Infinity and the project team in *The Press* & local newspapers
- Ongoing correspondence with individuals over specific issues
- Production and distribution of a flier introducing the Pegasus Stormwater Solution

- Presentations to Community Groups
 - Woodend East Inc
 - Woodend Residents Association Inc
 - Pines / Karaiki Beach Association
 - Waikuku Community Group Inc
 - Woodend-Ashley Advisory Board
 - Woodend Beach Environmental Care Association

- Formation of 'Conservation Liaison Group' including:
 - Fish & Game
 - Forest & Bird
 - Ornithological Society
 - North Canterbury Conservation Society)

- Meetings with Iwi groups
 - Te Ngai Tuahuriri Runanga
 - Te Runanga o Ngai Tahu
 - Te Kohaka o Tuhaitara Trust

- Public Meeting at Waikuku Beach

A main objective of the consultation process was to address the issues and concerns of stakeholders and affected parties during the design development stages and prior to the resource consent applications being lodged. Of paramount concern was the rebuilding of relationships with key stakeholders. These relationships were identified as having been neglected by the previous (would be) developers of Pegasus Town, and a high level of suspicion, mistrust and ill feeling was in evidence in certain sectors of the community. Pegasus Town Limited has sought to re-engage the community, and to develop a fresh approach based on mutual trust, information sharing, transparency and cooperation. The key elements in this approach have been:

- The provision of information in a co-ordinated, timely manner to key stakeholders
- Ensuring that all stakeholders receive the same information

- Providing a range of communication options for stakeholders to respond easily to information that they receive
- Being proactive in seeking responses to communications
- Defining the issues raised and where possible, addressing and resolving those issues.

Constructive working relationships were established between the Pegasus Town Limited project team and regulatory agencies. This has included regular contact with staff from the Waimakariri District Council and Environment Canterbury and its delegates. These working relationships were reinforced through regular meetings, workshops and site visits. In addition, ongoing consultation with the New Zealand Historic Places Trust, Transit New Zealand and Department of Conservation was a feature of the process. The project has from the outset sought to involve the appropriate iwi representation and contributions. The appointment of a dedicated cultural advisor (approved by Ngai Tuahuriri) to the project has been an important component in facilitating these relationships.

The early identification of community groups, neighbours and interested parties has meant that effects of the development on interested and potentially affected parties have been considered from the outset. This has also meant that effective channels of communication have been established and information sharing networks within the community have been created.

Consultation from October 2005 has been predominantly geared toward the Pegasus stormwater management system and the associated earthworks required to construct and service Pegasus Town. The issues that have been raised in relation to the proposed earthworks and stormwater management systems can be summarised as follows:

- Quality of water discharges
- Ensuring no adverse impact on flood capacity of the system
- Construction methods
- Treatment, monitoring and maintenance regime of the stormwater solution
- Preservation of the cultural and ecological significance of the site
- Avoiding adverse impact on Tutaepatu Lagoon
- Protection and enhancement of the mahinga kai resource

These issues have all been traversed at length with stakeholder groups and individuals in discussions to date. Where appropriate, these areas have been integrated into the final design solutions, and it is suggested that the proposal as contained in this application is a product of both good design and effective consultation.

Overall, the consultation process that has been facilitated to date has been an effective and successful means of engaging with the local community and interest groups. It is the applicant's intention to maintain the lines of communication that have been established, and to continue to operate in a transparent, consultative and positive fashion so that the best possible outcome for all parties can continue to be achieved.

10 SUGGESTED DRAFT CONDITIONS OF CONSENT

It is suggested that the following conditions be attached to the consent granted by Council in relation to this application:

- 1 That the activity be undertaken generally in accordance with the plans, technical reports and other specifications submitted with the application, except where modified by the following conditions of consent.
- 2 That unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent shall be at the consent holder's own expense.
- 3 The lapsing provisions of Section 125 of the Resource Management Act 1991 will apply on expiry of ten years from the date of commencement of this consent.

Archaeological Sites Protocol

- 4 A consulting archaeologist shall monitor all earthmoving associated with the proposed works and shall advise on methods to be undertaken to ensure that adverse effects on archaeological values are avoided, remedied or mitigated. The consent holder shall consult with Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga regarding the appointment of the archaeologist.
- 5 The consent holder shall provide the consulting archaeologist, Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga, the following information no less than 25 working days prior to any earth-moving works:
 - a) A schedule of the dates of all significant earthmoving events, their sequence and duration
 - b) A summary of all measures being undertaken to ensure that adverse effects on archaeological values are avoided, remedied, reduced or mitigated
- 6 The consent holder shall invite Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga to attend any episode of monitoring or earthmoving activity.
- 7 The consent holder shall provide Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga and the New Zealand Historic Places Trust with a copy of all archaeological monitoring and investigation results which are required by the conditions of this consent with an invitation to respond, comment or meet to discuss any results.
- 8 The consent holder shall notify the District Council of all information provided to Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga and any responses received. If appropriate, the District Council, with the agreement of the consent holder and Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga, shall convene

meetings/hui should any of the information or issues require further discussion.

Waahi Taonga, Waahi Tapu and Urupa Protocol

- 9 A representative of Te Ngai Tuahuriri Runanga shall be engaged to be present during construction and excavation of the subdivision to act as advisor to the developer on identification or protection of waahi tapu, waahi taonga, urupa or historic cultural sites.
- 10 The consent holder shall consult with Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga to determine, in accordance with tikanga Maori, if there are any matters of protocol which tangata whenua wish to undertake in relation to the commencement of any development works, significant events or the commissioning of the completed works.
- 11 The consent holder shall ensure that staff involved with earthmoving activities have received training and are aware of the requirement to monitor earthmoving activities in a way that enables the identification of waahi tapu, waahi taonga, urupa or historic cultural sites. Te Runanga o Ngai Tahu and Te Ngai Tuahuriri Runanga shall be contracted to provide appropriate training to such staff.
- 12 Immediately that it becomes apparent that an urupa, waahi tapu, waahi taonga or suspected historical site has been uncovered, earthmoving operations shall stop. The contractor will shut down all machinery or activity immediately, leave the area and advise the consent holder of the occurrence.
- 13 In cases other than suspected koiwi tangata (human remains):
 - a) The representative of Te Ngai Tuahuriri Runanga will be consulted by the consent holder of the site to determine what further actions are appropriate to safeguard the site or its contents, and to avoid, reduce, remedy or mitigate any damage to the site.
- 14 Where koiwi tangata (human remains) are suspected:
 - a) The consent holder will take steps immediately to secure the area in a way that ensures the koiwi tangata are untouched.
 - b) The consent holder shall be responsible for notifying the Te Ngai Tuahuriri Runanga, the Police and the Historic Places Trust and that it is suspected koiwi tangata have been uncovered.
 - c) The consent holder of the site will see that staff are available to meet and guide kaumatua, Police and Historic Places Trust staff to the site, assisting with any requests that they may make.
 - d) Earthmoving operations in the affected area will remain halted until the kaumatua, the Police and Historic Places Trust staff have marked off the area around the site and have given approval for earthmoving operations to recommence.

- e) If the kaumatua are satisfied that the koiwi tangata are of Maori origin the kaumatua will decide what happens to the koiwi tangata and will give their decision to the Police, the archaeologist and the consent holder.

Construction

15. Prior to any work commencing on the site, a Contractor's Environmental Management Plan shall be prepared detailing the measures and procedures to be put in place to undertake the land development phases of construction. This Plan shall be submitted to the Waimakariri District Council prior to construction work commencing. A copy shall also be held by the consent holder along with a copy of the consent. Where necessary, this Plan may be reviewed and updated and resubmitted to the Waimakariri District Council.

16. The Contractors Environmental Management Plan shall include, as a minimum, the following:
 - a) A temporary traffic management plan as detailed by the Transit New Zealand Code of Practice for Temporary Traffic Management (CoPTTM).
 - b) All stockpiles of soil shall be located at least 20m away from watercourses and 50m away from external site boundaries.
 - c) Covered rubbish bins shall be provided during the construction period and the refuse regularly disposed of off-site to ensure wastes do not overtop bins.
 - d) Waste bins for the collection of non-construction related wastes shall be covered to minimise wind blown debris.
 - e) No burning of any waste on site during the construction period shall be permitted.
 - f) Portable toilet facilities shall be provided during the construction phase. These units shall not be located within 10m of a watercourse or external site boundary.
 - g) Bulk fuel storage during the construction phase shall be limited to one location which shall not be within 20m of any watercourse or external site boundary.
 - h) The fuel storage area shall be bunded to prevent and spillage contamination. All dispensing units shall have drip trays and drip containers in place at all times. Sealed waste bins shall be provided for the collection of waste drums, oily rags, oil filters etc.
 - i) A spill management procedure for fuels and other potentially hazardous substances.
 - j) The storage of small quantities of dangerous or hazardous substances shall comply with the Dangerous Goods

Regulations and all other relevant legislation. This includes obtaining all necessary licences.

- k) The hours of work shall be limited to normal construction hours Monday to Saturday, and no work shall be allowed on Sundays or public holidays.
 - l) Construction noise in any zone shall not exceed the recommended limits specified in, and shall be measured and assessed in accordance with, the provisions of NZS:6803: P1984 "Measurement and Assessment of Noise from Construction, Maintenance, and Demolition Work".
 - m) The site will be watered regularly using water carts, particularly during hot, dry periods. Construction will cease and the site will be wetted down if dust becomes problematic due to unusually strong winds.
17. The consent holder shall ensure that all work on site shall follow at all times the measures and procedures set out in the Contractor's Environmental Management Plan.
18. Any areas identified as containing notable vegetation shall be fenced for protection during the earthworks phase of construction.