ORIGINAL

Decision No. C 74 /2005

IN THE MATTER	of the Resource Management Act 1991 (**the Act**)
AND	
IN THE MATTER	of appeals pursuant to section 120 of the Act
BETWEEN	SOLID ENERGY NEW ZEALAND LIMITED (ENV C 143/04)
AND	DIRECTOR GENERAL OF CONSERVATION (ENV C 144/04)
AND	NGAKAWAU RIVERWATCH INCORPORATED (ENV C 147/04)
AND	ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND INCORPORATED (ENV C 148/04)
AND	TE RUNANGA O NGATI WAEWAE (ENV C 152/04)
	Appellants
AND	THE WEST COAST REGIONAL COUNCIL
AND	THE BULLER DISTRICT COUNCIL
	Respondents

BEFORE THE ENVIRONMENT COURT
Environment Judge J A Smith (presiding)
Environment Commissioner C E Manning
Environment Commissioner O M Borlase

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

Hearing at Christchurch on 7-11, 14-17, 18 and 21 March 2005 (including site visit)

Hearing at Westport on 16 March 2005.

Appearances

Mr M R G Christensen and Ms M A Thomas for Solid Energy New Zealand Limited (**Solid Energy**)

Ms S J Thornton for the West Coast Regional Council and the Buller District Council (**the Regional Council** and **the District Council** respectively)

Mr T J Castle for the Buller Conservation Group (section 274 party) (**Buller Conservation**)

Ms T E Crossen for the Royal Forest and Bird Protection Society of New Zealand Incorporated (**Forest and Bird**)

Mr D I Brown for Te Runanga O Ngati Waewae (**Ngati Waewae**)

Mr D V van Mierlo for the Department of Conservation (**the DOC**)

Mr D E J Currie for Ngakawau Riverwatch Incorporated (**Riverwatch**)

Mr A J L Beatson for the Ministry of Economic Development (**MED**)

DECISION

When you take something out of Papatuanuku you must give something back[1].

Introduction

[1] This case concerns losses to the environment that will occur as a result of coal removal at the Waimangaroa Valley on the Stockton Plateau and the value of the steps Solid Energy intends to take to *give back* to the area.

[2] In cultural terms this could be seen as whether the Mauri (life force) of the Waimangaroa Valley and Mt William and the Stockton Plateau will be maintained or enhanced. Put another way, reaching an integration of relevant factors under section 5, will the proposal (with the conditions now proposed) appropriately recognise and provide for the matters of national importance under section 6 and be otherwise

[1] Cypress Mine Cultural Impact Assessment Report p. 19.

appropriate in terms of Part II of the Act?; will it promote the sustainable management of natural and physical resources?

[3] We note that the DOC and Riverwatch took no active part in this hearing on the basis that the conditions of consent (if consent was considered appropriate by this Court) would be granted on terms no less stringent than those agreed between the parties and incorporated in the proposed conditions of consent produced at the commencement of the hearing. By the end of the case a further set of conditions were produced which either did not affect the conditions agreed between the parties (in the case of Riverwatch) or were more stringent than those already agreed (in the case of the DOC).

[4] Annexed hereto and marked **A** is a copy of the final proposed conditions which can be usefully referred to for a number of matters including the mine map (see final map, Plan 1 showing the mining area outlined in black).

The context of this hearing

[5] This case raises matters of fundamental importance to the New Zealand economy and for the West Coast region and Buller district in particular. It involves matters of national importance under at least sections:

- 6(a) – the preservation of the natural character of … wetlands … rivers and their margins, and the protection of them from inappropriate … use, and development;
- 6(c) – the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;
- 6(e) – the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, … and other taonga;

and arguably also under section:

- 6(b) – the protection of outstanding natural features and landscapes from inappropriate … use, and development.

[6] This is not to derogate from matters arising generally under section 5 and under section 7 of the Act, nor to fail to recognise that the Crown as owner of the land is a Treaty partner with Ngai Tahu and Ngati Waewae in terms of section 8 of the Act.

[7] It was clear to this Court as a result of the evidence that the coal the subject of this application was of extremely high quality, with particularly low ash and sulphur content. It would be destined for the international market and we are told that in 2005 dollars it has a value of around $850 million (perhaps higher). On the other hand there is no dispute that the site is part of the habitat of the rare spotted kiwi/roa. It is also within the distribution range of the *Powelliphanta "patrickensis"* snail which is limited to the Stockton Plateau as a whole and has a greater concentration in the Waimangaroa Valley. We accept evidence given by experts in the matter that both species are in gradual decline. Both species are absolutely protected.

[8] The mine site contains rare vegetation[2] and in particular would involve the removal of about 25 hectares of the best red tussock wetland communities on the Stockton Plateau which are also nationally rare. In addition it would involve removal of podocarp and beech forest and associated species. Mining must also be seen in the context of the depredations on the Stockton Plateau as a result of past open-cast and underground mining over the last 150 years. Some effects of this are still very obvious and ongoing.

[9] Having regard to the seriousness of the issues the case has been extremely cogently presented by all counsel and their witnesses, many of whom are leading experts in their fields. Similarly, there are relatively high levels of agreement between the experts. There was clear agreement that various values identified were to be considered under section 6(a), (c) and (e), with a relatively high agreement as to the actual values in each of these categories. There were differences between the experts as to:

(a) whether the landscapes and features within the mining area were outstanding under section 6(b) or possessed only very high values under

[2] although there is some dispute as to the actual number that are nationally rare.

section 7. This in itself was a very limited argument and turned largely on the visual catchment being considered;

(b) the ***areas*** *of flora* and the ***habitats*** *of fauna*. Again the values appeared to be recognised: the question was how large the areas and habitats to be considered should be under section 6(c).

The coal resource

[10] In New Zealand, bituminous (or coking) type coals are restricted to the West Coast of the South Island. The upper Waimangaroa deposits comprise about 20% of the West Coast bituminous coal resource. The Cypress mine and the whole of the Upper Waimangaroa coal resource is unusual in both New Zealand and world coal terms because of the high quality of the coal found there.

[11] A substantial quantity of the coal resource at Cypress is very low ash (<1%) and therefore has potential for use in specialist coal markets such as activated carbon manufacture. The coals also have good fixed carbon levels of about 55% and moderate coking properties. This makes the coal ideal for use as a source of carbon for carbon-based chemistry products. Niche markets, using specialist carbon products, place a premium on carbon sources with low levels of contaminants. Hence the Cypress coal is of high export value. Projections for growth over the next ten years is up to doubling current exports of coking, thermal and specialist coal.

[12] The majority of Cypress coal is well suited for utilisation in the production of coke for blast furnace steel making operations, a market to which Solid Energy currently exports about 1.9 million tonnes per year. This is about 50% of the Company's current total production of around four million tonnes of coal per year from its seven underground and open cast mines around Westport, Greymouth and Reefton on the West Coast, Ohai in Southland and Huntly in the Waikato. The Company aims to increase this production to almost seven million tonnes per annum by 2010.

[13] While there are large coal resources elsewhere in New Zealand, e.g. the Waikato, Otago and Southland, these coals are of the sub-bituminous and lignite type. The inferior quality and metallurgical properties of these other coals preclude their use in the

high value metallurgical and specialist coal markets for which the Cypress coal will be in demand.

[14] Transport infrastructure to take the coal from the West Coast to Lyttelton is already in place. Recent upgrades to the Midland Line, with resulting higher efficiencies and rolling stock utilisation and removal of speed and weight restrictions that have constrained volumes over recent years, will enable increasing volumes of coal to be carried by rail to the Port of Lyttelton for export.

The geological setting

[15] The major structural geological feature in the mine area is the Mt William fault, which can be traced from St Patrick Stream in the north to Cascade Creek in the south of the Mining Permit area. Vertical displacement of the fault increases from less than 100 metres in the north to over 250 metres in the southern part of the Cypress Mine area. A number of other faults have been identified which will influence the mine and these include the Whirlwind, Cypress and St Pat's faults. There is little folding in the area and bedding typically dips south-east, in a sub-parallel direction, to the Mt William fault. For the mine project the Kaiata mudstone overlying the coal will be removed and benched slopes constructed on the eastern sides of both pits and extended from the pit floor up the western slopes of Mt William (**highwalls**).

[16] The surface geology of the Cypress area comprises the quartz sandstones of the Brunner Coal Measures, the Kaiata mudstones which occur in the lower slopes of the Mt William Range and in Happy Valley, and the greywacke and granites of the Mt William Range. Unlike the quartz sandstones of the coal measures, the Kaiata mudstone forms a good soil and supports a well developed vegetation cover.

[17] The basement rock comprises greywackes and argillites intruded by granites and porphyry and is exposed on the western slopes of the Mt William Range (on the up thrown side of the Mt William fault). These rocks also occur to the west of Happy Valley as Whirlwind Rise. Overlying the basement rocks are the Brunner Coal Measures, which outcrop widely and form the distinctive quartz sandstone surface of the

Stockton and Denniston Plateau. Within the coal measures, shales, mudstones, siltstones, coal seams, sandstones, grits and conglomerates occur.

[18] The correct characterisation, understanding and management of these rock types is fundamental to how developing the mine throughout its life has been planned and managed. In this respect it is crucial to manage the removal of the Brunner Coal Measures and Kaiata mudstones formations that lie above the coal seams because they comprise the potentially acid forming material in the overburden. These formations, which dip south-east at 5-25 degrees until they are cut off by the Mt William fault, have been shown by geological mapping and core sampling to form approximately 50% of the overburden. The underlying coal seams range from eight to fifteen metres thick, being thickest at the eastern limit of the pit. The seams outcrop on the western side of Happy Valley. At its eastern limit the seam is at a depth of about 100 metres.

[19] Shallower mudstones are classified, for mine planning and scheduling purposes, as either non-acid forming material, or material with a low or more manageable potential to form acid. The granite found on Mt William Range slopes and the quaternary soils and alluvium across the surface of the area are all non-acid forming.

[20] The range of coal depths requires the removal of around 29 million cubic metres of overburden which will uncover about 4,860,000 tonnes of coal. Stripping ratios average 5.9:1 (i.e., a ratio of 5.9 cubic metres of overburden to one tonne of coal). This is a relatively low stripping ratio – at other coal mines stripping ratios may be as high as 12:1.

The proposal

[21] The Cypress mine will have an approximately 260 hectares footprint comprising two pits, overburden disposal area, roads, water treatment facilities and associated infrastructure. The area proposed extends from near the north end of St Pat's Dam, south to the Byrne Creek area, a distance of some four kilometres and includes the valley floor in the upper Cypress Stream catchment and the western slopes of the northern end of the Mt William Range. The mine life will be ten years with a further period for mine closure work, mitigation work, rehabilitation and monitoring.

[22] Evidence was given to the Court that consideration had been given to determine whether some or all of the coal could be mined by underground methods. However Solid Energy concluded that underground mining of the Cypress resource was neither technically or economically feasible. In summary, Solid Energy consider open cast mining maximises coal recovery and is an efficient use of the resource. It enables 100% recovery of the coal within the mine footprint, whereas underground mining would recover less than 20% of the in situ resource.

[23] The general layout of the proposed mine as shown on Plan 1 at the rear of Annexure A comprises the following:

(a) Two pits known as the north and south pits, covering approximately 85 hectares combined area with up to 60 hectares open at any one time.

(b) A zone approximately 30 metres wide around the pits (except along the western edge of the north pit) to allow the removal of vegetation for stability above the highwall and facilitate the construction of clean stormwater diversion drains. This takes the total pit area to approximately 105 hectares. The topography of the pit will range from 620 metres above sea level (**masl**) in the valley up to 820 masl at the top of the highwall on the Mt William range.

(c) An over-burden placement area covering approximately 65 hectares will be developed on the sandstone plateau on the western side of St Pat's Dam. Nearby will be topsoil storage areas up to a maximum of nine hectares, one north of Plover Stream and on the eastern side of the Cypress haul road, one west of the haul road and south of Plover Stream, and a third within the footprint of the overburden area.

(d) There will be a haul road approximately 3.5 km in length and some 35 metres wide running from near the existing Stockton Mine office across the sandstone plateau to the north of Plover Stream gorge, crossing the stream below the gorge and then descending around the edge of the overburden placement area to the north end of the pit. Approximately 1.2 km of the haul road is within the upper Waimangaroa permit area; the remainder is

within the Stockton coal mining licence area where roading activities are permitted by the coal mining licence.

(e) The haul road between Cypress and Stockton mines will run along the western edge of the overburden placement area. It will run inside the western edge of the north pit and continue to the south pit. Within the north pit the haul road will run along an embankment to enable a mine water drain to be established along its eastern edge. This will drain mine water by gravity towards St Pat's Dam. The embankment will be engineered to contain overburden behind it and allow saturation of the fill within it.

(f) The mine road boundary will be fenced in the Happy Valley area to ensure the adjacent ecosystem is not disturbed. The main haul road will be elevated above the adjacent topography with a drain on its inner eastern edge, providing drainage towards St Pat's Dam.

(g) St Pat's Dam will be reconstructed to act as a primary sediment/settling pond.

(h) Happy Valley, which occupies part of the north-western side of the north pit, will have at least 12 hectares of the red tussock wetland removed by direct transfer system and stored in the overburden placement area, for replacement in Happy Valley as part of the rehabilitation.

(h) The trees on the escarpment of Mt William will be removed for the purpose of providing for the benching necessary to enable the safe excavation of the open-cast mine to lower levels. The benching is designed so as not to break the ridgeline on Mt William but will leave permanent benching, even after revegetation of the benches.

(i) Water management facilities will be located throughout the mine area including diversion drains, refurbishment of St Pat's Dam and a diversion channel around the Dam's eastern margin, and numerous mine water interceptors, drains, pumping stations and pipelines.

(j) A 1.5 hectare area adjacent to the overburden area near St Pat's Dam will be set aside as a vehicle hard stand and office area. Staff involved in the mining operations, rehabilitation staff, supervisors, site geologists and other technical personnel will use the facilities there.

Acid rock drainage (ARD)

[24] A key consideration in the mine design and operation has been to control the potential for acid rock drainage (**ARD**) from the large quantities of potentially acid forming overburden that will be removed. The process under which ARD is produced essentially involves sulphide minerals (reduced sulphur or pyrite) in the overburden reacting with the oxygen in air and water to oxidise the sulphide and produce sulphuric acid with potentially adverse effects on water quality.

[25] Because it is a "green fields" project the Cypress proposal offers different and better opportunities for managing and controlling activities to minimise ARD and its effects. These activities are analysed later in this decision. The objective of ARD management is however to achieve long term geochemical stability and control over the generation of ARD through implementing international best practice in relation to mine management, overburden rehandling and disposal and mine closure, so as to suppress the initiation of ARD during the operating phase of the project.

Mining sequence

[26] Mining will start at the north end of the north pit, progressing to the south. The extraction phase of the coal may take up to 15 years. It is intended however that the extraction period should occupy around ten years.

[27] As mining proceeds from north to south, the following stages will occur sequentially in blocks:

Stage 1

[28] Prior to the stripping of any block the directly affected kiwi will be monitored and the decision will then be made as to whether they are to be removed, and if so to where. As many of the directly affected *Powelliphanta "patrickensis"* snails as practicable will also be removed and relocated to a predator-free enclosure and/or an extended predator control area.

[29] Vegetation will be removed ahead of operations. The intention is that all vegetative material will be stored and re-used on the site when it is eventually rehabilitated. This includes logs, plant material and most of the topsoil. It is now intended that a minimum of 12 hectares of red tussock wetland will be directly transferred to the overburden area for storage pending its ability to be rehabilitated on the site.

[30] In respect of the balance of the area, the red tussock wetland and logs will be stock-piled, all available topsoil and some favourable subsoils will be stored for re-use in the rehabilitation. In areas where direct transfer back on to the site is not possible, mixed vegetation and topsoil will be used as the primary substrate for rehabilitation.

[31] The overburden will then be stripped and removed to the overburden emplacement area adjacent to St Pat's Dam or transferred to the Stockton mine (approximately years 1-3) or back-filled into the Cypress pits (years 4-10). Some overburden will be screened, stock-piled and used for rehabilitating stream channels and block mulching specific surfaces.

Stage 2 – Coal mining

[32] The coal will be excavated and transported to the Stockton mine transport system.

Stage 3 – Back filling

[33] As soon as space becomes available in the Cypress north pit, back-filling into the mined-out area will commence using overburden material from the next block, which will have been stripped and made ready for mining.

[34] Progressive construction of the haul road will also be engineered to provide a containment device on the western side and allow saturation of the rehabilitated site areas. Work in this area will be completed as necessary to relevant static and seismic loadings and in respect of the completed works for the north pit to match hydrological conditions prior to removal.

Stage 4 – Rehabilitation

[35] Back-filling will be completed, the area will be checked for lack of water movement, where possible the red tussock wetland communities will be restored by direct transfer in the north pit, and soil cover and revegetation will be initiated in the balance of the pit, some with direct transfer.

Stage 5

[36] Some of Stage 4 and all of Stage 5 will be post-extraction and the management of the rehabilitated area will continue until the vegetation is self-sustaining. This will include ongoing work in relation to predator control and assisting recolonisation by other indigenous fauna.

[37] Before mining starts, several key mining management features will be constructed including:

(a) St Pat's Dam structure: this will comply with accepted dam engineering principles for seismic loading and flood events.
(b) Diversion and silt management structures will be constructed and these will continue to be built ahead of stripping and mining operations as the mine develops. Again, these will be constructed to appropriate standards and flood events.
(c) The Cypress/Stockton haul road will be developed and diversion drains along the road and St Pat's Dam and silt management structures will be installed.
(d) The north pit highwall diversion drain will be installed.
(e) Once mining starts features will include: overburden on slopes will be removed by excavator and truck methods. The excavation of these deposits and the salvage of soil is an important part of the operation as the material will be used in rehabilitation.
(f) Kaiata mudstone overburden will be removed by blasting and excavation. Adjacent to the Mt William Fault, the Kaiata mudstone is highly fractured

and is expected to be easily excavated without blasting. With this exception, all basement rock will require drilling and blasting, similar to that employed at Stockton.

(g) Coal winning will commence within approximately six months of the commencement of overburden stripping and, subject to market demand, is anticipated to be completed between ten and fifteen years.

(h) Most of the coal will not require blasting and will be dug and loaded into trucks by a face shovel or backhoe, similar to the method used at Stockton. However some ripping or blasting may be necessary. Depending on the demand for different specifications of coal, the pits may be ply mined, with the coal being extracted from several faces at once.

(i) A mobile screening plant will be used to sort the coal to the required dimensions. Coal may be stockpiled within the mine boundaries but there will be no stockpiling of coal outside of these boundaries. The coal will be removed by truck to Stockton.

(j) Revegetation will take place using one or more of the following methods:

  (i) direct transfer of clumps of living vegetation;

  (ii) placement of jumbled soil and vegetation;

  (iii) the laying down of "slash" followed by seeding-in; and

  (iv) planting of seedlings of species selected as being suited to the area.

(k) Weed and pest control will be an integral part of the rehabilitation process, the goal of which is to ensure that species such as gorse do not dominate the vegetation.

(l) There are specific management plans and goals in respect of *Powelliphanta "patrickensis"* and the spotted kiwi/roa. There is a series of other plans involved including noise management, dust management, water rehabilitation, cultural heritage, predator control, boundary effects, contingency and response, construction and earthworks management, geochemistry and overburden management, mine closure, environmental monitoring, hazardous substances, and annual work plan.

[38] Once the closure period for the site has been completed, post-closure work will include:

(m) Ongoing predator control in the great spotted kiwi and *Powelliphanta* areas involving associated maintenance and enhancement work and implementation of the kiwi and snail mitigation plans;

(n) Monitoring maintenance activities including weed and pest control on the rehabilitated mine site, monitoring of water quality and geotechnical stability.

[39] During the closure period work will be done to recreate a surface drainage system which will flow north to St Patrick Stream, west to Cypress Stream or south to the Waimangaroa River. The diversion drain carrying St Patrick Stream around St Pat's Dam will be removed. Flows will be re-routed back into the natural channels where these remain. New channels will be developed across the backfill and overburden areas and will be appropriately armoured and rehabilitated. This may involve leaving small residual ponds on the backfill surfaces which can be pumped out if necessary until the water quality has returned close to its natural character. The diversion channels will have high potential for natural recolonisation of bryophytes and macroinvertebrates and this will be assisted by the transfer of rocks with a bryophyte cover from existing streams. The edges of new stream channels across the backfill surfaces will be planted with riparian vegetation as part of the overall rehabilitation.

[40] It is intended to construct a predator-proof enclosure of some 17 hectares as part of the great spotted kiwi and *Powelliphanta* areas. We understand this will be maintained by Solid Energy during the 35 year period from commencement of consent. The details of the various mitigation steps to be taken are set out in the conditions of consent (Annexure **A**).

Bonding arrangements

[41] It was common ground that if the project were to proceed the overall site would require extensive and intensive rehabilitation together with associated maintenance and management for an indefinite but long period of time. Accordingly the Councils required that bonding arrangements be put in place to cover the cost of any work that may have to be completed should for any reason Solid Energy fail to do so. As

originally granted by the Councils the consent conditions provided for only one performance bond of not less than $NZ5 million.

[42] Solid Energy appealed this condition on the grounds that it is unnecessary and unreasonable to provide for a minimum bond of $5 million and that the bond should be reviewed and the quantum fixed yearly in accordance with the actual costs involved in complying with the conditions. It was Solid Energy's contention that as the mine is rehabilitated and progressively closed, the costs associated with complying with the conditions will reduce significantly until completion of site closure.

[43] Details of the proposed bonds including the scope of cover, method of calculation of quantum, implementation, terms, arbitration and the criteria for release etc, are contained in the draft consent conditions A7 to A8B.4 and attachments 5, 6 and 7 to these conditions. In particular there is provision in the proposed conditions for an Annual Work Plan, a Rehabilitation Management Plan and a Mine Closure Plan to be prepared and peer reviewed and approved by the Councils as a necessary perquisite to enable the Councils to identify and estimate in advance the cost of any work that may have to be completed for which a bond is required.

[44] In addition to a performance bond Solid Energy proposed a post-closure habitat enhancement bond and a post-closure capitalisation bond. The draft consent conditions have accordingly been prepared on this basis and specify the matters that the bonds must provide for while leaving the quantum required to achieve the necessary level of protection, given the stage of the mine's development, to be determined.

[45] The draft conditions, as they relate to the bonds, were largely agreed between the parties by the end of the hearing but are still subject to the provisions being finalised consequent on this decision.

The performance bond

[46] The quantum of this bond needs to cover the cost of removal of structures and infrastructure, re-contouring landforms, covering potentially acid forming exposures, planting the disturbed areas, earthworks, civil works, infrastructure removal, sub-soil

and topsoil spreading, revegetation, and ongoing site management and monitoring, from the date of the mines operator's default to the time that closure is achieved. A full description of the activities covered is contained in condition A7.1A.

[47] The method of calculating the performance bond involves estimating the cost of all activities required in the forthcoming year, should sudden mine closure occur. To overcome uncertainties in estimates a probabilistic approach is used. This requires an estimate at the 50% or median level of confidence, i.e., the best estimate without any contingency or conservatism, and another estimate at the 95% level of confidence, i.e. the worst case. These two values are then used to define a log-normal input distribution. For each activity the individual costs are summed to produce a total estimate using a Monte Carlo simulation, which is a statistical technique to account for uncertainty in the input values. The output, in the form of a distribution curve, enables estimates to be provided at the 50%, 80% and 95% confidence level. The 80% level is adopted as providing an appropriate but not overly conservative basis for estimating the bond quantum. The difference between the 50% and 95% confidence levels provides a measure of the uncertainty inherent in the estimate.

The habitat enhancement bond

[48] This bond provides security for the habitat enhancement programmes' costs during the closure period, in respect of the great spotted kiwi and *Powelliphanta "patrickensis"*. These programmes will commence at the start of the project and have a scheduled duration of up to 30 years. They therefore extend beyond the planned operational life of the mine (which is 10 to 15 years).

[49] The method of calculating this bond is the same as used for the performance bond assuming all the habitat programmes will be fully implemented. For premature mine closure in year one the habitat enhancement bond has to be sufficient to fund the balance of the 30 years enhancement programmes eventually reaching zero after 30 years.

The post-closure capitalisation bond

[50] Works covered by this bond are routine site maintenance and management, such as drain clearance, overburden disposal area cover repair, geotechnical monitoring of dam structures and unexpected risk events that if left unattended could lead to environmental impairment.

[51] Once mine closure has been attained, i.e., the site is safe, stable and self-sustaining and the level of residual risk associated with future environmental impairment from the mining activity is sufficiently low as to be acceptable to the Councils, it is proposed to pass the responsibility for managing and maintaining the site thereafter, in the same or better state as attained at closure, to a Trust. At closure, the project owner provides the Trust with a fund sufficient for it to fulfil its land management responsibilities.

[52] The method for estimating the costs of the site maintenance and management component for the post-closure capitalisation bond is identical to that of the performance bond except that the term of the post-closure period covered is 100 years. A quantitative risk assessment is used to assess the risk quantum component of the bond adopting the same 100 year post-closure period. Using time value of money criteria at a discounting rate of 4.7% p.a. (i.e. the long term difference between interest and inflation) the total sum required to fund 100 years of site management at $10,000 per year is around $220,000 and minimal additional funding is required if the term extends beyond 100 years. On this basis the $220,000 invested at year one is expected to be self funding in perpetuity.

Indicative bond quantums

[53] At an 80% level of confidence we were told that using the above described approach an indicative conservatively estimated total bond quantum for the three bonds varies from about $9.15 million in year one, rising to about $15.2 million in year ten and dropping to about $10.8 million in year 11. In year 12 the estimated total quantum is about $7.2 million, falling to just below $6.0 million in year 17. In year 18 the post-closure bond is estimated at about $1.1 million, progressively falling to zero in year 31.

[54] We conclude that a variable bond as now proposed does more accurately reflect the actual risk on a default by the consent holder at any particular time. Thus we conclude (particularly as the issue was not in dispute) that should consent otherwise be appropriate the consent should include Solid Energy's proposed bond conditions.

The legal approach

[55] Again there was a very high degree of concurrence between all counsel as to the legal approach to be adopted in this case. Major disagreement between Mr Castle for Buller Conservation and Solid Energy, the MED and the Councils related to whether or not the application should be considered globally as a discretionary activity or whether or not each aspect should be considered separately as either a discretionary or restricted discretionary (depending on the particular activity and its status under the Plan). It was the argument for the Councils and for the applicant that the application should properly be considered and assessed globally under the most restrictive category (namely as a discretionary activity).

[56] We have concluded that the application should be considered globally as a discretionary activity for the following reasons:

(a) The restricted discretionary criteria in the Buller District Plan in chapter 5.2.4.3 is relatively simple in its approach and merely identifies a series of matters to be considered. To understand those criteria reference must be had at least to the entire Plan;

(b) There is a commonality of issues relating to the different consents. For example, activities on the land will have a consequent effect on water quality. Matters relating to the wetlands involve not only water quality issues (and consents) but also issues relating to the land and the subsoil conditions. It is difficult if not impossible in this case to separate the issues relating to each consent. The cross-over is so large that almost all witnesses have considered matters on an holistic basis;

(c) No one consent could operate without the other consents. For example, if the land consent is the prime consent, which Mr Castle suggested it might

be, then it cannot operate without all the regional council consents in place. For our part we wonder whether primacy can be given to the land consent having regard to the importance of some of the other regional consents and the matters of national importance identified in relation to them, i.e. the wetlands;

(d) there is a lack of difference in any particular outcome from the more complicated approach of looking at the various consents separately. In particular to understand the restrictive discretionary criteria of 5.2.4.3 one must have regard to the general plan provisions. Because of the scope of the restricted conditions that are addressed, it is likely that most if not all of the same matters that will be addressed under a general discretionary activity would be considered. In particular, all of the restricted discretionary activity criteria are still relevant to the consideration of the exercise of the unrestricted discretion.

Section 104C of the Amendment Act

[57] In part Mr Castle's concern as to whether the land use activity should be considered separately as a restricted discretionary activity turns on the insertion in the Amendment Act after 1 August 2003 of section 104C which provides:

> *When considering an application for a resource consent for a restricted discretionary activity, a consent authority –*
>
> *(a) must consider only those matters specified in the plan or proposed plan to which it has restricted the exercise of its discretion; and*
>
> ...

[58] Mr Castle for Buller Conservation therefore argues that if the land use consent is considered as a restricted discretionary activity, the Court cannot have regard either to the benefits of the works, which we shall see are an important consideration in the objectives and policies of the Buller District Plan, nor more generally to Part II of the Act (see ***ACC and Auckland City Council v Auckland Regional Authority***[3]). However

[3] [1999] NZRMA 149 at p. 196.

we have concluded that to understand the criteria in 5.2.4.3 one must have regard to the relevant provisions of the plan that put the criteria of 5.2.4.3 in context. We annex hereto and mark **B** a copy of the 5.2.4.3 criteria. For example:

> *5.3.2.4.3.6 Protection of areas of significant indigenous vegetation or significant habitats of indigenous fauna identified using the criteria in Policy 4.8.7.4 as a guideline*

requires reference to other provisions of the Plan.

[59] Accordingly, we have concluded that there is no real difference whether this matter is considered under section 104C, in this particular case, because the Part II issues are, in any event, addressed in the Plan provisions. We have concluded that the better view is that the global status of discretionary is appropriate and ensures that the Court considers all matters relevant to each application on the more stringent basis. Having regard to the importance of the issues raised in this case, we consider that this is the more conservative approach to achieve the single purpose of the Act of sustainable management as that term is defined in section 5.

The general approach

[60] So far as the general approach to the appeal is concerned, there was no difference between the parties. They accepted the relevance of the decision of the High Court in ***Auckland Volcanic Cone Society Incorporated v Transit New Zealand***[4]. Similarly no party disagreed with the general approach of this division (differently constituted) in ***Jackson Bay Mussels Limited and Ors v West Coast Regional Council***[5] and paragraphs 71 to 89 as to Part II matters generally, paragraphs 128 to 132 as to the precautionary approach, or paragraphs 211 to 213 as to the integration under section 5. ***Jackson Bay Mussels*** involved matters under sections 6(a), 6(c) and 6(e) and thus is relevant in general terms to the approach to be adopted here.

[4] [2003] NZRMA 316 paragraphs 34 to 42 particularly.
[5] Decision C77/2004.

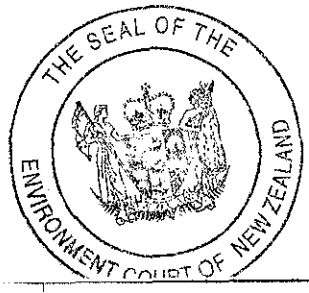
[61] The parties accepted that the fact that there were section 6 matters was not determinative of the application. In respect of matters under section 6(a), 6(c) and 6(e), there was no disagreement that these matters of national, regional and local importance were directly relevant to the application before the Court. Further, there was no argument that the landscape and features, if not outstanding under section 6(b), had very high value. Nor was there any dispute that the coal resource had national, regional and district importance. The parties all focussed on identifying the values associated with each of these issues, the effect of the proposed mining activities on them and the minimisation, mitigation and compensatory measures proposed. Similarly, the parties did not engage in extensive discussion of the various comparisons to be made between minimisation, mitigation and compensation. In general terms this Court intends to use the word mitigation to cover all these possibilities.

[62] Furthermore, it was clear to us that no party suggested to this Court that the applicant was proposing that this activity could satisfy the purposes of the Act without comprehensive conditions recognising and providing for Part II issues and particularly for section 6 matters. On this basis the Court was particularly impressed with the responsible approach adopted by all of the ecological witnesses and the care with which they sought to identify their opinions and the facts and assumptions on which they were predicated.

The applicant's proposed conditions

[63] This Court is also satisfied that from the very outset the applicant has recognised the importance of Part II issues in relation to the site and has obtained appropriate advice and designed its project, as far as possible, to avoid, remedy and mitigate adverse effects, particularly where matters the Court is required to consider under sections 6 and 7 of the Act are involved.

[64] Whether the applicant has achieved their objective is the purpose of this hearing. With the refinements to the conditions that were proposed during the course of this hearing (most of which are contained in Annexure **A**), witnesses of all parties agreed that there was no more that could be done by Solid Energy short of not removing the



coal resource. We acknowledge that the applicant has already reduced its recovery of the coal resource to increase the ecological values retained particularly in Happy Valley.

[65] Both parties made end game statements in relation to their position. For Solid Energy it was said that if these conditions are not sufficient then there is no more that could be done by the company and effectively it is the end of open-cast mining, at least on the West Coast. It should be noted that this is the first application under the 1991 Act at such a scale. For the various appellants, particularly Forest and Bird and Buller Conservation, they question whether, if this project gains consent, any flora and fauna in New Zealand are safe.

[66] Other parties were somewhat more ambivalent. Ngati Waewae consider their mana and concerns were inadequately recognised in the commissioner's decision. The hapu wish to consider all mining on the Stockton Plateau on an holistic basis rather than piecemeal. They are concerned about what may happen in respect of the other coal reserves on the plateau and what it is to be done by Solid Energy to remedy existing problems on the plateau. Ms T W Wheepu, a Kaumatua for Ngati Waewae, wants to see an enhancement to the Mauri of the Stockton Plateau. Ngati Waewae wish to be consulted and involved in the process but have very limited resources including personnel available.

[67] The DOC and Riverwatch maintained appeals in this matter until the commencement of the hearing. Their concerns were met by agreed changes to the conditions of consent to be made if the Court otherwise determined to grant consent. It would be fair to say that the concessions made by Solid Energy in this regard are substantial and involve significant improvements to the water quality conditions and the remedial work to be undertaken together with enhancement of the predator control programme and predator proof area. At the end of the hearing the applicant had even conceded that the areas marked A and C on Plan 1 should be transferred to the DOC and steps taken to protect them from incursions in the meantime. We must assume that the DOC and Riverwatch were able to conclude that the delicate integration of the various Part II matters required had been achieved to their satisfaction.

[68] With these changes and several other major concessions made at the hearing, and contained now under ***Conditions of Consent*** **"A"**, the applicant seeks to accommodate the concerns of the remaining parties. In this regard Mr M R G Christensen for Solid Energy makes the point that the late circulation of evidence for Dr K M Lloyd meant that a number of matters raised by him were not able to be considered properly until just before and during the hearing. A number of criticisms made by Dr Lloyd particularly were incorporated in modifications to the conditions. These included:

(a) *Hydrological conditions under the current wetland area*

Dr Lloyd assumed that the rehabilitated area would be more free draining than currently. It appears other ecologists intended the drainage to be the same as currently. Now the applicant intends that there be a condition to that effect (see B9.8B).

(b) *Direct transfer of red tussock wetland*

All ecologists, including Dr Lloyd, are agreed that the best way to maintain the values of the red tussock wetland is to provide for direct transfer of that to a place where the communities can be maintained. Essentially this involves lifting an entire area of wetland, transporting it to another area then carefully placing it back on similar topography with similar hydrological underground conditions. Although all ecologists were agreed that this was the best approach, there were concerns that there were operational constraints which meant that while the area in the north pit with the red tussock wetland on it was being cleared, there was no other area ready to be rehabilitated. By the end of the hearing Mr Christensen had obtained instructions and was able to suggest a further condition be imposed (not included in Annexure **A**) to provide for a minimum of twelve hectares of red tussock communities to be directly transferred from Happy Valley to an intermediate site. The red tussock communities are to be maintained on that intermediate site and then later resited in the north pit by direct transfer on similar ground with similar hydrological conditions. This is a substantial (and costly) concession by the applicant and addresses in a very substantial way one of Dr Lloyd's prime concerns. Dr Lloyd indicated that he considered that if 75% of the Happy Valley could be

direct transferred this would overcome his concern in respect of the red tussock wetland. Although this provision falls somewhat short of that aim (at around 50%), it is a significant improvement over alternative planting methods.

(c) *Period of time before cleared areas revegetate*

With a number of exceptions (roads and the like) it is now intended that areas cleared are excavated and revegetated within twenty-four months. This reduces one of Dr Lloyd's concerns about the lengthy period areas may be bare land.

[69] There were a number of other concerns raised by the Court or other parties which have also been addressed by changes to the conditions. These include:

(i) training for contractors. These provisions are now in the proposed conditions. It was also agreed by counsel that additional liability by those contractors for performance under the consent could be included in those conditions;

(ii) design criteria have been tightened, particularly to provide for flood flows and stability including seismic stability (for example see B9.8C);

(iii) the Cultural Liaison Plan with Ngati Waewae and Ngai Tahu is now specifically provided for (see C25);

(iv) there is a time limit of 15 years for extraction of coal;

(v) there is to be further specific provision for the surrender of areas A and C (see Plan 1 at the back of Annexure **A**) which is land containing significant indigenous vegetation, fauna and flora.

Ecological values – Waimangaroa Valley

[70] Rather than addressing matters under section 6(a) and 6(c) separately, we consider it is appropriate for us to take a broader look at the environment in the Upper Waimangaroa Valley and the surrounding Stockton Plateau. This will enable us to understand, in a general context, the various values associated with the area and to

discuss the extent and character of the wetlands, areas of indigenous vegetation and habitats.

[71] In broad terms the Stockton Plateau lies in upland topography but is generally flat or slightly sloping land (around 700-800 masl). This gives the impression of a flat plain upon which one can stroll but nothing could be further from the truth. Although the overall topography of the Plateau may be a gradual fall from north to south, the reality is that it is deeply indented and formed with some significant gorges and waterways, particularly over the pavement platform at the Stockton end. In this area there is little topsoil and only hardy species able to adapt to the altitude, extreme rainfall and poor soil conditions are able to survive. There are broad expanses of exposed rock (usually abrasive quartz sandstone), and small pockets of vegetation where there is either shelter or a depth of soil to which plants may attach.

[72] There are a number of seismic faults across the Stockton Plateau including the Webb Fault, Kiwi Fault and Mt William Fault, which have created further disruptions to the contour of the land.

[73] South of St Pat's Dam there is a change occasioned by a gathering of alluvial soils at the base of the Mt William Fault. Being on the watershed, there is not the water erosion that has occurred elsewhere. There appeared to be soils that are either perched on rock or on sandier rocky subsoils.

[74] Waimangaroa Valley creates another deep incision into the landscape and flows towards Denniston, between the thickly tree-clad slopes of Mt William and the flatter and more sparsely treed valley floor landscape. The Ngakawau Ecological District Survey Report for Protected Natural Areas Programme by Overmars and others (**PNAP report**) by the Department of Conservation in 1998 summarised the Brunner coal measures in this way (page 14):

> *It is the interplay of high rainfall, extreme infertility and gently, poorly draining slopes of the extensive areas of Brunner coal measures (c. 14,000 ha) and their specialised vegetation and fauna, that give the Ngakawau ED its distinctive character. Although Brunner coal measures occur elsewhere on the West Coast*

and in Nelson, none are as extensive or have such profound dominance on the nature of the overlying ecosystems as those in the Ngakawau ED.

[75] At page 18 the PNAP report added:

These elevated shrub-tussockland ecosystems on Brunner coal measures are largely confined in New Zealand to the Ngakawau ED. Other, smaller occurrences on the Greymouth and Pike River coalfields, 50-70 km to the south, are also subject to coal prospecting or coal mining interest.

[76] Although the soils are relatively infertile on the Stockton Plateau with relatively acid low pH (< 4), the area at the foot of Mt William and to the commencement of Waimangaroa Valley seems to have greater fertility and supports the best representative area of red tussock wetland communities to be found on the Stockton Plateau. The red tussock wetland communities are not isolated to this particular area and smaller communities are found further to the south, around the Cypress Stream in particular and on the elevated plateau above the Waimangaroa River. Red tussock itself is widespread through this area onto the foothills of Mt Frederick.

[77] Again the PNAP report puts the matter in this way (page 75):

The Happy Valley (on the interfluve between Cypress Stream and St Patrick Stream) and small alluvial flats beside the Waimangaroa River are the only examples of river terrace and flat vegetation (associated 14) included in the RAPs ***[Recommended Areas for Protection]*** *on the Denniston and Stockton plateaux. The basin and flat land eroded and deposited by streams provide habitat for dense red tussockland with manuka scrub on adjoining land.*

[78] There was some difference between the experts as to how widespread the red tussock wetland communities were. Dr R M Bartlett, an ecologist, gave evidence that some eleven vegetation types are identified in the proposed Cypress mine site. These were:

(1) rata, kamahi and mixed beech forest;

(2) mountain beech and podocarp forest;

(3) mountain beech and podocarp scrub;

(4) manuka, wire rush, tangle fern and red tussock shrubland;

(5) manuka shrubland and scrub;

(6) manuka tussock shrubland;

(7) sandstone pavement with scattered shrub, rush, tussock and herbfield;

(8) disturbed or bare ground (vegetation almost absent);

(9) red tussock grassland;

(10) red tussock and mountain flax grassland;

(11) red tussock herbfield.

[79] These types were slightly different to those identified in the PNAP Report. For Buller Conservation, Dr K M Lloyd considered that although Dr Bartlett's classification covered the main vegetation types present, it did not significantly distinguish the various categories of vegetation. In his view descriptions of vegetation type (9) red tussock grassland and (11) red tussock herbfield mixed several vegetation types together. Dr Lloyd accepts that the PNAP report lumped red tussock dominant vegetation on colluvial and alluvial flats into a single vegetation type which is named "red tussock bog pine shrub" tussockland.

[80] Dr Lloyd drew a distinction between bogs, fens, seepages, ephemeral wetlands and shallow water wetlands based upon a recent classification of New Zealand wetland types by Johnson and Gerbeaux in 2004. In short he considers that the tussock growing in the valley floors at Happy Valley constitutes a wetland as that term is described in the Act. He distinguishes this from red tussock vegetation growing on the steeper land nearer the tree line and the low hills to the west, which he describes as red tussock grassland.

[81] However, re-reading the evidence of the witnesses, we are satisfied that all of the expert witnesses agreed that the Happy Valley area consists of red tussock wetland communities. We also conclude:

(1) that the best examples of red tussock wetland communities occur in Happy Valley;

(2) that these wetland communities occur elsewhere including further down Cypress Stream and on the plateau above the stream but not to the same quality;

(3) that some but not all of the Happy Valley red tussock wetland communities are within the mine footprint.

[82] There was some difference between the parties as to the percentage of red tussock wetland within the mine footprint. We have overall concluded that around 40% of the Happy Valley red tussock wetland is within the mine footprint. We have also concluded from the evidence that there is red tussock wetland in Happy Valley and elsewhere in the Upper Waimangaroa Valley area. We have concluded that Happy Valley cannot be regarded in itself as an **area** of significant vegetation under section 6(c) of the Act and more particularly neither can the red tussock wetland area within the mine site.

[83] We have concluded that the **area** in question must constitute a wider area encompassing at least the area between the southern end of St Pat's Dam (just above the site to the north) and the margins of the Waimangaroa River to the south, the top of Mt William range to the east and the foothills of Mt Frederick to the west. Our reasoning for this conclusion is as follows:

(1) The catchments which make up the alluvial flats for Happy Valley and the Waimangaroa River owe much to the surrounding topography and vegetation types. This view is strengthened when one looks at the manuka, beech, podocarp species which surround the alluvial flats to both the east and west. This represents the sequencing from the lower lying wetland areas in the bottom of the catchment to those on the dryer slopes of the mountains. This ecotone is essential to an understanding of the ecological significance of the area.

(2) Although we accept that the Happy Valley red tussock wetland communities are the best example of these communities on the Stockton Plateau, it must have context for comparison. In this regard the very contrast between the other red tussock wetland communities on Cypress Stream and on the plateau above the river and the differences as one

approaches dryer, more elevated land, all add to an understanding of the wetland community sequence on the alluvial flat. In that regard the wider ecological context is vital.

(3) The PNAP report identified an area to the west of this mine site as comprising the recommended area for protection. It has now been modified by agreement relating to this hearing but still constitutes a large area to the west of the site.

Accordingly we agree with Dr Bartlett, and conclude that the Court must look at the ecological values both within and without the mine site in the area to understand the ecological values.

[84] There did not appear to be any serious argument before us that the site itself contained species of significance and from our site visit we are satisfied that it should properly constitute part of the significant area of indigenous vegetation. For practical purposes we have taken this area to the top of the Mt William ridge even though it is arguable that the upper slopes have less immediate connection with the red tussock wetland communities. However we subsequently heard that the spotted kiwi habitats were likely to go to the top of the ridge. We also observed during our site visit that the vegetation was similar right to the top of the ridge from just above the valley floor. On that basis we have concluded that it is appropriate that we include the whole of the vegetation to the top of the ridge. This also constitutes a water catchment area, in which context the saturated valley floor can be understood.

[85] When we view the area in this way the conflicts between Dr Bartlett and Dr Lloyd become less evident. Dr Lloyd focussed on the ecological values within the mine site; Dr Bartlett on the ecological values in the wider area.

[86] As we have already identified, there were a number of other plant species, including bryophytes and lichens, which are nationally significant that are identified not only in Happy Valley itself but in the wider area we have discussed. These include the Waimangaroa gorge, Happy Valley and the other red tussock wetlands sites and various others such as the terrace above the Waimangaroa River south of the Webb Stream confluence where *Pleurophascum* occurs.

[87] We conclude that the mine site is part of an area of significant indigenous vegetation which includes that area shown in Plan 1 annexed to the conditions of consent (rear page) (hatched area – the amended RAP) together with an area drawn to the east of the area marked 5 to the north-eastern point of the mine footprint, including all of the northern boundary of the mine, and a line drawn from point 2 on Plan 1 east to the point marked 705 then following along the ridgeline from that point to the north-eastern point of the mine footprint [***the Area of Significant Indigenous Vegetation***].

[88] Although there is some arbitrariness in selecting this area, we have concluded that this is appropriate for the following reasons:

(1) It includes all the area of RAP in the PNAP report identified by the Department of Conservation as being the area recommended for protection.
(2) This RAP has been subject to significant negotiation between the parties.
(3) It includes the catchment for the valley.

[89] Although the RAP excludes the mine footprint it does, nevertheless, represent the area where the DOC considered the outstanding nature conservation values recognised within the RAP were maintained. We were able to conclude that as per page 76 of the PNAP report:

> *[The RAP] includes all the landforms and vegetation communities, threatened and local species and other key features of this area.*

[90] In addition to this we recognise that it was intended to link with the Orikaka Ecological Area inland and that it is clearly agreed by the ecological experts before us that the mining site includes significant vegetation species. We have concluded therefore that this western area should be included as part of the area of significant vegetation, together with the Upper Waimangaroa Valley and its catchment to the east.

[91] We acknowledge that there is a difference in the objectives of the PNAP report from the identification of areas of significant vegetation under section 6(c) of the Act. In the light of all the evidence we have before us we have concluded that this area of

significant indigenous vegetation is remarkably similar to the original RAP, with the exclusion of the Mt William area to the south (annexed hereto and marked **B**). This is appropriate to consider as the area of significance. It appears to be something in the order of 1,600 hectares, taking into account that the original RAP was 2,110 hectares and the area to the south has now been excluded for current purposes.

[92] For the sake of clarity we express no view as to whether or not the Mt William area shown on the original RAP to the south is an area of significance. We merely conclude that for current purposes it was not included in the evidence before us and it is isolated from the ecological area in question.

[93] We firstly note that this area of significant indigenous vegetation does not include the areas of topsoil and overburden at St Pat's Dam. This is based not only on our site inspection but upon the ecological evidence of the parties. It is clear that the area around St Pat's Dam has been subject to the dam's influence and the introduction of exotic weed species through a black back gull colony situated nearby. Further, it is a southern example of the general pavement structure seen throughout this area and represented elsewhere within the RAP and within areas to the north.

[94] Having said that, we accept that within the 105 hectares of the mine site a significant proportion of the best examples of red tussock wetland communities are to be found. With this exception, other elements of the ecotone are found and well represented in other parts of the Area of Significant Indigenous Vegetation, including parts of Happy Valley excluded from the mining footprint.

Habitat of significant indigenous fauna

[95] Again, although the evidence focussed on two particular fauna – the spotted kiwi/roa and the *Powelliphanta "patrickensis"* – it is clear that there are other indigenous fauna present in this area which will be affected by the mining. These include native earthworms and potentially various bird and bat species. The evidence in respect of the birds and bats was somewhat tentative and we have concluded that at the worst there would be a displacement of these species into the balance of the area of

significant vegetation in the Waimangaroa Valley or perhaps into the Orikaka Ecological Area to the east. There is no doubt that there will be an effect upon the spotted kiwi/roa and *Powelliphanta "patrickensis"*.

[96] Dr J McLennan, an ecologist who has specialised in studying the various species of kiwi in the wild, gave evidence for Solid Energy. His evidence was not contradicted and the following factual points can be made:

(a) that the significant area of vegetation we have identified is part of the range of the spotted kiwi in this portion of the Buller district. It extends from this area to the east through the Orikaka Ecological Area and further east.

(b) that the spotted kiwi is very territorial, generally having territory from the valley floor to the ridgeline.

(c) the Waimangaroa Valley contains between 75 and 145 adult great spotted kiwi, with some 90 birds occupying the forest on the true left bank of the river, with a further 10 on vegetated parts of sandstone pavements on the true right bank. In particular there are four pairs and two males living entirely or partially within the proposed site of the Cypress mine.

[97] The birds are long-lived, approximately 20 plus years once they have achieved a weight of 800 grams. Prior to this they are subject to predation. Because of the strong territoriality of the kiwi they will not be displaced by the mining but will need to be relocated unless sufficient of their habitat is retained. Because the species is in gradual decline, Dr McLennan is of the view that there is sufficient room for the kiwi, i.e. their territories are more than sufficient to sustain them. The difficulty is that because of the strong nature of the territorial instinct, the kiwis may not be able to establish territories when displaced from their existing territory. We are told that some may pair with solitary adults but the fate of the males appears to be less certain.

[98] Overall Dr McLennan's view is that the kiwi should be monitored for several months prior to excavation and a decision then made as to whether some or all of the birds need to be relocated. However for practical purposes Dr McLennan says that because of the lack of knowledge as to how such birds fare when relocated, these ten birds may be lost (the worst case scenario).

[99] In respect of *Powelliphanta "patrickensis"* (which we shall refer to as *patrickensis*) this species will be displaced by the mining, and any snails within the mining footprint will either need to be physically removed before excavation or they will be lost. Due to their secretive and nocturnal habits, re-location of all *patrickensis* within the mine footprint will not be possible.

[100] Mr R P Buckingham, consultant wildlife ecologist and Ms K J Walker, scientist with the Science and Research Unit of the Department of Conservation, gave evidence in respect of *patrickensis*. Ms Walker has spent most of the last 25 years carrying out research into the genus *Powelliphanta* and has undertaken some particular work in respect of the *patrickensis*. Mr Buckingham has specialised in endangered birds but has also undertaken a baseline survey for *patrickensis* near Denniston and in exotic plantations and neighbouring indigenous forests in Westland and Buller.

[101] *Patrickensis* was not discovered as a separate species until 1949 in the St Pat's Dam area. In the 1990s gel electrophoresis confirmed its genetic divergence from *Powelliphanta rossiana* but it has not yet been subject to formal taxonomic classification. The species is listed as nationally endangered and occurs only on the Stockton Plateau. Ms Walker made some suppositions as to its distribution in 1882. Having considered the evidence however, and the fact that the species was only first found in 1949, we have concluded that such extrapolation is not appropriate. Notwithstanding, it is clear that *patrickensis* has been distributed over the Stockton Plateau and down to the Denniston area with particular focus through the Waimangaroa Valley and the Deep Stream area.

[102] Attachment 4 to the draft conditions of consent shows a *Powelliphanta* predator control area which includes some areas of the agreed RAP (and now our significant indigenous vegetation area) and an area to the south towards Burnetts Face. As can be seen, the mine footprint is included within the entire area. On this basis we have concluded that the habitat of the *patrickensis* within the Waimangaroa Valley includes all of the area shown as the *Powelliphanta* predator control area and includes the mine footprint. It does not involve the overburden and topsoil areas, except for a very small portion at the southern end of the overburden area.

[103] Within their habitat area we accept that the *Powelliphanta* have relatively specific habitat requirements. They are particularly found on stream and scrub margins, particularly in low manuka and mountain beech forest. We accept Ms Walker's evidence therefore that the mine footprint contains around 10% of the species' remaining habitat within the Upper Waimangaroa Valley and around 10% of the estimated snail population. Ms Walker was particularly concerned at the potential for further habitat disturbance if other resource consents further to the south in the coal measures were granted.

[104] Accordingly we have concluded that the habitat for the *patrickensis* and the spotted kiwi are not co-extensive although they do overlap. There is no doubt that the mine site is situated within both an Area of Significant Indigenous Vegetation and within the habitat of the spotted kiwi and the *patrickensis*.

Cultural issues – section 6(e)

[105] We acknowledge the cultural association between Ngati Waewae and the lands of the Stockton Plateau. We particularly acknowledge their concern at the depredations that have occurred in the past and the effect on the Mauri of the area and consequently on the mana of Ngati Waewae in particular. We acknowledge the particular concern of Ngati Waewae in relation to the spotted kiwi and the other indigenous flora and fauna of the area which constitute part of the taonga of Ngati Waewae. We have carefully considered the Cultural Impact Assessment Report attached to the evidence of Mr M Pizey and also the evidence given by Mrs Wheepu on behalf of Ngati Waewae.

[106] We acknowledge that there is particular concern as to the potential ongoing exploitation of coal on the Stockton Plateau and also as to what remedial action will be taken in respect of those areas already mined. Having said that, we acknowledge that Ngati Waewae are interested in maintaining dialogue with Solid Energy and entering into partnership with them in respect of the area. We were encouraged by Mr Pizey's evidence to this Court that Solid Energy has the same interests and has been actively pursuing this issue with Ngati Waewae to date.

[107] One of the particular concerns of Ngati Waewae is that it has very limited resources and people to engage in such a process. One solution suggested by Mr Pizey was for Solid Energy to meet the cost of a liaison officer to enable this and other resource management matters to be addressed.

[108] Having heard the evidence, we are satisfied that Solid Energy has properly recognised the manuwhenua and kaitiaki of Ngati Waewae in respect of this area and is still actively engaged in seeking to resolve issues. Ms Wheepu accepted in questions that Solid Energy is engaged in an ongoing process with the hapu. In answer to a question from the Court, Ms Wheepu read a prepared statement in which, we have concluded, she sought in essence a power of decision vested in the hapu as to whether the mining should proceed. She contemplated a cultural heritage resource management plan but difficulties with implementing this were readily accepted by Ms Wheepu having regard to the dispersion of the members of the hapu and their limited resources.

Questions of outstanding landscape and features

[109] One area of disagreement between the parties was whether the mine site constituted part of an outstanding landscape or outstanding natural feature. There was a difference between the landscape architects called for each party, with Mr F Boffa, for Solid Energy, having the view that although the values were very high, it did not constitute an outstanding landscape or outstanding natural feature. Ms D J Lucas, for Buller Conservation, took an opposing view. Interestingly, neither party had undertaken a comparative examination of landscapes throughout the district or the region to evaluate whether the area in question was outstanding in the district or regional context.

[110] Our first difficulty is understanding the precise landscape unit being examined by the witnesses. Having visited the site, we have concluded that it is not possible to see the whole of this proposed mine area as one unit from the ground. There are partial views but the topography of the land obscures an entire view of the southern pit, for example, from the northern pit and vice versa. In the end we are of the opinion that these differences create more heat than light.

[111] There is no doubt that there are high landscape values in the general area and there are features that have very high values (we have discussed these earlier). Whether this constitutes an outstanding landscape would make little difference to our evaluation of this case because of the high number of matters of national importance already identified. The landscape matters would still need to be considered under section 7 and given appropriate value in the integration required under Part II.

[112] Having regard to the differences between the experts, we have had to reach our own conclusion as to whether the area constitutes part of an outstanding landscape or outstanding natural feature. To that end we had the benefit of a site visit and a helicopter visit over the general area. The area did not immediately strike us as outstanding, and we have concluded that in the context of the Buller District and West Coast Region it is not outstanding. We note the comments of Judge Jackson's division of the Court in ***Wakatipu Environmental Society Incorporated v Queenstown Lakes District Council***[6] in this regard.

[113] There are areas in the Orikaka Ecological Area to the east and the Ngakawau Gorge in particular which have that WOW factor. Although the Happy Valley area may have particular significance because of its red tussock wetland, this is not immediately evident when visiting the area. When flying across the general area red tussock is widespread and there are concentrations of red tussockland visible in a number of places including Happy Valley. Its ecological significance becomes more evident on the ground, when one is able to see the complex wetland communities screened by the red tussock.

[114] The Orikaka Ecological Area in the next valley has a wetland area and this immediately strikes the viewer as having particular interest because of its configuration and size. The Mt William area is also to be considered in the context of the mine area as there is mining just to the east of St Pat's Dam on the eastern side of the ridge. Other bald areas on Mt William affect the landscape as a whole.

6 [2003] NZRMA 59 at para 82.

[115] The St Pat's Dam area just to the north of the mining site also impinges upon views and gives another man-made element to the area. Similarly, landscape views from Mt William to the west include Mt Frederick and the Stockton area, which is clearly subject to extensive mining. Landscapes to the east from the Mt Frederick area include views of the St Pat's Dam area, Denniston Plateau to the south, with its coal mines, other workings, including roads and electric power transmission lines visible.

[116] Although we accept that some sub-units of the landscape have very high values, overall we are not able to conclude that these are outstanding landscapes or outstanding natural features. Lack of any direct comparison by witnesses leads us to conclude we should deal with this matter cautiously.

[117] Notwithstanding this the landscape and features are clearly of importance and have high value under section 7(c), (d) and (f). We will consider the maintenance and enhancement of amenity values and the intrinsic values of ecosystems (sections 7(c) and (d) together with 7(f)) in our discussion of the critical issues under Part II and section 6.

Other matters under section 7

[118] The ethic of stewardship and kaitiakitanga (section 7(a) and 7(aa) have been raised and discussed as part of the discussion of cultural matters. We accept the evidence of Solid Energy that it is taking a responsible approach, within the broad mandate of its mining licence, as to its operations on the Stockton Plateau. We saw evidence that Sold Energy was seeking to improve the existing situation at some considerable expense to itself. This includes reshaping many of the existing overburden stockpiles at Stockton to achieve a more natural shape and continuing with revegetation, notwithstanding that it is not directly a requirement of their mining licence.

[119] We acknowledge that the efficient use and development of natural and physical resources under section 7(b) is a matter for consideration by the Court. In this regard we have already discussed the economic benefits of this development. This development would have local benefits in terms of employment. There is also the potential for an improvement in the situation at Stockton by importing some of the overburden from the Cypress Mine site (which has higher fertility than that at Stockton).

[120] Some of the mitigation steps are intended to have wider benefit beyond the immediate area, including that for the *patrickensis* and kiwi. The development of the extensive mitigation steps in this case may also have benefits not only for the nearby sites at Denniston and Stockton but for wider application throughout New Zealand. Knowledge will be gained particularly on revegetation, direct transfer of ecological communities and predator management.

[121] Furthermore, we accept that the coal cannot be mined by any other method, it being too close to the surface to enable safe underground mining. We also accept the efficiency of the open cast method in terms of minimising the mine footprint within the sensitive ecological areas and seeking to maximise the coal moved, while minimising the impact on significant species. This has meant that some of the coal will not be removed but the countervailing consideration is that a proportion of the Happy Valley area will be maintained in its current condition. This achieves an accommodation of other significant matters to which we are to have particular regard under Part II.

The effects of the activity and the mitigation measures

[122] As we have already discussed, there is no doubt that the mining will remove significant vegetation from this site, at least for a period. There was some argument as to the extent to which this could be rehabilitated but it is nonetheless the subject of extensive conditions, the aim of which is to reinstate functioning ecological communities similar to that which pre-existed. Replication cannot be achieved practically. Dr Bartlett described it as impractical if not impossible.

[123] However in light of the proposal now to replace by direct transfer some twelve hectares of the Happy Valley wetland, we have a greater degree of confidence that similar communities may be produced. There are still uncertainties as to the survival of the wetland communities from the intermediate transfer and re-transfer to the site. From examples we have seen at Stockton, we are relatively satisfied that with proper care and supervision by a person such as Dr R C Simcock, transfer might be achieved with minimal disruption to the wetland communities. Because of the high rainfall, we doubt

that the species are likely to die through dry-out if timing of the shifts is carefully planned.

[124] We acknowledge that there will be a loss of the larger tree species over the mine site which will take many years to re-establish. Again the applicant's intention is to maintain as much of the soil and wood as is possible for redistribution on the site after mining. A short mining period will assist in minimising the disruption. By using the same soil it is hoped that existing seeds in the soil will give natural regeneration. This will be assisted by artificial planting. Having said that, the exposed granite faces on the benching up the shoulder of Mt William are not likely to be re-established in the same type of forestry, at least within the next 100 years.

[125] Overall we are satisfied that there will be an adequate tree cover within the next 35-50 years, particularly on the lower slopes. We conclude that the highwall benching will still be clearly visible on inspection 50 years after the mining has ceased. The extensive conditions proposed to maintain indigenous species (weed control and the like) satisfy us that the intent is to achieve an outcome that is as close as possible to that which pre-existed. Although the exact succession of species cannot be provided, the use of the same soils and the direct transfer of the red tussock wetlands satisfy us that after a period of 35 years an ecological regime could be established which is similar to that on the balance of the Waimangaroa Valley and is naturally regenerating. However we accept that although it will have similar values it will not have the same values or as high values.

[126] In respect of the habitats of indigenous fauna, we acknowledge particularly the effect on the spotted kiwi and on the *patrickensis*. We acknowledge that the applicant intends to take steps to minimise this effect and formulate management plans to enhance the species through the area. The key elements of this include as conditions:

(a) the creation of a predator-proof reserve of some 17 hectares within which *patrickensis* and kiwi will be free from predators;
(b) an extensive predator control programme in a much wider area shown on attachments 3 and 4 for the kiwi and *patrickensis*;
(c) control of the site to prevent pets or pests invading surrounding land;

(d) ongoing monitoring and management to enhance the indigenous species;

(e) the re-introduction of these indigenous species to the rehabilitated mine site areas after revegetation and prior to closure;

(f) ongoing work to identify habitat and feeding requirements of *patrickensis*;

(g) ongoing work in respect of location, breeding and re-introduction of kiwi to rehabilitated sites, which may have application throughout New Zealand.

The overall objectives of these conditions is to enhance the kiwi population and arrest what appears to be an existing gradual decline in both species in the Ngakawau Ecological District.

[127] There were some particular concerns expressed by witnesses in opposition to the proposed plans. These might be briefly stated as a concern that there is no evidence that such steps would either arrest the decline of either of these species or enhance them in the longer term. In short the clear and unarguable loss in the short term is set against a possible outcome in the future which is unproven and speculative.

[128] After careful consideration we concur with the evidence called for Solid Energy on this matter. In particular we are satisfied that if the management plans are put in place properly, with adequate funding, they will enhance the populations of both species. The main reason for this is that we accept the evidence given to this Court that there is already predation in the area and the species are declining in their present state. One witness described signs of deer, opossum and stoat and we accept that these are already predating on kiwi eggs and chicks and *patrickensis*.

[129] Secondly we accept the evidence of Dr McLennan that at 800 grams the kiwi are relatively predator-proof. Provided they can be kept safe and nurtured to this stage then they are available not only for release in this area but in nearby ecological districts and potentially elsewhere in New Zealand (depending on the success of the programme). Having accepted that there is more than sufficient territory for kiwis in the Ngakawau Ecological District, we are satisfied that provided the spotted kiwi/roa are able to reach the critical weight of 800 grams they could then be released into this area and repopulate the district. In that regard we accept that the predator-proof area will achieve a beneficial outcome for juvenile kiwi.

[130] In this same regard we accept that *patrickensis* snail will be protected from exotic species predation within the predator-proof area. Although we note that the predation control over the wider area will have benefits for *patrickensis* and kiwi generally, we are of the view that the major advantage of this development for *patrickensis* will be in identifying their preferred habitat and food types. On this basis we can see that an important programme for identifying and enhancing the habitat and food species for *patrickensis* may in fact benefit not only *patrickensis* but also kiwi in the long term.

[131] In this regard we believe that the proposed fauna plans will have some importance in respect of any further applications to mine the Brunner coal measures. In particular, if it cannot be established that the species can be enhanced through this type of fauna plan, it appears unlikely that a further consent would be granted. On the other hand, if it can be shown that the species can be enhanced then this may give valuable knowledge as to the dietary requirements of the species, preferred habitat and the means by which this can be created. If this was so, then there is no reason in principle why such findings could not be applied to wider areas of the Stockton Plateau, thereby re-introducing the species to areas currently outside their habitat range.

[132] We acknowledge that there is a risk of failure, and thus we accept that the conditions require close monitoring and allow for regular review of the conditions of consent. We use an analogy from the reasoning in the decision in ***Jackson Bay Mussels Limited and Ors v West Coast Regional Council*** in relation to Hector's dolphins. In the event that it is found that there is an adverse impact on the kiwi or the *patrickensis* snails beyond that contemplated in this decision, then that is a matter which may give rise to a review of the consent as a whole. The concern of the opponents in this regard is that by the time the adverse consequences of the plan are known, the excavation of the site will have already occurred and the loss of *patrickensis* and their habitat will be a foregone conclusion.

[133] In respect of both the kiwi and the *patrickensis* habitat, the losses may be up to the full number of snails and kiwi occupying the area, (i.e. up to 200 snails and up to ten

kiwi) but may be less. On the other hand, the gains are long-term gains, and we are not likely to see any significant trend for at least ten years and probably 20 years.

[134] However at least in respect of the hatching and rearing of chicks, we are satisfied that the predator-proof area will serve to increase the population of kiwi chicks surviving to 800 grams in the short term.

[135] We have also concluded that the lowering of predators generally within the area and the predator-proof area will bring about an overall reduction in the predation of both kiwi and *patrickensis* in the short to long term. Combined with the other management plan steps, including identifying preferable habitats and food sources for *patrickensis*, we have concluded on the balance of probabilities that these programmes will be successful. In other words, that they will achieve both enhancement of the numbers and habitats of those particular indigenous species.

Effects on the landscape and natural features

[136] As we have already noted, there is no doubt that both the feature of the red tussock communities in Happy Valley and podocarps on the slopes of Mt William and the mine site and Mt William itself will be altered as a result of this mining. Although we accept that there will be a re-establishment of vegetation in the area, we accept that its values will not be as high and that the benching from the mining on the upper slopes of Mt William will continue to be evident. The area will therefore appear as if it has naturally revegetated but that there has been working of man on the site.

[137] There are a number of examples around the Stockton Plateau where one can see the evident workings of mining which have been overtaken again by natural vegetation. We accept that this makes the area of historical interest to visitors and tourists. St Pat's Dam just to the north is an area which has been subject to such workings, as is the eastern side of Mt William, just above St Pat's Dam. Fly Creek Mine and an area around Burnetts Face and Denniston are other areas where the evident workings of man are clearly seen, notwithstanding revegetation. The vegetative forms themselves may in part have been contributed to by such alterations and the effects of fire. There was even

a suggestion that Happy Valley itself had been subject to fire, at least around the edges, although we have insufficient evidence to reach that conclusion.

[138] In part there will be a change from an interest in this area as a natural resource to a physical resource, possibly as a heritage landscape. However, we cannot assume that a heritage landscape would be the end result, particularly under section 6(f) of the Act.

[139] As we have already discussed the mining area is only a small part of the overall landscape of the Stockton Plateau. Even in views from Mt Frederick towards the site, the mine would only form a small portion of the view. Overall we have concluded that although there would be some derogation from the value of the landscape and its natural features, this derogation would be small in the context of the entire view and features available. Overall we consider that the value of the significant vegetative area to be set aside (that being the approximately 1,600 hectares we discussed earlier in the decision) will be maintained. Although we accept that there will be lower values for the Happy Valley red tussock wetlands communities, the direct transfer of at least half of this area satisfies us that the overall values of this area will be maintained at a relatively high level.

[140] In respect of Mt William, we accept that there would be greater effect in about a 50 year period after the rehabilitation. We would expect to see a clear demonstration of the successional elements of the ecotone re-established at the lower levels. We accept that vegetation on the highwall benching will not be established to the same value. However, we consider that overall the wider area will probably demonstrate equivalent values taking into account the rehabilitation of the overburden area with indigenous vegetation.

[141] In respect of the preservation of the wetlands and the rivers, we accept that the values of the rivers will be maintained both during and post closure of the mine. In respect of the wetlands we accept that there will be some lowering of values in the short to medium term. However with the direct transfer of up to half of the Happy Valley area and other portions of vegetation and with the extensive planting and weed control, we are satisfied that the values of these areas will be largely maintained. We accept that

there will be a lowering of the values of the wetlands overall but not at a significant level.

[142] Our conclusion relies on the continuation of much of the wetland area without intervention as a result of the mining. To this extent the minimisation of the footprint of the mine has avoided some of these consequences on the wetland areas. In addition to this we are satisfied that the direct transfer of the red tussock wetlands will largely maintain the values of these areas.

[143] In respect of the balance of the mining area subject to other measures, we are satisfied that the requirement for similar hydrology for the subsoils, the proximity of the direct transfer wetlands and the preservation and re-installation of the basic environment is likely to see this area revert to red tussock wetland over the 10-15 years following rehabilitation.

Cultural matters

[144] In respect of cultural matters Solid Energy has engaged in a proactive discussion with Ngati Waewae and Ngai Tahu for some considerable time. A good level of trust appears to have been built up between the parties. Although this does not derogate from Ngati Waewae's fundamental concerns with the exploitation of this area, we consider that the proposed condition to create a Cultural Liaison Plan and actively engage in dialogue with Ngati Waewae and Ngai Tahu is a clear recognition of the relationship that the hapu, their culture and traditions have with this land, its water, sites and taonga. In that regard the plans for *patrickensis* and the spotted kiwi/roa give particular recognition of the importance of these taonga to Ngati Waewae and the need to enhance these species. Similarly the plans for rehabilitation of the site are a recognition of the Mauri of this area and the need to *give something back* for the removal of the coal.

[145] In the end, in respect of all these matters, the question is whether the provisions of the conditions of consent have sufficiently or appropriately recognised and provided for these matters of importance under section 6 and whether particular regard has been had to the matters under section 7. We now consider the approach of the relevant plans to these issues.

The relevant planning instruments

[146] We identify as relevant to this case the following policy statements and plans:

- The West Coast Regional Policy Statement (**Policy Statement**);
- The Proposed Regional Land and Riverbed Management Plan (**Regional Land and River Plan**);
- The Regional Plan for Discharges to Land (**Regional Land Discharge Plan**);
- The Regional Air Quality Plan (**Regional Air Plan**);
- The Proposed Regional Water Management Plan (**Regional Water Plan**);
- The Buller District Plan (**District Plan**).

Although it would be open to us to consider the West Coast Transitional Regional Plan, no party identified provisions in it which would assist the determination of these proceedings.

[147] Many of the relevant provisions, and certainly those which were most keenly contested, are a regional and local expression of the matters contained in Part II of the Act. We describe the objectives and policies of each plan. We then group together our consideration of policies of similar import in the various documents, and after that discuss relevant rules and the matters for assessment to which they draw attention.

[148] The statutory documents recognise the importance of the coal resource in enabling those living in the region and district to provide for their wellbeing[7]. An objective in the Policy Statement seeks that options for the use and development of mineral resources are not unnecessarily hindered while other natural and physical resources are sustainably managed. One of the policies that flows from this is to recognise known mineral resources and to have regard to the effect of changes in land use on options for extraction[8]. At the District level, an objective of the District Plan is to

7 RPS p. 122.
8 RPS objective 16.1 and policy 16.1.

enable people and communities to provide for their economic and social wellbeing through the efficient utilisation and development of mineral resources[9].

[149] The Policy Statement and the District Plan also have objectives that indicate the utilisation of mineral resources must be carried out in accordance with the Act. The Policy Statement has a policy of ensuring that adverse effects of extraction are managed in a fashion consistent with other provisions of the Policy Statement[10] (including those relating to section 6 matters) while the District Plan juxtaposes with its enabling provision an objective of safeguarding the life supporting capacity of air, water, soil and ecosystems and avoiding, remedying or mitigating adverse effects from the use and development of mineral resources[11].

[150] Mr R N Robson, Manager of the Petroleum and Minerals Policy Unit in the Crown Minerals Group of the Ministry of Economic Development and a geologist, gave unchallenged evidence that the thrust of the District Plan towards the utilisation of natural and physical resources is quite definite compared with the plans of other regions and districts. While, as we outline, the statutory documents have a raft of other concerns, we consider that this local response to the various elements of the Act that are to be included in policy statements and plans ought to carry some significance in the final outcome.

[151] We accept that the development of the mine represents considerable enablement for the communities of the West Coast to provide for their wellbeing. Mr Geoffrey Butcher, a consulting economist whose evidence was admitted by consent, estimated that during its first nine years of setup and operation the mine would generate about 50 jobs at the mine and 85-100 jobs in the Buller District. This would rise to more than 150 jobs at the mine and 350 jobs in the district, and 460 jobs in the West Coast Region in its final two years of operation. Over its lifetime the total outputs of the mine, excluding coal profit and royalties, (which are estimated to be between $15 million (no profits) to $300 million depending on coal prices, exchange rates and international transport costs)

9 BDP 4.5.4.1.
10 RPS policy 16.3.
11 BDP objective 4.5.4.2.

are $492 million in the Buller District and $562 million in the West Coast Region. The mine is estimated to increase employment by 718 job-years directly in mining and rehabilitation, and by 1,640 job-years of work in the Buller District and by 1,930 job-years of work in the West Coast Region. It would generate $151 million of value added in the district and $184 million of value added in the region. It would also generate $43 million in direct household income, $87 million of household income in the district and $104 million of household income in the region over its life.

[152] The various statutory documents also include policies to accommodate those parts of the purpose of the Act which require adverse effects to be avoided, remedied or mitigated and the life-supporting capacity of air, water, soil and ecosystems to be maintained to meet the foreseeable needs of future generations. We outline those requirements and discuss the ways the applicant seeks to satisfy them.

[153] The Policy Statement has a policy[12] of sustaining the potential of soil and water to meet those needs by avoiding, remedying or mitigating identified adverse effects. Amongst the effects are those caused by:

- contamination of soil, groundwater and surface water;
- decline in or damage to the quality of aquatic eco-systems and other instream values, and damage to ecosystems more generally, landscapes and habitats;
- damage to the relationship of Poutini Ngai Tahu and their culture, traditions, ancestral lands, sites, waahi tapu and other taonga.

These concerns are taken up in specific water objectives and policies particularly with respect to discharges into surface and groundwater[13]. The concerns about habitat are also reiterated in the policy statement where, in terms reminiscent of section 6, there are objectives to protect areas of significant vegetation and significant habitats of indigenous fauna[14], and to preserve the natural character of wetlands and rivers[15].

12 RPS policy 7.1.
13 Ibid policy 8.2.1.
14 Ibid policy 9.1.
15 Ibid policy 9.3.

[154] The Regional Land and River Plan has policies to manage the disturbance of land to avoid, remedy or mitigate adverse effects on water quality and on water levels, including the water table[16]. A further policy seeks to manage earthworks, including mining, to avoid adverse effects where the activity has the potential to release Acid Rock Drainage or heavy metals or to precipitate iron oxides above background levels[17].

[155] The Regional Water Plan has recently been amended by decisions. While this generally reiterates the concerns of the policy statement and plan we have previously discussed, a number of aspects of its objectives and policies are worth comment. The Regional Water Plan deals with the contamination of water from acid rock drainage or heavy metal contamination by requiring consent holders so to manage their discharges that pH levels (which indicate the acidity/alkalinity of the water) and the concentration of heavy metals are kept as close to the naturally occurring levels as possible[18]. Other policies indicate that wetlands are clearly among the water bodies the plan is concerned about[19]. The revised version of an objective and policy are worthy of comment inasmuch as they indicate the way in which the plan seeks to accommodate the various parts of the Act's purpose. Objective 5.3.2 is:

> *To maintain or where appropriate enhance the values of water bodies while enabling people and communities to provide for their wellbeing.*

This clearly suggests that the policies which flow from that objective are not to be so interpreted as to frustrate the enablement the plan (and the Act) seek to achieve. A subsequent policy is:

> *in the management of any activity involving water to give priority to avoiding in preference to remedying or mitigating*[20]*:*
>
> *(1) Adverse effects on ...*
>
> *... wetlands*

16 RLRMP policy 6.4.1.
17 RLRMP policy 6.4.2.
18 PRWMP policy 7.4.2.
19 Policy 5.4.1.
20 Ibid.

We find the phrasing somewhat difficult to interpret. We conclude that the policy does not rule out the use of mitigation or remedy. That is particularly so in cases where, for example, the location of the resource makes avoidance of the effect incompatible with use. We might give priority to eating cake in preference to bread, but we will eat bread if cake is unavailable.

[156] The Regional Air Plan has a policy to avoid remedy or mitigate adverse effects from dust discharge on air and water quality, although the explanation suggests this policy may apply only to the coastal environment[21].

District Plan

[157] The Buller District Plan also includes policies to avoid, remedy or mitigate the adverse effects of activities related to the use of mineral resources, and to require measures to protect water quality and ecosystems and to rehabilitate disturbed areas to either their original or some other suitable condition[22]. The District Plan includes a chapter on ecosystems and habitats. The objective is to protect significant indigenous vegetation and significant habitats of indigenous fauna, and to recognise their importance to the environment and their contribution to the wellbeing of people and communities[23]. Policies which flow from this objective include protecting the natural value of wetlands, significant areas of indigenous vegetation and significant habitats of indigenous fauna[24], controlling modification to them to ensure their life-supporting capacity is sustained[25], and protecting the significant vegetation and habitats from inappropriate use and development[26]. The District Plan currently has no schedule of significant areas of indigenous vegetation or significant habitats of indigenous fauna, but it has identified a series of criteria to be used in compiling such a schedule and in the meantime has a policy of making decisions on resource consent applications which provide for the protection of these values[27].

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21 RAP policy 7.4.4.
22 BDP policies 4.5.5.1 and 4.5.5.6.
23 BDP objective 4.8.6.1.
24 Policy 4.8.7.2.
25 Policy 4.8.7.3.
26 Policy 4.8.7.7.
27 Policies 4.8.7.4, 4.8.7.5 and 4.8.7.6.

[158] A chapter in the District Plan on Rural land and water resource is also relevant to our decision. One objective seeks to ensure the protection of the integrity and character of the rural environment and the productivity of rural land while enabling communities to provide for their wellbeing[28]. A further objective seeks to promote land management practices which maintain and/or enhance water quality and which do not adversely affect water quantity[29]. We note the importance of enablement in these objectives. Important policies to achieve the latter objective are to recognise, and wherever possible, to protect significant ecological sites related to the water resource, and to control the modification of significant natural wetlands to protect their natural character, significance as areas of indigenous vegetation and habitats, and sustain the life-supporting capacity of their indigenous ecosystems[30]. Concerns of the tangata whenua are addressed by policies to include in the assessment of resource consent applications consideration of the potential impact of the activity on known places of cultural value, to support continued access of tangata whenua to sites of special significance, and to require consultation with tangata whenua if urupa or skeletal remains are accidentally discovered[31].

[159] We have described above how we consider the enablement imperatives of the various statutory documents are met. Earlier in the decision we have evaluated the effects of the proposal on significant areas of indigenous vegetation, significant habitats of indigenous fauna, on wetlands and on tangata whenua values. We consider that the proposal can satisfy those policies which protect significant areas of natural vegetation. It affects some 105 hectares of a 1,600 hectare area of indigenous vegetation. However the vegetative sequence which is an important part of the area is protected by excluding a substantial part of the Happy Valley red tussock wetland from the mine site, and by providing for the restoration of at least twelve hectares of the tussock wetland by the direct transfer method. Given that it will not be practicable to replicate the exact wetland ecosystem over part of the mine site, we note that the District Plan contemplates in appropriate circumstances rehabilitation to some other suitable condition.

28 Objective 4.4.4.1.
29 Objective 4.4.13.1.
30 Policies 4.4.14.2 and 4.4.14.3.
31 Policies 4.6.8.4, 4.6.8.5 and 4.6.8.6.

[160] We recognise that the proposal will potentially remove the whole or part of the habitat of ten great spotted kiwi and will remove completely the habitat of around 10% of the population of *Powelliphanta "patrickensis"*. There is no certainty that populations of either of these species will be restored to the area of the mine site. Nevertheless we consider that the proposed predator-proof areas will improve the quality of the habitat that remains; thus the proposal is not inconsistent with policies to protect the significant habitats of indigenous fauna.

[161] We concluded that the proposed site was not part of an Outstanding Natural Landscape, and thus have not included a discussion of policies relating to ONLs. We note that a policy of the Policy Statement requires avoidance, remedy or mitigation of adverse effects caused by damage to landscapes (not restricted in those that are outstanding). We have recognised that the area has high landscape values and that there would be some derogation from the value of the landscape and its natural features. However we conclude that derogation would be small in the context of the entire view and features available.

[162] The conditions of consent require the preparation of a cultural heritage management plan which among other things will require protocols to be established to handle the situation appropriately if koiwi or other taonga are discovered. We acknowledge that the mixing of the waters of the Waimangaroa and the Ngakawau catchment is a significant matter for the tangata whenua. We note that this mixing is to occur only during the period of coal extraction, after which waters will be restored to their own catchments. We noted earlier in the decision that the applicant has sought to address tangata whenua concerns and seeks to maintain and enhance the relationship of Ngati Waewae with their taonga in the medium to long term. The proffered condition for a cultural liaison officer to be funded by Solid Energy would ensure that appropriate consultation with the tangata whenua continues.

[163] There will be changes to the ecosystem on the site itself and this is of some significance in the Happy Valley red tussock wetland. These effects will be mitigated by the rehabilitation programme but not avoided altogether. The proposal is not inconsistent with the objectives and policies of the regional policy statement to preserve the natural character of wetlands nor with the District Plan policy of controlling

modifications to wetlands to protect their natural character. It does not implement the policy of the Regional Water Plan to give priority to avoidance in preference to remedying or mitigating adverse effects on wetlands, but we do not consider it is contrary to that policy.

Water issues

[164] We have not yet considered in this decision the effects of the proposal on water quality and quantity in rivers. We do so now in relation to the objectives and policies of the statutory documents we have described. The most significant potential causes of adverse effects on water quality are acid rock drainage, and the mixing of run-off from surfaces disturbed by mining with "clean" run-off from undisturbed surfaces. We analyse the proposals of the applicant to control these effects.

[165] The key method adopted by Solid Energy to control of acid rock drainage from the large quantities of overburden lies in the separation of potentially acid forming and non-acid forming rock as it is removed. Saturation of potentially acid forming rock prevents the oxidation of sulphides in the rock. Ultimately it is proposed to replace large quantities of potentially acid forming rock in the excavated mine by a process of back-filling. The natural inflow of water into the mine site will saturate the rock. The embankment created along the western side of the pit to carry the haul road will raise water levels and allow storage of potentially acid forming rock within the north pit to a level of 705m RL. This material will be covered by non-acid forming material to prevent exposure. The embankment will be compacted so as to trap groundwater within the north pit. The applicant recognises the need for careful scheduling of overburden excavation to provide appropriate quantities of non-acid forming material for the engineering cover. Limestone will be applied to the potentially acid forming rock to provide short-term control until long-term measures can be established.

[166] Non-acid forming overburden will be stockpiled in an area near St Pat's Dam. The total to be stored there will eventually reach 10.4 million bank cubic metres (bcm) of which it is proposed to relocate approximately 1.5 million bcm back into the pits as an engineering cover over the potentially acid-forming material and as a suitable base

for rehabilitation. This overburden area will be constructed with all slopes of less than 20 degrees to allow for construction of an engineered cover if it proves necessary.

[167] For approximately the first three years of mining it will not be possible to backfill at Cypress. During that period it is proposed to deposit approximately 4.3 million bcm of Cypress overburden on the Stockton site. About a quarter of this will be non-acid forming material. The deposits will be engineered to minimise acidic run-off and assist in the management of existing acid rock drainage at Stockton. When deposits at Stockton cease a further 470,000 bcm of non-acid forming material will be hauled to Stockton to provide a cover for the Stockton overburden structures.

[168] Because of the potentially high environmental risks that would result from failure of overburden structures, the Court went to some lengths to question witnesses about the robustness of the designs and the monitoring conditions attached to them. We note that the embankment has been conservatively designed. The design is to incorporate a chimney drain and a horizontal drainage blanket as a filter and to collect and control drainage. It is to be based upon a one in 150 year earthquake as an operating basis earthquake and the maximum credible earthquake as the maximum design earthquake. In the event of a maximum design earthquake there will be no collapse in the embankment though the filters will require repair.

[169] Run-off and seepage from the mine will be channelled to St Pat's Dam, which will provide settlement time to control the level of suspended solids and mixing to even out fluctuations in flow, pH levels and concentration of heavy metals. Water quality in St Pat's Dam will be monitored and if necessary treated prior to discharge. We suggested monitoring in the drainage channels which was accepted as appropriate by the experts. We assume such a condition can be incorporated if consent is granted.

[170] St Patrick's Stream upstream of the dam, and the uphill areas of the catchments which include the pit sites and the overburden area will have their waters diverted by drains, which will re-enter St Patrick's Stream just below the dam.

[171] During large run-off events with daily volumes larger than 110,000 m^3, St Pat's Dam will either fill quickly, or if it is already close to full, be overtopped quickly.

Modelling of the dam's performance is based on 53,000 m^3 at the bottom of the dam being available for sediment storage. To maintain the remainder of the dam for water storage, the dam will need to be cleaned three times at least during the mine's operational phase, and inlet areas may need to be cleaned more often to remove the coarse material that would settle in these areas. If this is done it is estimated that for 65% of the time the residence time of water before release will exceed one day. It is expected that coarse silts will be totally removed from the flow by the pond, and that medium silts will be removed 65% of the time. The applicant estimates that during the operational phase of the mine, a mean sediment level of 30 g/m^3 from the dam can be achieved.

[172] The principal measures to reduce acid-rock damage, a source of low pH levels in water, have been described earlier. However the dam structure offers opportunity to increase the alkalinity of the discharge if that is required. We note that 800 metres below the dam St Patrick's Stream enters the workings of the Fly Creek mine where it mixes with streams affected by mining on the Stockton plateau. When it leaves Fly Creek it has a pH median level of 3.5. The applicant's unchallenged evidence is that it can achieve pH levels of between 3.9 and 6.9, and a median target of 4.5 for water leaving the dam. A condition of consent requires that target to be met on the basis of a 30 sample rolling median with samples taken daily.

[173] In terms of heavy metal concentrations, a condition of consent sets a 90th percentile limit for dissolved iron and dissolved aluminium of 3 g/m^3 and for dissolved zinc of 0.15 g/m^3 for the discharge from St Pat's Dam to St Patrick's Stream. Downstream of Fly Creek mine levels of aluminium and zinc are typically double this level, and iron concentrations are up to 5 g/m^3.

[174] It is estimated that after closure, pH levels in St Patrick's Stream will improve to greater than 5.5. Water from the mine site will not enter the Waimangaroa catchment during the operational phase of the mine. However on its closure the south pit drainage system will resume discharge to the Waimangaroa. The pH of the discharge is estimated to vary between 4.2 and 6.0. This compares with a level ranging between 2.4 and 4.5 at the Byrne Creek site in the Waimangaroa catchment.

[175] We conclude that the proposal will comply with the policies of the Policy Statement and Regional Land and River Plan which seek to avoid, remedy or mitigate adverse effects on water quality. It will meet those policies of the Regional Land and River Plan and the Regional Water Plan which seek to avoid, remedy or mitigate the effect of activities having the potential to cause acid-rock drainage and require discharge to be controlled to keep pH levels and concentrations of heavy metals as close as possible to their naturally occurring levels. The proposal will satisfy the requirement of the District Plan to promote land practices which maintain water quality.

[176] The District Plan also has a policy of avoiding adverse effects on water quantity. During the mining period 49% of the Cypress Stream catchment and 39% of the Byrne Creek catchment will be diverted through the mine structure to St Pat's Dam and eventually to St Patrick's Stream and the Ngakawau River. Overall this represents about 20% of the Waimangaroa catchment at its confluence with Byrne Creek. Because of the timing of mining and rehabilitation, no more than 12% will be diverted at any one time. While this would cause a reduction in flow in the vicinity of Byrne Creek, any effects will be limited because of the relatively high and sustained base and low flows. Downstream of Byrne Creek, effects will be even less significant.

[177] 63% of the St Patrick's Stream catchment which feeds St Pat's Dam will be diverted around it. However the water from the Waimangaroa directed to the dam will increase the catchment at Fly Creek mine by around 6%. The result of the detention provided by pit sumps and the dam structure will produce a decrease in the maximum daily flow rate of around 12.9% despite a 16.5% increase in mean flows in the portion of St Patrick's Stream between the dam and Fly Creek mine. When the diverted water enters St Patrick's Stream there will be an increase in the catchment of 26%. The diversion is to be sized so that stream volumes can be handled. Downstream of the re-entry of the diverted water, the stream channel is in rock, so that the extra volume will have minimal effects.

[178] Flows in the Cypress Stream will be halved, but the land between the stream and the pit edge is likely to remain saturated by the heavy rainfall. After closure diverted water will be reinstated to its natural course. We conclude that the temporary alterations

to water courses will not have a significant adverse effect on water quantity and therefore satisfy the relevant policy of the District Plan.

[179] A condition of consent requires a dust management plan to be produced to reduce emission of dust to the minimum practicable, and in any event less than 4 g/m^2 per 30 day period. This condition satisfies the relevant policy of the Regional Air Plan.

[180] We have considered the wide range of objectives and policies of the various statutory documents relevant to this application. Taken overall we consider they are satisfied by the thorough conditions which require avoidance or mitigation of adverse effects.

The discretionary criteria

[181] Section 104(1)(b) of the Act requires us to consider not only the objectives and policies, but any relevant provisions of planning documents. Rule 5.3.2.4.3 of the District Plan restricts the Council's discretion in applications for mining and incidental earthworks to some 14 matters. Although we found that the various consents required should be bundled and treated as a fully discretionary activity, we consider it prudent to ensure we have turned our mind to all those matters over which the Council has reserved discretion. These are:

- Location of access points, tracks and mine roads;
- Distance and gradient of mined land to boundaries;
- Effects on water bodies, wetlands and riparian margins;
- Total area of disturbance and effect of bulk and location of stockpiling and buildings;
- Hours of operation;
- Protection of areas of significant indigenous vegetation or significant habitats of indigenous fauna identified using the criteria in policy 4.8.7.4 as a guideline;
- Effects on indigenous flora and fauna and the life-supporting capacity and functioning of indigenous ecosystems;

- Effects on outstanding natural features and landscapes;
- Effects on cultural, archaeological and historic sites;
- Site restoration, rehabilitation or revegetation;
- Noise control, including vibrations;
- Use, storage and transportation of hazardous substances;
- Financial contributions relating to landscaping, land restoration and roading;
- Impacts on public access, including recreation.

[182] We have considered extensively in this decision effects on water bodies, wetlands and riparian margins, the total effect of the bulk and location of stockpiling, the effects on indigenous flora and fauna including significant areas of indigenous flora and significant habitats of indigenous fauna and the functioning of their ecosystems. We found that the proposal, with the proposed conditions, does provide an appropriate level of protection. We have considered cultural effects of the excavation of the site and the proposals to rehabilitate the site after mining is completed. We found that these considerations did not militate against consent with appropriate conditions. We found that the site was not part of an outstanding natural landscape but has high values to be considered under Part II.

[183] We note that access to the mine will be by the Stockton Mine Road which is not available for public access. A haul road will be constructed from the existing Stockton mine office to the overburden area. Coal will be transported via the haul road to the Stockton No. 2 load out and will be carried to the Ngakawau coal handling facility by aerial cableway. A condition of consent restricts the use of Millerton Road, which is far from ideal for coal transportation, to emergencies, or times when the aerial cableway is not in operation. Even in such circumstances the applicant considers that only 40 truckloads per week would be carried down Millerton Road. We also note that the western pit boundary will be fenced to prevent damage to ecosystems and weed and dust control measures put in place on the haul roads. We conclude that the conditions of consent appropriately address any issues with roads, tracks and mine roads.

[184] The mine is not located close to any property boundary, and the nearest settlement, Millerton, is at least seven kilometres distant. We do not consider mining

would affect adjacent properties. Nor do we regard noise as an issue for residents in that settlement. A condition of consent sets noise limits at the notional boundary of any existing dwelling not owned by the consent holder similar to those set by the District Plan. Despite noise from the blasting of harder rock, and the noise of trucks and machinery on site we consider this condition will be met without difficulty. In addition to this condition, there is a further condition requiring a noise management plan to be prepared to ensure that the impact of noise in the area is kept to a minimum. We consider this is prudent inasmuch as there are potential effects on fauna in the area and recreational users. With these conditions the effects of noise will be at a reasonable level.

[185] No-one has suggested any restriction on hours of consent. However the applicant has commissioned a report on lighting from Beca Carter Holdings and Ferner which indicates that the effects from it on flora and fauna will be minimal, and that lighting will not be visible from human habitation. We conclude the effects are minimal and adequately addressed by conditions.

[186] There is a condition of consent requiring that a hazardous substances management plan be prepared to ensure that both the storage and use of such substances is carried out safely and without adverse environmental effects. The assessment of environmental effects states that fuels and hazardous substances will not be stored on site. Refuelling will be carried out in the infrastructure area or the pits and contingency equipment to rectify spillage will be kept on site. Very small amounts of lubricants may be kept in the office area or be carried around the site, but there will be no bulk supplies in the Cypress mines area. We conclude the arrangements for handling hazardous substances are satisfactory with appropriate conditions of consent.

[187] A condition of consent requires the applicant to pay a contribution to the district of 0.5% of the value of various components of the activity. No party opposed this either on grounds that it was excessive or that it was insufficient.

[188] Concerns about public access and recreation were raised in the submissions of West Coast Tai Poutini Trust Board (among others). The Trust Board withdrew its appeal prior to the hearing so we heard no particular evidence on this issue. For obvious

safety reasons, during the operational phase of the mine unsupervised public access to working areas will not be permitted, and the perimeter of the pits will be fenced to protect adjacent vegetation. However, access to the area from the south will be maintained, though dogs will be prohibited. A condition of consent requires provision for pedestrians to cross the haul road. After mining is completed, the high walls will remain in parts of the north and south pit, and users of the area will need to treat them as they would any other steep and difficult terrain in the area. The evidence was that access to these areas is already very restricted. Ultimately however right of access to the whole site will be restored. We accept that there is a temporary adverse effect on public access, but in the context of the case we do not consider it of significance.

[189] Under Rule 5.3.2.4.4 consent is also required for indigenous vegetation clearance and incidental earthworks over an area greater than five hectares in a three year period. The activity is discretionary and the Council has restricted its discretion to eight matters. Five of these are in identical terms to Rule 5.3.2.4.3. The three distinct matters are:

- Effects on the habitat of protected and threatened species;
- Effects on ecological functioning and the life-supporting capacity of air, water, soil and ecosystems;
- Effects on recreational values of public land.

[190] Earlier in this decision we have considered effects on the habitat of the great spotted kiwi and *Powelliphanta "patrickensis"*. We accept that habitat will be lost, but we found that the protection from predation in other areas offered by the applicant will afford benefits to these species which compensate for the loss of habitat. Much of the remainder of the decision has been concerned with the life-supporting capacity of air, water, soil and ecosystems and ecosystem functioning.

[191] We accept that both short and longer term there will be adverse effect on the recreational values of public land, both because of restrictions on public access in the short time, and because, when access is restored, the land will not be in its unmodified state. Thus the landscape is likely to be perceived as modified for a very considerable period. However given the many competing considerations in this case we consider the

long-term rehabilitation programme, which is a condition of consent, accommodates to an appropriate extent the need to consider this effect.

[192] Statutory documents, like the Act which gives rise to them, recognise that regard needs to be had to a range of values, not all of which can be accommodated equally in a decision. Considering the totality of the provisions in the planning documents we have described, we find that they favour a grant of consent subject to the many and stringent conditions that are attached to it.

Part II and section 5

[193] In the end it is necessary for the Court to integrate all of these matters to reach a conclusion as to whether or not this proposal meets the single broad purpose of the Act, being sustainable management as that term is defined in section 5. In that evaluation it is necessary for the Court to keep in mind that it is not necessary to sustain the potential of the coal to meet the reasonably foreseeable need of future generations (see exclusion 5(2)(a)).

[194] Each of the elements of 5(2)(a), (b) and (c) require some measurement of the extent to which they achieve the result anticipated. Section 5(2)(a) uses the words *reasonably foreseeable*; section 5(2)(b) *life supporting*; section 5(2)(c) *avoiding remedying or mitigating* and all involve a normative decision (or value judgment). For example, what is reasonably foreseeable? What is life supporting capacity? When is avoidance to be achieved rather than remedying or mitigation? Although each decision involves a factual dimension it also involves decisions as to future events and uncertainties.

[195] It was established by the High Court in ***New Zealand Rail v Marlborough District Council***[32] that the application of section 5 involves a broad overall judgment of whether a proposal will promote the sustainable management of natural and physical resources, an approach which allows for comparison of conflicting considerations and the scale and degree of them and their relative significance or proportion in the final

[32] [1994] NZRMA 70.

outcome. It follows from this that sections 5(2)(a), (b) and (c) are not absolute requirements. We need to consider the degree to which they are met and the extent to which that is adequate or appropriate in the context of each case. What is adequate or appropriate will necessarily depend, among other things, on the significance of the enablement of people and communities afforded by the proposal.

[196] In meeting the single broad purpose of the Act we must recognise and provide for the matters under section 6, have particular regard to the issues under section 7, and take into account the principles of the Treaty of Waitangi under section 8. In reaching our conclusion we have had to consider the likely success of the various management plans, particularly those relating to the rehabilitation of the site, *patrickensis* and kiwi. We preferred the evidence of the applicant's expert witnesses that the various plans will meet their objectives. In doing so we have recognised that during the period of mining the values on the mine site will be adversely affected. However, having regard to the effect on the significant area as a whole and upon the habitat of *patrickensis* and the kiwi, we have concluded that these effects are acceptable. In doing so we have taken into account the management plans that are proposed, particularly for the enhancement of the wide area of significance, and the results anticipated from them. We also recognise the benefit of securing the agreed RAP as provided for in the draft conditions.

Conclusions

[197] In respect of indigenous vegetation we have been particularly convinced by the concession of Solid Energy at the conclusion of the case requiring the direct transfer of 12 hectares of red tussock wetlands to an intermediate site and then back onto the rehabilitation sites. That concession is of considerable moment to this Court and convinces us that the values on the rehabilitated site will in due course not be significantly devalued. We conclude the life-supporting capacity of the ecosystem will be safeguarded in the long term.

[198] In respect of the *patrickensis* and kiwi we consider that the management plans will achieve their object. We conclude the areas of indigenous flora and habitats of indigenous fauna will be protected in the long term and possibly enhanced.

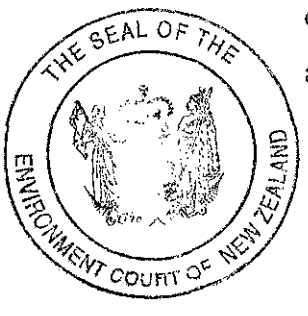
[199] We did ask during the course of the hearing concerning the possibility of farming native earthworms with a view to reseeding both rehabilitated areas and other areas with these to ensure food supply for *patrickensis*. Although it is likely that this constitutes a food supply both for *patrickensis* and for kiwi, we accept Mr Christensen's comment that until the actual food species are known it would be premature to require the farming of one particular species. However in our view the management plan may very well require farming of food species to ensure that rehabilitated areas are properly seeded with appropriate food types for the native fauna. We can see nothing to preclude such a course if it is considered necessary to achieve the outcomes of the relevant plans.

[200] We keep in mind that section 5(2) is to enable people and communities to provide for their social, economic and cultural wellbeing. We conclude that a granting of a consent in this case would enable not only Solid Energy (and thus the taxpayer in general) but also people in the region and district. Without the substantial conditions proposed the proposal would adversely affect the potential of the natural and physical resources to meet reasonably foreseeable needs, affect the life-supporting capacity of the water, soil and ecosystems and have adverse effects. In reaching a conclusion that it is appropriate to grant consent in this case, we have concluded that the comprehensive conditions proposed for the proposal with minor additions discussed appropriately recognise and provide for the matters under section 6, have particular regard to the matters under section 7, take into account the Treaty principles under section 8, and will appropriately meet sections 5(2)(a), (b) and (c). Accordingly we have concluded that there should be a grant of consent.

Directions and costs

[201] The conditions are largely as proposed at the close of the hearing with several additional provisions to be added (or clarified) set out in our decisions.

[202] We direct that the respondent councils, after consultation with the parties, supply an amended set of conditions incorporating those changes and additions which we have outlined in the body of the decision to other parties within 15 working days. Comments are to be forwarded to the applicant within ten working days thereafter. The applicant



is to file the proposed conditions and if not agreed, copies of comments on points of difference within ten working days thereafter.

[203] As we indicated at an early stage in this decision, we consider that the appellants raised serious issues which were properly brought before this Court and supported by appropriate expert evidence and submissions. Our preliminary view is that costs are not appropriate in this case. However, if any party does wish to make application for costs they should do so by making application within 20 working days. Responses should be received 15 working days later and a final reply within five working days thereafter.

DATED at CHRISTCHURCH this 24th day of May 2005.

J A Smith
Environment Judge

Issued[33]: 25 MAY 2005

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Annexure A

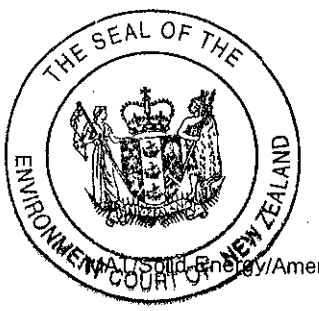
SOLID ENERGY NEW ZEALAND LIMITED

CYPRESS MINE CONDITIONS

FOR CONSENTS GRANTED BY WEST COAST REGIONAL COUNCIL AND BULLER DISTRICT COUNCIL

DRAFT – 21 March 2005

Showing amendments proposed by Solid Energy, the Buller District Council and the West Coast Regional Council



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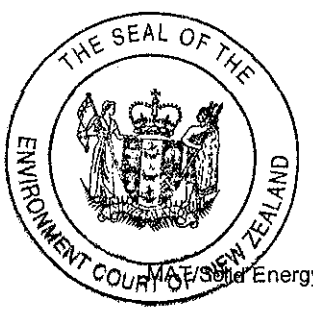
PART A

GENERAL CONDITIONS TO APPLY TO ALL CONSENTS FROM WEST COAST REGIONAL COUNCIL & BULLER DISTRICT COUNCIL



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GENERAL CONDITIONS

Note: "The Act" means the "Resource Management Act 1991".

For the Purposes of these consents, "Consent Authority" means either the West Coast Regional Council or the Buller District Council, singly or jointly, as the case may require, in relation to their respective functions and powers.

A1. Method of Operations

A1.1 All activities authorised by these consents shall be undertaken generally in accordance with the information contained in the Application and Assessment of Environmental Effects dated December 2003 and all supporting technical documents and plans, as provided to the Councils, except where inconsistent with these conditions.

A1.2 The Consent Holder shall retain a suitably qualified and experienced chartered engineer to supervise the development of the site, including all mining areas, the overburden disposal area, the construction of all earth bunds, diversion channels, roads, tracks, and stream crossings. The chartered engineer shall ensure all such areas and any associated structures are constructed in accordance with current accepted engineering practices.

A1.3 The Consent Holder shall ensure all key staff and contractors are made aware of the conditions of these resource consents to ensure compliance with those conditions.

A2. Fees

A2.1 The Consent Holder shall pay to the Consent Authority such administration, supervision and monitoring fees as are fixed from time to time by the Consent Authority in accordance with Section 36 of the Act. The Consent Holder shall meet the reasonable costs of compliance of all requirements and conditions of these consents.

A3. Complaints and Non-compliance

A3.1 The Consent Holder upon receipt of any complaint reported to it by the Consent Authority, shall promptly investigate the complaint, take action to remedy or mitigate the complaint, and inform the Consent Authority as soon as practicable of the details of the cause of the complaint and the action taken.

A3.2 The Consent Holder shall maintain and keep a complaints register for all activities authorised by these consents. The register shall detail the date, time and type of complaint, cause of the complaint, and the action taken by the Consent Holder in response to the complaint. The register shall be available to the Consent Authority at all reasonable times.

A3.3 Unless otherwise stated within these consents, in the event of any breach of compliance of the conditions of these consents the Consent Holder shall notify the relevant Consent Authority within 48 hours of the breach being detected. Within 7 days of any breach, the Consent Holder shall provide written notification to the Consent Authority, which explains the cause of the breach, and if the cause was within the control of the Consent Holder, steps, which were taken to remedy the breach and steps which will be taken to prevent any further occurrence of the breach.

A4. Notification of Exercise of Consent

A4.1 The Consent Holder shall notify the Consent Authority in writing of the intention to exercise any consent at least 3 months prior to, but not more than 6 months prior to, the commencement of any activities authorised by these consents.

A4.2 Notwithstanding condition A4.1, the Consent Holder shall notify the Consent Authority in writing as soon as practicable of the date that activities first commence under these consents.

A4.3 The Consent Holder shall notify the Consent Authority in writing of the intention to cease the exercise of these consents at least 12 months prior to the activities under these consents ceasing.

A5. Lapsing of Consents

A5.1 Pursuant to Section 125(1) of the Act all resource consents shall lapse on the expiry of seven years after the date of commencement of the consents unless the consents are given effect to before the end of that period or upon application in terms of Section 125 (1)(b) of the Act, the Consent Authority grant a longer period of time.

A6. Review of Conditions

A6.1 Pursuant to Section 128(1) of the Act, the Consent Authority may review any of the conditions of these consents by serving notice either:

i. Within a period of one month, commencing six months after the Consent Holder gives notice given under condition A4.2 that activities have commenced under these consents; or

ii. Within a period of three months, commencing on each anniversary of the date of issue of these consents;

for any of the following purposes:

a. To deal with any adverse effect on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage.

b. To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

c. To assess the appropriateness of imposed compliance standards, monitoring parameters, monitoring regimes and monitoring frequencies and to alter these accordingly.

d. To take account of any written recommendations made by the Peer Review Panel set up in accordance with condition A18.

To ensure that the objectives of the *Powelliphanta* "patrickensis" management plan required by condition C37 are achieved taking into

account the results of monitoring carried out pursuant to condition C38(c) and the matters referred to in condition A14.4(i).

A7. Performance Bond

A7.1 At all times the Consent Holder shall provide and maintain in favour of the Consent Authorities (jointly for their respective interests) a bond or bonds to:

~~a.~~ secure the compliance by the Consent Holder with the conditions of these consents;

~~b.~~ secure the completion of rehabilitation and closure in accordance with the Rehabilitation Management and Mine Closure Plans; and

~~c.~~ enable the Consent Authorities to monitor any adverse effect on the environment that may arise from the exercise of the consent including monitoring anything which is to be done to avoid, remedy, or mitigate an adverse effect.

A7.1A The amount (quantum) of the bond may vary from time to time but at any given time shall be sufficient to cover the estimated cost at that time (including any contingency) of compliance with all conditions, including (but not limited to):

a. demolition and removal of plant and buildings;
b. site clean up, including removal and disposal of contaminated soil;
c. rehabilitation by re-contouring, spreading sub-soils and topsoil, re-vegetation and weed control until the closure criteria in 7.11a are met;
d. stabilisation of earthworks and landforms;
e. ensuring that PAF material in the Cypress backfill is maintained in a saturated state and covered with NAF material;
f. construction and erosion protection of drainage facilities;
g. maintenance of roads;
h. environmental and geotechnical monitoring;
i. staff costs;
j. administration and operating costs.

A7.1B The bond quantum shall be determined using a methodology, generally in accordance with that outlined in section 3 of the report "Cypress Mine – Financial Assurances" prepared by Lane and Associates Limited dated 5 November 2004 (Attachment 5), and shall be set at the 80% level of confidence based on probabilistic calculations using the Monte Carlo simulation technique.

A7.1A The Consent Holder shall not exercise or shall cease to exercise these consents until the bond or bonds referred to in Condition A7.1 is executed by the Consent Holder and guarantor and deposited with the Consent Authorities.

A7.2 Notwithstanding condition A7.4, the Consent Holder shall provide a bond or bonds for the quantum for a minimum term of a three years, such term to be renewed for a minimum of a further three years (or such other term as the parties may agree) on each annual anniversary of the date of commencement of these consents (the "date of renewal"). The term of the bond shall be renewed until "Completion of Closure of the Site" in accordance with condition A7.11.

A7.3 Unless the bond is a cash bond, the performance of the conditions of the bond shall be guaranteed by a guarantor acceptable to the Consent Authorities. The guarantor shall bind itself to pay for the carrying out and completion of any condition in the event of any default of the Consent Holder.

A7.4 If the Consent Holder is unable at any time to arrange a guarantor for the quantum as set out in condition A7.2, the Consent Holder will provide a cash bond or bonds for the quantum within 60 days of the date of the renewal referred to in condition A7.2.

A7.5 The bond shall be in a form acceptable to the Consent Authorities.

A7.6 The bond shall provide that the Consent Holder remains liable under the Resource Management Act 1991 for any breach of these consents which occurs before expiry of these consents and which become apparent during or after the expiry of the relevant consent.

A7.6A The Consent Holder shall provide the Councils with a report which recommends the amount of the initial bond within 30 days from the date of issue of these consents.

A7.7 The amount of the bond shall be reviewed and fixed by the Consent Authorities, within 30 days of receipt of the report required by condition A7.6A, and within 30 days of each annual anniversary of the commencement of these consents. Notification of the amount of the bond under this condition shall be advised by written notice (the "review date") by the Consent Authorities to the Consent Holder. In reviewing and fixing the bond the Consent Authorities shall take into account any calculations and other matters submitted in the Annual Work Plan, Rehabilitation Management Plan, Mine Closure Plan, or otherwise, by the Consent Holder which are relevant to the determination of the bond amount. Any calculation or estimates of the costs of the bond or bonds required by Condition A7.1 shall be prepared by an independent advisor, with expertise in mining bond calculation, mutually acceptable to the Consent Holder and the Consent Authorities and shall be supplied to the Consent Authority at least by the annual anniversary of the commencement of these consents.

A7.8 Should the Consent Holder not agree with the amount of the bond fixed by the Consent Authorities under condition A7.7 then the matter shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996. Arbitration shall be commenced by written notice ("notice of arbitration") by the Consent Holder to the Consent Authorities advising that the amount of the bond is disputed, such notice to be given within 14 days of the review date under condition A7.7. If the parties cannot agree upon an arbitrator within 7 days of the notice of arbitration, then an arbitrator shall be appointed by the President of the Institution of Professional Engineers of New Zealand. Such arbitrator shall give an award in writing to the parties within 30 days after his or her appointment (the "date of arbitration decision"), unless the parties agree that the date of arbitration decision shall be extended. The Consent Holder shall bear the full and reasonable costs of the parties in connection with this arbitration. In all other respects, the provisions of the Arbitration Act 1996 shall apply. Pending the outcome of that arbitration, and subject to condition A7.9, the existing bond shall continue in force. That sum shall be adjusted in accordance with the arbitration decision.

A7.9 If the decision of the arbitrator is not made available by the date of arbitration decision referred to in condition A7.8, then the amount of the bond shall be the sum fixed by the Consent Authorities under condition A7.7, until such time as the arbitrator does give an award in writing to the parties. At that time, the amount of the bond shall be adjusted in accordance with the arbitration decision.

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

A7.10 The bond may be varied, cancelled, or renewed at any time by agreement between the Consent Holder and the Consent Authorities provided that cancellation will not be agreed to unless a further or new bond acceptable to the Consent Authorities is available to replace immediately that which is to be cancelled.

A7.11 The Consent Authorities shall release the bond on the Completion of Closure of the Site.

"Completion of Closure of the Site" means rehabilitation of the Site such that conditions (a) to (e) below have been demonstrated by the Consent Holder, to the satisfaction of the Consent Authorities and the Peer Review Panel provided for in Condition A.18, to have been met:

(a) Rehabilitation

Closure of the Cypress Mine shall be achieved when the vegetation within each major landform is self-sustaining in nature as set out in the table below and it is demonstrated that these closure aims have been achieved and maintained for a minimum period of 5 years.

Major Landform	Closure Targets
Backfilled overburden and out-of pit overburden less than 18 degrees slope	
• Tussock	Mean native vascular plant or rock cover ≥90% over the landform. Mean tussock cover of ≥75% and mean tussock height ≥300mm.
• forest and shrubland	Mean native vascular plant, rock or coarse wood debris ≥90% cover at ≥0.5m height or ≥75% cover at ≥1m height. Minimum 5 native vascular species per $10m^2$ plot
Backfilled overburden and out-of pit overburden greater than 18 degrees slope-	
• Over entire landform	Bare soil ≤10% cover
• Tussock	Mean tussock cover of ≥75% and mean tussock height ≥300 mm.
• Forest and shrubland	Mean native vascular plant, rock or coarse wood debris ≥90% cover at ≥0.5m height or ≥75% cover at 1 m height. Mean native vascular plant cover of ≥45%.
Highwalls, cut faces	Native plant cover ≥ 20% in all areas treated with re-vegetation mix.
Benches	Native plant cover ≥80% where soil is ≥100mm deep.
Soil stockpiles following soil removal b. shrubland and tussock	Mean native vascular plant, rock or coarse wood debris ≥90% cover where soils are ≥80mm depth.
All landform types	Mean *Juncus squarrosus* cover ≤1%. No individual plot with a *Juncus squarrosus* cover ≥2%. Visible flowering or seeding gorse and broom cover 0%.

Note i: The above criteria will be measured in randomly located plots stratified by landform and vegetation type (forest, tussock or other), and may be stratified by age.

Note ii: Coarse wood is defined as wood with a diameter > 100 mm; boulders / stones are defined as having a diameter > 50 mm; native plants are defined as those found within the vicinity of Cypress Mine and listed in the species list in **Attachment 1.**

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Note iii: % cover is defined as the percentage of the ground within a quadrat which is occupied by the above-ground parts of each species, rock or coarse woody debris when viewed from above.

Note iv: height is measured as standing height excluding the flowering stems.

The rehabilitation assessment for Completion of Closure of the Site shall be undertaken by a suitably experienced and qualified plant ecologist.

(b) Water Quality

Water compliance limits in Condition B8.9 at the locations specified in condition B8.9 shall not be exceeded in the preceding year.

(c) Landforms

To ensure a stable landform upon completion of the mining works.

(d) Groundwater within Waste Dumps and Backfill Areas

It is proven that the design criteria for the saturation of the acid generating materials in the backfill and areas of the north and south pit have been achieved and there is no evidence of acid generation in groundwater monitoring sites down gradient of the mine site.

(e) Compliance with Conditions

Compliance with all other conditions of these consents can be demonstrated at the time of Completion of Closure of the Site

A7.13 All costs relating to the bond shall be paid by the Consent Holder.

A7.14 The Consent Holder shall not exercise or shall cease to exercise these consents if:

a. Notice of arbitration has not been given under condition A7.8, and the bond quantum required under condition A7.7 has not been provided to the Consent Authorities within 30 days of the review date referred to in condition A7.7; or

b. Notice of arbitration has been given under condition A7.8, and
   i. the bond quantum determined by arbitration has not been provided to the Consent Authorities within 30 days of the date of arbitration decision referred to in condition A7.8; or
   ii. in accordance with condition A7.9, the bond quantum fixed under condition A7.7 has not been provided to the Consent Authorities within 40 days of the appointment of the arbitrator referred to in condition A7.8;

   whichever occurs first; or

c. The term of the bond has not been renewed for a further term in accordance with condition A7.2, unless a cash bond has been provided to the Consent Authorities in accordance with condition A7.4.

A7.15 Section 109 of the Resource Management Act 1991 shall apply to any bond.

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A7.16 Where a cash bond is paid the interest which is earned on the deposit shall accrue to the Consent Authority and when the deposit is repaid to the Consent Holder the Consent Holder shall be entitled to receive all interest (less resident withholding tax and any bank fees) together with the deposit sum unless the Consent Authority has had to use the deposit sum (or part of it) in remedying any non-compliance with this consent, in which case the Consent Authority will provide the Consent Holder with a full breakdown of interest earned and the costs of remedying the non-compliance.

A8A. **Post-Closure Kiwi and Powelliphanta Habitat Enhancement Bond**

A8A.1 Prior to the Councils releasing the Performance Bond in accordance with condition A7.12, the Consent Holder shall provide and maintain in favour of the Buller District Council a separate bond or bonds to cover the estimated costs of monitoring and maintenance of the site related to the kiwi habitat enhancement programme required by conditions C32 to C34 of these consents, and the *Powelliphanta* "patrickensis" management programme required by conditions C35 to C38 of these consents, and the predator control plan required by conditions C39 to C41 of these consents.

A8A.1A The bond quantum shall be determined using a methodology generally in accordance with that outlined in section 4 of the report "Cypress Mine – Financial Assurances" prepared by Lane Associates Limited dated 5 November 2004 (Attachment 6) and shall be set at the 80% level of confidence based on probabilistic calculations using the Monte Carlo simulation technique.

A8A.2 Conditions A7.2 to A7.10, A7.11 and A7.13 to A7.16 shall apply, with any appropriate amendments, to the Post-Closure Kiwi and *Powelliphanta* Habitat Enhancement Bond or bonds.

A8A.3 The amount of the bond or bonds shall be reviewed and fixed annually by the Buller District Council on the anniversary of the commencement of the consents.

A8A.4 The Buller District Council shall not release the Post-Closure Kiwi and *Powelliphanta* Habitat Enhancement Bond until the rehabilitated mine site has been shown to support, for a period of no less then 5 years, an estimated population of at least 1,000 mature *Powelliphanta* "patrickensis" individuals, over at least a similar proportion of the rehabilitated pit areas as that in which *Powelliphanta* "patrickensis" were recorded in November 2004 (as identified in the report entitled "A Survey for the Endemic Land Snail *Powelliphanta* "Patrickensis" within the Proposed Cypress Mine Area and a Proposed Predator Exclusion Fenced Area", dated November 2004).

A8B. Post-Closure Capitalisation Bond

A8B.1 Prior to the exercise of these consents, the Consent Holder shall provide and maintain in favour of the West Coast Regional Council and the Buller District Council (jointly for their respective interests) a bond or bonds to cover the estimated costs of monitoring for and of any adverse effect and of measures taken to avoid, remedy, or mitigate any adverse effect which may become apparent after Completion of Closure of the Site.

A8B.1A The amount (quantum) of the bond may vary from time to time but at any given time shall be sufficient to cover the estimated cost at that time (including any contingency) of:

a. an annual weed control programme;
b. assessing and repairing damage to the cover of the overburden area;

c. general site maintenance such as drain clearance;
d. water and sediment monitoring;
e. quarterly site inspections to assess the integrity of backfill and covers, drains, geotechnical structures, flora health, ~~etc~~;
f. geotechnical reviews of the integrity of the north pit embankment and St Pats Dam, and where necessary, remedial work;
g. ensuring that PAF material in the Cypress backfill is maintained in a saturated state and covered with NAF material.
h. additional geotechnical reviews following extreme events (earthquake or intensive rainfall) and, where necessary remedial work;
i. access road maintenance;
j. project management costs;
k. credible risk events that exist in the post closure period.

A8B.2 Conditions A7.2 to A7.10~~4~~ and A7.13 to A7.16 shall apply, with any appropriate amendments, to the Post-Closure capitalisation bond or bonds.

A8B.2A The bond quantum shall be determined using a methodology generally in accordance with Attachment 7 (section 5 of and Appendix C to the report "Cypress Mine – Financial Assurances" prepared by Lane Associates Limited dated 5 November 2004), and shall be set at the 80% level of confidence based on probabilistic calculations using the Monte Carlo simulation technique. As a minimum, the method of identifying and quantifying post-closure risk events required of sub-clause j. in condition A8B.1A shall comply with AS/NZS 4360:2004 Risk Management.

A8B.3 The amount of the bond or bonds shall be reviewed and fixed annually by the Councils on each anniversary of the commencement of the consents, until the Consent Holder settles the full quantity of the post closure capitalisation sum in an appropriate fund or other financial instrument as approved by the Councils. ~~Completion of Closure of the Site under condition A7.12.~~

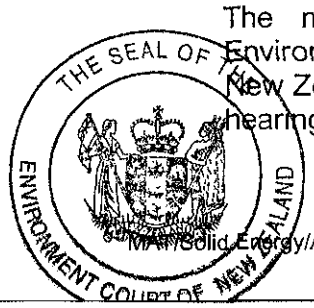
A8B.4 The capitalisation bond or bonds shall be converted into a payment by the Consent Holder to the Councils of the required capital sum prior to the Completion of Closure of the Site, whereupon the capitalisation bond or bonds shall be released by the Councils.

A9. Management and Action Plans

A9.1 Prior to undertaking any activities authorised by these consents, the Consent Holder shall provide to the Consent Authorities the following plans prepared in accordance with conditions A10, A11, A12, A13, A14, A15, A17:

- Contingency and Response Plan
- Construction and Earthworks Management Plan
- Geochemistry and Overburden Management Plan
- Hazardous Substance Management Plan
- Rehabilitation Management Plan
- Mine Closure Plan
- Environmental Monitoring Plan

The management plans shall generally be in accordance with the "Draft Environmental Management Plans for the Proposed Cypress Mine" (Solid Energy New Zealand Limited, May 2004), as provided by the Consent Holder for the consent hearing.



A9.2 Subject to any other conditions of these consents, all activities shall be undertaken in accordance with the latest version of the Plans.

A9.3 The Plans shall be reviewed annually by the Consent Holder and may be amended accordingly to take into account:

- Any recommendations of the Peer Review Panel set up under condition A18.
- Any required actions identified as a result of monitoring under these consents.
- Any changes required as a result of actions identified in the Annual Work Plans.

The Consent Holder shall consult with the Department of Conservation regarding any proposed changes to the Rehabilitation Management Plan. The Consent Holder shall provide the Consent Authorities with any changes made to any of the Plans.

A9.4 The Plans shall not be amended in a way that contravenes the objectives set out for the respective Plans, in accordance with conditions A10, A11, A12, A13, A14, A15, A17.

A9.5 The Consent Holder shall report annually in the Annual Work Plan to the Consent Authorities on compliance with the Plans.

A9.6 A copy of the latest version of the Plans shall be kept on site at all times and all key personnel shall be made aware of each Plans' contents.

A10. Contingency and Response Plan

A10.1 A Contingency and Response Plan shall be prepared that sets out the procedures to be followed by the Consent Holder and parties under its control in the event of accidents or other events that may result in adverse environmental effects.

A10.2 The Contingency and Response Management Plan shall, as a minimum, address the actions to be taken with regard to the following matters:

a. Accidental spills of oil, fuel or chemicals.

b. Rupture or spillage from any pipeline, container, tanker or store tank used at the mine site.

c. Spillages during transportation of hazardous substances to or from the mine site.

d. A list of all hazardous substances and potentially contaminating materials (excluding potentially acid generating waste rock) held on-site and the procedures to be adopted in the event of spillage of any of these substances or materials.

e. Emergency response procedures and emergency contacts during the event of-

~~α.~~ • Power failure
~~β.~~ • Fire
~~χ.~~ • Natural event/disaster

f. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times.

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g. A training schedule for staff and contractors.

A10.3 The Consent Holder shall deal with accidents or events requiring an emergency response in accordance with the Contingency and Response Plan.

A11. Construction and Earthworks Management Plan

A11.1. A Construction and Earthworks Management Plan shall be prepared that sets out the practices and procedures to be adopted to ensure that all resource consent conditions relating to earthworks during the construction phase or carried out outside the limits of the site water management system are complied with.

A11.2 The Construction and Earthworks Management Plan shall provide for the following objectives:

a. To ensure a stable landform in areas where there is potential for failure outside the water management system.

b. To create visually acceptable landforms and final surfaces for rehabilitation.

c. To minimise the overall area of disturbance, so as to reduce the potential impact on vegetation, native fauna, and waterways.

d. To ensure the Mt William ridgeline remains intact as required by condition C44.

e. To ensure the conservation of overburden, soil and vegetation for subsequent use in the backfills and rehabilitation.

f. To ensure that appropriate monitoring and reporting of all activities is undertaken in accordance with the resource consent conditions.

g. To minimise sediment generation and sediment laden runoff.

A11.3 The Construction and Earthworks Management Plan shall, as a minimum, address the following:

a. A description of the sequence for construction of access and haul roads, and all activities authorised by these consents.

b. A description of the sequence of construction of sediment control facilities and water management systems including diversion drains and St Pat's Dam.

c. A description of the means by which the site boundary shall be marked and maintained so as to prevent any disturbance outside the mine footprint.

d. A description of the earthwork procedures used to ensure the stability of the road and all landforms, and measures used to avoid erosion and minimise runoff and sediment generation.

A description of the means by which rehabilitation of the highwall will be facilitated sequentially as the high wall benches are constructed.

f. A description of the means by which the highwall benches will be inegrated with the adjacent forest for the purposes of kiwi habitat enhancement.

~~g.~~g. A description of the specific sediment control measures available to be used.

~~h.~~h. Any earthworks activities outside the limits of the water management system and the process of selection of the appropriate control.

~~i.~~i. A description of the documentation and information management and approvals processes to be used in implementing the plan, and a description of the process for monitoring performance and changes to the plan based on monitoring activity.

~~j.~~j. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times.

~~k.~~k. A training schedule for staff and contractors.

A11.4 For the purpose of these conditions, the term "construction phase" shall include all construction activities up until the time that coal is extracted from the pits on a continuous basis or at times when activities related to extension of infrastructure and water management areas and to pre-stripping or other activities provided for in the annual work plan are being carried out beyond the limits of the water management system.

A12. Geochemistry and Overburden Management Plan

A12.1 A Geochemistry and Overburden Management Plan shall be prepared that sets out the practices and procedures to ensure the separation of stripped overburden of varying geology or geochemistry and the correct fill scheduling and destination with appropriate rock/chemistry type.

A12.2 The Geochemistry and Overburden Management Plan shall, as a minimum, address the following:

a. Details of the proposed geochemical testing of the overburden in order to grade the material for correct designation to Stockton Mine, the overburden placement area or pit backfill, as required by the conditions of consent RC03175/17 (Deposition of overburden and backfill of pits).

b. An outline of the placement protocols for the overburden at the mine and any methods required to manage acidification.

c. The scheduling of the overburden and backfill placement, with excavation volumes and fill demands.

d. Any other matters required to be addressed to manage the overburden in accordance with design documentation and conditions of consent.

e. Operating protocols required to implement the testing of classification systems.

The documentation and data management procedures required to implement the plan.

g. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times.

h. A training schedule for staff and contractors.

A13. Hazardous Substances Management Plan

A13.1 A Hazardous Substances Management Plan shall be prepared that sets out the practices and procedures to be adopted to ensure that hazardous substances are managed so that their storage and use is carried out safely and will not adversely affect the environment.

A13.2 The Hazardous Substances Management Plan shall, as a minimum:

a. Identify hazardous substances including explosives which are used in the mining operations;

b. Set out the practices and procedures to be adopted to ensure that conditions A10.1 to A10.3 (Contingency and Response Plan) will be met;

c. Describe the storage and handling procedures for hazardous substances;

d. Provide details of the regular inspection and maintenance of the mining plant, vehicles and equipment, sumps and washdown pads.

A14. Rehabilitation and Rehabilitation Management Plan

A14.1 The Consent Holder shall undertake rehabilitation and re-vegetation, to achieve an outcome generally in accordance with Figure 3.16 of the AEE (Refer **Attachment 2** of these conditions) and in accordance with the following objectives:

a. In the short-term to create stable landforms by establishing a native vegetation cover and erosion-resistant surfaces that have physical and chemical characteristics that favour growth of sustainable plant communities and manage runoff and sediment generation; and

b. In the medium to long-term, to establish ecosystems similar in plant and animal species diversity and functioning to undisturbed ecosystems adjacent to the site that help the constructed landforms blend into the adjacent landscape and prevent erosion and sediment generation. In relation to stream function, the rehabilitation objective is for stream channel width to match the expected flow and for stream channels to be constructed so as to reflect existing channel complexity, including sinuousity and the removal of culverts where practicable.

c. To prevent weeds and pests invading the site so far as is reasonably possible, and otherwise to eradicate or control weeds and pests on the site.

d. To develop a self-sustaining ecosystem.

e. Tussock dominated vegetation is to be established in the western part of the rehabilitated valley floor in the north pit, including the western slope of the toe embankment, and the floor of the south pit.

A14.2 A Rehabilitation Management Plan shall be prepared that details the rehabilitation objectives set out in condition A14.1, strategies and procedures for all facilities and operational areas to be adopted during operation of the mine and the post-mining phase in order that compliance with all other conditions of these consents can be achieved.

A14.4 The Rehabilitation Management Plan shall, as a minimum, address the following:

a. The rehabilitation objectives set out in condition A14.1 and methods in light of the constraints placed on rehabilitation planning at the mine, including constraints on vegetation growth, climatic constraints, slopes, aspects and local soil and overburden characteristics, including objectives for the completion of each area in accordance with the criteria in condition A7.11 (a).

b. Preferred species and methods for rehabilitation of the various areas of the mine site, including wetland environments and banks of stream channels and specification that all planting stock be sourced from the Stockton/Denniston Plateau area.

c. The overall design of the rehabilitated landscape, taking into account the need to provide:

(i) habitat linkages, for example, for kiwi on the highwall benches, ~~and~~

(ii) the introduction of aquatic bryophytes into new stream channels;

(iii) the direct transfer of wetland vegetation for storage and later 'seeding'/transfer into the rehabilitated area identified in condition A14.1e;

(iv) varied topography, across the backfill to create a sympathetic landscape and avoid an engineered appearance;

(v) the reinstatement of the catchment divide between St Patrick and Cypress Streams, in consultation with Ngati Waewae; and

(vi) rehabilitation procedures that will maximise the blending of the rehabilitated haul road and high walls within the adjacent landscapes.

~~e.~~d. The rehabilitation procedures to be used for different areas of the overburden placement area, pit backfills, roads, highwalls, stream diversion channels and banks.

~~f.~~e. The management practices associated with the identification, prioritisation, salvage, stripping and stockpiling of soil, tussock, other vegetation and other rehabilitation resources such as logs and weathered boulders.

~~g.~~f. Identification of the key weed and pest species and the management principles adopted in the mine planning stages with respect to weed and pest control, and the risks and contingency measures in relation to weeds and pests including the means by which earthmoving machinery and equipment (including vehicles used in rehabilitation at the mine site) will be cleaned prior to their removal from the Stockton plateau mining areas.

~~h.~~g. The means by which weeds will be controlled and closure targets for weeds met during all stages of mine life, with particular reference to gorse, *Juncus squarrosus* and other weed species.

h. Methods for monitoring the success of rehabilitation of native plant species on major landforms and vegetation types, following establishment and at least 3 yearly intervals including (for terrestrial plants) minimum top soil depth and rooting depth and for aquatic bryophytes the species present, percentage cover and distribution in relation to the introduction locations. Trigger point methods for active intervention following each monitoring exercise shall be included. (modified for clarity and to include the monitoring of aquatic bryophytes.

i. The means by which the information gathered on preferred *Powelliphanta* habitat during the annual collections as required by condition C38a will be incorporated into the rehabilitation plan to provide, where practicable, for *Powelliphanta* habitat in the rehabilitated mine.

j. The definition of self-sustaining and mine closure, in accordance with the stated target in condition A7.11 (a).

k. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times.

l. A training schedule for staff and contractors.

m. Provision for fire protection.

A14.5 The Consent Holder shall, as far as practicable and to the satisfaction of the Peer Review Panel, ensure that rehabilitation is carried out such that the performance of any modified landform, watercourse, or any permanent structures and facilities under a Probable Maximum Flood or Maximum Credible Earthquake do not result in damage to landforms or structure greater than those that would have occurred under natural slope and landform conditions.

A14.6 The Consent Holder shall undertake progressive rehabilitation of all disturbed areas including highwall benches as areas of practical working size become available, in accordance with the Annual Work Plan and the Rehabilitation Management Plan.

A14.7 The Consent Holder shall, as far as practicable, salvage topsoil and forest duff from areas to be disturbed. All salvaged material shall be used for rehabilitation purposes in accordance with the principle of achieving a minimum of 100mm of topsoil on forest and shrubland rehabilitation and 300mm of topsoil on tussock rehabilitation over subsoils and/or 1.5-3m of non-acid generating overburden.

A14.8 The Consent Holder shall utilise, wherever practical given the characteristics of the land, direct transfer methods of rehabilitation.

A14.9 The Consent Holder shall translocate, as far as practicable, existing vegetation to the banks of new stream channels.

A14.10 Seed and plant resources shall be genetically sourced from the locality or Ngakawau Ecological District from at least 500m above sea level.

A14.11 Tussock that has been removed from the mine areas in accordance with the

Rehabilitation Management Plan shall not be buried or destroyed, but shall utilised as soon as possible in rehabilitation, and if surfaces for rehabilitation are unavailable, shall be stockpiled for re-use either within the mining permit area or at Stockton Mine, as far as possible.

A14.12 Any machinery utilised for any rehabilitation activities, including excavation of topsoil, that is brought onto or moved from the Cypress site must be cleaned before and after use in order to minimise the potential for weed species to be introduced onto or off the site.

A14.13 The Consent Holder shall translocate representative samples of the wetland vegetation other than red tussock for storage and later 'seeding' or nucleus establishment within the rehabilitated red tussock vegetation in the area identified in condition A14.1e.

A15. Mine Closure Plan

A15.1 A Mine Closure Plan shall be prepared that sets out the practices and procedures to be adopted to ensure mine planning and implementation is undertaken such that closure of the site can be achieved in accordance with the conditions of these consents, including the stated targets in condition A7.11.

A15.3 The Mine Closure Plan shall address:

a. The design and development of a new drainage system for the backfilled pit areas and overburden areas directing clean runoff to St Patrick Stream, the Waimangaroa River and other smaller watercourses;

b. The activities required to dis-establish those diversion drains, culverts and structures that will not remain as permanent watercourses after mine closure;

c. The water management steps required at mine closure;

d. The structures (including engineered landforms) that will remain after mine closure;

e. The dis-establishment of St Pat's Dam, if the Dam is to be dis-established;

f. Any continued monitoring and weed, pest and fire control;

g. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times;

h. A training schedule for staff.

A16. Annual Work Plan

A16.1 Before exercising these consents, the Consent Holder shall submit the first Annual Work Plan to the Consent Authority and thereafter submit an Annual Work Plan one-month prior to each anniversary of the date of commencement of the consents.

A16.2 The Annual Work Plan shall include:

a. A description of all the mining operations, mitigation measures, rehabilitation, monitoring and reporting carried out in the last 12 months.

~~ii.~~b. A detailed description of all mining operations, mitigation measures, rehabilitation, monitoring and reporting intended to be carried out in the next 12 months with an approximate timetable of events.

~~iii.~~c. Long-term projections and intentions for mining operations in relation to the future exercise of these consents.

~~iv.~~d. An explanation of any intended departure from any previous Annual Work Plan in the next 12 months.

~~v.~~e. A description and analysis of any unexpected adverse effect on the environment that has arisen as a result of the exercise of the consents in the last 12 months and the steps taken to rectify it, and the results of those steps.

~~vi.~~f. Identification of any particular issues that have arisen or are expected to arise as a result of operations, geological conditions or monitoring results.

~~vii.~~g. A summary of any complaints received and the mitigation measures adopted.

~~viii.~~h. Plans showing the footprint actual contours of all works and structures and any proposed changes in contours at 10 metre intervals at the end of the next 12 months.

~~ix.~~i. The proposed method of closure should final closure occur within the next 12 months.

~~x.~~j. Report on compliance with the Plans prepared under conditions A10 to A17, B1.9, B1.11, B2.6, C30, C33, C37 and C40.

A16.3 The Consent Holder shall provide the Consent Authority with any further information, or report, which the Consent Authorities may reasonably request after reconsidering any Annual Work Plan. This information or report shall be provided in the time and manner required by the Consent Authority.

A16.4 The Annual Work Plan shall comply with all other conditions of the consents and the Consent Holder shall exercise the consents in accordance with the Annual Work Plan.

A16.5 The Consent Holder may, at any time, amend and resubmit an Annual Work Plan to the Consent Authority provided it complies with all other conditions of the consents.

A17. Environmental Monitoring Plan and Report

A17.1 An Environmental Monitoring Plan shall be prepared that sets out a schedule of monitoring to be undertaken, and requirements for reporting of the results in accordance with the conditions of these consents.

A17.2 The Consent Holder shall prepare and submit to the Consent Authority and to the Peer Review Panel an Annual Environmental Monitoring Report one month prior to each anniversary of the commencement of these consents. The monitoring period to be included in each report shall be for the 12-month period ending two months prior to the anniversary of the commencement of these consents. A copy shall also be provided to the Department of Conservation.

A17.3 As a minimum the Annual Environmental Monitoring Report shall:

a. Detail all environmental monitoring undertaken;

b. Summarise all the data collected, as required under the Environmental Monitoring Plan and any other condition of these consents. This should including graphical presentation, statistical summations of monitoring data and critically analyse the information in terms of compliance and environmental effects.

c. Highlight and discuss any important environmental trends.

d. Compare results obtained over the reporting period with the results that were predicted, during the pre-mining investigations, to occur and the results obtained from previous reporting periods.

e. Report and discuss any operational difficulties, changes or improvements, which would result in a notable variation of water quality or volume discharged.

f. Report and discuss any difficulties in compliance with, and breaches of, the conditions of the consent and the measures adopted to rectify problems.

g. List any maintenance works needed, proposed or undertaken to ensure compliance with the conditions of the consent or to facilitate operations.

h. Outline any changes to the monitoring programme that may be required to allow compliance to be determined.

A18. Peer Review

A18.1 Prior to undertaking any activities authorised by these consents, the Consent Holder shall engage, at its cost, a peer review panel (the "Peer Review Panel"). The members of this Panel shall be fully independent of the planning, design, and construction of the Cypress mine and all its associated facilities, and shall not be a director, employee or agent of the Consent Holder.

A18.2 The primary functions of the Peer Review Panel are to ensure that the conditions of design, construction, operation and maintenance of engineered works are met and that such work is undertaken by appropriately qualified personnel in accordance with internationally recognised best technical and environmental practice; to assess and review the plans for the rehabilitation and closure of the site; to advise and report to the Consent Authority on the adoption of the best practicable option to remove or reduce any adverse effect on the environment; and to assess and review the Environmental Monitoring Plan and Report required by Condition A17. The Peer Review Panel shall report to the Consent Authority in accordance with condition A18.8.

A18.3 The Peer Review Panel shall comprise a minimum of three technical specialists who between them have demonstrated expertise in the following fields:

i. Geochemistry, with recognised experience in management of acid rock drainage;

ii. Civil and geotechnical engineering, with recognised experience in mine development (including cut and overburden dump design) and associated infrastructure;

iii. Water and wastewater management, with experience in assessing effects on aquatic ecosystems and water quality;

iv. Rehabilitation, with experience in terrestrial ecology, mine revegetation and rehabilitation.

In addition, to the technical specialists, the Consent Authorities may provide administrative support and assistance to the Peer Review Panel.

A18.4 The members of the Peer Review Panel, and their defined field(s) of expertise, shall be endorsed by the Chief Executive Officer (or appointed representative) of both Consent Authorities prior to appointment to the Panel.

A18.5 Each member of the Peer Review Panel, when acting as a Peer Reviewer, shall act only in his/her area of expertise, but the full Panel shall review all rehabilitation/closure plans.

A18.6 All design plans shall be submitted for peer review prior to them being actioned and in addition, progress and construction peer reviews will be carried out on site annually or at other intervals agreed to by the Consent Authorities.

A18.7 The Consent Holder shall provide the Peer Review Panel with all records, monitoring reports, management plans, annual work plans, designs, and other relevant information, that the Panel requests, and shall afford the Panel full access to the site at all reasonable times.

A187.8 The Peer Review Panel shall report directly to the Consent Authorities in writing and make such recommendations as it sees fit on all matters which arise during any review, other than on draft proposals submitted to it by the Consent Holder and which are superceded. Such reporting shall be provided to the Consent Authorities at 6 month intervals, or at longer intervals if agreed by the Consent Authorities.

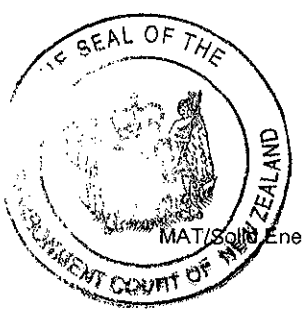
A19. Community Liaison Meeting

A19.1 On two occasions in the first year in which these consents are exercised and thereafter on one occasion per year throughout the duration of the consents, the Consent Holder shall publicly advertise and convene a public community liaison meeting in Granity (or other suitable local venue), to present the results of monitoring undertaken over the year, compliance with consent conditions, a summary of mining operations proposed for the next year, and any proposed changes to the management or operation of the mine site. Notice of the meeting shall also be sent to representatives of the following parties:

- The Consent Authorities and the members of the Peer Review Panel
- Ngakawau River Watch Inc.
- Buller Conservation Group
- Department of Conservation
- West Coast Tai Poutini Conservation Board
- Te Runaka O Ngati Waewae
- Royal Forest & Bird Protection Society Inc.

PART B

WEST COAST REGIONAL COUNCIL
RESOURCE CONSENTS RC03175/1 to RC03175/21



PART B - TABLE OF CONTENTS

B1. GENERAL CONDITIONS FOR CONSENTS RC03175/1 to RC03175/19

B1.1 The General Conditions of Consent set out in Part A shall apply to these consents.

B1.2 The following conditions shall apply to the West Coast Regional Council consents RC03175/1 to RC03175/19.

B1.3 Prior to undertaking any activities authorised by these consents, the Consent Holder shall provide to the Consent Authority the following plans prepared in accordance with conditions B1.9, B1.11 and B2.6:

- Water Management Plan
- Boundary Effects Management Plan
- Dust Management Plan

B1.4 Subject to any other conditions of these consents, all activities shall be undertaken in accordance with the latest version of the Plans referred to in condition B1.3.

B1.5 The Plans shall be reviewed annually by the Consent Holder and may be amended accordingly to take into account:

- Any recommendations of the Peer Review Panel set up under condition A18.
- Any required actions identified as a result of monitoring.
- Any changes required as a result of actions identified in the Annual Work Plans.
- Any changes to the design of the facilities or changes in international best practice.

The Consent Holder shall consult with the Department of Conservation regarding any proposed changes to the Boundary Effects Management Plan. The Consent Holder shall provide the Consent Authorities with any changes made to any of the Plans.

B1.6 The Plans shall not be amended in a way that contravenes the objectives set out for the respective Plans, in accordance with conditions B1.9, B1.11, and B2.6.

B1.7 The Consent Holder shall report annually in the Annual Work Plan to the Consent Authorities on compliance with the Plans.

B1.8 A copy of the latest version of the Plans shall be kept on site at all times and all key personnel shall be made aware of each Plans' contents.

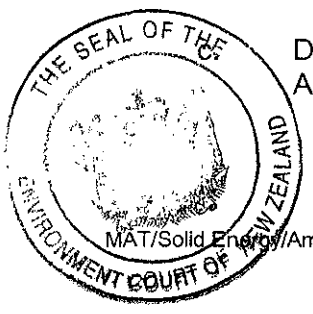
Water Management Plan

B1.9 A Water Management Plan shall be prepared that sets out the practices and procedures to be adopted to ensure compliance with the conditions of these consents for the purpose of:

a. Setting out the methods and activities by which the water quality criteria and standards required under any condition of these consents will be met.

b. Addressing the development and management of the water management and treatment system, including the operation of the St Pat's Dam, settlement and water treatment area, the in-pit sumps, the drains and diversions.

Describing how the conditions will be monitored and reported to the Consent Authority.



d. Setting out the methods and activities by which surface water, groundwater levels and quality will be monitored.

B1.10 The Water Management Plan shall, as a minimum, address the following matters:

a. The methods and activities by which the water quality criteria and standards set out in condition B8.6 will be met.

b. The scheduling of activities required as the operations at the site commence to ensure that all watercourses are protected from the start of construction activities and the conditions of the consents can be met.

c. Details of the operation of the proposed water management system at Cypress Mine.

d. The location and design criteria of the key features of the water treatment system and their operation, including St Pat's Dam, the in-pit sump and all drains, diversions and culverts.

e. The management of water inventories, water levels and pumping rates and the management of retained sediment levels.

f. The water management methods used to ensure the separation of clean and operational water and to treat the discharges to the appropriate quality specified by the consent conditions and water quality performance standards.

g. The inspection and maintenance schedules of the water diversion and treatment system which will be carried out to ensure that the diversion and water treatment system and water management practices are working effectively and to identify any further management, maintenance, or treatment requirements.

h. The proposed monitoring of the discharge to St Patrick Stream below St Pat's Dam in accordance with the monitoring required by condition B8.6.

i. The methods used to collect and store water samples and any specialised techniques required.

j. An outline of the analysis and reporting of the results obtained from the water quality monitoring.

k. The location of groundwater monitoring sites, monitoring frequency and compliance limits to assess the effects of discharges from the Cypress Mine and from the Webb Pit on groundwater.

l. The proposed installation and monitoring of wells around the north pit and the south pit.

m. The methods and frequency proposed for long term monitoring.

n. Contingency measures dealing with water-related issues, power failure, spills, natural events, non-compliance and any unforeseen events.

o. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times.

p. A training schedule for staff and contractors.

Boundary Effects Management Plan

B1.11 A Boundary Effects Management Plan shall be prepared in consultation with the Department of Conservation that sets out the practices and procedures to be adopted to ensure compliance with the conditions of the consents and for the purpose of:

a. Minimizing potential adverse effects from mining activities on red tussock communities and other vegetation outside the boundaries of the mine.

b. Protecting the red tussock and herbfield communities outside of the proposed mine area.

The plan shall cross reference the Construction and Earthworks Management Plan, prepared under condition A11, and the Dust Management Plan, prepared under condition B2.6.

B1.12 The Boundary Effects Management Plan shall, as a minimum:

a. Identify the activities to be undertaken adjacent to Cypress Stream and identify any activities undertaken on the site which will affect vegetation outside the boundaries of the mine;

b. Identify any relevant consent conditions and water quality performance standards;

c. Describe the proposed fencing of the edge of the mine pit;

d. Provide a vegetation map showing the areas potentially affected at the mine boundary;

e. Describe the diversion of mine runoff and drainage away from Cypress Stream to avoid adverse effects;

f. Describe the proposed monitoring of the water quality in Cypress Stream and of the riparian and surrounding vegetation, to ensure that the stream and vegetation health are not adversely affected by the adjacent mining activities;

g. Outline contingency measures in the event of spills or infiltration of contaminants into Cypress Stream from the adjacent mining activities;

h. Address the protection of bryophyte localities and habitats (including terrestrial bryophyte plot 32, identified in Figure 5.4 of the AEE containing *Acromastigum brachyphyllum* and including aquatic bryophyte plot 11identified in Figure 5.5 of the AEE containing an abundance of *Pachyglossa tenacifolia* and *Eoisotachis nigella)*;

i. Describe the marking of all boundaries ahead of the construction of diversions and drains, vegetation removal and stripping activities that precede mining;

j. The personnel who will be on-site and their responsibilities, such that the provisions of the plan can be implemented at all times;

k. A training schedule for staff and contractors.

B2. AIR EMISSIONS

RC03175/19 Discharge Permit	**To discharge dust, including coal, into the air from earthworks and mining operations at Cypress Mine, including dust generated from the blasting of rock and coal, vehicle movements, mobile aggregate crushing plant, and the stockpiling, conveying and handling of coal and other materials.**

RC03175/19 has a term of 35 years and is subject to the following conditions:

B2.1 The Consent Holder shall undertake the activities authorised by this consent in accordance with the General Conditions set out in Part A and B1 of these consents and the Dust Management Plan.

B2.2 The Consent Holder shall operate mining and associated processes and other operations in such a manner so as to ensure that emission of dust is reduced to a practicable minimum, and in any case, does not result in deposited particulate greater than 4 grams per square metre per 30 day period (as measured by deposit gauges) beyond the boundary of the Consent Holder's land. A minimum of 6 deposit gauges shall be located as follows:

i. Two gauges within Happy Valley adjacent to the red tussock area (one at the southern end and one at the northern end), approximately 25 metres from the edge of the mine footprint;
ii. One gauge within 100 metres of the haul road adjacent to the office area and another within 100 metres of the overburden area;
iii. Two gauges within 100 metres of the haul road between the overburden area and the Stockton mine disposal area.

The location of the deposit gauges referred to in (ii) and (iii) above, shall take into consideration the prevailing wind direction, wind velocities and topography.

B2.3 Dust deposition monitoring shall be carried out as set out in ISO/DIS 4222.2 Air Quality – Measurement of Atmospheric Dustfall or equivalent method.

B2.4 When operations commence, the deposit gauges shall be monitored weekly for the first three months or for a longer period until the monitoring results show that dust suppression is effective. Once a record exists demonstrating that dust deposition is within the consent limit, monitoring shall be carried out monthly.

B2.5 A vegetation survey of the red tussock and herbfield shall be undertaken annually, preferably during a 'drier' period.

Dust Management Plan

B2.6 A Dust Management Plan shall be prepared that sets out the practices and procedures to be adopted in order that compliance with condition B2.2 can be achieved and the effects of air discharges are minimised to the greatest extent possible.

B2.7 The Dust Management Plan shall, as a minimum, address the following matters:

a. Sources of dust and other discharges and their potential impacts;

b. Any significant changes/alterations throughout the life of the project that may result in changes to the quantity and nature of dust and other discharges;

c. Techniques and methods which will be used to avoid or eliminate all off site visible discharges to air, and the programme for rehabilitation and revegetation of areas of the site in order to minimise dust emissions;

d. Details of the proposed air quality monitoring programme for the Cypress Mine including:

- details of the monitoring methodology;
- location and number of sampling stations;
- siting of sampling stations to avoid erroneous results and vandalism;
- collection of samples and undertaking analyses;
- reporting and submitting results to the Consent Authority.

e. Training of operators and contractors to help prevent and control dust emissions;

f. Procedures to deal with air quality complaints.

B3. VEGETATION REMOVAL AND EARTHWORKS

RC03175/1 Land Use Consent	**Earthworks and vegetation clearance over approximately 266 hectares of mining permit 41-515 associated with the development and operation of the Cypress Mine.**

RC03175/1 has a term of 35 years and is subject to the following conditions:

B3.1 The Consent Holder shall undertake the activities authorised by this consent in accordance with the General Conditions set out in Part A and B1 of these consents.

B3.2 The Consent Holder shall undertake the activities authorised by this consent in accordance with the provisions of the current Annual Work Plan, prepared in accordance with condition A16; the Construction and Earthworks Management Plan, prepared in accordance with condition A11; and the Water Management Plan, prepared in accordance with condition B1.9.

B3.3 All activities authorised by this consent shall be implemented under the supervision of persons with appropriate experience in the supervision of civil engineering construction works.

Soil Conservation and Erosion Control

B3.4 The Consent Holder shall ensure that all vegetation clearance and earthworks under this consent are progressive and that the smallest area possible is cleared using methods that cause least disturbance to vegetation outside the areas being cleared.

B3.4A The Consent Holder shall ensure that no area is cleared of vegetation without being excavated or re-vegetated in accordance with the Rehabilitation Management Plan for a period of more than 24 months, unless that area is required to be maintained in a non-vegetated state for the purposes of infrastructure, site access, water management, geochemical, or geotechnical requirements.

B3.5 Unless otherwise stated in these consents, all sediment control practices during construction of the diversion drains shall be undertaken in accordance with the principles outlined in the document prepared by the Auckland Regional Council, Technical Publication No. 90, March 1999 "Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region". Specific modifications to the design criteria in TP90 are required, and shall include, but not be limited to, those matters set out in condition B12.6 a. to f.

B3.6 There shall be no bulk earthworks or mining operations undertaken until such time as the water management system (diversion drains and St Pat's Dam refurbishment) is constructed and operating.

B3.7 The Consent Holder shall be responsible for the structural integrity and maintenance of all works associated with the exercise of this consent, and for any erosion control and energy dissipation works, which become necessary as a consequence of the exercise of this consent.

B3.8 The Consent Holder shall, prior to the exercise of this consent, and thereafter annually, report details of the areas to be cleared, and the procedures to be used, in disposing of the cleared material in accordance with the Annual Work Plan prepared under condition A16.

B3.9 The Consent Holder shall avoid, to the greatest extent practicable, sidecasting of material alongside the roads.

B3.10 All roads shall be adequately serviced with watertables, cut-offs and culverts to control surface water runoff and minimise the scouring of road surfaces, watertables, cut-offs and culvert outfalls. The minimum design criteria for such facilities shall be such that they will convey, or contain, the runoff from and continue to function in rainfall events up to the 10% Annual Exceedance Probability ("AEP") critical (10 minute duration) storm event.

B3.11 The geotechnical design of the highwalls, the overburden placement areas and the north pit embankment shall be designed by an appropriately qualified civil engineer. The design specifications shall be supplied to the Consent Authority with the relevant Annual Work Plan prepared in accordance with condition A16.

B4. ACTIVITIES IN AND OVER THE BEDS OF STREAMS

RC03175/2 Land Use Consent	**To disturb the beds of Cypress and Byrne Creeks and their tributaries for the construction and maintenance of diversion channels around the Cypress opencast pits.**
RC03175/3 Land Use Consent	**To disturb the bed of St Patrick Stream and tributaries for the construction and maintenance of diversion channels from a point upstream of St Pat's Dam water impoundment area to a point downstream of St Pat's Dam, to facilitate mining activities and site water management.**
RC03175/5 Land Use Consent	**The placement and maintenance of culverts and water management structures in St Patrick Stream and associated disturbance to the bed of St Patrick Stream.**

RC03175/2, RC03175/3 and RC03175/5 have terms of 35 years and are subject to the following conditions:

B4.1 The Consent Holder shall undertake the activities authorised by these consents in accordance with the General Conditions set out in Part A and B1 of these consents.

B4.2 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the current Annual Work Plan prepared in accordance with condition A16; the Construction and Earthworks Management Plan, prepared in accordance with condition A11; and the Water Management Plan, prepared in accordance with condition B1.9.

B4.3 All activities authorised by these consents shall be implemented under the supervision of persons with appropriate experience in the supervision of civil engineering construction works.

Soil Conservation and Erosion Control

B4.4 The Consent Holder shall ensure that all works authorised by these consents are progressive and that the smallest area possible is disturbed using methods that cause least disturbance to waterways and vegetation outside the areas being cleared.

B4.5 The Consent Holder shall be responsible for the structural integrity and maintenance of all works associated with the exercise of these consents, and for any erosion control and energy dissipation works, which become necessary as a consequence of the exercise of these consents.

B4.6 The Consent Holder shall ensure that all activities authorised by these consents are carried out so that machinery activity in the bed of any waterway is kept to a minimum.

B4.7 Unless otherwise stated in these consents, all sediment control practices during construction of the diversion drains shall be undertaken in accordance with the principles outlined in the document prepared by the Auckland Regional Council, Technical Publication No. 90, March 1999 "Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region". Specific modifications to the design criteria in TP90 are required, and shall include, but not be limited to, those matters set out in condition B12.6a. to f.

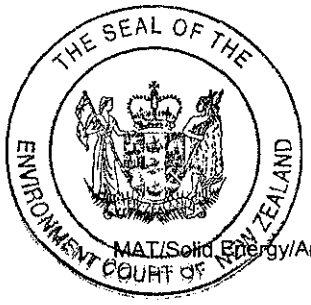
B4.8 The Consent Holder shall ensure that, to the greatest extent practicable, structures built under these consents do not cause erosion or scour of stream beds or river banks.

Water Quality

B4.9 There shall be no refuelling of equipment or machinery within 5 metres of any surface waterway.

Engineering Specifications

B4.10 The crossings over St Patrick Stream shall be designed by a chartered civil engineer to accommodate a minimum of a 100 year return period flood event. The design specifications for the crossings shall be supplied to the Consent Authority with the first Annual Work Plan.



B5. CLEAN STORMWATER DIVERSIONS

RC03175/8 Water Permit	**To divert (clean) stormwater runoff from undisturbed areas around the perimeter of the operational mining areas, including opencast workings, haul road, Cypress overburden placement area, soil stockpiles, and St Pat's Dam water impoundment and stormwater runoff from rehabilited areas of the mine.**
RC03175/10 Water Permit	**To divert water in Cypress and Byrne Creeks and their tributaries around the Cypress opencast pits.**
RC03175/11 Water Permit	**To divert water in St Patrick Stream, upstream of St Pat's Dam water impoundment to a point downstream of St Pat's Dam, to facilitate mining activities and site water management.**
RC03175/13 Water Permit	**To dam water in St Patrick Stream behind a weir structure upstream of St Pat's Dam water impoundment to facilitate the diversion of the stream around the water impoundment area and St Pat's Dam.**
RC03175/16 Discharge Permit	**To discharge (clean) stormwater runoff from perimeter drains and stormwater runoff from rehabilited areas of the mine to natural watercourses within the catchments of Upper Waimangaroa River and St Patrick Stream.**

RC03175/8, RC03175/10, RC03175/11, RC03175/13 and RC03175/16 have terms of 35 years and are subject to the following conditions:

B5.1 The Consent Holder shall undertake the activities authorised by these consents in accordance with the General Conditions set out in Part A and B1 of these consents.

B5.2 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the current Annual Work Plan prepared in accordance with condition A16; the Construction and Earthworks Management Plan, prepared in accordance with condition A11; and the Water Management Plan, prepared in accordance with condition B1.9.

B5.3 All activities authorised by these consents shall be implemented under the supervision of persons with appropriate experience in the supervision of civil engineering construction works.

B5.4 The St Patrick Stream diversion shall discharge as closely as is practicable to St Pat's Dam. The south pit stormwater diversion shall discharge as closely as is practicable to the south pit.

B5.5 Prior to the expiry of the consent and following decommissioning of the diversion drains, the Consent Holder shall remove and rehabilitate all diversion drains constructed under these consents, other than the south pit diversions and the western haul road diversions (which will not be decommissioned), in accordance with the Rehabilitation Management Plan prepared in accordance with condition A14.

Soil Conservation and Erosion Control

B5.6 The Consent Holder shall ensure that all earthworks and vegetation clearance under these consents are progressive and that the smallest area possible is cleared using methods that cause least disturbance to waterways and vegetation outside the areas being cleared.

B5.7 The Consent Holder shall ensure that sediment losses to natural water from the exercise of these consents are avoided and that silt control measures are in place prior to the exercise of this consent, except where associated with the extension of the mine site water management system.

B5.8 The Consent Holder shall ensure that all activities authorised by these consents are carried out so that machinery activity in the bed of any waterway is kept to a minimum.

B5.9 Unless otherwise stated in these consents, all sediment control practices during construction of the diversion drains shall be undertaken in accordance with the principles outlined in the document prepared by the Auckland Regional Council, Technical Publication No. 90, March 1999 "Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region". Specific amendments to the design criteria in TP90 are required, and shall include, but not be limited to, those matters set out in condition B12.6a. to f.

B5.10 The Consent Holder shall ensure that, to the greatest extent practicable, structures authorised by these consents do not cause erosion or scour of stream beds or river banks.

B5.11 The Consent Holder shall be responsible for any necessary erosion prevention or remediation measures along the length of the diversion drains, which shall include satisfactory provision for energy dissipation.

Diversion Drain Specifications

B5.12 Diversion channels and associated works shall be subject to a design and construction analysis and detailed engineering design in accordance with the ~~constructed in accordance with designs provided with the~~ plans listed under condition B5.2 and reviewed by the Peer Review Panel, in accordance with condition A18. These shall include the following:

a. Highwall diversion drains will be designed in such a way that should they breach, drainage will be to the pit.

b. The St Patrick Stream cleanwater diversion drain will be designed to carry a flow of one cubic metre per second. Overflows of the diversion drain will be to St Pat's Dam.

c. Diversion drains on the rehabilitated surfaces, around the south pit and any other permanent features will be designed to a 1% AEP flood.

d. Non-permanent road drains, cut off drains and drains that will only be used during the operating period will be designed to a 10% AEP flood.

Stormwater Discharge Monitoring

B5.13 The Consent Holder shall monitor the water quality in Waimangaroa River for total suspended solids, at weekly intervals, at a point 200 metres downstream of the diversion of Cypress and Byrne Creeks into the river.

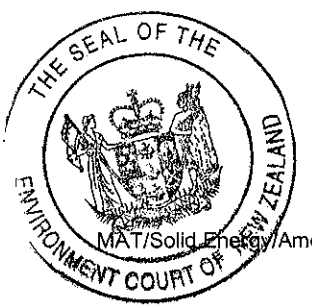
Rehabilitated Areas and Rehabilitation

B5.14 Any clean stormwater and run-off from rehabilitated areas of the mine shall not be

diverted to natural watercourses until the Consent Holder has demonstrated that total suspended solids and pH of the water is not statistically higher/more acidic than the immediate receiving waters, with 90% confidence, based on a minimum of 12 consecutive months of data.

B5.15 The Consent Holder shall ensure that stormwater intercepted by rehabilitated and undisturbed land is not affected by mining operations prior to being discharged.

B5.16 The Consent Holder shall rehabilitate and revegetate, where practicable, all disturbed areas of land associated with the exercise of these consents as soon as practicable after completion of the works.



B6. MINEWATER DIVERSIONS

RC03175/7 Water Permit	**To take groundwater seepage and stormwater runoff from within the Cypress opencast pits for dewatering purposes.**
RC03175/9 Water Permit	**To divert minewater (stormwater runoff and groundwater seepage) from within opencast workings, haul road, Cypress overburden placement area, soil stockpiles, and other ancillary mining activities, to St Pat's Dam water impoundment via drainage channels.**

RC03175/7 and RC03175/9 have terms of 35 years and are subject to the following conditions:

B6.1 The Consent Holder shall undertake the activities authorised by these consents in accordance with the General Conditions set out in Part A and B1 of these consents.

B6.2 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the current Annual Work Plan prepared in accordance with condition A16; the Construction and Earthworks Management Plan, prepared in accordance with condition A11; and the Water Management Plan, prepared in accordance with condition B1.9.

B6.3 No water from mining and overburden disposal areas shall be discharged to natural water without being first diverted to the water management and treatment system.

B6.4 The rate of water abstraction from the Cypress opencast pits for dewatering purposes, shall not exceed 600 litres per second.

Diversion Drain Specifications

B6.5 Diversion channels and associated works shall be designed and constructed to ensure that any discharge from the diversion drain along the embankment shall be to the pit rather than to the red tussock area. in accordance with designs provided with the plans listed under condition B6.2 and reviewed by the Peer Review Panel, in accordance with condition A18.

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B7. ST PAT'S DAM

RC03175/4 Land Use Consent	**The refurbishment and maintenance of St Pat's Dam and spillway structures, including raising the dam crest and associated disturbance to the bed of St Patrick Stream, to facilitate mine water management and treatment.**
RC03175/12 Water Permit	**To dam water in St Patrick Stream behind the refurbished St Pat's Dam to form a water impoundment area for water treatment purposes.**

RC03175/4 and RC03175/12 have terms of 35 years and are subject to the following conditions:

B7.1 The Consent Holder shall undertake the activities authorised by these consents in accordance with the General Conditions set out in Part A and B1 of these consents.

B7.2 The refurbishment of St Pat's Dam shall be designed to NZSOLD low potential impact category standards (including provisions for seismic loading) by a suitably qualified ~~chartered civil~~ engineer. The design specification for the refurbishment shall be supplied to the Consent Authority with the first Annual Work Plan prepared in accordance with condition A16.

B7.3 The raising of the dam crest associated with refurbishment of St Pat's Dam shall not be raised by more than 2 metres above the existing (pre-mining) level.

B7.4 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the current Annual Work Plan prepared in accordance with condition A16; the Construction and Earthworks Management Plan, prepared in accordance with condition A11; and the Water Management Plan, prepared in accordance with condition B1.9.

B7.5 Unless otherwise stated in these consents, all sediment control practices during construction of the diversion drains shall be undertaken in accordance with the principles outlined in the document prepared by the Auckland Regional Council, Technical Publication No. 90, March 1999 "Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region". Specific amendments to the design criteria in TP90 are required, and shall include, but not be limited to, those matters set out in condition B12.6a. to f.

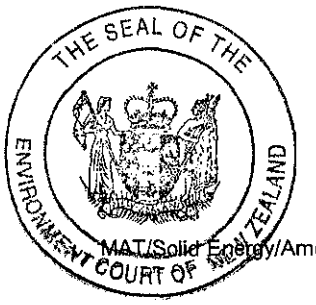
B7.6 The Consent Holder shall be responsible for the structural integrity and maintenance of all works associated with the exercise of these consents, and for any erosion control and any energy dissipation works which become necessary as a consequence of the exercise of these consents.

B7.7 The Consent Holder shall ensure that all activities authorised by these consents are carried out so that machinery activity in the bed of any waterway is kept to a minimum.

B7.8 The Consent Holder shall ensure that, to the greatest extent practicable, structures and works authorised by these consents do not cause erosion or scour of stream beds or river banks.

St Pat's Dam and Spillway Specifications

B7.9 The refurbishment of St Pat's Dam, spillway and associated works shall be constructed in accordance with designs provided with the plans listed under condition B7.4 and reviewed by the Peer Review Panel, in accordance with condition A18.



B8. TREATED WATER DISCHARGE TO ST PATRICK STREAM

RC03175/14 Discharge Permit	**To discharge minewater (stormwater runoff and groundwater seepage) from within opencast workings, haul road, Cypress overburden placement area, soil stockpiles, and other ancillary mining activities, to St Pat's Dam water impoundment.**
RC03175/15 Discharge Permit	**To discharge treated minewater from St Pat's Dam impoundment to St Patrick Stream via a decant outlet pipe and flood overflow spillway.**

RC03175/14 and RC03175/15 have terms of 35 years and are subject to the following conditions:

B8.1 The Consent Holder shall undertake the activities authorised by these consents in accordance with the General Conditions set out in Part A and B1 of these consents.

B8.2 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the Annual Work Plan, prepared in accordance with Condition A16; and the Water Management Plan, prepared in accordance with condition B1.9.

B8.3 No water from the following areas shall be discharged to natural waters without first passing through the water management and treatment system:

- mine operational areas
- haul roads
- overburden placement site
- facility areas
- soil stockpiles

For the purposes of this consent, the water management and treatment system consists of the system of drains, diversions, sumps and pumps within the catchment of the St Pats Dam and the St Pats Dam treatment pond itself.

B8.4 The discharge point of treated water from St Pat's Dam reservoir to St Patrick Stream shall be immediately downstream of the Dam.

B8.5 The collection, analysis and ~~presentation~~ preservation of all samples collected in accordance with these conditions (excluding aquatic ecology monitoring) shall be undertaken using standard methods for the Examination of Water and Wastewater (18th Ed. 1992) APHA, AWWA and WEF, or equivalent or superseding methods.

B8.5A The monitoring required by these conditions shall be undertaken on contract to the Consent Holder by an independent person or persons who shall not be a director or employee of the Consent Holder. On at least one occasion in each 12 month period, the monitoring required by these conditions shall be undertaken by a contractor different to that usually used by the Consent Holder.

B8.5B The Consent Holder shall invite one representative of the community (appointed by those present at any Community Liaison Meeting convened under Condition A19.1) to accompany the contractors referred to in Condition B8.5A when undertaking the monitoring required by these conditions.

Discharge Rate

B8.6 The maximum controlled discharge rate of water and contaminants from St Pat's Dam into St Patrick Stream via the decant outlet pipe shall not exceed 400 litres per second. In all other events exceeding the available containment capacity, the spillway shall be maintained to allow passage of all flood flows.

Discharge and Receiving Water Monitoring and Limits

B8.7 The Consent Holder shall undertake a water quality monitoring programme of the discharges and receiving waters in accordance with the table below.

(a) Monitoring Programme

Parameter	Frequency	Monitoring Locations
Total Suspended Solids	Daily #	8W St Pat's Dam discharge
Total Suspended Solids	Weekly*	6W, 7W
Turbidity	Continuous	8W, 6W, 7W St Pat's Dam discharge
Conductivity	Continuous	8W, 6W, 7W St Pat's Dam discharge
ph	Continuous	8W, 6W, 7W St Pat's Dam discharge
Calcium Magnesium Acidity Sulphate Total Ammonia	Weekly *	8W St Pat's Dam discharge
Metals • Dissolved Iron • Acid Soluble** Iron • Dissolved Aluminium • Acid Soluble** Aluminium • Dissolved Zinc • Dissolved Manganese • Dissolved Nickel • Dissolved Cadmium • Dissolved Lead	Weekly *	8W
Dissolved Nickel Dissolved Cadmium Dissolved Lead	Monthly	6W 7W
Dissolved Copper	Six monthly	8W
Stream Flow Rate	Continuous	8W

Notes to Table:

After 12 months, the Consent Authority may authorise the frequency of monitoring to decrease to no less frequently than weekly.

*After 12 months, the Consent Authority may authorise the frequency of monitoring to decrease to no less frequently than monthly.

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**Acid Soluble element concentration (All metals in solution after subjecting an unfiltered sample to acid extraction – ie, a pH of 1.65 to 1.85 for 18 hours).

B8.8 Monitoring of St Pat's Dam discharge shall be monitored prior to the discharge entering St Patrick Stream. Monitoring site 8W is located in St Patrick Stream upstream of the point where the stream flows into the old Fly Creek Mine working, at or about map reference NZMS 260 L29:185-459.

B8.9 The discharge into St Patrick Stream from St Pat's Dam and from the stormwater diversion discharges shall not cause the limits listed in table below to be exceeded at monitoring site 8W:

(a) Receiving Waters Compliance Limits (at monitoring Site 8W)

Parameter	Compliance Limits		
	30-~~day~~sample Rolling Median	**90th Percentile Limit**	**Maximum Limit#, *****
Total Suspended Solids		20g/m^3 *	100 g/m^3
pH	≥4.5	≥4.0 *	--
Acid Soluble** Iron			5g/m$^{3\#}$
Acid Soluble** Aluminium			3g/m$^{3\#}$
Dissolved Zinc			0.15g/m$^{3\#}$
Dissolved Nickel			0.05 to 0.15g/m^{3} ##, ***,♦
Dissolved Cadmium			0.00018 to 0.003g/m^3 ##,***,♦
Dissolved Lead			0.001 to 0.005g/m^{3} ##, ***,♦

Notes to Table

* Based on a monthly record, where data is collected daily, or any 10 consecutive samples where monitoring has been decreased to weekly in accordance with the Table in condition B8.6.

\# Additional monitoring data, specifically conductivity, can be used as a tool to cross check the validity of any metal exceedance.

** Acid Soluble element concentration (All metals in solution after subjecting an unfiltered sample to acid extraction – i.e. a pH of 1.65 to 1.85 for 18 hours).

\#\# The final values (site specific criteria for the protection of freshwater aquatic life) will lie within these ranges, at a hardness of 30 g/m^3.

*** These criteria are chronic criteria. The average frequency for excursions of these chronic criteria is not to exceed once in 3 years with a four day average exposure period. If one sample is found to exceed the criteria value, the Consent Holder shall take 1 sample each day for the following 4 days, If the 4 day average of the samples undertaken exceeds the relevant criteria and

there has been one or more instances of a 4 day average exceeding that criteria within the preceeding 3 years, that criteria shall be deemed to have been exceeded.

- The compliance limits used for an individual sampling event will depend on the water hardness measured at the same time.

B8.10 The Consent Holder shall derive and continuously calibrate a relationship between total suspended solids and turbidity for the discharge into St Patrick Stream. Continuous turbidity records shall be undertaken at site 8W (and other sites if appropriate). Where the frequency of total suspended solids monitoring has been reduced to weekly, in accordance with the Table in condition B8.7, and the total suspended solids – turbidity relationship indicates that site conditions have produced or may produce a non-compliance with the standards set out in condition B8.9, then the frequency of total suspended solids monitoring shall be increased to daily.

B8.11 In addition to the monitoring at site 8W, monitoring for total suspended solids, conductivity, turbidity, dissolved nickel, cadmium, lead and pH shall also be undertaken at sites 6W (Waimangaroa River – Byrne Creek, at or about map reference NZMS 260 L29:166-428) and 7W (Cypress Stream, at or about map reference NZMS 260 L29:172-437) to ensure that mining activities in the catchments are having no measurable effect on water quality (see monitoring programme table above). The monitoring shall be described in the Water Management Plan, prepared in accordance with condition B1.9.

B8.12 The discharge shall not result in the production of conspicuous oils, grease or films, scums or foams, or floatables.

Aquatic Ecology Monitoring

B8.13 Aquatic invertebrate and periphyton monitoring (including bryophytes) shall be undertaken at least once annually in late summer-autumn at the following locations:

a. A site on St Patrick Stream, in the vicinity of site 8W (also known as site G).

b. At two sites upstream of St Pat's Dam on St Patrick Stream, one between the north pit and St Pat's Dam (in the vicinity of site C, located at or about map reference NZMS 260 L29:179-448) and one upstream of all mining activities.

c. A site on Cypress Stream, in the vicinity of site 7W (also known as site G).

d. At a site in the Waimangaroa River, approximately 200m downstream of all diversions around the south pit.

B8.14 Invertebrates and periphyton monitoring under condition B8.13 shall consist of periphyton thickness and percentage cover, bryophyte species present, macro-invertebrate taxa richness and relative abundance, Macro-invertebrate Community Index (MCI) and EPT scores. Monitoring shall be undertaken on a day on which there has been no rainfall for the preceding two days and no major flood event in the preceding two weeks. Wherever practicable, sites that have been sampled in the past shall be used.

Site-specific Criteria

B8.15 The Consent Holder shall carry out a programme to develop a site specific

compliance value for aluminium, zinc, nickel, cadmium and lead in St Patrick Stream. The programme required to develop such site specific values shall include:

a. Further detailed environmental chemistry and ecological studies on streams in the Cypress area (including local streams unmodified or affected by mining activities) with a range of aluminium, zinc, nickel, cadmium and lead concentrations and ecological factors.
b. Laboratory based toxicological studies using local organisms occurring in the stream and site water to include study of mitigating and synergistic effects.
c. Careful monitoring of discharges and receiving environments.
d. Best practice scientific evaluation of the data and development of criteria values.

B8.16 The programme design shall be peer reviewed by the Peer Review Panel set up in accordance with condition A18. The design and peer review report will be provided to council for review prior to first exercise of the consent. The information developed by the Consent Holder and any recommendations relating to compliance limits in condition B8.9 shall be provided to Consent Authority within two years of the date of first exercise of these consents.

B8.17 Within a period of 3 months from the date of receipt of the report, the council may serve notice to review condition B8.9 under section 128 of the Act for the purposes of reviewing the adequacy of the compliance values for aluminium, zinc, nickel, cadmium and lead at site 8W to deal with actual or potential adverse effects on St Patrick Stream.

B8.18 Pit sump pump/s shall be operated in order that the water management system functions correctly. The Consent Holder shall:

a. continuously record the pit sump flow; and

b. monitor pH and SO4 in the pit sump discharge in order to assist with managing the chemistry of the discharge authorised by this consent, with particular regard to identifying specific water treatment or water management needs and the management of metal mass loadings. The pH shall be monitored on a daily basis and SO4 shall be monitored on a weekly basis.

c. manage the pit sump water discharge to avoid, where practicable, batch discharges to St Patrick Stream containing high mass loading of contaminants at all times.

B9. OVERBURDEN PLACEMENT AND BACKFILLING OF PITS

RC03175/17 Discharge Permit	**The deposition of overburden material and waste rock containing potentially acid-forming material, and the associated discharge of *contaminants to land from the overburden material and waste* rock at:** **(i) Stockton Mine overburden disposal area (Webb Pit); and** **(ii) Cypress overburden placement area, and backfilled into Cypress opencast workings.**

RC03175/17 (i) has a term to expire on 1 April 2027 and RC03175/17 (ii) has a term of 35 years. RC03175/17 (i) and (ii) are subject to the following conditions:

B9.1 The Consent Holder shall undertake the activities authorised by this consent in accordance with the General Conditions set out in Part A and B1 of these consents.

B9.2 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the current Annual Work Plan prepared in accordance with condition A16; the Construction and Earthworks Management Plan, prepared in accordance with condition A11; Geochemistry and Overburden Management Plan, prepared in accordance with condition A12; and the Water Management Plan, prepared in accordance with condition B1.9.

B9.3 The Consent Holder shall ensure that the diversion and drainage systems associated with the overburden placement areas are installed and operational prior to the deposition of any overburden and waste rock to the overburden placement areas;

Overburden Classification and Management

B9.4 Overburden shall be classified according to the following table and the system outlined in the Geochemistry and Overburden Management Plan. Classification shall be carried out by appropriately qualified persons who shall be available to operators in the pit at all times.

(a) Classification by Lithology and Sampling for Reclassification

Unit/Material	**Geochemistry *Classification by* Lithology**	**Sampling Requirement for Re-*classification***
Quaternary Soils	Assume all non-acid. May contain some fine-grained.	No sampling required
Brunner Coal Measures (BCM)	Assume all acid-forming. Can be field tested to re-classified as non-acid or low-risk. Not fine grained.	Discretionary: Geochemical sampling only required if BCM is to be reclassified, for example space constraints require more low-risk or non-acid category material.
Kaiata within 30m of BCM contact	Assume all acid-forming. Can be field tested to re-classified as non-acid or low-risk. Likely to be fine grained, may require testing to confirm.	Discretionary: Geochemical sampling only required for reclassification, for example if space constraints require more low-risk or non-acid category material.
Kaiata more than	Likely to be non-acid	Required: Sampling required to

30m above BCM contact	forming or low-risk, requires field testing to confirm. Likely to be fine grained, may require testing to confirm	confirm materials or categorise or may be undertaken to design specific controls (e.g. limestone addition) ▫ Paste pH ▫ NAG pH ▫ NAG acidity
Granite	Assume all non-acid. Not fine grained without processing.	No sampling required.
Coal		No sampling required except on final coal floor.

B9.5 Where material is classified by visual inspection as being acid-forming by the Lithology categories outlined in table (a) in condition B9.4, it shall only be re-classified as low-risk or non-acid material by geochemical sampling and analysis.

B9.6 Where geochemical sampling and analysis has been carried out to confirm a geochemical classification or to re-classify material under table (a) in condition B9.4, the criteria in table below shall be applied.

(a) Classification by Chemistry

Classification	Test Criteria
Non-Acid	Paste pH>4.5 and; NAG pH>4.5 and; NAG acidity ~0kg/t $CaCO_3$
Low-Risk	Paste pH>4.5 and; NAG pH >4 NAG acidity < 20kg/t
Acid-Forming	Paste pH<4 NAG pH<4 NAG acidity >20kg/t

B9.7 When material has been classified according to the conditions of this consent, it may be transferred to a disposal location according to the criteria in the table below.

(a) Disposal by Geochemical Classification

Material Destination or Zone	Material Description
Bulk overburden fill with ARD management systems	Any material. Preferably only acid-forming material to maximise volume management.
Bulk overburden fill, low ARD risk	Any material meeting the non-acid or low-risk chemical classification.
Lift topping material inside fill	Fine-grained, Kaiata, any geochemistry.
Underdrainage	Coarse Granite
Final Cover (i) Lower filter and capillary zone	Graded materials, low-acid risk
(ii) Core	Non-acid fine-grained Kaiata
(iii) Upper filter and capillary zone	Graded granite or non-acid BCM

(iv) Erosion resistant surface (v) Re-vegetation layer	Granite Quaternary and soils
Surface drainage channels (closure)	Granite
Road sheeting	Granite
Road fills	Non-acid or low-risk

Notes to Table

ARD Acid Rock Drainage
BCM Brunner Coal Measures

B9.8 No overburden shall be removed or disposed unless it has been classified and provision made for its acceptance at destination locations in accordance with the conditions of this consent and the protocols outlined in the Geochemistry and Overburden Management Plan, prepared in accordance with condition A12.

B9.8A Backfill placement within the area of the north pit that is to be planted in red tussock as per condition 14.1e shall be carried out in a manner that ensures that the soil and subsoil will retain a hydrological regime suitable to maintain red tussock wetland vegetation.

B9.8B a. The Consent Holder shall install a network of lysimeters, soil moisture probes or other soil moisture measurement devices at a density of 1 per 10 hectares in the red tussockland of the north pit prior to commencing mining of the north pit to determine the baseline soil moisture conditions present.

b. Once the north pit has been backfilled, the final topography created and the soils replaced, the Consent Holder shall install a similar number of lysimeters, soil moisture or other soil moisture measurement devices in the red tussock area.

c. The Consent Holder shall monitor the soil measurement devices referred to in condition B9.8(b) above for a period of 5 years following their installation so as to ascertain whether soil moisture conditions reflect natural conditions determined in accordance with condition B9.8B(a) above. Should monitoring indicate that soil moisture conditions on backfill surfaces where red tussock is planted do not reflect the natural conditions required to maintain red tussock vegetation, the Consent Holder shall undertake immediate steps to ensure that the appropriate soil moisture conditions develop. Such steps may include reconstruction of drainage systems to provide for greater ponding of water, the installation of barriers to lateral groundwater movement, and the re-grading of slopes.

B9.8C The backfill of the pits shall be designed such that its performance under a Probable Maximum Flood or Maximum Credible Earthquake does not result in loss of containment of the PAF material.

Engineering specifications

B9.9 Before commencing construction activities, the Consent Holder shall commission a suitably qualified and experienced person to undertake a detailed site investigation and prepare a design for the overburden placement areas, and the toe embankment.

The investigation and design shall include:

a. Foundation permeability ~~between~~ beneath the proposed overburden placement areas with particular emphasis on local groundwater profiles, potential seepage and mitigation measures;

b. Overburden placement area proportions and dimensions including side and top slopes;

c. Deposition procedures to enhance drainage and the construction of seal layers with associated drainage;

d. The seepage interception and drainage system;

e. Recommendations for monitoring and construction of the overburden placement areas.

B9.9A The toe embankment shall be designed to NZSOLD low potential impact category standards (including provision for seismic loading) by an appropriately qualified engineer. The design engineer shall certify that the toe embankment has been designed to withstand a Maximum Credible Earthquake without failure of the components required for its function to maintain containment of PAF material within the backfill.

B9.9B The overburden placement landform shall be designed by an appropriately qualified engineer such that the drainage systems will ensure the passage of a 1% AEP flood flow.

B9.9C The overburden placement landform will be designed by an appropriately qualified engineer such that its performance under a Maximum Credible Earthquake does not result in the displacement of material into adjoining watercourses.

B9.10 On completion of the investigation and design required by condition B9.9, the Consent Holder shall provide to the Consent Authority and copy to the Peer Review Panel a report containing the results of the investigation and the proposed design for the overburden placement areas.

B9.11 An appropriately qualified engineer experienced in the construction of overburden and waste rock filled structures shall supervise the construction of the overburden placement areas.

B9.12 Evidence of the compliance with the designs and recommendations in the report required by condition B9.10 during construction, operations and decommissioning shall be submitted to the Consent Authority in the form of a certificate from a suitably experienced person.

Monitoring

B9.13 The Consent Holder shall undertake a sampling and monitoring programme on a monthly basis to verify overburden placement area geochemistry.

B9.14A The Consent Holder shall undertake a sampling and monitoring programme at a monitoring point to be established within 100 metres of New Zealand Map Grid 6248512 : 2415895 at six-monthly intervals to verify that groundwater down gradient of the Webb Pit is unaffected by the deposition of overburden within the Webb Pit.

B9.14B The Consent Holder shall sample the Twin Stream at NZMS 141515 six-monthly for the following parameters to verify that water quality is unaffected by the deposition of overburden within the Webb Pit:

- pH
- Conductivity
- Turbidity
- Suspended Solids
- Chloride
- Sulphate
- Nitrate-N
- Calcium
- Magnesium
- Hardness (total)
- Aluminium
- Arsenic
- Boron
- Cadmium
- Copper
- Iron
- Manganese
- Nickel
- Zinc
- Mercury

B9.15 The Consent Holder shall undertake a sampling and monitoring programme to verify the following at a frequency in accordance with the specifications included in the Geochemistry and Overburden Management Plan:

~~α.~~ • Moisture and air void characteristics of the low permeability areas of the overburden placement areas;
~~β.~~ • Oxygen concentration profiles.

B9.16 The collection, analysis and presentation of all samples collected in accordance with these conditions shall be undertaken using standard methods for the Examination of Water and Wastewater (18th Ed. 1992) APHA, AWWA and WEF, or equivalent or superseding methods.

Reporting

B9.17 In addition to the reporting requirements in accordance with condition A17 of these consents, the Consent Holder shall report on the results of the following:

a. The monitoring programme undertaken in accordance with condition B9.13 to B9.15; and
b. The slope of phreatic surface in the backfilled north and south pits.

B10. ENVIROPAK DISCHARGE TO GROUND

RC03175/18 Discharge Permit	**To discharge sewage and greywater from the Cypress office amenities area to land at the Cypress overburden placement area.**

RC03175/18 has a term of 35 years and is subject to the following conditions:

B10.1 The Consent Holder shall undertake the activities authorised by this consent in accordance with the General Conditions set out in Part A and B1 of these consents.

~~B10.2 The discharge of sewage and greywater shall be via a trickle discharge from a septic tank system.~~

B10.3 Prior to the exercise of this consent, the Consent Holder shall submit to the Consent Authority
An engineered design that takes into account the need to ensure appropriate percolation, loading and monitoring for the ~~effluent~~ sewage and greywater disposal system; and
The maintenance schedule for the ~~effluent treatment and~~ disposal system.

B10.4 Effluent discharged from the ~~aerated wastewater treatment~~ sewage and greywater disposal system shall not exceed 4000 litres/day, nor shall the ~~effluent~~ exceed the following discharge standards:
- 20 milligrams per litre (BOD_5);
- 30 milligrams per litre (Suspended Solids);
- 200 faecal coliforms per 100 millilitres.

B10.5 The Consent Holder shall provide the Consent Authority with a ~~C~~certificate of ~~C~~compliance to verify installation of the effluent disposal system has been installed in accordance with the engineered design submitted under condition B10.3.

B11. WATER ABSTRACTION FOR DUST SUPPRESSION

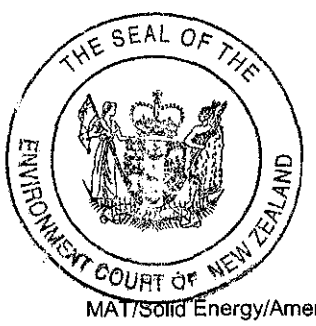
RC03175/6 Water Permit	**To take water from St Pat's Dam water impoundment for dust suppression purposes on the Cypress mine site.**

RC03175/6 has a term of 35 years and is subject to the following conditions:

B11.1 The Consent Holder shall undertake the activities authorised by this consent in accordance with the General Conditions set out in Part A and B1 of these consents.

B11.2 The Consent Holder may take up to 100 litres per second from St Pat's Dam for dust suppression purposes.

B11.3 The Consent Holder shall monitor and record the volume of water abstracted under this consent and the quality of water used to spray areas where it is possible for dust suppression spray to reach vegetation.



B12. DIVERSION OF WATER AND DISCHARGE OF CONTAMINANTS INTO WATER DURING CONSTRUCTION PHASES

RC03175/20 Water Permit	**To dam and divert water during construction phases.**
RC03175/21 Discharge Permit	**To discharge site stormwater to water during construction phases.**

B12.1 The Consent Holder shall undertake the activities authorised by these consents in accordance with the General Conditions set out in Part A and B1 of these consents. "Construction phase" is defined in condition A11.4.

B12.2 The activities authorised by these consents include temporary damming, diversion, stream crossing, culvert construction works in streams and erosion control required for the initial development of the site infrastructure or its ongoing development and which are:

a. Required to enable construction works to commence; or

b. Required to manage water and stormwater and control sediment generation during construction; or

c. Required during the construction of and prior to the completion of the site water management system; or

d. Required during the operation of the site water management system to extend, upgrade or modify the system and other infrastructure.

e. Included in the latest Annual Work Plan.

B12.3 The Consent Holder must notify the Consent Authority two weeks prior to any activities being undertaken in reliance on these consents if the activities meet the requirements of B12.2(a) or B12.2(b) but are not included in the latest Annual Work Plan.

B12.4 The Consent Holder shall undertake the activities authorised by these consents in accordance with the provisions of the current Construction and Earthworks Management Plan prepared in accordance with condition A11.

B12.5 All stormwater runoff from construction areas shall be directed through sediment control facilities prior to discharge to natural watercourses.

B12.6 Activities authorised by this consent shall be carried out in general accordance and as relevant with the principles outlined in section B1, B2, and B3 of the document prepared by the Auckland Regional Council, Technical Publication No. 90, March 1999 "Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region" (TP90). Specific modifications to the design criteria and procedures outlined in TP90 will be required to address the shorter exposure times expected for construction activities and the greater design rainfall intensities in the area of the construction works. Such modifications shall include but not be limited to;

a. Where a design rainfall is required to be calculated the 10% AEP rainfall shall be used. This is assumed to be a 24 mm/10 minute peak rainfall intensity for

structures designed to convey water or where peak flows, velocity or flow is involved (rather than retention) (eg TP90, B1.1).

b. The design of sediment ponds (TP 90 B2.1) shall be based on providing 320 m^3 of storage per hectare of contributing catchment for catchments with slope 6 degrees or less and length 200 m or less or 480 m^3 of storage per hectare of contributing catchment for catchments with slope more than 6 degrees and length more than 200 m.

c. Primary and emergency spillway design for temporary sediment ponds shall be carried out on a case by case basis and all design criteria and calculations are to be submitted with the Construction Management Plan. Generally the requirement in condition B12.5 (a) shall apply to the design of service or primary spillways while emergency spillway design shall be based on a 1% AEP for ponds greater than 1000 m^3 in total volume and 10% AEP for ponds less than 1000 m^3 total volume.

d. Rainfall design criteria may be modified by pro-rating downward based on the expected life of the structure in the construction schedule. A structure expected to be in service for 2 months before the catchment is incorporated into the permanent site water management system and the structure decommissioned may be designed based on a 50% AEP storm.

e. No temporary pond structure shall impound more than 4000 m^3 in total without specific design.

f. The Consent Holder may submit alternative designs or alternative design criteria documentation for sediment control works for approval by the Consent Authority provided it is accompanied by an analysis of the failure or overtopping risks and an appropriate alternative mitigation strategy.

B12.7 Specific works and design controls for the activities authorised by these consents shall be included in the Construction and Earthworks Management Plan prepared in accordance with condition A11.

B12.8 A description of the activities undertaken in reliance on these consents (which identifies the works undertaken, the control measures applied and the success of those control measures) shall be included in the Annual Work Plan in accordance with condition A16.

B12.9 The Consent Holder shall remove sediment/fines from the sediment control facilities as required, to ensure the effective operation of those facilities. Notwithstanding this, sediment/fines shall be removed when the sediment control facilities are 50% full. The Consent Holder shall keep a record of all maintenance carried out on the sediment control facilities, including when sediment/fines were removed and where they were disposed.

B12.9 The Consent Holder shall minimise the period of activities authorised by these consent as far as practicable.

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

Rehabilitation

B12.10 The Consent Holder shall rehabilitate and re-vegetate, where practicable, all disturbed areas of land associated with the exercise of these consents as soon as practicable after completion of the works.

Monitoring and Receiving Waters Compliance Limits

B12.11 For days when there have been two or more consecutive days of less than 5mm rainfall on each day, the Consent Holder shall take two samples not less than 4 hours apart at site 8W (when construction activities are occurring in the St Patrick Stream catchment) and/or site 6W (when construction activity is occurring in the Waimangaroa River catchment) and analyse those samples for total suspended solids (TSS). Sampling is not required to be carried out within two hours of any authorised activity being carried out directly in the bed of St Patrick Stream or its tributaries or tributaries of the Waimangaroa River.

B12.12 Should the TSS concentration of any sample exceed 20 g/m^3, then the Consent Holder shall immediately inspect the construction site, and where necessary undertake additional TSS sampling, to identify what the source of the TSS is and if it is the result of construction activity. If it is the result of construction activity, then the Consent Holder shall identify what if any mitigation measures are required to reduce the TSS levels, and implement those mitigation measures as soon as practicable.

B12.13 The TSS concentration of any single sample shall not exceed 50 g/m^3. If any sample does exceed 50g/m^3, then the Consent Holder shall immediately inform the Consent Authority and implement immediate steps to identify and mitigate the source of the TSS, and if necessary (where implemented mitigation measures are insufficient) cease operations until TSS concentrations return to less than 20g/m^3.

PART C

BULLER DISTRICT COUNCIL

RC03/164 Land Use Consent	To undertake coal mining and mining operations, including construction and use of access roads.

RC0/1643 has a term of 35 years and is subject to the following conditions:

C1. The general conditions of consent set out in Part A shall apply to this consent.

C2. Prior to undertaking any activities authorised by these consents, the Consent Holder shall provide to the Buller District Council the following plans prepared in accordance with conditions C30, C33, C37, C40 and C42:

~~(α)~~• Noise Management Plan
~~(β)~~• Kiwi Management Plan
~~(χ)~~• *Powelliphanta* 'patrickensis' Management Plan
~~(δ)~~• Predator Control Plan
~~(ε)~~• Waste Management Plan.

C3. Subject to any other conditions of this consent, all activities shall be undertaken in accordance with the latest version of the Plans referred to in condition C2.

C4. The Plans may be reviewed annually by the Consent Holder and may be amended accordingly to take into account:

~~(α)~~• Any recommendations made by the Peer Review Panel set up under condition A18.

~~(β)~~• Any required actions identified as a result of monitoring.

~~(χ)~~• Any changes required as a result of actions identified in the Annual Work Plan.

The Consent Holder shall consult with the Department of Conservation regarding any proposed changes to the Kiwi Management Plan, *Powelliphanta* "patrickensis" Management Plan and Predator Control Plan. The Consent Holder shall consult with Ngati Waewae and the West Coast Conservation Board regarding any proposed changes to the Kiwi Management Plan. The Consent Holder shall provide the Buller District Council with any changes made to any of the Plans.

C5. The Plans shall not be amended in any way that contravenes the objectives set out for the respective Plans.

C6. A copy of the latest version of the plans shall be kept on site at all times and all key personnel shall be made aware of each Plan's contents.

C7. Unsealed access and haul roads shall be maintained to avoid nuisance dust emissions.

C8. As far as practicable, lighting shall be focused and shaded to minimise glare and light spill so as not to create a nuisance to residents, traffic, or to act as a distraction to wildlife.

C9. The colours to be used for all buildings and structures shall be recessive and shall be approved by the Manager Regulatory Services, Buller District Council, prior to construction.

C10. The maximum speed limit on the haul road shall be 60 km/hr.

C11. The use of the Millerton road for the transport of coal from Cypress Mine shall be restricted to emergencies or when the aerial ropeway is not operational.

C12. The Consent Holder shall provide a pedestrian access across the Stockton – Cypress Haul Road, with appropriate signposting.

Rehabilitation

C13. Immediately following the commencement of activities under this consent, the Consent Holder shall initiate and maintain a programme of progressive rehabilitation and revegetation of the site and in accordance with the Rehabilitation Management Plan prepared in accordance with condition A14.

C14. Tussock that has been removed from the mine areas in accordance with the Rehabilitation Management Plan shall not be buried or destroyed, but shall be stockpiled for re-use either within the mining permit area or at Stockton Mine, as far as possible.

Hours of Operation

C15. Mining and ancillary activities may operate 24 hours a day, seven days a week.

Blasting

C16. A programme of blasting times shall be notified publicly by way of notice erected at the road entrance to the mine area and by circular or public advertisement to local residents, DOC, West Coast Regional Council and the Buller District Council prior to any such blasting taking place and at regular intervals not exceeding twelve months thereafter. Changes to the blasting programme shall be notified at least three days prior to implementation.

C17. Blasting shall be restricted to the hours between half an hour after sunrise to half an hour before sunset.

C18. Details of all blasts shall be entered into a record book kept for that purpose and shall be available to the Buller District Council on request.

C19. The peak overall sound pressure level due to air blast shall not exceed 128dB linear unweighted measured at any private residence not owned by the Consent Holder.

C20. Ground vibration levels measured at any residence not owned by the Consent Holder shall not exceed 10mm per second peak particle velocity measured in the frequency range of 3 hertz to 20 hertz, thereafter NZS 4403 Code of Practice for the Storage, Handling and Use of Explosives or any other Codes of Practice which may from time to time be current shall apply.

C21. The Consent Holder shall monitor blasting activities. Monitoring sites shall be located at the boundary between the Stockton CML and the Cypress MP area.

C22. The Consent Holder shall monitor blasting at three monthly intervals for at least 12 months following the commissioning of the open pits. In the event of the above monitoring indicating compliance with the conditions, the frequency of monitoring will

change from three monthly to six monthly periods.

Heritage

C23. During the course of mining the Consent Holder shall make best endeavours to identify and recover any remnants of historic mining prior to areas being disturbed. A person approved by the Historic Places Trust will be employed by the Consent Holder to undertake documentation of artefacts if and when recovered in the course of exercising this consent. The Consent Holder shall provide records of the recovery, identification and distribution of these objects to the West Coast Filekeeper of the New Zealand Archaeological Association.

C24. The Consent Holder shall prepare, in consultation with Ngati Waewae, and provide to the Consent Authority a Cultural Heritage Management Plan. The purpose of the Cultural Heritage Management Plan is to ensure that any cultural materials found at Stockton Mine are evaluated and if necessary, protected. The plan may be amended during the term of this consent, in consultation with the Consent Authority and provided the key outcomes are achieved.

C25. The Cultural Heritage Management Plan shall discuss cultural connections to the Cypress Mine site and surrounding area and will identify any sites of particular cultural significance. The plan will describe the protocols should mining uncover any artefact or material that may be of early origin. Prior to exercising any right granted by the consents the Consent Holder will, in consultation with Ngati Waewae and Ngai Tahu, develop a Cultural Liaison Plan which will, among other matters, include provision for regular meetings separate to those required by condition A19.1. This plan will also facilitate the involvement of Ngati Waewae in the appropriate cultural recognition of the diversion of waters from their natural catchments at the commencement of mining the North Pit and their return to their natural catchments when the flows are reinstated as per A14.4(v).

Noise

C26. Subject to the express provisions of this condition the noise level shall be measured and assessed in accordance with the requirements of New Zealand Standards NZS 6801:1991 Measurement of Sound and NZS 6802:1991 Assessment of Environmental Sound. In particular, the provisions of NZS 6802:1991, 5dB corrections for noise with special audible characteristics will apply to noise measurements and assessments.

C27. The L_{10} level as measured at or within any residentially zoned boundary of a property not owned by the Consent Holder, or the notional boundary of any existing dwelling not owned by the Consent Holder, shall not exceed the following limits, except by mutual agreement:

- Monday-Saturday 7.00am to 9.00pm 50 dBA L_{10}
- All other times 45 dBA L_{10}

  $L_{(max)}$ 70 dBA

The notional boundary of any dwelling shall, for the purpose of this condition, be a point 20m from the most exposed façade of the dwelling.

C28. All equipment and machinery shall be regularly maintained to ensure noise levels are as low as reasonably attainable but at no time shall they exceed the levels permitted

by the consent.

C29. During the constructional phase of the mining operation, the noise levels shall comply with the recommended upper limits for levels of construction work noise received in residential areas listed in NZS 6803P:1984 The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work at or within any residentially zoned boundary of a property not owned by the Consent Holder, or the notional boundary of any existing dwelling not owned by the Consent Holder.

C30. A Noise Management Plan shall be prepared which sets out the practices and procedures to be adopted to ensure compliance with the conditions of this consent for the purpose of ensuring that the impacts of the proposed mining activities on noise in the local area are minimised.

C31. The plan shall, as a minimum:

a. identify mining activities that potentially generate noise within the context of background noise on the Stockton Plateau;

b. describe any noise monitoring and reporting requirements set out in the resource consent conditions;

c. discuss noise management measures;

d. describe noise control measures that will be used at Cypress Mine to minimise noise at and from the mine site;

e. outline details of relevant vehicle or plant specifications and vehicle maintenance requirements to avoid excessive noise production and details of speed restrictions placed on parts of the site to minimise noise.

Kiwi Management Plan

C32. The Consent Holder shall undertake a programme of great spotted kiwi management which shall have two objectives:

(a) To minimise the effects from mining activities on great spotted kiwi living within or immediately alongside Cypress Mine; and

(b) To enhance the survival rates of great spotted kiwi within the treatment area shown on **Attachment 3** while mining operations are in progress, and for a period of 20 years following cessation of coal extraction from the site.

C33. A Kiwi Management Plan shall be prepared in consultation with the Department of Conservation and Te Runanga o Ngati Waewae, which sets out the practices and procedures to be adopted to ensure compliance with the conditions of this consent.

C34. The plan shall, as a minimum, address the following:

a. The options for the management of kiwi present within the mine site, including but not limited to: (i) the monitoring/tracking of kiwi within the site and surrounds (ii) management of birds within the vicinity of the site should the decision be taken to leave them there (iii) the capture and/or removal of those birds within the proposed mine area and surrounds should the decision be made to remove them from the site; and (iv) the management and destination

of captured birds should the decision be made to remove the birds from the site and surrounds.

b. The mechanism for determining which of the options addressed under a. above is expected to hold the best outcome for kiwi.

c. Kiwi habitat enhancement measures to be carried out within the pit during rehabilitation (for example, construction measures to integrate the highwall benches with the adjacent forest).

d. Contingencies to review the size of the predator control area or implement protective rearing in the event that management targets are not achieved.

e. The monitoring that will be undertaken to assess progress towards the objectives of the management plan .

Powelliphanta "patrickensis" Management Plan

C35. The Consent Holder shall undertake a programme of *Powelliphanta* "patrickensis" management, the objective of which is to:

a. increase the population of *Powelliphanta* "patrickensis" in the vicinity of Cypress Mine while mining operations are in progress, and for a period of 20 years following cessation of coal extraction from the site.

b. provide suitable habitat in the rehabilitated mine site by the completion of the programme which supports an estimated population density level of at least 1,000 mature *Powelliphanta* "patrickensis" individuals, over at least a similar proportion of the rehabilitated pit areas as that in which *Powelliphanta* "patrickensis" were present in November 2004 (as identified in the report entitled "A Survey for the Endemic Land Snail Powelliphanta "Patrickensis" within the Proposed Cypress Mine Area and a Proposed Predator Exclusion Fenced Area", dated November 2004").

C36. Prior to undertaking any activities authorised by these consents, the Consent Holder shall undertake a study which has the objective of removing as many *Powelliphanta* as practicable from the proposed mining development area prior to mining and relocating them to the predator-free enclosure required by condition C39b, and/or if practicable and desirable (having regard to the genetic integrity of the *Powelliphanta* population in the receiving area) into the extended predator control areas, as referred to in condition C39c.

C37. A *Powelliphanta* "patrickensis" Management Plan shall be prepared in consultation with the Department of Conservation which sets out the practices and procedures to be adopted to ensure compliance with the conditions of this consent.

C38. The plan shall, as a minimum, address the following:

a. Methods to be adopted in an annual *Powelliphanta* "patrickensis" "search and collect" programme which shall be prepared with reference to the study required by condition C36, including details of habitat data collection, and the methods by which Powelliphanta are to be translocated to the predator exclusion area. The capture and relocation of *Powelliphanta* shall be undertaken in a staged manner in consultation with the Department of Conservation and Ngati Waewae. An annual average of two weeks "search

and collect" time per year by a team of five people (10 days each) shall be undertaken, in a manner which enables the concurrent collection of habitat data for *Powelliphanta*.

b. The timing and means by which *Powelliphanta* will be translocated back into the rehabilitated mine area.

c. The monitoring that will be undertaken to assess progress towards the objectives of the management plan .

Predator Control Plan

C39. The Consent Holder shall undertake a programme of predator control during mining operations and for a period of 20 years following cessation of coal extraction from the site which shall consist of:

~~(a)~~ Measures to enhance the survival rates of great spotted kiwi and other forest birds in the treatment area shown on **Attachment ~~2~~3** (the 1,000ha treatment area);

~~(b)~~ Measures to protect *Powelliphanta* "patrickensis" within a predator-free enclosure erected within the area shown on **Attachment 4** (the enclosure);

~~(c)~~ Measures to increase survival rates and population size of *Powelliphanta* "patrickensis" within that area shown on **Attachment 4** (the snail enhancement area);

~~(d)~~ Measures to protect vegetation on the rehabilitated mine surfaces from browsing mammals.

C40. A Predator Control Plan shall be prepared in consultation with the Department of Conservation which sets out the practices and procedures to be adopted to ensure compliance with the conditions of this consent and to ensure that all aspects of great spotted kiwi and *Powelliphanta* "patrickensis" management and habitat enhancement are carried out in an integrated manner and at the necessary stage of mining, to maximise the benefits of the programme for both species. The plan shall ensure that flexibility is retained in relation to the use of predator control methods such as poisons and other enhancement components to ensure that best practice methods are adopted to achieve the required outcomes.

C41. The plan shall, as a minimum, provide for the following:

a. The control of predators on kiwi, principally stoat and possum, within the treatment area shown on **Attachment 3**. Flexibility shall be retained in relation to the methods adopted to achieve the required outcome, such as but not limited to, the final location and boundaries of the treatment area.

b. The control of predators within the mine site, including the rehabilitated areas and the 400 metre buffer surrounding the mine site.

c. The means by which the predator free enclosure required by condition C39b shall be constructed, including details of fence design, location, construction and maintenance.

d. The means by which any predators within the predator-free enclosure will be

eradicated.

~~g.~~e. The means by which the Consent Holder shall control rats (and, if necessary, thrush), and shall endeavour to reduce possums in the treatment area shown on Attachment 4 to barely detectable levels.

~~h.~~f. An intervention density of greater than or equal to 3% mean Residual Trap Catch index for possums with not more than any two lines being greater than 10% RTC before Aerial 1080 application shall occur across the treatment areas shown on Attachment 4. The RTC method is that set out in Possum Population Monitoring using the Trap–Catch Method National Possum Control Agencies April 2004, or any subsequent updated version of this document.

~~i.~~g. Specifications for monitoring to ensure the Consent Holder is able to demonstrate compliance with the requirements of conditions of C39-C41 and the Predator Management Plan

Waste Management Plan

C42. A Waste Management Plan shall be prepared, the purpose of which is to minimise the waste and litter generated from the mining operation, to maximise recycling and reuse opportunities, to avoid or minimise any pollution risk associated with the waste generated at the site, to eliminate on site disposal of litter and to isolate organic waste from rodents.

C43. The Waste Management Plan shall, as a minimum:

a. identify the waste generated at the project site, workshop and administration offices and identify the waste that can be reused, recycled, disposed of on site and disposed of off site;

b. describe the methods to minimise waste generation and to reuse or recycle materials where feasible;

c. describe the transport and disposal of waste off site.

Mt William Range Escarpment Protection

C44. The Consent Holder shall carry out mining operations in a manner which ensures that the ridge line of Mt William is not adversely affected.

Financial Contributions

C45. A financial contribution of cash shall be paid to Buller District Council for the provision of reserves and facilities, as provided for in Part 8 of the Buller District Plan. The calculation for assessing the financial contribution shall be 0.5% of the total value of the development. The Consent Holder shall advise Council of the value of the proposed development, and shall pay the cash amount of the contribution to the Buller District Council prior to the commencement of any works covered by this consent. The calculation of the development contribution shall be based on the estimated costs of the following components of the activity:

- Construction of buildings (i.e. total cost of all buildings)

- Costs of drainage works and formation of all haul roads (excluding roads within the pits)
- Costs associated with removal of vegetation (excluding costs of direct transfer of plants and trees, and costs of planting vegetation and other rehabilitation).

Mine Closure

C46. Immediately following the cessation of activities under this consent, the Consent Holder shall initiate and maintain a programme of mine closure in accordance with the Mine Closure Plan prepared in accordance with condition A12. This shall include consideration of the future use of the haul roads for public access through the site.

Limit on extraction of coal

C47. Notwithstanding any other condition in this consent, the extraction of coal from the site shall cease by the fifteenth anniversary of the commencement of this consent.

Highwall design

C48. The permanent highwalls shall be designed by an appropriately qualified engineer to withstand a 1 in 150 year seismic event with a dynamic factor of safety at not less than 1.1.

Recommended Area for Protection and Use of Land Within MP 41-515

C49A. The Consent Holder shall, pursuant to s40 of the Crown Minerals Act 1991, surrender that part of MP 41-515 which relates to the areas marked "A" and "C" on the plan in Attachment 8 in accordance with the Deed between Solid Energy New Zealand Limited and the Director-General of Conservation dated 28 February 2005.

C49B. Until areas "A" and "C" on the plan in Attachment 8 are surrendered, the Consent Holder shall not use those areas in a manner which is inconsistent with the protection of the landforms and ecosystems which exist within it or so as to have an adverse effect on those landform and ecosystem values.

C49C. The Consent Holder shall use not use that part of the Stockton Coal Mining Licence marked "B" on the plan in Attachment 8 in a manner which is inconsistent with the protection of the landforms and ecosystems which exist within it or so as to have an adverse effect on those landform and ecosystem values.

C49D. Subject to any resource consents granted in future, the Consent Holder shall ensure that mining or mining operations within Mining Permit 41-515 do not compromise the protection of indigenous flora and fauna within Mining Permit 41-515, or have an effect which is inconsistent with the protection of the landforms and ecosystems values present on that land, or have an adverse effect on those values.

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

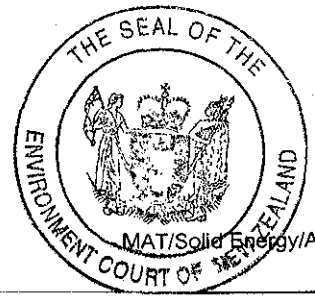
NOTES:

1. The Consent Holder shall be aware that they will require building consents for the following structures from the Buller District Council:

    - Bridges
    - Installation of septic tank or other effluent systems
    - Any dams over 3 metres high and retaining more than 20,000 cubic metres of water or tailings
    - Any road construction requiring retaining walls, gabion baskets, etc, more than 1.5 metres high and supporting the road
    - Infrastructure and ancillary buildings
    - Administration building, including training and first aid
    - Amenities and ablution facilities
    - Workshops and stores
    - Plant control room
    - Fuel storage area including bunded walls
    - Fencing over 2 metres in height

2. In carrying out re-location of *Powelliphanta*, great spotted kiwi, or any other absolutely protected wildlife, the Consent Holder shall be aware that they will require Department of Conservation approvals under the Wildlife Act.

ATTACHMENTS FOR CONSENT CONDITIONS



ATTACHMENT 1

Species List -Condition A 7.11(a)

Species List – Native Revegetation

Dicot Trees and Shrubs	Common Names
Archeria traversii	
Aristotelia fruticosa	
Brachyglottis rotundifolia	
Carpodetus serratus	Putaputaweta
Cassinia leptophylla (var *vauvilliersii*)	
Coprosma acerosa	
Coprosma cheesemanii	
Coprosma colensoi	
Coprosma crenulata	
Coprosma foetidissima	Stinkwood
Coprosma grandifolia	Raurekau
Coprosma elatirioides	
Coprosma propinqua	
Coprosma pseudocuneata	
Coprosma sp. aff. *Colensoi*	
Coprosma "taylorae" (*Coprosma parviflora*)	
Cyathodes empetrifolia	Mountain mingimingi
Cyathodes juniperina	Prickly mingimingi
Dacrydium cupressinum	Rimu
Dracophyllum longifolium	Inaka
Dracophyllum oliveri	
Dracophyllum palustre	
Dracophyllum politum	
Dracophyllum pronum	
Dracophyllum traversii	Mountain neinei
Dracophyllum uniflorum	
Elaeocarpus hookerianus	Pokaka
Epacris alpina	
Epacris pauciflora	
Gaultheria antipoda	Snowberry
Gaultheria depressa	
Gaultheria macrostigma	
Griselinia littoralis	
Griselinia lucida	Broadleaf
Halocarpus bidwilli	Bog pine
Halocarpus biformis	Pink pine
Hebe canterburiensis	
Hebe gracillima	
Hebe odora	
Lagarostrobos colensoi	Silver pine
Lepidothamnus intermedius	Yellow-silver pine
Lepidothamnus laxifolius	Pygmy pine
Leptospermum scoparium	Manuka
Leucopogon fasciculatus	Mingimingi
Libocedrus bidwillii	Cedar
Metrosideros diffusa	
Metrosideros umbellata	Southern rata
Myrsine divaricata	Weeping matipo
Myrsine nummularia	
Myrsine salicina	Toro
Neomyrtus pedunculata	Rohutu

Nothofagus fusca	Red beech
Nothofagus menziesii	Silver beech
Nothofagus solandri var. *cliffortioides*	Mountain beech
Nothofagus truncata	Hard beech
Olearia arborescens	
Olearia avicennifolia	
Olearia colensoi	Leatherwood
Olearia virgata var. *implicita*[1]	
Pentachondra pumila	
Peraxilla tetrapetala[1]	
Phyllocladus alpinus	Mountain toatoa
Pimelea gnidia	
Pittosporum anomalum	
Pittosporum rigidum	
Podocarpus hallii	Hall's totara
Pseudopanax anomalus	
Pseudopanax crassifolius	Lancewood
Pseudopanax linearis	
Pseudopanax simplex	Haumakaroa
Pseudowintera colorata	Horopito
Pseudowintera traversii	
Quintinia acutifolia	Quintinia
Weinmannia racemosa	Kamahi

Dicots Herbs	**Common Names**
Anisotome aromatica	
Brachyglottis bellidioides 'crassus' sensu Allan 1961	
Celmisia alpina	
Celmisia dubia	
Celmisia gracilenta	
Celmisia graminifolia agg.	
Celmisia parva	
Celmisia sessiliflora	
Centella uniflora	Centella
Colobanthus apetalus	
Craspedia sp. aff. *Minor*	
Crassula sp.[1]	
Donatia novae-zelandiae	
Drosera arcturi	
Drosera spathulata	
Drosera stenopetala	
Euphrasia wettsteiniana	
Forstera sedifolia	
Forstera tenella	
Gentiana bellidifolia	
Gentiana spenceri	
Gentiana townsonii	
Gnaphalium limosum	
Gonocarpus aggregatus	
Gonocarpus micranthus	
Gunnera monoica	
Hydrocotyle heteromeria	
Hydrocotyle novae-zealandiae	
Hypericum japonicum	

Kelleria dieffenbachii	
Leptinella squalida var. *mediana*	
Leptostigma setulosa	
Liparophyllum gunnii	
Microseris scapigera	
Mitrasacme montana var. *helmsii*[1]	
Myosotis pygmaea	
Neopaxia sessiliflora	
Nertera balfouriana	
Nertera ciliata	
Nertera depressa	
Nertera scapanioides	
Nertera villosa	
Oreomyrrhis ramosa	
Oreostylidium subulatum	
Ourisia macrocarpa	
Ornithopus perpusillus	
Phyllachne colensoi	
Plantago lanigera	
Plantago triandra	
Pratia angulata	Panakenake
Ranunculus sp. cf. *Foliosus*	
Ranunculus gracilipes[1]	
Raoulia glabra	
Raoulia grandiflora	
Selliera radicans	
Utricularia dichotoma	
Viola cunninghamii	
Viola filicaulis	
Sedges and Rushes	**Common Names**
Baumea tenax	
Baumea teretifolia	Pakihi rush
Carex carsei	
Carex dissita	
Carex flagellifera	
Carex sp.	
Carpha alpina	
Centrolepis ciliata	
Empodisma minus	Wire rush
Gaimardia setacea	
Isolepis reticularis	
Juncus acuminatus	
Juncus articulatus	
Juncus gregiflorus	
Juncus pauciflorus	
Juncus planifolius	
Lepidosperma australe	Square sedge
Luzula banksiana var *migrata*	
Luzula picta	
Luzuriaga parviflora	
Oreobolus impar	
Oreobolus pectinatus	Comb sedge
Oreobolus strictus	
Schoenus maschalinus	

Schoenus pauciflorus
Uncinia filiformis
Uncinia gracilenta
Uncinia uncinata

Grasses	**Common Names**
Chionochloa australis	Carpet grass
Chionochloa juncea	
Chionochloa rubra ssp. *Occulta*	Red tussock
Lachnagrostis sp.	
Microlaena avenacea	
Microlaena thomsonii	
Rytidosperma nigricans	

Orchids	**Common Names**
Corybas macranthus[1]	
Dendrobium cunninghamii	
Earina autumnalis	
Lyperanthus antarcticus	
Prasophyllum colensoi	
Thelymitra cyanea	
Thelymitra pauciflora	
Thelymitra sp.	

Other Monocots	**Common Names**
Astelia fragrans	
Astelia linearis	
Astelia nervosa	
Cordyline indivisa	
Gahnia pauciflora	
Gahnia procera	
Gahnia xanthocarpa	
Libertia pulchella	
Phormium cookianum	Mountain flax
Phormium tenax	

Ferns and Fern Allies	**Common Names**
Asplenium flaccidum	Haning spleenwort
Blechnum chambersii	Nini
Blechnum discolor	Crown fern
Blechnum fluviatile	Kiwakiwa
Blechnum minus	Swamp kiokio
Blechnum penna-marina	
Blechnum procerum	Small kiokio
Blechnum novae-zelandiae	Kiokio
Ctenopteris heterophylla	
Cyathea cunninghamii	
Dicksonia squarrosa	Wheki
Gleichenia dicarpa	Tangle fern
Grammitis magellanica ssp. *Nothofageti*	
Grammitis poepiggiana	
Grammitis billardierei	
Histiopteris incisa	Water fern
Hymenophyllum armstrongii	
Hymenophyllum bivalve	

Hymenophyllum demissium	
Hymenophyllum flabellatum	
Hymenophyllum multifidum	
Hymenophyllum revolutum	
Leptopteris superba	Prince of Wales feathers
Lycopodium australianum	
Lycopodium fastigiatum	
Lycopodium scariosum	
Paesia scaberula	
Schizaea fistulosa	Comb fern
Schizaea sp.	
Sticherus cunninghamii	
Sticherus flabellatus	
Trichomanes reniforme	Kidney fern

ATTACHMENT 2

Figure 3.16 of the AEE

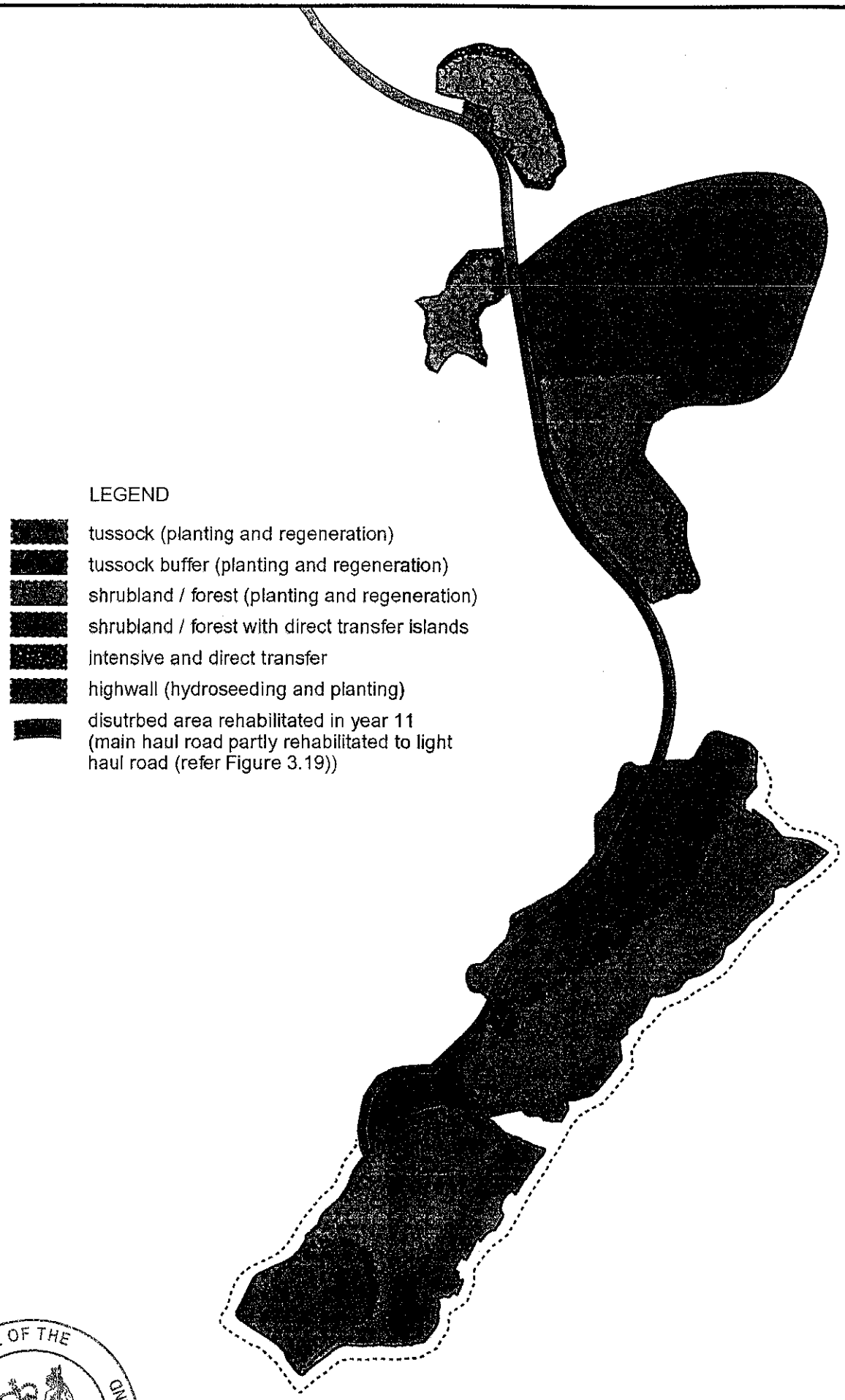
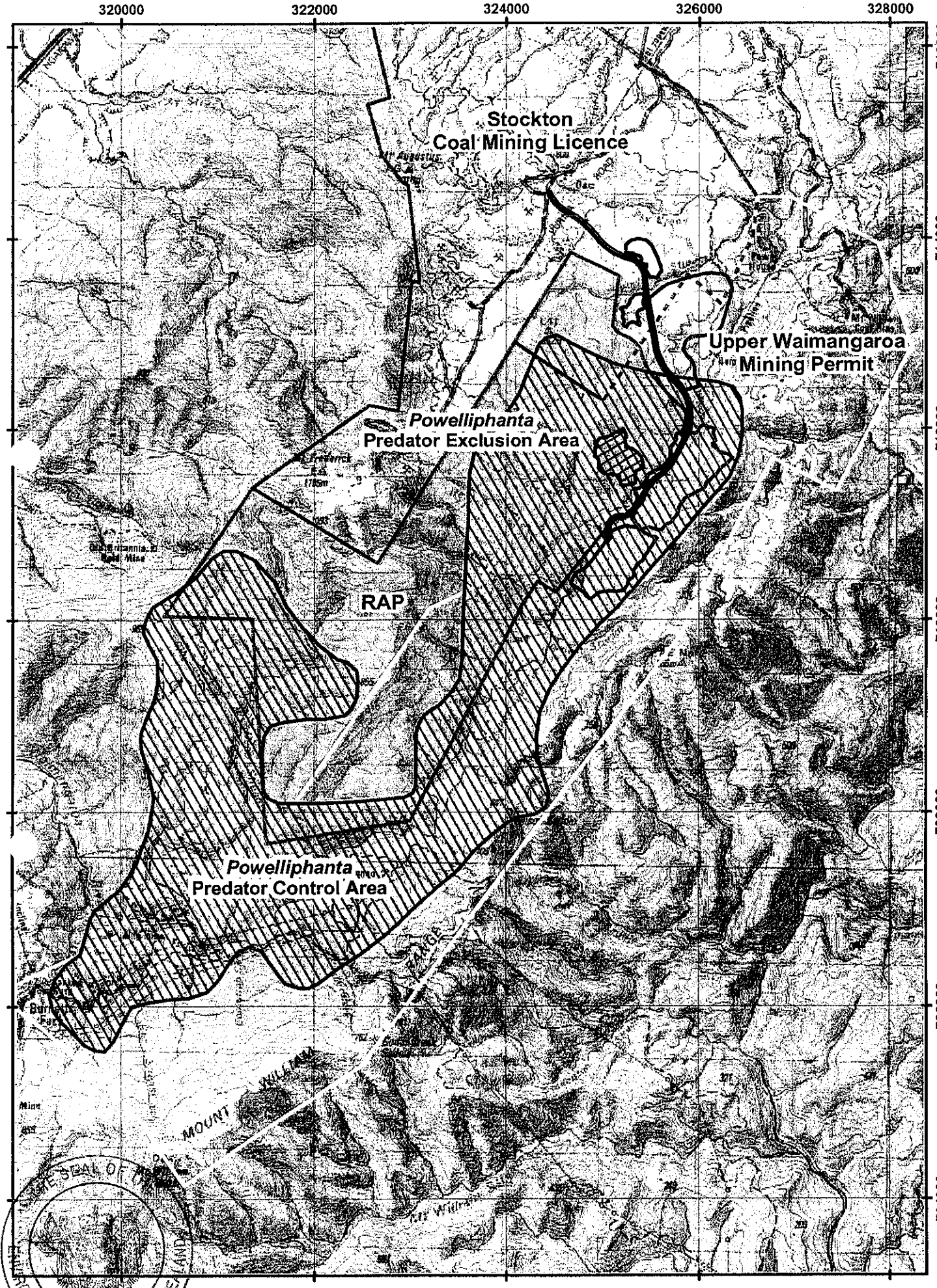


Figure 3.16: Indicative Rehabilitation Concept Showing Vegetation Type and Method of Establishment

SOLID ENERGY
Coals of New Zealand

ATTACHMENT 3

Plan – Kiwi Treatment Area



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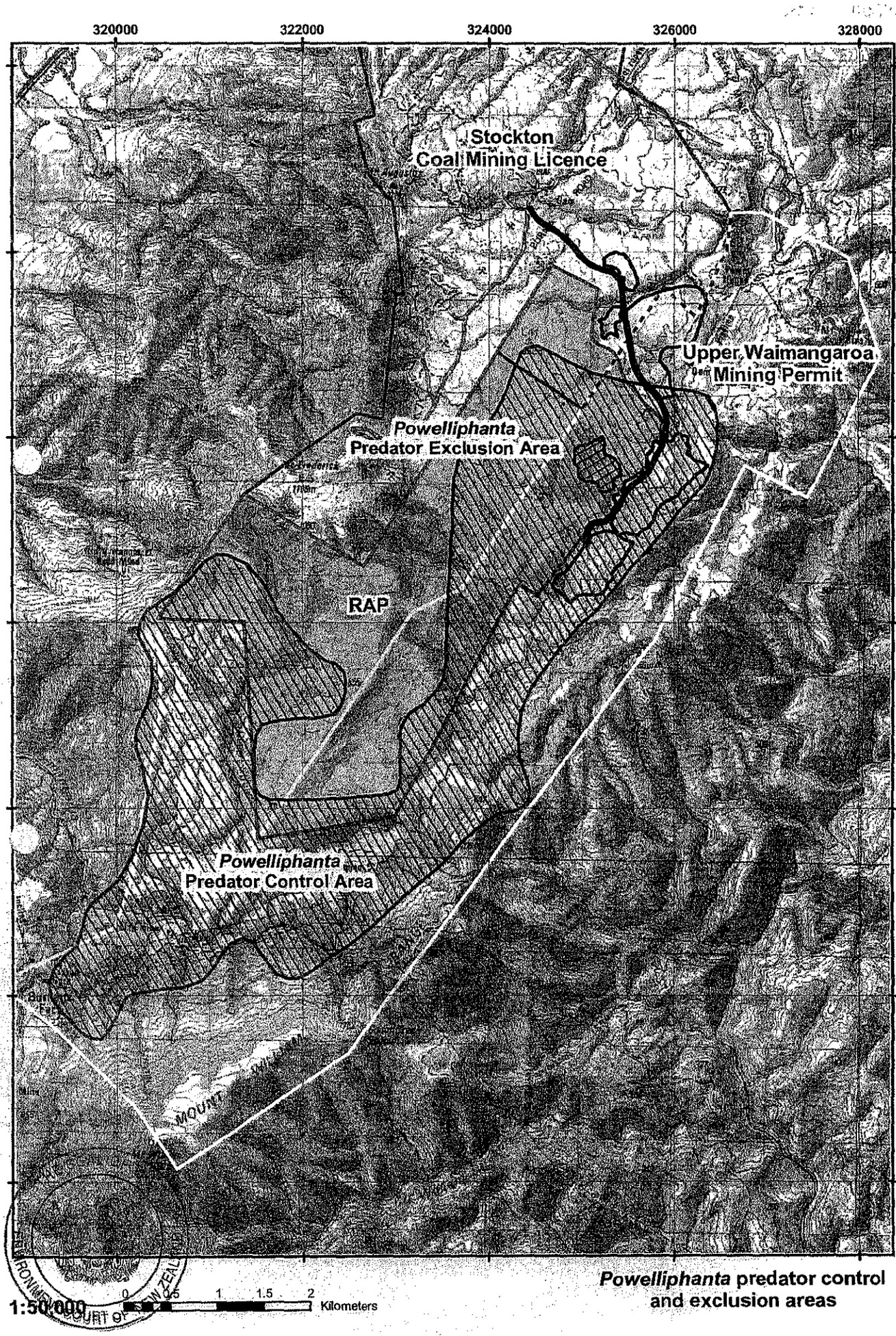
Powelliphanta **predator control and exclusion areas**

ATTACHMENT 4

Plan – *Powelliphanta* enclosure and treatment area



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Powelliphanta **predator control and exclusion areas**

ATTACHMENT 5

[Section 3 of the report "Cypress Mine – Financial Assurances" prepared by Lane and Associates Limited dated 5 November 2004]

3 PERFORMANCE BOND

3.1 QUANTUM CALCULATION

3.1.1 Overview

The method of calculating the performance bond quantum is relatively straightforward. It involves estimating the quantities of earthworks, civil works, planting etc., required should sudden closure occur during the forthcoming year, and assigning the prevailing unit rates (costs) to those activities. The method uses the typical schedules of quantities that are developed for and applied to practically all engineering endeavours.

The quantities are estimated based on the maximum scope of works during the forthcoming year, which is almost always the maximum area of non-rehabilitated land that will occur during that period.

The unit rates should accurately reflect the size of the project. This means that the rates fall somewhere between the rates the mining company uses for its mining activities and those associated with small civil contracts that the Councils are more familiar with.

Whether a mine owner contracts out its mining or operates its own fleet, the unit rates that apply to the work reflect the scale and term of the operation. Typical mining contracts run for around five years, and the work therefore attracts keen rates. The rehabilitation period for a significant mine typically involves one to two years of intensive work, followed by smaller scale, more specialised work primarily focussed on revegetation and environmental monitoring.

In addition, should the mine owner default on its rehabilitation obligations, the contractor, or the owner's mining fleet and operators, would in all likelihood still be available to undertake the work.

For these reasons, the bulk of the work undertaken during that initial period would be completed at unit rates close to, but not as low as, the mining rates.

3.1.2 Accounting for Uncertainty

All estimates, by definition, contain uncertainty. When preparing cost estimates there is inevitably uncertainty around the:

i) assessed material quantities;

ii) unit rates;

iii) completeness, i.e. whether some items have been overlooked; and,

iv) occurrence of unexpected and usually unwanted events (risk events).

To achieve its objective, a bond quantum needs to be sufficient to account for these uncertainties while remaining within reasonable and justifiable bounds. To overcome uncertainty, the aim is to ensure the quantum is appropriately conservative, but not excessively so. A probabilistic approach was adopted in this exercise to provide a robust, transparent, and justifiable quantum with an appropriate level of conservatism.

The method involves developing a distribution (probability distribution function) for the quantity and unit rate input values to the schedule of quantities. There are a number of simple and acceptable approaches for doing this, e.g. one commonly-used approach is to define three values; a lower, best, and upper estimate, that define a triangular distribution. The spread between the values reflects the uncertainty in the estimate.

Experience shows that estimators can readily quantify uncertainty for the individual items in the schedule of quantities using this technique.

The calculation process of the schedule of quantities remains essentially unchanged from the conventional approach, i.e. for each item of the schedule, the quantity and rate are multiplied to produce a cost and the costs are summed to produce a total estimate. However, for the input distributions the Monte Carlo sampling process is used for making these calculations. The Monte Carlo simulation is a statistical technique that uses random numbers to account for uncertainty in a mathematical model. The simulation is run 2000 times, during each of which a bond quantum is calculated and recorded. The probabilistic calculations were performed using the Crystal Ball® simulator, which is a commercial add-on software package to Microsoft Excel®.

Rather than producing a single-point estimate, the probabilistic method produces an output distribution curve. The additional information provided by the output curve improves understanding of the estimates (compared with that of a single-point estimate). The shape of the curve indicates the inherent uncertainty in the estimate, and the planning-level budget estimate can be expressed at any level of confidence depending on the risk sensitivity of the project owner and the shape of the output curve. For this report, three levels of confidence (50%, 80% and 95%) are used.

The 50% level of confidence ($CL_{50\%}$) represents the expected cost of the rehabilitation works without any contingency or conservatism. By definition the $CL_{50\%}$ estimate has only one chance in two of being greater than the actual cost of the rehabilitation works. The $CL_{50\%}$ estimate is considered too low to be adopted for planning purposes.

The 80% level of confidence ($CL_{80\%}$) has been selected as providing an appropriate, but not overly conservative, basis for estimating the bond quantum. The difference between the $CL_{50\%}$ and the $CL_{80\%}$ may be thought of as a contingency. The $CL_{80\%}$ is a level typically used and accepted in both New Zealand and overseas as a reasonable planning or budget level estimate. In practical terms, it means that there are four chances in five that the cost of rehabilitation will be less than the assessed quantum.

The 95% level of confidence ($CL_{95\%}$) represents a very conservative value for the cost of rehabilitation. It has a 19 in 20 chance of being less than the estimated quantum, which is considered overly conservative for planning purposes.

The difference between the $CL_{50\%}$ and the $CL_{95\%}$ provides a measure of the uncertainty inherent in the estimate.

3.1.3 Discounting and Inflation

While rehabilitation costs are spread over several years, the time-value effects of money, discounting and inflation, are not applied to the performance bond quantum estimate.

In simple terms, discounting allows for the effects of compounding interest. It means that a cost of, say, $10,000 for environmental monitoring in five years time can be provided for now by banking $6,800 today (at a 10% p.a. rate of return). During the five years before this money is called upon, interest will have increased the account to the $10,000 sum required.

Discounting is not appropriate because, if the Councils were to call upon the bond, it is considered unlikely that the full quantum of that bond would be deposited in a bank account to be drawn on by the Councils as the work proceeds. It is far more likely that the bondsman would provide the monies in a number of instalments or progress payments during the period required to complete the work. The maximum payout by the bondsman would be the face value of the bond without any allowance for compounding interest.

Inflation refers to the reducing purchasing power of money, which causes the face value of a product or service to increase over time, i.e. at a 10% p.a. rate of inflation, a service costing $6,800 today will cost $10,000 in five year's time.

In the current situation where inflation is relatively low and heavily regulated, and with the large proportion of rehabilitation costs falling in the first year of premature closure, inflation has little to no effect on the total cost of closing the site. Whatever cost increase is attributable to inflation over the closure period is assumed to be adequately covered by the uncertainties in the input estimates and the adoption of the $CL_{80\%}$ as the planning level estimate of the quantum.

3.2 QUANTITY ESTIMATES

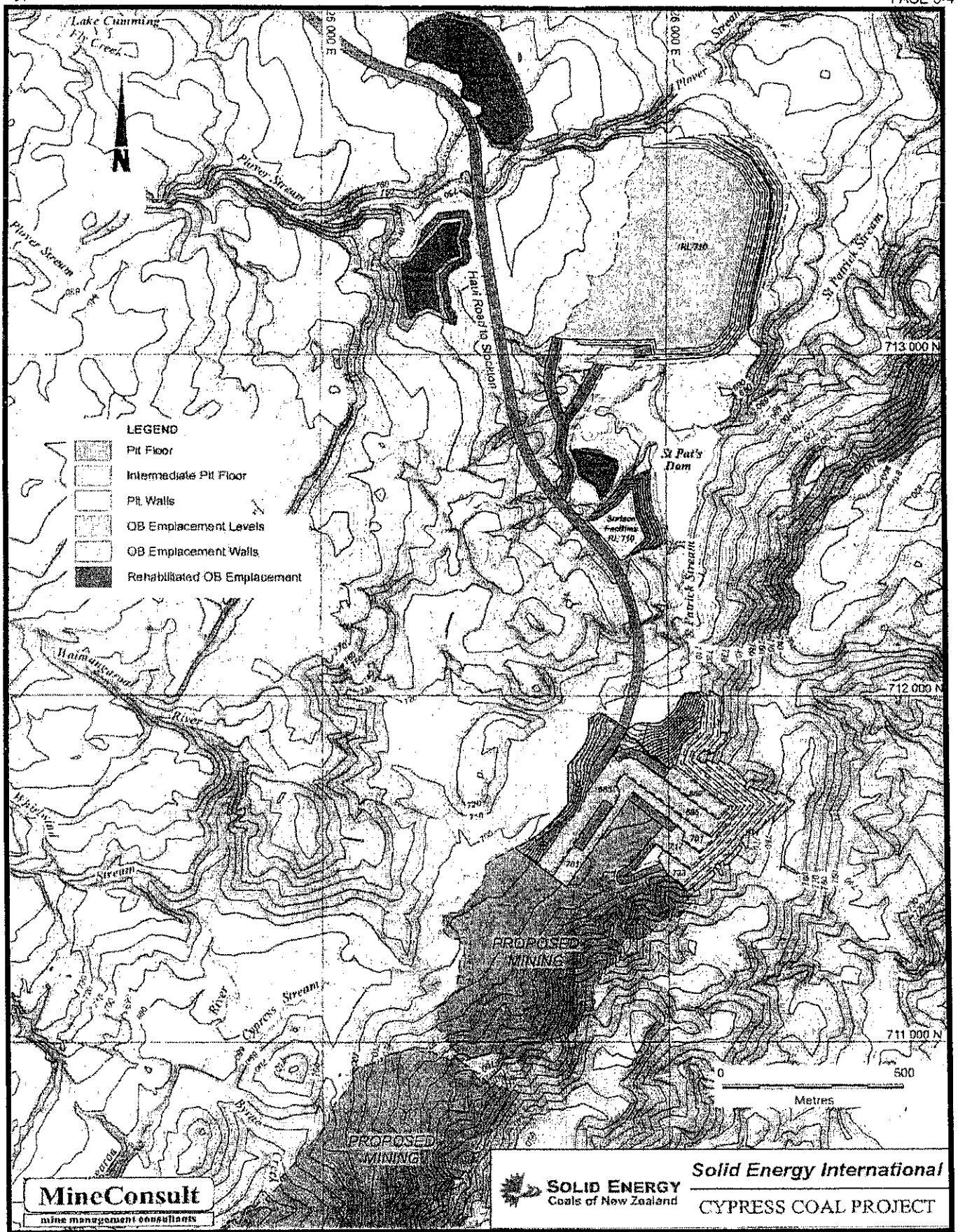
The quantities for the first-year performance bond were derived from the preliminary work programme set out in the AEE[1]. Figure 2.3(i) of the AEE shows the scale of the works (repeated as Figure 3-1), while Tables 2.1 and 3.10 of the AEE provide estimates of mined quantities, and total and net areas disturbed by mining. For Year 1, a total of 3.35 million bcm (bank cubic metres[2]) will have been removed to overburden stockpiles for a total area of disturbance of 39ha of overburden disposal and 25ha of the North Pit.

Based on the maximum level of disturbance, Solid Energy's staff and advisors developed a closure plan, the main components of which comprised:

- partially backfilling the pit using material recovered from the overburden disposal area to cover potentially acidic exposures;
- allowing the pit to flood from rainfall and surface inflows;
- creating a spillway to divert pit lake overflow into St Patricks Stream;
- removing the small proportion of the haul road bund formed during the first year;

[1] Solid Energy, December 2003. Cypress Mine Resource Consent Applications and Assessment of Environmental Effects.

[2] Bank cubic metres refers to in-situ volume, i.e. without the bulking that occurs during mining/excavation.



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Solid Energy International

CYPRESS COAL PROJECT

Indicative Mining Stage Plan End of Year 1

(Figure 2.3(i) from Cypress AEE)

Figure 3-1

Date: 16 July 2004

File: Figure 3-1.cdr

THE SEAL OF THE ENVIRONMENT COURT OF NEW ZEALAND

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- recontouring, topsoiling and planting exposure surfaces;
- committed environmental programmes (fencing, kiwi relocation, predator control, bryophyte reseeding etc.); and
- environmental and geotechnical monitoring.

Estimates were provided for the works to rehabilitate the site over a 12-month period, then manage and maintain the site for a further six years[3].

In estimating the physical quantities involved (e.g. the volume of backfill, the areas of planting, the numbers of personnel, etc.) Solid Energy staff and advisors were asked to provide two estimates. The first was the best estimate without any contingency or conservatism. This value was assumed to represent the median level estimate, or the $CL_{50\%}$. The second estimate sought was the realistic worst-case, or the $CL_{95\%}$.

The two values were used to define a log-normal curve for each quantity estimate. The log-normal curve was considered the most appropriate representation as it:

- has a smooth curve with a recognisable central tendency (a median value) which best represents the expected value;
- is positively skewed (and can have a long tail at the high end of the distribution);
- cannot be less than zero; and
- in most cases falls within a specified upper range (although in theory it has no theoretical upper limit).

The greater the difference between the median and $CL_{95\%}$, the greater the uncertainty in the estimate and the more skewed the distribution.

The full breakdown of the estimate inputs appears in Appendix A.

3.3 UNIT RATE ESTIMATES

The unit rates of cost applied to the quantities were derived from a number of sources.

Wherever applicable, unit rates developed by Golder Associates (NZ) Ltd were used. Golder was engaged by the Councils to develop performance bond quanta estimates for a number of Solid Energy's operating mines, which involved developing appropriate unit rates for the scales of work involved in closing these sites.

The Golder rates were used for much of the major civil and earthmoving works. While Golder used the same probabilistic approach described above for the

[3] As stated in s2.2.2, the end of the closure period is defined by the attainment of rehabilitation targets rather than a specified duration. An indicative period of seven years has been adopted for this report as being the expected time over which active management of revegetating areas would be required.

quantities estimates, the input curves were triangular rather than log-normal. The use of triangular distributions is reasonable, the most likely value being akin to the median value of the log-normal curve, with the upper and lower bounds of costs defined by the ends of the distribution.

Unit rates were not available in Golder's schedules for some items of work, particularly those that are specific to Cypress, e.g. the kiwi and snail environmental programmes. For these, unit rates were developed by Solid Energy staff and specialist advisors, who were asked to provide median and realistic worst-case estimates that were then used to define log-normal input distributions (as described for the quantities above in s3.2). The full breakdown of the estimate inputs appears in Appendix A.

3.4 YEAR 1 PERFORMANCE BOND QUANTUM

From the detail contained in Appendix A, the annual cost estimates to undertake the work following premature closure on a year-by-year basis, and the total bond quantum estimate, are summarised in Table 3-1 and shown graphically in Figure 3-2.

Table 3-1: Year 1 Performance Bond Summary

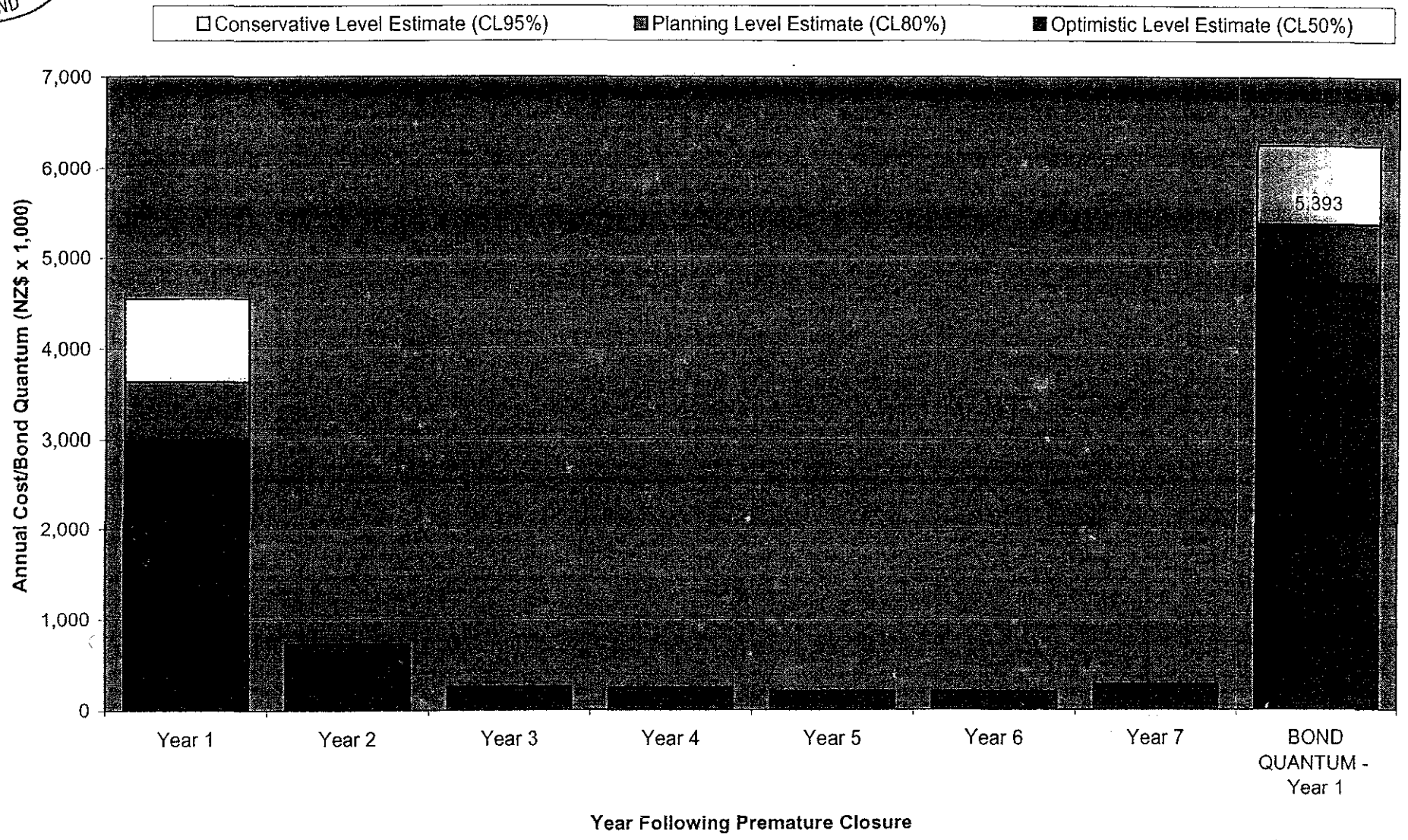
(expressed in NZ$)	Optimistic Estimate ($CL_{50\%}$)	Planning Level Estimate ($CL_{80\%}$)	Conservative Estimate ($CL_{95\%}$)
Year 1	2,995,859	3,639,113	4,540,916
Year 2	664,217	694,025	717,088
Year 3	234,336	245,169	255,798
Year 4	224,009	234,282	245,359
Year 5	186,135	195,776	204,593
Year 6	181,661	191,271	200,042
Year 7	251,794	262,433	273,972
TOTAL	4,737,102	**5,392,742**	6,261,439

It will be noted that the sum of the estimates for the individual years does not come to the same value as the total bond quantum. This is a natural and expected artefact of the probabilistic modelling. The bond quantum should be set on the total estimate, not on the sum of the individual components.

The modelling indicates that the expected total cost of rehabilitating the Cypress mine site if premature closure were to occur in Year 1 would be around $4.7 million. Adopting the 80% level of confidence as the planning level estimate, the performance bond quantum should be set at around $5.4 million.

Figure 3-2: Performance Bond Quantum

Annual Costs Year by Year and Total Bond Quantum



ATTACHMENT 6

[Section 4 of the report "Cypress Mine – Financial Assurances" prepared by Lane Associates Limited dated 5 November 2004]

4 POST-CLOSURE HABITAT ENHANCEMENT BOND

4.1 QUANTUM CALCULATION

4.1.1 Overview

The method of calculating the post-closure habitat enhancement bond quantum is identical to that of the performance bond. Ranges for individual quantities and rates are entered into a schedule of quantities for each year of the 30-year programmes.

The implementation scope for the predator control programme and the kiwi and snail mitigation plans will depend on the results of monitoring, the objective being the protection and enhancement of survival of native fauna with a minimum of intervention. In calculating the post-closure habitat enhancement bond quantum it has been conservatively assumed that all of the programmes will be implemented fully.

The environmental enhancement programmes are scheduled to start with the mining project. Therefore, the full 30-year programme cost needs to be provided for. The first seven years is allowed for in the performance bond, and therefore the post-closure habitat enhancement bond quantum covers the remaining 23 years of the planned programmes.

For estimating the post-closure habitat enhancement bond quantum in future years, components of the environmental enhancement works already completed will be deleted from the bonds. The performance bond will cover the environmental programmes for the subsequent seven years as part of the closure works. The post-closure habitat enhancement bond will cover the remaining portion of the 30-year programme. The term of coverage for the post-closure habitat enhancement bond in future years is equal to 30 years less the seven-year closure period and less the number of years of mining already completed.

4.1.2 Discounting and Inflation

As with the performance bond, discounting is not included in the calculation of the post-closure habitat enhancement bond quantum.

With the environmental programmes lasting for a considerable period, e.g. for a period of 23 years for this first year bond, consideration needs to be given to including inflation is the bond quantum calculation. Due to the conservative assumption that the programmes will be fully implemented, at this stage inflation has not been included in the quantum calculation on the basis that any such increase would be adequately covered within the input quantity and rate ranges.

4.2 COST ESTIMATES

The cost estimates used for the post-closure habitat enhancement bond calculations are drawn from specialist reports prepared for Solid Energy. The reports are:

- McLennan, J.A., September 2004. Proposed predator control in and around the site of the proposed Cypress mine in the upper Waimangaroa Valley, Buller District

- McLennan, J.A., September 2004. Management of great spotted kiwi, *Apteryx haastii,* in and around the site of the proposed Cypress mine in the upper Waimangaroa Valley, Buller District

- McLennan, J.A., September 2004. ***Snail Mitigation Plan – to come***

Where McLennan provides a range of possible costs, the lower cost is assumed to be the median level estimate, with the upper cost providing the $CL_{95\%}$ value. Where no ranges are given, the stated cost is assumed to represent the median value, and a contingency of more than 17%[4] is added to this to produce a $CL_{95\%}$.

The input costs produced by McLennan are tabulated in Appendix B.

4.3 YEAR 1 QUANTUM

As shown in Table 4-1, the expected cost of completing the environmental enhancement programmes in full is in the order of $2.5 million. Adopting the 80% level of confidence as the planning level estimate, the bond quantum should be set at around $2.7 million.

Table 4-1: Year 1 Post-Closure Habitat Enhancement Bond Quantum

(expressed in NZ$)	Optimistic Estimate ($CL_{50\%}$)	Planning Level Estimate ($CL_{80\%}$)	Conservative Estimate ($CL_{95\%}$)
Post-Closure Habitat Enhancement Bond	2,478,619	**2,657,437**	2,840,835

The bond could be surrendered at any stage should Solid Energy decide to establish a fund sufficient to undertake the programmes over the remaining terms. If Solid Energy were prepared to set up this fund from the outset, allowing for discounting over time the planning level cost would be $1.2 million.

[4] Using traditional estimating techniques, a 15% contingency would be reasonable for the level of accuracy provided by McLennan. Crystal Ball ® distribution defaults for the $CL_{95\%}$ on log-normal curves are slightly greater than 117% of the median value, and have been adopted as a conservative upper level estimate.

ATTACHMENT 7

[Section 5 of and Appendix C to the report "Cypress Mine – Financial Assurances" prepared by Lane Associates Limited dated 5 November 2004]

5 POST-CLOSURE CAPITALISATION BOND

5.1 QUANTUM CALCULATION

5.1.1 Starting Assumption

The starting assumption for the post-closure period is that the site has reached a 'natural' state that is self-sustaining, and poses a low and acceptable level risk of future environmental impairment. If this were not so, the Councils would not have confirmed that the rehabilitation targets had been met, and the project owner would not have been able to surrender its consents and performance bond. Until these 'pre-conditions' are met, the site has not reached closure.

5.1.2 Components

The works that need to be covered by the post-closure fund are typically;

i) routine site maintenance and management, such as drain clearance, overburden disposal area cover repair, geotechnical monitoring of dam structures; and

ii) unexpected events (risk events) that if left unattended could lead to environmental impairment.

The method of estimating the costs of site maintenance and management is identical to that of the performance bond, i.e. relies on a standard schedule of quantities and probabilistic mathematics.

The method of assessing the quantum of the risk component of the bond uses a quantitative risk assessment to determine a rationally-derived risk cost. Further detail on the method of estimating risk cost is included in Appendix C.

The fund is required to be of sufficient value to cover both cost components over an agreed period. The post-closure capitalisation bond quantum equals the value of the post-closure fund.

5.1.3 Discounting and Inflation

Discounting and inflation are assumed and allowed for in the calculation of the post-closure capitalisation bond quantum because:

i) If called upon, the bond deposits the agreed sum into an account from which is drawn the annual management and maintenance costs for the site throughout the post-closure period

ii) The post-closure period is usually significantly longer than the closure period, and inflation may become a factor that potentially reduces the purchasing power of the available funds

iii) Over the length of the post-closure period there is a reduced expectation that the current situation of a managed, low inflation rate will continue

The approach is to adopt a discount rate that accounts for the effects of both compounding interest and inflation. In simple terms, the discount rate is the difference between the two conflicting measures.

The discounting rate adopted for this assessment was 4.7% p.a. This rate is understood to represent the long-term difference between interest and inflation rates based on research undertaken by Golder on behalf of, and accepted by, the Councils and Solid Energy[5].

5.1.4 Post-Closure Period

Preamble

One of the critical mining environmental issues is geochemistry, specifically the potential acid generation from sulphidic materials excavated during mining. If oxidation of these materials occurs, they can produce and leach acid and elevated soluble metals over a period of many decades. For the management of risk events that could expose sulphidic material to oxidation, it is therefore appropriate for the calculation of the post-closure period to assume that site management and maintenance extends for a significant period.

While this period can be defined to some degree by geochemical test work, the results inevitably contain considerable uncertainty. Fortunately, the time value of money enables the post-closure period to be defined with a high level of confidence, and for funding to be provided in perpetuity. The resulting robust definition of the post-closure period overcomes any uncertainty associated with the site geochemistry.

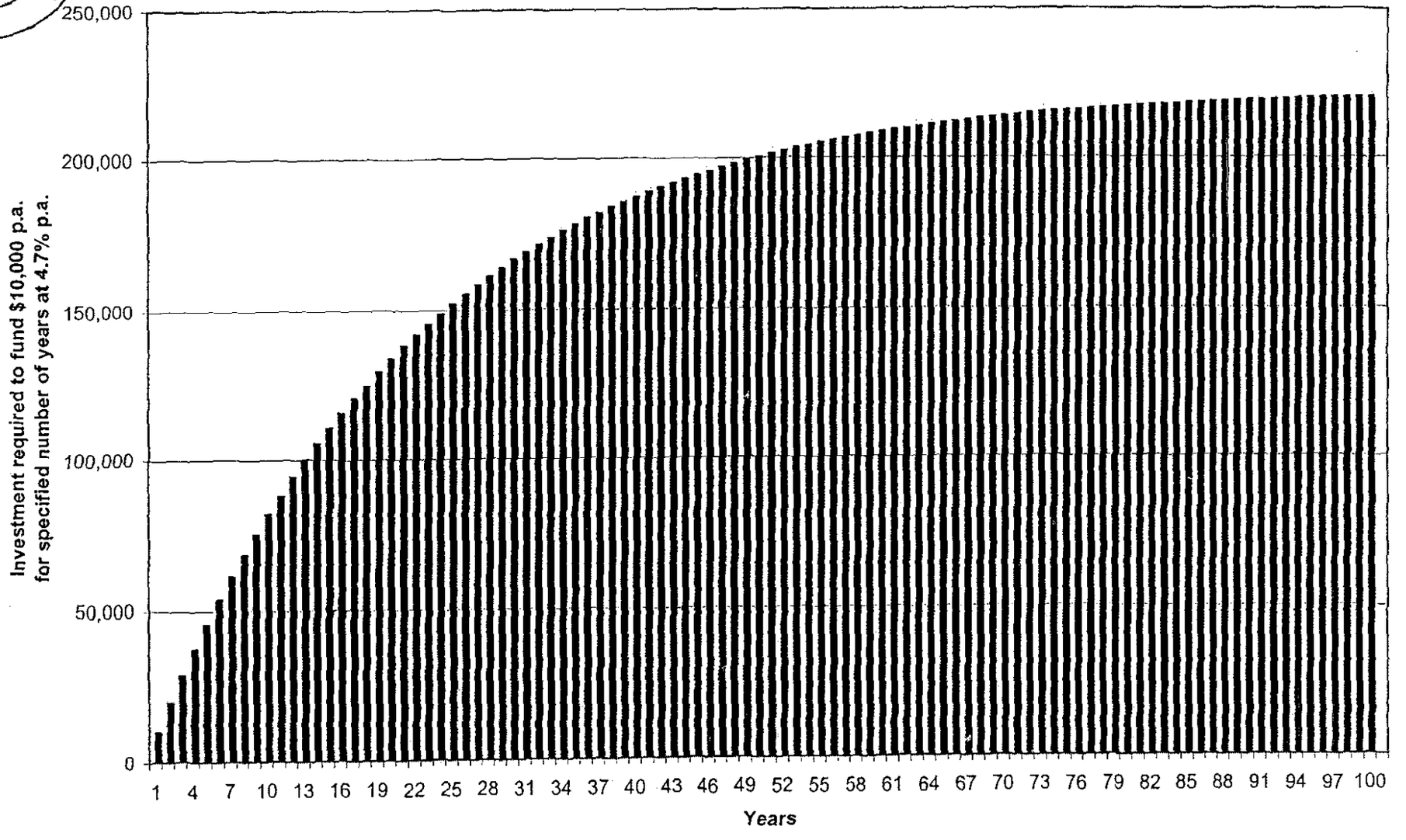
Definition of Perpetuity

The concept of perpetuity and the time value of money is easiest understood through an example. Assume the annual cost to manage a site is $10,000, and the discount rate (difference in rates of interest and inflation) is the 4.7% p.a. adopted for this report. For a post-closure term of one year, the fund needs to contain $10,000. For a two-year term, the fund requires $10,000 for the first year plus $9,550 for the second, as interest will grow this value to $10,000 after one year in an interest-bearing account. For a three-year term, the fund requires an additional $9,120, interest on the additional investment growing it to $10,000 over two years. Thus for each successive year that the fund covers, the value invested at the start of the period reduces. Eventually, the sum deposited to fund that annual cost of site management in the distant future becomes minimal. This effect is shown in Figure 5-1.

Figure 5-1 shows that the total sum required to fund 100 years of site management at $10,000 p.a. is around $220,000, and that minimal additional funding is required if the term extends beyond 100 years.

[5] Paul Horrey, pers. comm.

Figure 5-1: Definition of Perpetuity



An alternative and convenient way of understanding this effect is as follows. After paying $10,000 for the first year of site management from a total fund of $220,000, the interest over one year on the remaining $210,000 grows the fund back to $220,000 in time for the next demand of $10,000 in the second year. This self-funding investment will then last in perpetuity.

For this assessment, a post-closure term of 100 years was adopted, which is in effect, perpetuity.

5.2 SITE MAINTENANCE COMPONENTS

Post-closure site maintenance and management comprises 10 components. The basis for the cost of each is briefly described below. The cost input details and model are attached as Appendix D.

5.2.1 Weed Control

An annual weed control programme is provided sufficient to cover an area of 15 to 23 hectares (median and $CL_{95\%}$ respectively) at a median cost of $650/ha. The programme has been allowed for a period of 11 years.

5.2.2 Overburden Area Maintenance

The cost of repairing damage to the cover over the overburden area is estimated to involve around 4-7 days per year of excavator time, and a day with a truck. Including some replanting of repaired areas, the median cost for this programme is $5,550, and would be required, on average, on a 10-year cycle throughout the 100-year post-closure period.

5.2.3 General Site Maintenance

An annual cost of $8,600 (median level estimate) is allowed for general site maintenance such as drain clearance and erosion protection reinstatement. This sum is allowed throughout the full 100-year post-closure period.

5.2.4 Environmental Monitoring

An annual sum of $8,000 p.a. (median level estimate) is allowed over the full post-closure period for water and sediment monitoring to check the continued environmental security of the site.

5.2.5 Quarterly Site Inspections

A sum of $12,800 p.a. (median level estimate) is allowed over the full post-closure period for four walk-over inspections of the site by two to three appropriately qualified personnel. This small team would assess the integrity of the backfill and covers, drains, geotechnical structures, flora and fauna health etc.

5.2.6 Intermediate Geotechnical Reviews

MHW, the geotechnical advisors on Cypress, has recommended that intermediate geotechnical reviews be undertaken across the site every two years. Of particular interest is the integrity of the North Pit embankment, which retains water for geochemical control of potentially acidic backfill, and any other dam-type structure.

The bulk of the North Pit embankment is not scheduled for construction until Year 3 of the mine plan. The intermediate geotechnical reviews are therefore excluded from the Year 1 post-closure capitalisation bond quantum calculation.

From Year 3 onwards however, post-closure site maintenance costs would need to include the reviews. A cost for each inspection was conservatively estimated to be $4,500 (median level estimate). This would include a review of the site monitoring data in addition to the site walk-over inspections by dam specialists.

5.2.7 Comprehensive Geotechnical Reviews

In addition, MHW recommended a comprehensive geotechnical review of the structures on a five- to seven-year cycle.

The comprehensive review would build on the two-yearly intermediate reviews, would be conducted under the supervision of a senior dam specialist, and would include a detailed assessment of the data collected of piezometer water level and groundwater quality, survey benchmarks, and surface water flows and quality.

Again, until the North Pit embankment is constructed in Year 3, the cost of the comprehensive reviews is not included in the post-closure site maintenance costs. Once the embankment is constructed, these reviews will need to be included in the post-closure maintenance calculations. They have been allowed on a five-year cycle, and are estimated to cost $11,000 each (median level estimate).

5.2.8 Extreme Events Review

It would be prudent to undertake additional detailed geotechnical reviews following extreme events, e.g. large earthquakes or intensive rainfall events. As for the other geotechnical reviews, the critical structure is the North Pit embankment which is constructed in Year 3. No costs for extreme event reviews were allowed for the Year 1 quantum calculation.

From Year 3 onwards, these reviews will be required for inclusion in the post-closure maintenance costs. The level of effort required would be similar to the comprehensive reviews, so a cost of $11,000 has been allowed for each review. For estimating purposes, it is assumed that an extreme event review may be required, on average, every ten years.

5.2.9 Access Road Maintenance

An annual cost of $3,500 p.a. (median level estimate) has been allowed throughout the post-closure period for maintenance on the 4-wheel drive track into the closed site.

5.2.10 Project Management

A project management allowance of 10% p.a. has been allowed throughout the post-closure period. The model is set up so that the 10% is calculated independently for each of the 2000 iterations that the model calculates. This means that when the sum of all the proceeding components is high, the project management component is also high in line with the increased management effort required. Similarly, if the annual management cost is low, so is the project management cost.

5.3 YEAR 1 SITE MAINTENANCE COSTS

The site maintenance costs by component and in total for Year 1 are summarised in Table 5-1 and shown in Figure 5-2.

Table 5-1: Year 1 Site Management and Maintenance Cost

Component (costs expressed in NZ$ NPV)	Optimistic Estimate ($CL_{50\%}$)	Planning Level Estimate ($CL_{80\%}$)	Conservative Estimate ($CL_{95\%}$)
Weed Control Programme	97,221	122,679	151,920
Overburden Area Cover Maintenance	9,669	12,656	16,434
Annual Site Maintenance (General)	193,496	231,852	277,219
Environmental Monitoring	179,629	237,390	307,634
Quarterly Site Inspections	282,683	325,644	379,222
Intermediate Geotech Reviews (2-yearly)	0	0	0
Comprehensive Geotech Reviews (5-yearly)	0	0	0
Extreme Event Reviews (10-yearly)	0	0	0
Access Road Maintenance	74,021	108,553	149,205
Project Management	97,998	107,093	116,610
Site Maintenance - Year 1	961,560	**1,059,150**	1,156,827

Again it will be noted that the sum of the estimates for the individual components does not come to the same value as the total. This is a natural and expected artefact of the modelling.

The above estimates have been based generally on the works required to manage and maintain the site at the end of planned closure. For Year 1 the area of disturbance will be less than in any other year of the mine operation, and the need to undertake the full scope of a number of the prescribed programmes, e.g. weed and predator control may be less than required later in the life of mine. On this basis, the estimates for Year 1 are likely to be rather conservative.

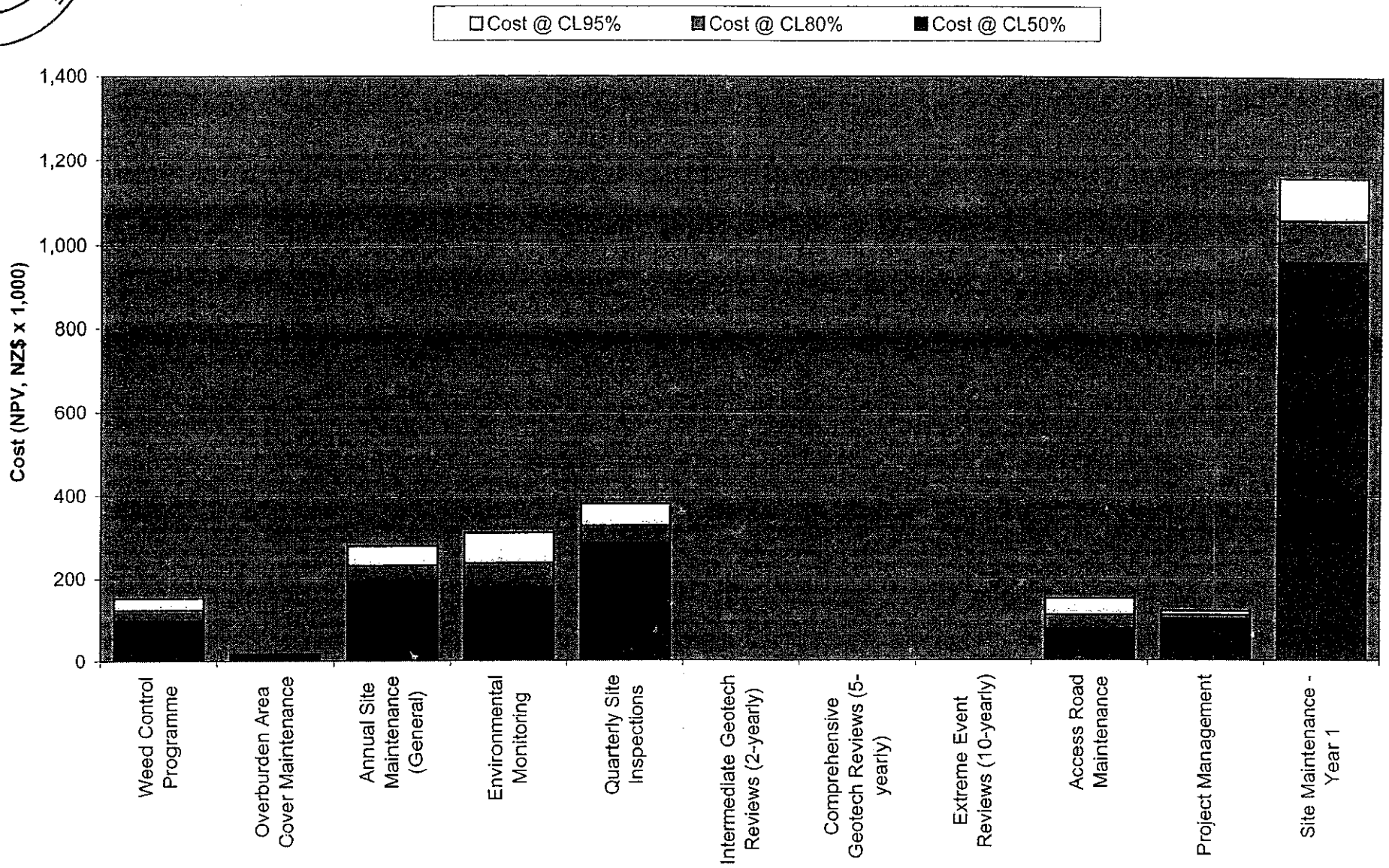
5.4 RISK COST COMPONENTS

Post-closure risks were identified and quantified at an initial facilitated risk workshop held Anderson Lloyd Caudwell's offices in Christchurch on 8 March 2004 and attended by Solid Energy staff and specialist advisors. The risk register recording the outcomes of that workshop appears as Appendix E.

A follow-up meeting was held at Solid Energy's offices on 30 March, 2004, and the input data were finalised through further meetings, phone calls and other correspondence. The final likelihood and cost inputs are given in Appendix F.

Figure 5-2: Site Management and Maintenance Component for Year 1

By Component and in Total



A brief description of each of the risk events follows.

5.4.1 Year 1 Risk Events

OBA Geotechnical Failure

The overburden area (OBA) is the permanent repository for the overburden that will not be rehandled for backfilling the pits. The structure comprises 3 batters of 5 metres high for a total height of 15 metres. There will be an 8 metres bench between each batter.

Heavy rain or an earthquake could result in a rotational failure of the 2 metre thick cover on the OBA. The median estimate assumes failure of one batter, while the worst case outcome could be a failure over the full height of the structure. The large failure could measure 50 metres long (down-slope) and 150 metres across for a total material volume of about 5,000m^3. The quantity of slip material in the median case would be about one third of this (1.700 m^3).

The consequence of the failure would be the reworking and buttressing of the slip, reinstatement of the cover material, and revegetation. The median estimate for this work is $33,500.

The likelihood of this event was assessed at one in 150 years.

Revegetation Failure

Revegetation failure due to acidic conditions, failure of the drainage system or weed infestation was identified as a risk. The consequence would be a need to replant, possibly with different species better able to exist in the prevailing environment, and an aggressive weed control programme.

An affected area of two to ten hectares (median and $CL_{95\%}$ estimates respectively) was assumed, at a revegetation cost of $6,000 to $15,000 per hectare (median and $CL_{95\%}$ estimates respectively), resulting in a median cost of $12,000.

The likelihood of this event was assessed at one in 500 years.

5.4.2 Risk Events in Subsequent Years

The following risk events relate to mine components that will not be constructed by the end of Year 1. They therefore do not form part of the risk component of the bond quantum for Year 1, but will become risks at various times during the life of mine. The following descriptions of the risks are provided for completeness and inclusion in the quantum estimate in later years.

North Pit Embankment Failure

A failure of part of the embankment following an earthquake and other initiating event would involve the reinstatement of the damaged section, including replacement of the filters. This would require the importation of 500m^3 of suitable granular material. The median level repair would take an estimated three months to complete. The estimate of the median level repair works totals $293,500. While the most likely outcome does not contemplate complete failure of the low-permeability core, some minor core remediation is assumed in the cost estimate.

In the worst case, reinstatement of the low permeability core would be required. This would involve the installation of a slurry wall at a cost of around $0.5 million.

The construction of the North Pit embankment starts in Year 3, after which the likelihood of the risk event was assessed at one in 150 years.

North Pit Cover Failure

A large earthquake could cause a rotational failure in the steeper areas of the cover with a consequential exposure of the underlying PAF material. This would necessitate regrading of the failure to stabilise it and to cover the PAF exposures, and revegetating disturbed areas. Restoration of the slip was estimated to involve a few weeks work at a median cost of $14,750.

In the worst case, the remedial works on the cover would require recovery of additional material from the overburden area. This would involve greater machine time, and the disturbance to the overburden area would also need rehabilitation.

North Pit cover is not scheduled to start until Year 3, prior to which the preferable rehabilitation option is to allow the excavation to flood and form a lake (refer s3.2). The return period of the initiating earthquake determined the likelihood of occurrence for this event, and was estimated at one in 500 years.

South Pit Highwall Failure

Weathering of the batters, high rainfall and earthquakes were considered events that could cause a large slab to be dislodged from the South Pit highwall. The resulting slide would damage vegetation around the site of the failure.

As the highwall does not have any PAF exposures, remedial works would be limited to moss hydroseeding to stabilise the area against sediment runoff, with natural revegetation occurring over time. A total area of disturbance of two to three hectares (median and $CL_{95\%}$ estimates respectively) was assumed, at a rehabilitation cost of $6,000 to $10,000 per hectare (median and $CL_{95\%}$ estimates respectively). The median cost was $12,000.

Based on the mine plan, failure of the South Pit highwall was identified as a potential risk from Year 6 onwards. The initiating event was estimated to have a return period of one in 100 years. However, as with failures in natural steep faces in similar locations where neither life nor property are at risk following the failure, there may be no need for remediation. It was assumed that there was a one in two chance that remediation may occur or be considered necessary, giving an overall likelihood for this risk of one in 200 years.

South Pit Cover Failure – Moderate

When the risk of a south pit cover failure was first identified, the range of the potential magnitude of that failure was very large. The expert panel agreed in the workshop that a moderate-scale failure was more likely to occur than a large failure. Because of the differences in the consequence and likelihood of the moderate and major cover failures, this failure was split into two risk events.

The risk is associated mainly with a steep section of the pit floor containing PAF exposures and that will have a non-acid forming (NAF) soil cover over it to control

sulphide oxidation. Failure of the cover would potentially expose the underlying PAF material, necessitating reinstatement of the cover. Buttressing of the toe of the failure in the steeper areas of the cover was also assumed to be required to stabilise the area against further slips.

Work was assessed as requiring two to four weeks of machine time plus trucking of locally sourced material from the overburden area for buttressing, plus rehabilitation of both the slip area and the buttress material borrow area. The median cost estimate was $392,150.

The exposure period for this risk would not start until Year 7.

The initiating events could be erosion, earthquakes or geotechnical failure of saturated cover materials. The design earthquake, which has a return period of one in 150 years, was considered unlikely to be of sufficient magnitude to initiate a failure of the cover of sufficient depth to expose PAF material by a considerable safety margin. The likelihood was therefore assessed to be an order of magnitude less than that of the design earthquake, or one in 1,500 years.

South Pit Cover Failure – Major

The matters relating to the major cover failure are as described above for the moderate failure. The major failure differs only in consequence, for which a cost of $2-3 million was assumed (median and $CL_{95\%}$ estimates respectively), and likelihood (one in 5,000 year return period).

NAF/PAF Misclassification

The geochemical risk has been the subject of specific investigation and considerable effort has been made to design the geochemical risk out of the project. The handling and safe long-term disposal of PAF materials is a key component of the mine plan.

The progressive geochemical testing of excavated material throughout the life of mine was considered to adequately address the risk. The only conceivable material risk existed with a failure of the QA/QC of the testing process, which could result in the misclassifying of NAF and PAF material.

Even if this were to occur, it seems inconceivable that this would continue throughout the life of mine and create a major acid drainage problem. The water quality and other testing required throughout the life of mine under the resource consents would identify any problems before these became major, allowing shortcomings in the management system to be corrected.

It was however recognised that small quantities of misclassified and inappropriately placed material could occur. If so, this could result in a few, small-scale acid seepages. The remedy for this would be the installation of small passive water treatment systems.

Three to ten anoxic limestone drain, or ALD, systems at a cost of $30,000 to $40,000 each were assumed. These estimates are conservative, and allow for one larger ALD treatment system. Discharge would be directed to the wetland developed in the area behind the dismantled St Pat's dam.

The costs also allow for ALD media replacement of $10,000 to $15,000 on a five to ten year cycle. The resulting median level cost is $138,243.

Exposure to this risk could not occur before Year 2 as no PAF material will be exposed in Year 1. The likelihood of the risk was assessed at one in 200 years.

5.5 YEAR 1 RISK COST

Risk cost is a rationally derived and conservatively realistic value sufficient to cover costs associated with the occurrence of certain unwanted events that comprise the residual risk associated with the closed site. The risk cost quantum provides adequate cover for some, but not all, of the highest risk scenarios assuming these occur.

The risk assessment method used to produce the estimate of risk cost is described in Appendix C. Readers are also referred to a glossary of terms and definitions that relate to the risk assessment outcomes that is included as Appendix G.

The resulting risk component for the post-closure capitalisation bond is shown for the three level of confidence in Table 5-2.

Table 5-2: Year 1 Post-Closure Capitalisation Bond Risk Component

(expressed in NZ$ NPV)	Optimistic Estimate ($CL_{50\%}$)	Planning Level Estimate ($CL_{80\%}$)	Conservative Estimate ($CL_{95\%}$)
Post-Closure Risk Cost	36,037	**47,192**	61,249

5.6 TOTAL YEAR 1 POST-CLOSURE CAPITALISATION BOND

The site maintenance, risk and total combined post-closure capitalisation bond values are summarised in Table 5-3.

Table 5-3: Year 1 Post-Closure Capitalisation Bond

(expressed in NZ$ NPV)	Optimistic Estimate ($CL_{50\%}$)	Planning Level Estimate ($CL_{80\%}$)	Conservative Estimate ($CL_{95\%}$)
Site Maintenance	961,560	1,059,150	1,156,827
Risk	36,037	47,192	61,249
Total Post-Closure Capitalisation Bond	997,716	**1,095,737**	1,209,230

The recommended quantum for the post-closure capitalisation bond in Year 1 is $1.1 million.

Note that the total quantum does not equal the sum of the individual components. This is to be expected when summing two distributions for level of confidence other than the $CL_{50\%}$ (and even then the Monte Carlo simulation will produce a small difference).

The risk component of the post-closure capitalisation bond is minor, and is most probably best covered by the same instrument as the total quantum, e.g. an irrevocable letter of credit. However, if it increases significantly in later years, Solid Energy may wish to investigate insurance opportunities as an alternative and more cost-effective way of providing part or all of the risk cover.

If the total risk component could be insured, and it was cost-effective to do so, then the amount of insurance cover required would be equal to at least the calculated value of the risk component of the bond. In this case, the risk component would reduce to zero, but the payment of annual premiums would need to be added to the site maintenance component.

If only a part of the total risk component was insurable (and again cost-effective), that quantum of the risk component would reduce to reflect only the uninsurable portion. The premiums for the insured portion of the risk component would need to be added to the site maintenance component.

APPENDIX C

RISK ASSESSMENT METHODOLOGY

RISK ASSESSMENT METHODOLOGY

C-1 INTRODUCTION

In any engineering venture, the project return is made up of the expected project revenue less the construction, operating, maintenance and management costs (collectively referred to as the base cost) plus the costs of remediating and/or mitigating unwanted and sometimes unexpected incidents (risk events) that occur during the project life (referred to as risk cost).

A rigorous risk assessment process provides the best method of identifying and quantifying risk to any venture. The process has the significant added benefit of improving knowledge about a given project. Once risks have been identified and quantified, they can be ranked and a risk management programme developed that targets those events that pose the greatest risk to the subject endeavour.

The risk analysis involved the determination of the two principal measures over the project life for a range of identified risk events:

- risk; and
- risk cost.

Risk is defined as the product of likelihood and consequence (also referred to in the literature as "expected value"), where consequence is expressed in NZ dollars. This measure is used to rank the events in descending order of threat to the project for the purpose of developing and implementing a prioritised, cost-effective risk management strategy throughout the project term.

Risk cost is the estimated cost associated with remediating the consequences of the risk events that occur during the project life. In combination with the uncertainty assessment outcomes, risk cost produces a rationally-derived contingency for estimates of cost and project return.

Compared with risk cost, the estimation of the project revenue and base cost can be made with reasonable certainty; experienced engineering estimators making allowance for variations in quantities and unit rates etc. The uncertainty associated with project revenue and base cost was derived using probabilistic estimating, the uncertainty of each quantity and rate input to the financial model entered as a probability distribution function. The total project cost and return was then calculated in the conventional manner using Monte Carlo simulation.

Risk cost is more difficult to estimate because:

a) Which risk events will occur over the project life is unknown;

b) The timing of those risk events that do occur cannot be predicted;

c) The extent and severity of those risk events that do occur cannot be predicted.

The risk analysis cannot predict the future. However, the process does identify those significant risk events that could occur, and through a systematic procedure provides an estimate of a suitable allowance to cover risk.

The risk assessment methodology followed a procedure that is defensible and transparent, complies with AS/NZS4360:1999 *Risk Management*, and adheres to current best practice.

C-2 ASSESSMENT CONTEXT

Stakeholders

The principal stakeholders, and the main issues that concern each, are shown in Table 4.

Table 4: Key Stakeholders and Major Issues

STAKEHOLDER	MAJOR ISSUES
Solid Energy Board	Reputation, accountability, image, safety, community, environment, costs, financial return
Solid Energy Shareholders	Reputation, accountability, image, safety, community, environment, costs, financial return
Solid Energy staff	Job security, safety, satisfaction, pride
Suppliers and contractors	Job security, safety, satisfaction, pride
Local community	Employment, business opportunities, future, environment, quality of life
District Council	Financial benefits, business opportunities, environment, community, future
Regional Council	Environment, community, future
Department of Conservation	Environment, mine closure
Environmental groups	Environment, mine closure
Iwi groups	Financial benefits, business opportunities, environment, land stewardship

Assessment Objectives

The principal objectives of the risk assessment are to quantify the residual risk remaining at the Cypress site after it has been closed and rehabilitated, and to estimate an appropriately conservative risk cost to cover the remediation of risk events that could occur during the post-closure period.

In meeting this objective, the risk assessment needs to take account of the above stakeholder and stakeholder issues listed in Table 4.

C-3 RISK IDENTIFICATION

Risk Events

Informal risk identification and mitigation is an integral part of any project evolution. During the course of conceptual project development and through the design

phase, specific studies are undertaken and design changes made to mitigate risks identified during the development and design process or contained in the study findings. These risk mitigation changes become incorporated in the final project design.

A formal risk identification process is used to identify the residual risk. On 8 March 2004, a panel of experts with specific knowledge of the Cypress project was convened to take part in a facilitated risk workshop. The workshop was held at Anderson Lloyd Caudwell's office in Christchurch. A follow-up workshop was held at Solid Energy's Christchurch office on 30 March 2004.

The members of the expert panel are listed in Table 5.

Table 5: Expert Panel Members

NAME	AFFILIATION	ROLE
Mark Pizey	Solid Energy	Project manager
Ian Harvey	Solid Energy	Project engineer
Richard Mould	Solid Energy	Mine manager
Ruth Bartlett	Mitchell Partnerships	Environmental, consenting
Adrian Goldstone	Kingett Mitchell	Geochemistry, water management
Colin Krumdieck	MWH	Geotechnical
Mark Christensen	Anderson Lloyd Caudwell	Legal, consenting
Robyn Simcock	Landcare Research	Revegetation
Grant Walker	MineConsult	Mine design

Validation

Solid Energy needs to be confident that the risk analysis identified all the relevant and significant risk issues associated with the Cypress project. There are several levels of validation inherent in the process, and additional checks have been made to minimise the risk that issues have been misrepresented or missed from the analysis.

The validation process comprised the following components:

i) The selection of the most appropriately skilled and experienced specialists to conduct and review the technical studies and to contribute to the risk assessment process;

ii) The risk workshops during which inputs were gathered from the specialists on the expert panel in an interactive, facilitated forum;

iii) Review of the workshop outcomes by Lane Associates for internal consistency (i.e. within the discussions held during the risk workshop), data gaps and risk event interdependencies;

iv) Follow-up discussions with expert panel members to clarify issues, apparent gaps and anomalies;

v) Solid Energy's review and audit processes for the technical studies and the risk assessment inputs.

While there remains some potential for one or more significant risk issues to have been missed, given the above system checks this seems a remote possibility. The full list and description of the identified risk events, the risk register, is attached as Appendix D.

C-4 QUANTIFICATION AND ANALYSIS

Site Management and Maintenance Cost Uncertainty

The estimates were developed over time by the project team. In preparing their estimates, project team members were asked to provide a realistic worst-case estimate. The best and realistic worst-case estimates were to represent the median and 95% confidence limits ($CL_{95\%}$) of the input value. The spread between the median and $CL_{95\%}$ values provides a relative comparison of uncertainty. The larger the spread of values, the larger the uncertainty contained in those estimates. The two values were used to set a log-normal distribution of occurrence cost that for each input to the financial model (further discussion on this type of distribution and its selection is provided later in this Appendix).

Risk Event Occurrence Cost and Likelihood

Initial quantification of the consequence and likelihood of each risk event was undertaken by the expert panel members at the risk workshop. In some cases, the costs were not defined, but rather than physical measures of consequence were stated for costing at a later stage.

The estimates of consequence were based on:

- the current project design including outputs from detailed technical studies aimed at addressing specific issues associated with the Cypress project;
- the consensus of the appropriate expert(s) based on best professional judgement; and,
- historical data (where available).

Costs were expressed as Y2004 NZ dollars. As with the base cost estimation, median and 95% level of confidence estimates were sought for each event.

Likelihood was expressed as "chance of occurring per year" or as a return period.

Validation

The general comments made above regarding the validation checks of the risk identification phase hold equally true for the quantification step.

Uncertainty

Risk assessment is not an exact science. There is insufficient, and often no, actuarial data on which to make statistically valid assumptions on the frequency of issue occurrence. Nor, in many cases, is there certainty with the estimates of the consequences (or costs) of the issue. Therefore, these data are developed through the collective efforts of those practitioners best qualified to make such assessments (the expert panel). While producing the best available information, the resulting estimates contain uncertainty.

The uncertainties associated with this type of assessment may be described in three broad categories:

- Uncertainty associated with the frequency or probability of occurrence;
- Uncertainty associated with predicting the scale of the impacts if a risk issue occurs; and,
- Uncertainty associated with accurately costing the consequences when a risk issue occurs.

Rather than ignoring uncertainty, the approach taken in the risk assessment was to estimate the aggregate of the above factors as a single element. The magnitude of uncertainty was accounted for by determining a range of possible costs for each risk event and expressing this as a distribution.

In estimating occurrence cost estimates, the panel members were asked to determine the expected "mid-range" and 'high end' values of that issue by answering two questions:

- "What is the mid-range or most likely cost if the risk issue occurs?"
- "What is a reasonable upper level of cost that is unlikely to be exceeded in 95% of the instances when the risk issue occurs?"

The answers provided the median and 95% confidence limits of the cost that are reported in this assessment. The spread between the median and 95% values provides a relative comparison of uncertainty. The larger the spread of values, the larger the uncertainty contained in those estimates. The two values were used to set a log-normal distribution of occurrence cost that was input to the risk model.

C-5 MODELLING

The aim of the risk model is to determine a rationally-derived post-closure capitalisation bond quantum. The model does this by taking each risk issue, its likelihood and consequential cost as identified by the expert panel, and then aggregates their combined effects to determine the risk cost, and to generate risk and exposure profiles.

Risk Model Starting Assumptions

The following starting assumptions were included in the risk assessment:

i) The Cypress project will run over a 10-year period.

ii) There will follow a 7-year aftercare period during which the vegetation and other rehabilitation will achieve a safe, stable and self-sustaining state.

iii) The post-closure period from the end of aftercare is 100 years, which is defined as perpetuity for this study.

iv) The post-closure period only starts when rehabilitation targets have been achieved and the site poses a low and acceptable level of residual risk.

Likelihood

The likelihood over the project period is the probability that the issue will occur during the period considered (in this case 10 years of operation, 7 years of aftercare and a 100-year post-closure period). The expert panel provided the values entered into the model. Single estimates of probability were sought from the panel. The estimates have been interpreted as central estimates.

In the model, likelihood is used to determine the risk of an issue and hence whether the issue is above or below the threshold for inclusion in the risk cost. While there is considerable uncertainty in the environment, and hence in the estimates of likelihood, given the limited use of probabilities in the model the single estimate is considered appropriate.

Risk Event Occurrence Cost

The two values provided by the expert panel (median and 95% confidence level, or other second point) were used to define a log-normal curve for each input. A log-normal distribution is used as the default because this form of distribution is considered likely to best represent the actual distribution of physical elements of the project and costs.

Experience suggests that if events follow an expected course, then the costs generally fall somewhere near the predicted cost. But if events do not follow this course; then the associated costs are usually much larger than predicted. The log-normal distribution is considered the most appropriate representation as it:

- has a smooth curve with a recognisable central tendency (a median value) which best represents the expected occurrence cost of an issue;
- is positively skewed (has a long tail at the high end of the distribution);
- cannot be less than zero; and
- in most cases falls within a specified upper range (although in theory it has no theoretical upper limit).

Risk Cost

The risk model adopts a "threshold" approach. The Threshold Method (as it is referred to) assumes that the risk cost is equal to the sum of the exposure costs of all of the highest-risk events assuming these occur. The highest-risk events are defined as those risk events that have a risk value greater than, or equal to, the risk cut-off, which for this project is set at $5,000/ term.

By assuming that all of the highest-risk events occur during the project life, this method provides a conservative estimate of the risk costs. This conservative measure of risk cost meets the objectives set for the risk assessment.

Interdependencies

Links may exist between risk events based on their occurrence, e.g. the occurrence of a specific risk event may influence whether another event is more or less likely to arise. Risk events were examined for dependencies, and the model places constraints on occurrence based on those inter-relationships. In addition, for model inputs where there are recognised relationships between costs, these were linked in the model using a correlation coefficient. The coefficient is set so that when one cost is high, the other(s) is likely to be high (for positively linked issues) or low (for inversely related issues).

Model Structure and Calculations

Probabilistic calculations in the analysis were performed using the Crystal Ball® simulator, which is a commercial add-on software package to Microsoft Excel®. The simulation software computed spreadsheet solutions for 2,000 trials, using the Monte Carlo sampling strategy. The Monte Carlo simulation is a statistical

technique that uses random numbers to account for uncertainty in a mathematical model.

Model Outputs

The model produces a number of outputs that assist with achieving the risk assessment objective.

For reporting, three levels of confidence have been selected as the model outputs, namely optimistic, planning and conservative. The $CL_{80\%}$ is used to represent a reasonably conservative estimate of cost that can be used for planning purposes (the planning estimate of risk cost). The $CL_{50\%}$ is used to represent an optimistic estimate of issue occurrence cost. The $CL_{95\%}$ has been adopted as providing a very conservative estimate of risk cost.

The modelling outputs include:

- Site management and maintenance cost estimate

  The site maintenance costs are expressed at the three selected levels of confidence.

- Risk profiles

  The risk profile ranks all of the analysed risk events by descending risk quotient. While risk quotient is expressed as dollars per term, this measure is not a real dollar value as it contains a likelihood component. However, it does provide a quantitative comparison of the risk each event poses to the project.

  On the risk profiles, risk events are ranked from left to right in descending order of risk quotient. The risk profiles also show the cumulative contribution of each risk event to the total project risk. These profiles are useful for determining which of the events pose the greatest project risk, and hence which require most immediate attention.

  Risk profiles with and without mitigation are provided.

- Exposure Profiles

  Exposure profiles show the estimated occurrence cost for each risk event if it were to occur. Occurrence costs are shown at the three selected levels of confidence. The risk quotient for each event is included in the profile, and shows the ranking of events remains the same as for the risk profile.

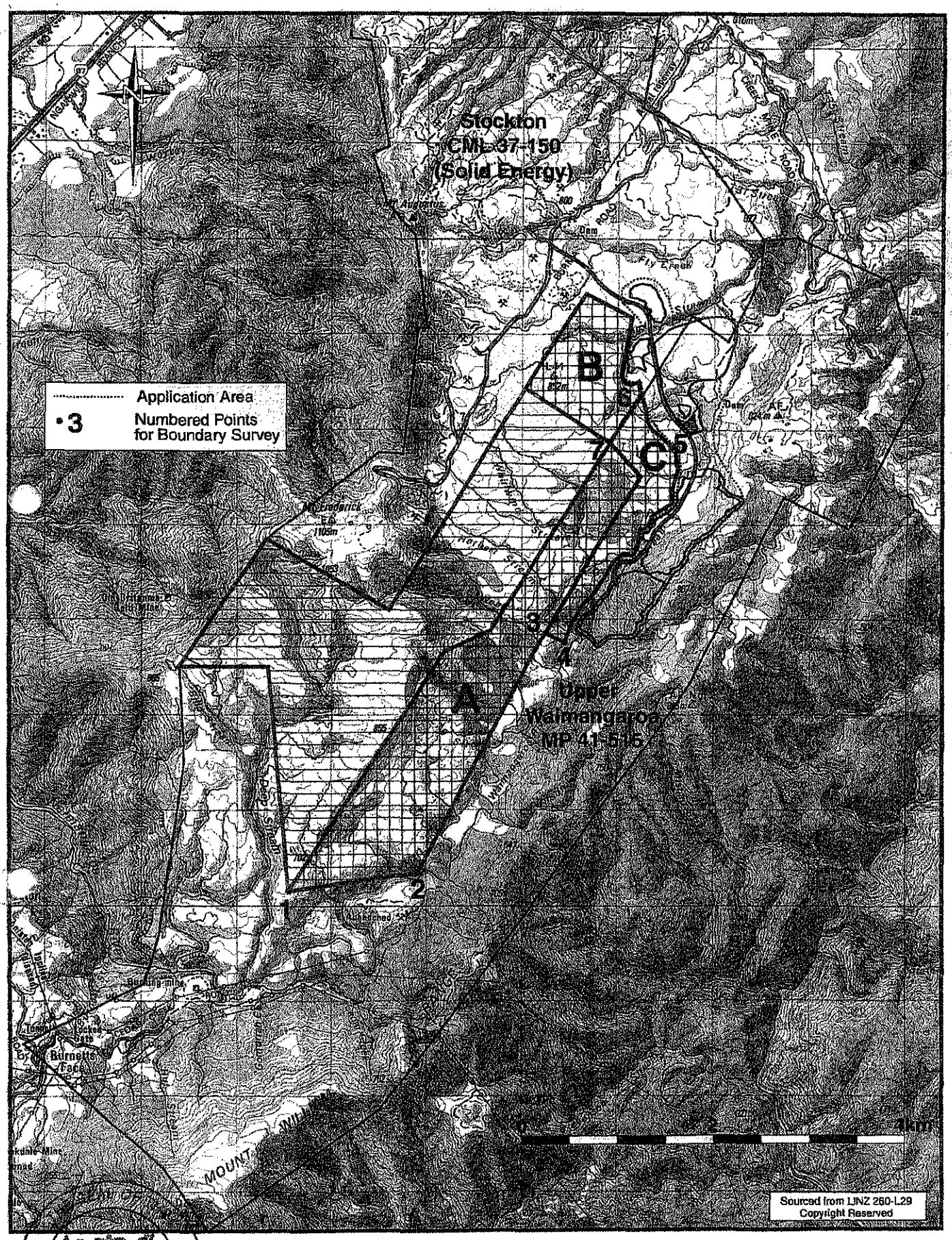
  Exposure profile results, used in conjunction with the risk profile, guide the prioritisation of risk mitigation.

- Risk Cost Estimate

  A risk-derived estimate is tabulated at several levels of confidence.

ATTACHMENT 8

[Plan attached to Deed between Solid Energy New Zeland Limited and Director-General of Conservation dated 28 February 2005)

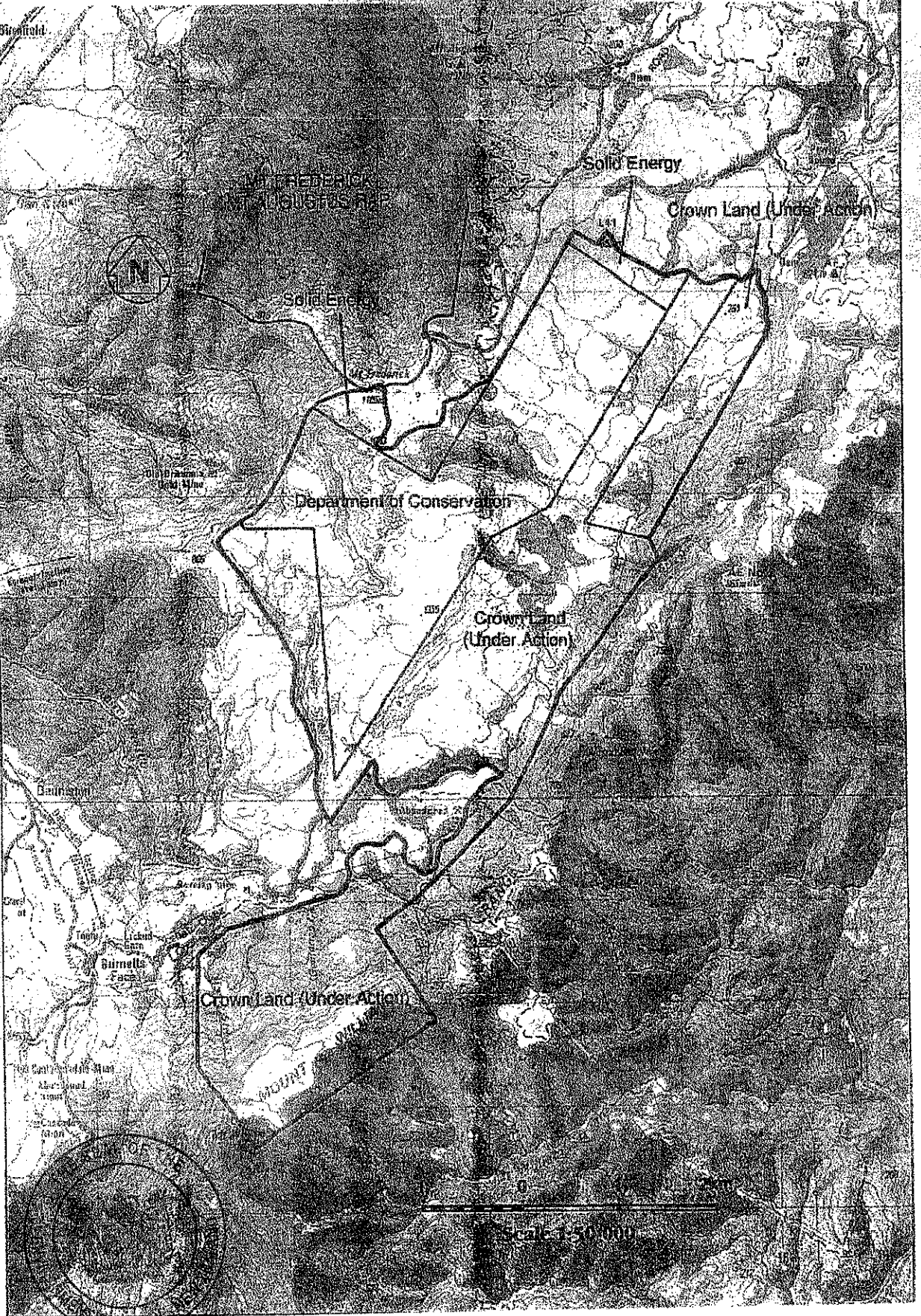


Plan 1 Surrendered Areas and Areas for Ecological Management

ENVIRONMENT COURT OF NEW ZEALAND

SOLID ENERGY
Coals of New Zealand

Figure 6: UPPER WAIMANGAROA VALLEY-MT. WILLIAM RECOMMENDED AREA FOR PROTECTION



ORIGINAL

Decision No. C29/2004

IN THE MATTER of the Resource Management Act 1991 **(the Act)**

AND

IN THE MATTER of appeals under section 120 of the Act

AND

IN THE MATTER of the proposed **KATE VALLEY LANDFILL**

BETWEEN **TRANSWASTE CANTERBURY LIMITED**

(RMA 317/03)

Applicant

AND **CANTERBURY TOO GOOD TO WASTE INCORPORATED**

(RMA 324/03)

Appellant

AND **PEGASUS BAY BEACH USERS ASSOCIATION INCORPORATED**

(RMA 327/03)

Appellant

AND **CANTERBURY REGIONAL COUNCIL**

First Respondent

AND **HURUNUI DISTRICT COUNCIL**

Second Respondent

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

CONTENTS Paragraph

BEFORE THE ENVIRONMENT COURT

Environment Judge J A Smith (presiding)
Environment Commissioner S J Watson
Environment Commissioner D H Menzies

HEARING at **CHRISTCHURCH** on 29 September to 3 October, 13 to 17October, and 3 to 5 and 7 November 2003

APPEARANCES

Mr T C Gould and Ms J M Appleyard for Transwaste Canterbury Limited (**Transwaste**)
Mr A C Hughes-Johnson QC and K W Clay for Canterbury Too Good To Waste (**CTGTW**)
Mr D E J Currie for the Pegasus Bay Beach Users Association (**PBBUA**)
Ms M Perpick for the Canterbury Regional Council (**the Regional Council**)
Ms A C Dewar and Mr D C Caldwell for the Hurunui District Council (**the District Council**)
Mr P M James for Transit (section 271A party)
Ms F J Perriam for Hurunui SNA Group Incorporated (section 271A party)
Dr C D Meurk for P J Bellingham and Urban Landscapes Group (section 271A party)

DECISION

INTRODUCTION

[1] Kate Valley lies in the coastal hills of northern Canterbury between the Waipara River plain and the Pegasus Bay coastline. Transwaste wish to establish a modern engineered municipal solid waste landfill in the valley. We attach and mark **"A"** a general plan of the area showing the site and the proposed landfill footprint.

[2] There is opposition to this proposal from community groups. Their concerns relate to a number of terrestrial ecological values and the integrity of the landfill.

[3] Transwaste sought and obtained a suite of some 25 consents for a landfill at Kate Valley before a joint committee of Commissioners established to hear the regional and district consent applications. This consisted of two consents from the District Council

and 23 from the Regional Council. PBBUA and CTGTW appealed the whole consent and Transwaste appealed 13 of the conditions imposed.

[4] Although the appeals were broadly worded, there has been a continuing refinement of the issues throughout the appeal process. The appeals against the grant of consent are now focussed around several significant grounds on which the appellants argue the consent should be refused. Alternatively, the appellants argue that if consent is to be granted, then a number of the conditions sought to be altered by Transwaste should be retained and some further conditions imposed. However, even the conditions in prospect in this appeal have been significantly focussed, with agreement being reached on a number of critical matters, both before and during the course of this hearing.

Scope of the hearing

[5] Accordingly, although this case would appear to have many similarities with that of the Hampton Downs Landfill[1], the scope of the matters heard before this Court was significantly constrained compared with that case. For example, the Court in the Hampton Downs case heard some 58 witnesses over 14 weeks compared with around 28 witnesses over three weeks in this case.

[6] More importantly, none of the parties to this case disputed the approach of the Environment Court in Hampton Downs and that case provides a very useful template for the general consideration of this application. It is fair to say that both the form of the proposal and the type of conditions imposed by the Commissioners in this case have a high degree of similarity with those imposed by the Environment Court in the Hampton Downs case.

[7] In summary, the issues in this case are, in a comparative sense, relatively straight-forward. However, in respect of the particular concerns of the appellants, the Court heard a significant range of technical argument. In respect of two critical aspects of this hearing:

1 ***Land Air Water Association (and others) v Waikato Regional Council (and others):*** A110/01, 23 October 2001.

(a) Site and landfill stability; and

(b) Remnant A (ecological values)

the Court was called upon to resolve technical differences between experts.

[8] If we are minded to grant consent, the Court will need to turn its mind to the various considerations bearing upon the appropriate conditions to be imposed, in which case broader issues of both law and evidence come to bear, along with the relevant provisions of the District and Regional Plans and the Act[2].

[9] This decision can only address the evidence and arguments that were put before it in encapsulated form. The applicant's closing alone was over 60 pages long, together with several thousand pages of evidence and 1200 pages of cross-examination transcript. To some extent, the volume of the evidence has obscured some of the key issues on which we must make determinations. Accordingly, in forming our views, we have taken into account all of the evidence given to this Court even though we do not, except where essential to our conclusions, discuss particular witnesses' evidence.

History

[10] The majority of territorial authorities in the Canterbury region and the two major waste companies operating in the region entered into an agreement to jointly develop a regional landfill. They set up relevant joint-venture companies and investigated alternatives.

[11] Canterbury Waste Services Limited (**CWS**) produced a "Background to the Canterbury Regional Landfill Project" report dated April 2002. This was produced by Transwaste but did not form part of the appeal application. In Chapter 1.3 of the document it states:

[2] All reference to the Act are references to the Act prior to its 2003 Amendment.

> *The territorial local authorities involved envisage that, instead of each local authority working within its own boundaries to manage its own waste disposal as occurs at present, all or some Canterbury authorities could join together to develop one modern, high standard waste disposal facility to accommodate all Canterbury solid waste.*

[12] This regional waste concept was readily adopted by all the territorial local authorities involved. Later in that section the document notes:

> *The Councils foresaw that taking a regional focus would encourage streamlining and co-ordination of the various recycling and re-use initiatives underway in different Canterbury communities, and allow co-operation and sharing of knowledge and resources between Councils, in a way that had not happened before.*

[13] The ten Canterbury territorial local authorities formed a standing committee known as the Canterbury Waste Joint Standing Committee (**CWJSC**). The task given to that committee was to investigate the potential for a regional solution for approximately 300,000 tonnes of solid waste annually then to be required to be disposed of in Canterbury and to report back with recommendations.

[14] Public consultation in February and March of 1997 endorsed a regional approach to building and operating a modern landfill and involved consultation on the question of inclusion of the private sector in such an approach. Subsequently CWJSC decided that the best way to attain its objectives was to have both Waste Management NZ Limited and Envirowaste Limited in a joint venture with the councils. Subsequently those two companies formed the joint venture known as CWS. In September 1998 six of the ten territorial authorities, being Christchurch City, Waimakariri District, Selwyn District, Ashburton District, Banks Peninsula District and Hurunui District, resolved to form a 50/50 public/private joint venture with CWS to develop and operate a regional landfill for residual waste from the six local authorities. That joint venture was subsequently known as Transwaste Canterbury Limited. We have encapsulated this summary from the section 42A report prepared for the Commissioners by Mr L Fietje and produced to

this Court by consent. We have cited from this report because it forms the basis upon which the Commissioners proceeded with their deliberations.

[15] An earlier site identified as appropriate for a landfill was abandoned late in the process after evidence of a fault was found on the site. That site was to the west of Christchurch and was upstream (in groundwater terms) of the aquifers surrounding and serving Christchurch.

[16] Alternatives were re-investigated and the proposed Kate Valley site was chosen. The applicant prepared some 30 volumes of documents which were produced as part of the assessment of environment effects at the time of the application. This included documentation relating to the earlier investigations and the process by which the site was selected.

[17] The application for resource consent to the District and Regional Councils involved the following component parts:

(1) the development and operation of a modern, engineered regional landfill for disposal of residual municipal solid waste within the subject site. This included:

- formation of the base of the landfill, involving excavation and removal of material from the area under the landfill footprint, and associated stockpiling;
- placement of natural and artificial components to form a liner for the landfill;
- formation of access roads on the site;
- formation and operation of drainage and sediment control measures;
- water supply construction and operation;
- leachate drainage, collection and removal system installation and operation;
- landfill gas control system installation and operation;
- construction of site infrastructure platform facilities;
- landscape planting and construction of a wind protection bund;

- delivery of waste to the site and controlled placement of waste within the landfill;
- cap placement and final surface rehabilitation;
- ongoing monitoring;
- after care.

(2) the upgrading of Mt Cass Road and the construction of a new private access road from Mt Cass Road to the landfill, to provide access for waste transport and other vehicles associated with the construction and operation of the landfill (see Vol. 1 of application documents, page 2).

[18] Consent was granted subsequent to a decision issued by the Commissioners under the chair of Mr P Milne. The decision itself runs to some 159 pages followed by Annexure 1, being special conditions, and Annexure 2, being proposed conditions for Remnant B, and general conditions of some 48 pages. We include herewith marked **"B"** Annexures 1 and 2, but, due to their length, will not attach all of the general conditions.

The appeals

[19] The conditions imposed by the Commissioners were exhaustive and Transwaste has appealed a number of these as being too restrictive. The most significant of the conditions appealed by Transwaste was that relating to the retention of Remnant A which, in the applicant's view, would significantly restrict the potential of the landfill by reducing its capacity to some 30-40% of that which would be otherwise available.

[20] Of the other disputes as to conditions, two that appeared to relate to whether a grant of consent should be made at all were:

(a) the source of waste and its relationship with overall volumes; and
(b) the definition of waste, particularly residual waste and special waste.

[21] Both of these issues appear to have been live issues before the Commissioners and, at para 29.6 of their decision, the issue of source of waste was discussed by the Commissioners. They noted:

> *29.6.1 The issue of accepting waste from outside the six participating authorities in the region was contentious. Several submitters urged us to prohibit waste being accepted at the landfill from outside the boundaries of the six contributing local authorities. The applicant strongly opposed such a restriction.*
>
> *29.6.2 We considered imposing a geographic limit on the waste stream. We did not accept that it would be beyond our powers to impose such a condition, provided that it was for resource management reasons.*

and later 29.6.5:

> *29.6.5 Ultimately we consider that it comes down to an efficiency issue. If greater volumes come from elsewhere, the landfill will have a shorter life. There are also issues of transport and fuel inefficiency in transporting waste from great distances. We have commented on these elsewhere.*
>
> *29.6.6 We do have a residual concern that if the landfill was to accept significant volumes of waste from outside the region that this would increase the traffic volumes with consequent increased effects for those on or near the roads involved.*
>
> *29.6.7 On balance, we consider that amenity and efficiency issues are adequately covered by a condition limiting the amount of green/organic waste received for disposal, by restricting the total number of vehicle movements involved.*

[22] The Commissioners also had before them issues as to what constituted special waste and residual waste.

KEY ISSUES : OVERVIEW

[23] There are a number of key issues which we have decided to approach as follows. It appears there are three categories of concern, namely:

(a) definition;
(b) effects of the proposal; and
(c) conditions of consent.

1. Definitions

[24] The first issues are about definition, namely:

(a) source of waste;
(b) residual waste;
(c) special waste.

[25] These are matters that in our view are largely determined by the scope of the application and accompanying documents which colour the entire consideration of the application. Accordingly, we have concluded that these provisions should be addressed first. However, we accept that even in the event the Court determines that there is no restriction in the application on the source of waste, then that matter could be addressed as part of the conditions if imposed for a proper resource management purpose.

2. Effects of the proposal

[26] The second group of issues relates to whether the effects are such that a consent should not be granted. Again, in analysing the evidence and the issues that were raised, we have concluded that there are three critical areas of concern to the appellants on the grant of consent. These are:

(a) static and seismic stability of the landfill;
(b) applicability of alternative waste treatment methods;
(c) potential effects on the marine environment from escape of leachate.

(a) Static and seismic stability

[27] In respect of static and seismic stability, these could be summarised to two technical issues. The first is contained in the evidence of Dr I R Brown, alleging a regional lineament in the footprint of the landfill. Dr Brown contends that there is or could be a seismic secondary fault present in the landfill footprint which could result in significant movement in a seismic event. Associated with this argument are the questions of:

(a) the sufficiency of the site works to identify any potential fault;
(b) the alleged presence of an oil seep; and
(c) the formation and underlying geology of the landfill footprint.

[28] The second stability issue was raised by Dr R M Pyke, a geotechnical and earthquake engineering specialist, and concerned the potential for landfill failure by slipping or slumping. This appeared to relate to three potential situations:

(a) seismicity;
(b) high groundwater;
(c) liner saturation (static failure).

(b) Alternative waste treatment

[29] Extensive evidence was given about waste minimisation in the Canterbury region and the consideration of alternative treatment that had been undertaken. The parties, PBBUA in particular, argued that section 104(3) required the Court to be satisfied that alternatives were not available. In this regard evidence was given about particular alternatives including evidence from Mr J G Lawson relating to a resource recovery plant that is currently being installed in Australia and could be installed in Canterbury, which, it was asserted, may be able to utilise much of the waste generated in Christchurch.

[30] Issues were raised by Transwaste as to whether it was appropriate to consider alternatives and/or whether the alternatives proposed were realistic in the current context.

(c) Leachate effects on the marine environment

[31] In respect of the potential for damage to the marine environment, the key issue was the potential for leachate to enter the ocean and adversely affect the marine environment. There was no issue that escape of leachate in sufficient quantities into the sea would be of concern to the Regional Council. The issue before this Court was whether that was a real risk.

[32] This brings into play the question of the levels of multiple redundancy in this application and the sufficiency of these methods.

[33] In terms of a brief overview, the leachate risk reduction steps adopted in this proposal were:

(a) the removal and collection of leachate from waste and transportation off site;
(b) the use of multiple layers of impervious liners, with encapsulated bentonite clay to ensure no direct escape of leachate through the liner;
(c) the installation of a compacted sub-base with low permeability;
(d) the installation of sub-drains to intercept any groundwater/leachate that may permeate the sub-base;
(e) staging of development upwards from the base of the valley utilising an engineered toe bund;
(f) geology underlying the sub-base being of low permeability;
(g) the natural land fall and underlying geology which would direct any leachate that escaped towards the downstream catchment area;
(h) the management and treatment of any leachate that may escape, by detention dams and wetlands which would provide for biological breakdown and mechanical mixing;
(i) use of monitoring sites to identify any groundwater contamination;

(j) the extensive planting of the site and buffer zone around the landfill creating a biological filter;

(k) an ongoing reach of waterway beyond the wetlands by which any leachate would have to travel to the sea. This would allow further mixing and biological breakdown to take place;

(l) the significant level of mixing which would occur once any leachate reached the marine environment, taking into account the nearby Waipara River outlet.

[34] The Regional Council argued strongly that there was no evidence before the Court which could satisfy us that there was any real probability of escape of leachate to the sea and, furthermore, that even if such a risk was calculable, the levels of leachate reaching the sea would be so small as to be undetectable once in the ocean.

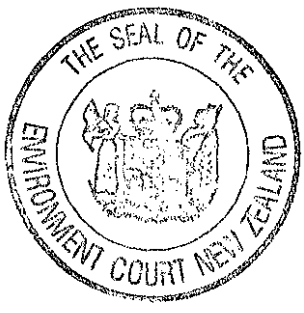
3. Conditions of consent

[35] Once the Court has considered the issues surrounding the grant of consent itself, it may be necessary for the Court to go on to consider the conditions of consent. Because that enquiry will only be necessary if the Court concludes that a consent is generally acceptable, it could be argued that this should be explored if and when the Court concludes matters in respect of the grant itself.

[36] Unfortunately, the position before this Court is not so simple. In undertaking the integration of various factors required under section 104, the Court has to have particular regard to Part II of the Act. This in turn requires the Court to consider some relatively finely balanced issues, including the levels of avoidance, remedial work and mitigation. That, of course, is influenced by the conditions that could be imposed on the consent and thus it is incumbent on the Court to examine the potential conditions of consent and discuss these before it can make a final decision under Part II of the Act and section 5 in particular as to:

(a) the grant; and

(b) the conditions of consent if the grant is to be made.



[37] There are a number of conditions which were appealed, some of which have been largely agreed. The most contentious condition is the preservation of Remnant A which is protected in land use consent RC 020069 condition 13 and special condition 8 to all consents.

(a) Remnant A

[38] The protection of Remnant A arises pursuant to section 6(c) relating to the protection of areas of significant indigenous vegetation. That Remnant A is an area of significant indigenous vegetation had been conceded by Transwaste before the Commissioners but on appeal the applicant advanced evidence as to whether the area was significant, and as to whether Remnant A was an *"area"* in terms of that subsection.

[39] Dr C D Meurk, a research scientist, gave evidence on the values of Remnant A under section 6(c) and the District Council sought to uphold the condition based upon the evidence of their witness, Dr P G Simpson, a botanist.

[40] Transwaste advanced evidence through Associate Professor D A Norton, also a botanist. Transwaste also argued on a legal basis that Remnant A could be removed as of right and this formed the baseline against which the assessment of effects under Part II and section 104 must take place. Transwaste produced to the Court a Certificate of Compliance which permitted the removal of Remnant A and thus argued that the Court could not take into account any adverse effects in assessing matters under Part II or section 104 of the Act. That position was not accepted by the other parties.

(b) Waste separation

[41] Other conditions were argued before this Court relating to waste separation. Conditions 3, 7 and 8 of CRC 021913 deal with separation of waste. This issue related to a method adopted by the Commissioners for waste minimisation. That method effectively gave a time limit after which no green waste and no hazardous waste could be received at the landfill. Transwaste disputed the appropriateness of these conditions, while PBBUA and CTGTW argued the continued appropriateness of them, as did the

Regional Council. In our view these arguments are related to the source of waste and definitions of waste which we have discussed earlier. We will examine these matters in more detail later in the decision.

(c) Other conditions

[42] In respect of other conditions of consent, there was some level of agreement. These can be summarised as follows:

(a) General condition 13 Peer Review Panel. It appeared to be acknowledged that condition 13 was inappropriate by most parties, with the exception of PBBUA.

(b) General condition 33 (iii). Although the Councils accepted the words *or reduce waste volumes to the landfill* should be deleted, PBBUA and CTGTW seek to retain the entire condition. The question arises as to the appropriate resource management purpose that is served by this particular condition.

(c) Condition 12 RC 020067. The applicant has proposed an amended condition, which was not disputed by any party.

(d) Condition 2 RC 020069 Compacting of Refuse. A practical difficulty was raised by Transwaste as to whether all refuse should or can be compacted. Again it appears that the parties may now have reached an agreement that, if consent is otherwise granted, compaction should take place where possible. An amended condition has been put forward.

(e) Condition 4 RC 020069 Hours of Operation. Again, during the course of this hearing, it appeared that the parties had reached a position where a condition could be imposed and a new condition 4 inserted. This would read:

Prior to first acceptance of waste:

(a) heavy vehicles associated with construction work on the landfill site shall not have access to the site before 6 am or after 8 pm Monday to Friday inclusive, or before 7 am or after 6 pm on Saturday, Sunday and public holidays.

(b) all construction work on the site shall comply with the requirements of NZS6803:1999 "Acoustics – construction noise".

(Note: "Heavy vehicle" is defined in condition 22.)

Again we did not understand the parties to dispute the wording of this clause if consent was otherwise granted.

(f) Condition 5 RC 020069 Noise Levels. Similarly, the parties appeared to have reached an accommodation in respect of this matter based on the evidence given by two acoustic consultants, Mr S Camp and Mr N I Hegley, to the Court. In part this agreement may have been resolved by the Gould appeal (RMA 325/03) being withdrawn subsequent to the purchase of that station by one of the parties associated with Transwaste. In any event the parties have now proposed a consent condition which would measure noise at the boundary rather than at the notional boundary of the nearest home. Accordingly the proposed condition is:

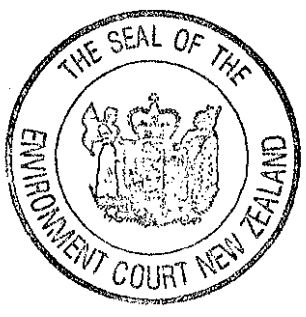
The noise level (L_{10}) from landfill operations (including ongoing construction work not covered by Condition 4) shall not exceed the following limits:

Monday to Saturday inclusive	
7 am to 7 pm	*50 dBA (L_{10})*
Sundays and public holidays	
7.30 am to 6 pm	*45 dBA (L_{10})*

At all other times 40 dBA (L_{10})

as measured at the boundary of the site in accordance with the requirements of NZS6801:1991 and assessed in accordance with the requirements of NZS6802:1991.

(g) Condition 47 RC 020069 (also Special Condition 9) Financial Contribution. The parties have reached agreement on a reworded condition, with no issue being raised before this Court.



(h) Special condition 3 CRC 021919 Batter Slope Stability. An amended condition is proposed and agreed to by the Regional Council. Mr A P Kortegast, for Transwaste, and Dr Pyke, for CTGTW, also agreed that the amendment was appropriate. We did not understand this condition to be in dispute if consent was otherwise appropriate.

(i) Special condition 4 CRC 021919 Surface Water Bypass Drains. There appears to be agreement between the parties that this condition could be deleted if consent is otherwise appropriate.

[43] In addition, Transwaste offered several new conditions during the course of hearing which are directly relevant to the landfill stability and groundwater issues. We shall address those issues later. There was also a suggested additional provision relating to seismic stability and landfill stability design factors. We therefore attach and mark "**C**" Transwaste's proposed conditions of consent (excepting special conditions), highlighting those provisions which parties sought to be deleted or amended.

THE PLANNING FRAMEWORK : OVERVIEW

Scope of hearing

[44] The applications are for consents which are all discretionary. Their discretionary status brings into consideration the provisions of section 104(1)(a)-(i) and Part II of the Act. Because the parties agreed to limit the hearing as we have described, the Court did not hear all of the evidence on all of the matters relevant to the application. That evidence was provided to the Court but, with the specific agreement of the parties, was not read by the Court.

[45] To that extent the parties agreed to limit the scope of the hearing, while recognising that the Court is required to make a general evaluation under section 104 and Part II of the Act. Section 120(1) of the Act provides:

Any one or more of the following persons may appeal to the Environment Court in accordance with section 120(1) against the whole ***or any part of*** *a decision of a consent authority ...*

[46] It has long been accepted by the Environment Court that a limited appeal on part of a decision does not give rise to an evaluation (and prospective refusal) of an entire consent. Although there is no doubt that the parties could have put the applicant to proof on all matters to be established under section 104(1)(a), they have effectively accepted that the applicant has established certain grounds for the application generally in respect of the non-contested areas. Of course in this case PBBUA and CTGTW have sought that the consent be declined entirely on the bases of the several arguments advanced to the Court.

[47] The question then is whether section 120(1) contemplates that a party may seek that an entire consent be declined but then limit themselves to the grounds on which they argue that before the Court. We have concluded that the parties are able, by consent, to restrict the grounds on which an appeal against consent may be argued before the Environment Court.

[48] There are a number of reasons why the Court reaches the conclusion that parties are able to reduce the scope of an appeal before the Court in addition to the wording of section 120:

(a) The Court has general powers to order its own proceedings (section 269(1)) and the powers of a District Court judge in civil jurisdiction (section 278). As such the Court has, as in this case, adopted procedures designed to reduce the issues between the parties and isolate the matters requiring specific determination by the Court. That process would be directly at odds with a requirement for the Court to consider all relevant matters under section 104 and Part II even where those matters are not in dispute between the parties.

(b) The Court, as a matter of practice, generally constrains its enquiry to issues that are still at large between the parties. In this regard reference to Practice Note No. 35 is illustrative of the intent that parties need not

establish matters which are accepted between them. The Court need not be satisfied on matters that parties accept between them.

(c) To that extent we have concluded that the *de novo* nature of a hearing must be subject to such a limitation. The parties in this case accepted that if the Court was nevertheless concerned that certain aspects of matters necessary for proof before it were to be addressed, then such agreement between the parties would necessarily need to give way to the priority of satisfying section 104 and Part II of the Act.

(d) Not infrequently the Court may, during the course of a hearing, become alerted to a matter that has not been the subject of specific evidence by the parties or appeal. We conclude that in those circumstances the duties of the Court under the Act and particularly section 5, may require it to take those matters into account if they influence its decision under section 5. It is not necessary for us to determine this issue finally because in this case no such matters arose.

(e) To the extent that the Court has a concern about the scope of the application (the source of waste) that was not raised specifically in an appeal, that issue must be before the Court as a jurisdictional issue in any event and is not dependent upon the wording of the appeal. It frames the subject of the consent rather than the appeal.

(f) Finally such a restraint leads to procedural efficiency. It is clear that the Act is intended to provide an expeditious appeal process from the decisions of local authorities. Where the parties accept that many aspects of the appeal are not in dispute, it would seem counter-productive that the Court must undertake an exhaustive examination of matters where the parties are agreed on the outcome.

[49] Taking all these matters into account, we have concluded that the Court is entitled to take the matters that are not in dispute between the parties as being established in terms of section 104 and Part II of the Act. The consequence of this is that it is not necessary for the Court to undertake an exhaustive analysis of all of these matters prior to coming to a conclusion. We accept that it does require the Court in undertaking the integrated decision under section 5 to reach various conclusions as to the methods and strengths of various elements that go into the integrated decision. To

that extent again we consider that we are entitled to rely on the conclusions reached by the Commissioners on the matters that are not in contention on appeal. We therefore consider that having regard to the matters that are in contention, we are to make a decision as to whether this affects the conclusion reached by the Commissioners, such as to render a different conclusion appropriate. It was on this basis that the parties addressed the Court and on this basis that we proceed to consider the matters before us.

The District Plan

[50] It is useful to examine briefly the status of the activities under the operative District Plan (**the Plan)** and the provisions which bear upon the consideration of this application prior to dealing with the specific matters we have discussed.

[51] Land use consents are for construction and operation of a landfill (RC 020069) which is a discretionary activity under the operative Hurunui District Plan (August 2003) and for the Mt Cass Road improvements (RC 020067) which are also a discretionary activity under the Plan.

[52] It is Transwaste's position that the removal of Remnant A is a permitted activity pursuant to the Plan and does not require a resource consent.

[53] The Plan recognises at issue 13 (page 104) that:

> *(b) Landfills within the District are important in providing facilities for the efficient and safe disposal of waste, and need to be operated effectively to avoid, remedy or mitigate potentially significant adverse environmental effects.*

[54] Landfills are listed as an unrestricted discretionary activity under Rule A 10.3(d) (page 310) of the Plan. A landfill is defined in the Plan as an area used for the disposal of solid waste into or onto land. Specific activities undertaken as part of the site preparation works and landfill operation are required to comply with district-wide rules relating to height, artificial light, noise limits, screening, earthworks and vehicle

movements. A copy of those is annexed hereto and marked "**D**" (Rules A1.2.7 and following from the evidence of Ms J M Batchelor at annexure 7). Forestry and proposed forestry planting are permitted activities under the Plan.

[55] The Council planner was of the view that the construction and operation of the landfill would breach the earthworks and vehicle movement rules. A breach of those rules makes the activity a discretionary activity.

[56] The criteria for assessing resource consent applications is set out at C1.2 of the Plan. The assessment criteria of C1.2.1, C1.2.2, C1.2.4 (potentially C1.2.5) and C1.2.6 are annexed and marked "**E**".

[57] Curiously considering the complexity of this matter, there was little or no discussion of these assessment criteria, notwithstanding that the Court and the Council must have regard to them and that they represent, in terms of a now operative plan, an approach relevant to this particular case. The Plan provisions represent the integration by the Council of its obligations under superior documents, including the regional plans and policy statements, and its obligations under the Act, including Part II.

[58] Therefore it is most perplexing to us that none of the planners saw fit to address the application of the Plan provisions to this consent. The Plan provisions, as expected, reflect the same type of assessment matters that the planners have identified as being relevant to this application, namely:

traffic
noise
ecology
landscape amenity
odour and dust
litter
vermin control
perception/image
pollution and contamination.

[59] However the criteria from C1.2 reflect the relative importance of these matters from the Council's perception. For example, the Plan (see C1.2.6) examines amenity including improvements to on-site amenity, retention of vegetation or open space, screening or shading, preservation of privacy to the improvement of public views. It is explicit within the Plan that consideration needs to be given to any on site amenity improvements. That is a significant issue in this case because of the area in excess of 400 hectares which is intended to be set aside as a conservation area.

[60] Similarly, under clause C1.2.6(g) decision makers are required to consider whether there are special environmental considerations including noxious, dangerous, offensive or objectionable land uses in close proximity to the site, an unusually located building on an adjacent site, preservation of the natural character of the area or the enhancement of the neighbourhood environmental quality. Although this is indirect, again it seems to show a linkage between potential for improvement of the natural character or amenity of the site and also a relationship between offensive or objectionable activities and their proximity to other uses.

[61] There are also some Coastal Policy Statement issues relevant to the coast some three kilometres from the landfill site and also a number of regional policy statement issues which touch upon the application. Again all of these appear to be captured within the terms of the District Plan, which represents the community's interpretation and application of those documents. The Coastal Policy Statement is general in nature, and its provisions are incorporated (perhaps subsumed) within the District Plan provisions.

[62] In terms of the District Plan and its superior documents, the issues relating to seismic and landfill stability arise both in terms of avoiding, remedying and mitigating adverse effects and also in respect of natural hazards.

[63] In respect of leachate, under the District Plan the issue arises not only in respect of avoiding, mitigating and remedying adverse effects, but also in the particular provisions relating to protection of the coastline and tangata whenua values.

[64] In respect of alternatives, this arises in relation to the policies of the District Plan for waste minimisation.

Regional Plans

[65] There are certain provisions of the Canterbury Regional Council Regional Policy Statement (**the Policy Statement)** which bear upon this application, although they are general in nature. The Proposed Canterbury Natural Resources Regional Plan, Chapter 3 – Air Quality, also has provisions relevant to discharge to air. There are certain other provisions which make up the Transitional Canterbury Regional Plan, being largely general authorisations and bylaws of both the Canterbury Regional Council and its predecessors. A copy of those are annexed hereto and marked "**F**".

[66] In respect of the Policy Statement, there is a specific issue, objective and policies relating the solid and hazardous waste management contained in Chapter 18 (Objective 1) namely:

> *Avoid, remedy or mitigate the adverse effects on the environment from past, present and future solid and hazardous waste management practices.*

[67] Policy 1 of Chapter 18 of the Policy Statement relates to implementation of clean production, waste reduction, re-use, recycling and resource recovery.

[68] Policy 2 seeks the implementation of a co-ordinated approach to waste management in Canterbury.

[69] Policy 4 refers to the need to ensure the cost of waste generation and disposal, including the environmental cost, is borne by those who cause the need for disposal.

[70] Policy 3 is the most relevant and reads:

Solid and hazardous waste disposal sites, including sites which are no longer used for waste disposal, should be managed and located to avoid, remedy or mitigate any adverse effects on the environment.

[71] The methods to achieve this include regional plans and resource consents.

[72] The environmental results anticipated (18.4) note:

The implementation of the above policies and methods is expected to have the following environmental results:

(1) Reduced adverse effects of solid and hazardous wastes on the environment;
(2) Better utilisation of existing solid and hazardous waste management facilities;
(3) Reductions in the amount of solid and hazardous wastes produced and requiring disposal.

[73] There are other provisions in respect of soil quality, erosion, land degradation and sedimentation in Chapter 7.

[74] Relevant transport issues are addressed in Chapter 14 (Policy 2), Chapter 12 (Policy 1), and Chapter 15 (Objective 2). These essentially seek to achieve efficient transportation patterns to reduce adverse effects including emissions.

[75] Chapter 9 (Objective 3) of the Policy Statement relates to the importance of safeguarding water quality, Policy 11 promoting:

...land use practices which maintain and where appropriate enhance water quality.

[76] Policy 12 of Chapter 9 refers to the need for adequate precautionary measures to avoid contamination from the release of hazardous substances.

[77] Chapter 10 of the Policy Statement, relating to beds of rivers, seeks protection and, where appropriate, enhancement of the values of the beds and margins of rivers (Objective 1). Policy 3 recognises the need to retain and promote the establishment of riparian vegetation, particularly indigenous vegetation, along the margins of rivers and lakes to reduce the adverse effects of land use on water quality.

[78] The 23 Regional Council consents consist of consents to disturb the beds of the Omihi Creek, Kate Creek and Wash Creek and permits to discharge landfill gas, exhaust gases, dust, odour and other contaminants; consents to discharge to land, particularly the waste itself; water and sediment discharges in circumstances that may result in discharge to Wash Creek, Kate Creek and their tributaries; discharge of leachate and other site-generated liquids in circumstances that may result in contaminants entering groundwater.

Regional permits to discharge:

(i) To water

[79] These consents concern the discharge of groundwater and treated stormwater; discharge of waters from the storage dam and water from a weir into Kate Creek; discharge of water and sediment to land in circumstances that may result in a discharge to Wash Creek, Kate Creek and their tributaries, and finally water permits to take and use surface water, to take groundwater and to divert and dam water and stormwater.

[80] With the possible exception of the burning of the landfill gas, all other activities are not controlled by any Proposed or Transitional Plan. They therefore fall to be considered as innominate activities in the same way as a discretionary activity.

[81] Section 418(1A) of the Act and section 418(1C) of the Act mean that a resource consent under section 15(1) is required for any new application for a landfill after 1991 unless the discharge is expressly allowed by a rule in a proposed regional plan.

[82] The position in respect of the burning of landfill gas appears to be covered in terms of the Proposed Canterbury Natural Resources Regional Plan, Chapter 3, Air Quality Rule AQL27, which provides:

> *Except where prohibited by Rule AQL 12, the discharge of contaminants into air from burning, outside the Christchurch Clean Air Zones 1 and 2, any fuel in any large scale fuel burning device ...is a discretionary activity.*

[83] Rule AQL37 provides:

> *Discharge of contaminants into air from outdoor burning any materials within a landfill site, waste transfer station or waste recovery area, is a prohibited activity for which no resource consent shall be granted.*

[84] Provision AQL37 may not cover the outdoor burning of gas in a single combustion chamber or waste incineration device. In any event, it appears to be agreed that this application was made prior to the promulgation of the Proposed Canterbury Natural Resources Regional Plan and therefore must be progressed in accordance with section 88A(1) of the Act. This provides, in part:

> *... the application continues to be processed and completed as an application for the type of activity specified in the plan or proposed plan existing at the time the application was made.*

[85] At the time of the application the activity was innominate and therefore discretionary and on the plain wording of the subsection would therefore continue to be processed as a discretionary activity.

[86] The Regional Council did not discuss the decision of the Environment Court in ***Canterbury Regional Council v Christchurch City Council***[3]. That decision appears to relate to provisions of a proposed plan which had subsequently become operative. Here the activity is discretionary under the Transitional Plan, which status does not change

[3] C25/01 and C78/2001.

when the Proposed Plan is introduced. We therefore consider that the matter is adequately addressed by the requirement under section 88A(2) to have regard to the provisions of the Proposed Plan in considering the application. In any event, we are not certain that Rule AQL37 does apply to flare burning or power generation on a landfill site. As the parties appear to have agreed that flare burning or power generation can be considered as a discretionary activity, we have not explored the matter further on this basis.

[87] The criteria of section 104 generally apply to the regional consents and in addition to those under subsection 1, subsection 3, which applies to all discharge permits, and reads:

> *... the consent authority shall, in having regard to the actual and potential effects on the environment of allowing the activity, have regard to –*
>
> *(a) The nature of the discharge and sensitivity of the proposed receiving environment to adverse effects and the applicant's reasons for making the proposed choice; and*
> *(b) Any possible alternative methods of discharge, including discharge into any other receiving environment.*

[88] In respect to the regional consents, the discharge permits relate not only to discharges of water, leachate and contaminants but to the discharge of the waste itself into the landfill. Thus the Court must consider alternatives in respect of the discharge consents, particularly CRC 021913.

Coastal provisions

[89] The relevance of the New Zealand Coastal Policy Statement and the regional coastal provisions of the Regional Policy Statement and Plan only come into focus if there is potential for adverse effects from the discharge of leachate to the coastal environment.

[90] It was axiomatic to the application of Transwaste that there will be no adverse effect from discharge of leachate on the coastal environment. If we found that in fact there is an adverse effect, namely discharge of leachate to the coastal environment, it appears appropriate that the Court should refuse consent.

[91] We have concluded that it is unnecessary to discuss the national and regional policy documents on the basis that there must be no adverse effect on the coastal environment. That there was no adverse effect on the coastal environment was asserted both by Ms S M Dawson, the planner called for Transwaste, and Mr A K Brough, an environmental engineer also called for Transwaste. As the coast is some three kilometres distant from the landfill, the issue therefore turns on whether we are satisfied that there is no prospect of an adverse effect from the landfill operation on that coastal environment.

(ii) To air

[92] Chapter 13 (Policy 5) of the Policy Statement specifically seeks that activities that:

> *(a) discharge contaminants into air should be encouraged to locate away from residential dwellings, educational facilities, hospitals, shops and other similar public buildings unless adverse effects can be avoided or mitigated.*

[93] Chapter 13 of the Policy Statement also includes some comment forming the basis for the proposed air quality plan. Chapter 13 (Policy 6) reads:

> *Practices which reduce the adverse effects of the discharge to air of methane and other contaminants from waste management activities should be adopted. For landfill management, regard should be had to the Ministry for the Environment Landfill Guidelines (November 1992) with respect to discharges to air.*

[94] We note that Objective 3 of the same chapter states:

(a) Reduce emissions of greenhouse gases.

[95] There is a series of provisions in the Proposed Canterbury Natural Resources Regional Plan Chapter 3: Air Quality. We have already mentioned the rules applicable. The policies in AQL1 are generally applicable. This refers to the prohibition of combustion of specified materials. The associated methods include the use of facilities to dispose of waste that shall no longer be burnt in the open, as well as the waste management strategy AQL1(b). AQL4, as we have discussed, limits outdoor burning and AQL5 seeks to avoid odour nuisance, while AQL6 takes the same approach to avoid dust nuisance.

The Planning Framework : summary

[96] Having regard to the various provisions of the Regional Plan that we have discussed, we consider that the matters can properly be addressed under both the Regional and the District Plans in a single assessment of the relevant provisions under section 104(1). It is also necessary to overlay the particular requirements under section 104(3) as they apply to the discharge consents. We intend to discuss the various provisions of the District Plan as they arise in respect of each of the issues that are identified or otherwise under our examination of the district provisions under section 104(1)(d).

[97] However we have identified the regional planning considerations at this stage because the essential assessment of the applications in respect of the great majority of applications is conducted in terms of the Act alone. Before addressing the key issues and various criteria under section 104, it is important to describe the proposal.

THE PROPOSAL

Overview

[98] The proposal has been modified during the course of the hearings. We have already set out the various parameters of the consents proposed, which give some idea of the scale of the landfill.

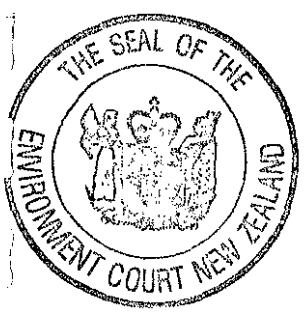
[99] It is intended that the majority of waste would be initially received, sorted and assembled by territorial authorities through transfer stations. The waste, being compacted wherever possible, would then be carted by specially designed and/or adapted trucks, to the Kate Valley landfill where there would be an unloading station. The trucks would then remove the containers, which would be emptied at the convenience of the operating staff into large dump trucks, which would then transport the waste to the landfill face.

[100] The landfill would progressively be filled in cells from the lowest point of the valley upwards across a footprint of some 35 hectares. Annexed hereto and marked "**G**" is a copy of the landfill cell plan showing the basic outline of the footprint and the cells.

[101] Each cell may take some years to be filled and there is comprehensive on site management to ensure that the cell is covered, stabilised and maintained through the ensuing period.

[102] It is anticipated that the landfill will take up to 300,000 tonnes of waste every year and use up the available space at that maximum consumption rate in around 35 years. Depending on whether waste is received at a greater or lesser level through this period, the life of the landfill will be extended or contracted.

[103] All of the evidence given to this Court about the tonnage rates required related to the requirements of the six territorial authorities and the low, medium and high tonnage estimates were based on an extrapolation of these figures.



[104] An essential feature of the landfill is a large toe bund at the base of the landfill footprint which represents the lowest point and is designed to stabilise the entire landfill. It is intended that there be a leachate collection system at the toe bund. Leachate would flow down hill from any point in the landfill above, through waste infiltration, along the liner surface and along leachate collection pathways. It would then be collected and pumped from a sump, stored in tanks on the site and then removed by truck at regular intervals. The quantities of leachate would increase during the life of the landfill as more waste is added and would peak at some point (approximately 20 to 30 years) after the landfill is closed.

[105] It is also intended that there be a gas collection system and this would be variously flared and, potentially, used to generate electricity in the later years of the landfill life.

[106] It is intended that the landfill eventually be capped with a clay layer and after a settlement and treatment period converted to pasture grasses but not stocked.

[107] The natural streambed downstream of the toe bund would drain to a stormwater detention system which would retain some 30,000 cubic metres of water, continuing thereafter downstream in the natural stream bed until the stream flows into a wetland area below Ella Scarp. That wetland area would contain a further 100,000 cubic metres of water. Thereafter the stream would revert to its natural flow which wends its way through steep gullies and waterfalls to the sea (1.5 to 2 kilometres beyond).

[108] There have been extensive negotiations with the Department of Conservation and others leading to Transwaste now offering to turn some 400 hectares of land surrounding the landfill footprint into a conservation area. The majority of this would be downstream of the landfill footprint and the proposal incorporates extensive replanting in native vegetation and the development of a management plan.

[109] As can be seen by the proposed conditions, the commitment to this conservation area is significant. We accept that, in due course, this conservation area may represent a significant regional asset in its own right. The mere retirement of this land from active

farming is likely to have a significant benefit to indigenous vegetation and the viability of the existing native remnant vegetation on site. There is also the potential for linkages with the Mt Cass Reserve and the Ella Peak Scenic Reserve.

[110] In addition, surrounding the conservation management area, is a general management area and landscape management area which lie immediately around the landfill. These areas total some 900 hectares, including an additional 50 hectares outside the application area but part of Tiromoana Station which Transwaste have agreed with the Department of Conservation will be treated as a reserve. If it cannot be directly included within these areas then Transwaste are proffering provision for its conservation, including the potential for a QEII covenant or similar restrictive covenant over the title. Annexed hereto and marked "**H**" is a general plan showing the various areas proposed to be dedicated as part of the overall site.

[111] We understand it is intended that the landfill area would be subdivided and separated off in due course with the balance of the Tirimoana Station and, we presume, relevant portions of the Mt Cass Station on-sold in due course. The overall size of the site allows Transwaste to control all aspects of the catchment from the road entry to the site to the final outfall of the stream to the sea.

[112] In addition, there is a significant commitment by Transwaste towards revegetating at least the conservation area. Although there were some questions as to whether or not this was going to be funded from ongoing income from the works or as a capital cost, we understood that overall Transwaste accepted that it would need to commit to a vegetation programme and appropriate management plans (and those costs would need to be met) because most of these works are envisaged to be undertaken prior to and during the operation of the filling period of the landfill.

[113] Overall the application has been presented to the Court as a package. Discernable benefits to the wider environment of Kate Valley and to the region as a whole are proposed as part of this total package. Thus in any consideration under Part II and in the integration necessary under section 5, these benefits are advanced as a critical feature.

Access

[114] It is intended that a new road be formed from Mt Cass Road to an area at the top of Kate Valley overlooking the landfill site. This area would include an unloading station, with room for the storage of emptied containers and those waiting to be emptied, dump trucks not in use and for other facilities necessary for the operation of the site. This platform will be a permanent feature throughout the life of the landfill. It is intended that there will also be facilities for staff – lunchroom, ablutions and the like, and no doubt storage for other machinery, staff vehicles, materials and tools that are needed for the landfill operation. The existing public road will intersect with this area near the unloading station.

[115] However Transwaste's proposal as to how it will maintain security of the site while at the same time maintaining the public road was unclear. There is no proposal before the Court for closing this road and accordingly we are proceeding on the assumption that public access will remain available along the public road around the outside of the landfill. We note that Transwaste intends to have a viewing area available near the unloading station. The precise details of how public access is going to be controlled were not clear to us. The current public road built around the outside of the landfill footprint does not follow the legal alignment in all places. We understand that there is an intention to alter the alignment of the road, and again we have assumed that it will continue to be public road although providing access to the landfill workface itself at the toe bund or other positions. The alignment of this road will no doubt change as the development proceeds, particularly as new access ways on the landfill footprint itself are required at various times.

Landfill footprint

[116] The landfill footprint is intended to be developed progressively over the life of the Plan, with stripping and benching of the soils and subsoils. It is intended that there will be geological inspection of the subsoils at the time of stripping and benching before the sub-base is compacted or liners are laid. We understand it is now Transwaste's proposal to incorporate subsoil layer drainage throughout the footprint of the landfill.

We understand that this drainage is still to be undertaken in stages and the method will, at least for Stage 1, be addressed by Transwaste at the final design phase.

[117] Because the landfill footprint is within a valley, the valley sides would be benched, with the major toe bund being constructed and compacted at the same time. The subsoil would be compacted to a low permeability level, with geosynthetic liner with encapsulated Bentonite material then installed. As the waste is placed in the landfill, it would be covered with subsoil and the landfill would be progressively in-filled from the lowest point to the highest point. There would need to be an ongoing management plan in relation to the design to deal with such issues as leachate control and air discharges. Details of these were given in the applications.

[118] Once the landfill is completed, a clay cap would be put over the entire landfill and the site would be managed for a continuing period, probably in the order of fifty years. It is intended that the site may eventually be utilised for fodder and/or other cropping but not used for stock grazing. In the conservation management area extensive works are proposed.

[119] It is not intended that this general description substitute for the far more detailed information given in the application.

Planting

[120] The intention is to plant an area of some 40 hectares in indigenous forest species utilising, in part, seed and plants propagated from Remnant A, as well as an additional black beech area. The intention is to extend the existing Remnant B and thereby to establish a larger, and arguably, more viable indigenous vegetation area. It is intended that the detention pond and wider wetland area would also add significant fauna and flora values. In conjunction with extensive replanting plans, the long term objective is to create a large natural area which may be available for access by the general public in due course. There is also potential to link with existing reserves managed by the Department of Conservation and potentially to consolidate and/or expand these areas.

Off-site changes

[121] It is necessary to improve Mt Cass Road by widening, sealing and improving the horizontal and vertical road alignments to enable trucks to access the site more readily. The majority of the land on both sides of the road is owned by the applicant or its associates and, at the hearing, no particular issue was taken with these road improvements. It is intended that there would be between 10,000 and 16,000 vehicle round trips per year (ie x 2 for movements), with approximately half that number for light vehicles. There does not appear to be a dispute as to the imposition of the maximum trip numbers imposed by the Commissioners. The Court accepts that there will be peak periods at which there will be more traffic than the average given.

KEY ISSUE 1 - DEFINITIONS

[122] The three issues with respect to definitions are:

(a) source of waste;
(b) definition of residual waste;
(c) definition of special waste.

[123] Because these affect the ongoing approach of the Court, we deal with those now.

The source of waste

[124] The application was submitted as a series of Regional and District Council resource consent applications. In summary, the proposal is for:

> *The development and operation of a modern, engineered* ***regional*** *landfill to dispose of municipal solid waste within the subject site.* [Emphasis added]

[125] Applications to both Councils include a further statement:

> *A more detailed description of the proposal is included in the Assessment of Effects on the Environment attached as Volumes 2 to 30 and shown on the*

drawings in Volumes 3 and 4, and including Proposed Resource Consent Conditions contained in Appendix A (Volume 5), all of which should be read as forming part of these Applications.

[126] The issue before this Court on the appeal was whether Transwaste was able to source waste from outside the Canterbury region. No condition was imposed by the Commissioners, and a number of the appellants were concerned that the intention of Transwaste was to utilise the landfill for waste outside Canterbury. Transwaste went so far as to suggest that it was not within the jurisdiction of this Court to impose such a condition. Mr T Gould, for Transwaste, acknowledged that the resource consent is limited by the terms of the application. However, he considered that the controls over vehicle numbers, hours of operation, size of the landfill and noise levels affect the scale and intensity of the activity and thereby its effects. His submission was that the source of waste would have no additional effects and therefore it was not appropriate to control this issue.

[127] We have considered this issue carefully and disagree with Mr Gould for two reasons:

(1) The scope of the application. We accept that the use of word ***regional*** to describe the landfill may not in itself be determinative. What, however, in our view is determinative are the accompanying documents which clearly disclose a course of action relating to the location and use of a regional landfill. They identify the various steps preceding the application. For example, in Volume 28, in the site selection report, Chapter 1, there is a description of the need for a regional approach to the problem of solid waste disposal by the Canterbury Waste Joint Standing Committee. Further, in Chapter 2.1 of Volume 28 the site selection process was staged, moving through the following steps:

(1) consideration of the whole of the Canterbury region;
(2) identification of a series of favourable localities.

Volume 20, which details community and consultation (Appendix M) notes the overview of consultation (4.1, page 28):

> *Prior to the public announcement of Kate Valley as a site being investigated as a potential landfill for Canterbury, ...*

and later:

> *Contact with these people has continued throughout the preliminary, and subsequent more detailed, investigation phases of the Kate Valley area for a regional landfill.*

Having regard to the totality of the documents in support of the application, there is no doubt in our minds that the intention was to find a waste management solution for the Canterbury region. None of the assessment of volumes of traffic or the like discusses the potential for other sources of waste or the ramifications of those.

(2) This leads us to the second issue, being that there is simply no evidence as to what effects, if any, there would be from expansion of the waste received to that throughout the South Island or the whole of New Zealand or even internationally. At the closing of their case, Transwaste acknowledged that they would only accept waste from throughout the South Island. Questions immediately arise as to the transportation implications of this, including the following questions:

(a) how would the waste be transported to the site?

(b) what pre-sorting, compaction or other steps would be taken in respect of the waste?

(c) what would be the impacts of such further transportation? (For instance, anaerobic conditions from the longer time taken to reach the landfill).

(d) what would be the implications for the waste minimisation plans of the region if other areas without such waste minimisation plans were able to use the landfill?

(e) would there be any impact upon the life of the landfill, waste mix within the landfill, or other matters? For example, would this mean that other waste of a particular type, ie sewage sludge or organic waste, might be imported, thereby changing the overall concentrations of waste at the landfill?

[128] Essentially the Court is being asked to grant a consent to include an activity for which no assessment of effects has been provided. The evidence in respect of the waste to be received from the Canterbury region is very detailed. It involves significant background as to the waste generation in those areas, transfer stations, and type of trucks to be operated. We have concluded that on either of these bases the application is clearly limited to waste generated throughout the Canterbury region. Because Transwaste has now argued that that is not the case, it is important that if the Court is minded to grant consent, that it make this clear in the grant. In respect of all consents this could be achieved simply by adding to Land Use Consent RC 020069 the words:

generated within the Canterbury region.

[129] Land Use consent RC 020069 would now read:

To carry out the construction, development, operation and rehabilitation and associated activities of a landfill designed to accept municipal solid waste generated within the Canterbury region.

[130] One of the major concerns raised by the residents groups was that any waste minimisation advantages that were achieved in the region by virtue of current initiatives could be undermined by the importation of waste from other areas. A landfill that might last many generations could then become filled with waste from other regions, even if waste minimisation measures were successful in this region. The residents' concerns in this area, although understandable, are addressed directly by our findings to the scope of the consent applied for, and consequently, that which may be granted. On

this basis, any waste minimisation efforts achieved within the Canterbury region will have direct benefits in terms of the longevity of the landfill. Having said that, there are clearly capital costs involved and the residents are still concerned that the district councils will be seeking to maximise the economic return of the landfill by maximising waste which is placed in it.

[131] This led on to the concerns by residents as to what is incorporated within residual waste and special waste.

Residual waste

[132] The starting point is probably condition 3 of consent CRC 021913 as set by the Commissioners. This reads:

> *No waste, other than **residual Municipal Solid Waste** (MSW), shall be accepted for disposal. The definition of MSW shall be any non-hazardous, solid waste from a combination of domestic, commercial and industrial sources. It includes putrescible waste, garden waste, uncontaminated biosolids, and clinical and related waste (including contaminated waste sterilised to a standard acceptable to the Ministry of Health). It may include a small proportion of hazardous waste from households, and small commercial premises that is not detectable using standard screening procedures at either transfer stations or other waste reception facilities. Such quantities are small – generally <200 ml/t, or <200 g/tonne. It also includes site-generated process sludges in comparatively small quantities (e.g. LCS condensate, evaporator sludges, sludges from leachate treatment and sediment control facilities), and non-hazardous sludge wastes (e.g. wastewater treatment plant sludges) consistent with maintaining workable sludge/waste ratios for operations and stability purposes. In terms of the above, "**residual**" shall mean that part of the municipal waste stream remaining, once all practicable and economic measures have been adopted to reduce, recover, reuse and or recycle material within the waste stream.*

[133] Transwaste seeks the deletion of this condition on the basis that it imposes requirements beyond its control. It is argued that such a provision sets a waste

minimisation policy which is the role of the councils rather than the consent holder. It is further argued that the condition requires Transwaste to adopt some direct control over third parties. Mr Gould, in his final submission, put the matter in this way:

> *As has been emphasised by counsel for Transwaste throughout this case, matters of waste minimisation are the statutory responsibility of the relevant local authorities under the Local Government Act 1974. Subject to the condition proposed by Transwaste that will place some limits on the source of waste Transwaste can accept, it is submitted that it is not the role of this Court to require Transwaste, as a landfill operator, to ensure that waste minimisation goals are achieved. Despite this, certain draft conditions of consent will be proffered in a later section of this reply.*

[134] The approach proffered by Transwaste was that Transwaste only accept waste:

- *that meets the landfill's acceptance criteria; and*
- *that originates only from local authority areas in the South Island of New Zealand.*

[135] The Court has already discussed the last of these proposals and would limit the area to those local authorities within Canterbury. With that exception, the condition offered by Transwaste is one which would see the deletion of the word ***residual,*** particularly the last sentence of condition 3 to CRC 021913 as follows:

> *In terms of the above, "**residual**" shall mean that part of the municipal waste stream remaining, once all practicable and economic measures have been adopted to reduce, recover, reuse and or recycle material within the waste stream.*

and the insertion of a new 3A which would read:

> *The consent holder shall only accept waste:*
>
> - *that meets the landfill's acceptance criteria;*

- *that originates from an area in which the relevant local authority has certified to Transwaste that it has adopted a Waste Management Plan in terms of s. 539(1)(a) of the Local Government Act 1974, which incorporates provision for the collection and reduction, reuse, recycling, recovery, treatment or disposal of waste in the district in terms of s. 539(2)(a) of the LGA.*

[136] We have considered this matter and have concluded that we agree substantially with what Transwaste is proposing. In principle we agree that it is not possible to impose a direct requirement that Transwaste ensure that third parties act in a particular way. On the other hand, Transwaste is able to require any party to certify that it has undertaken those steps before accepting it. This will have effect not only on waste received from transfer stations but also special waste, which we will discuss in a moment. We have concluded that the better approach is to retain the use of the word ***residual***. We conclude that this indicates that the waste is subject to a process prior to being received. We would then define ***residual*** in the terms suggested by Transwaste with the alteration for clarification. Accordingly, for the purposes of this decision, we shall continue to use the phrase ***residual*** municipal solid waste and shall provide a working definition which, if consent is granted, could be included under condition 3 to CRC 021913 which would read:

In terms of the above, **residual** *shall mean waste:*

- *that meets the landfill acceptance criteria; and*
- *where the relevant local authority has certified to Transwaste that it has adopted a waste management plan in terms of section 539(1)(a) of the Local Government Act, which incorporates provision for the collection and reduction, reuse, recycling, recovery, treatment or disposal of waste in the district in terms of section 539(2)(a) of the Local Government Act; and that the waste meets such plan requirements; and*
- *originates from local authority areas within the Canterbury region of New Zealand.*

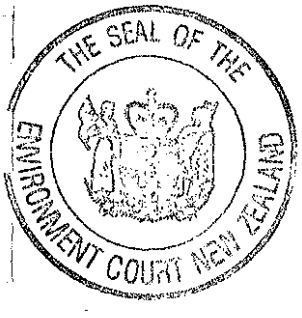
[137] The third bullet point refers to the new wording of Land Use Consent RC 020069, discussed above.

[138] There was much discussion about the Memorandum of Understanding of the Parties to the Joint Venture between the councils, Waste Management New Zealand and Canterbury Waste Services. The essence of this argument was that the MOU required all controlled volumes to be committed to the landfill. It was suggested that the distinction between controlled volumes and residual waste meant that waste minimisation procedures could not be undertaken. We have concluded that this argument does not sustain close examination for the following reasons:

(a) there was clear evidence from Mr D O'Rourke, a member of the Joint Committee and Christchurch City councillor, that the concept of residual waste has been a late development in the planning of this landfill;
(b) it is therefore quite possible to interpret controlled volumes in the same sense as residual volumes, without unduly straining the wording of the MOU.

[139] Further, the MOU could not require councils to take actions that were in breach of their statutory responsibilities under the Local Government Act, particularly section 539. Mr O'Rourke repeatedly made it clear that his understanding of the obligation was that final, or residual, waste was to be disposed of in the landfill. In our view it would be an undue straining of the language of the MOU to suggest that it obliged parties to create or maintain waste in contradiction to waste minimisation policies.

[140] We accept that there will be different approaches between councils to waste minimisation. Some councils, particularly the Christchurch City Council, are very active in this area; other councils have less developed policies. In the end, the extent of those policies and their implementation is a matter for each council. We do not consider that the MOU interferes with those obligations, particularly in light of the retention of the residual waste definition which we have discussed. We also accept that there is no mandatory requirement on councils to provide all waste to the landfill in terms of the MOU, but the intention in respect of controlled volumes, final volumes and now residual volumes is the same in intent, namely those volumes that remain after the



council has undertaken whatever minimisation, reuse, recycling, recovery, pre-treatment it considers to be necessary.

Special waste

[141] The exception to the general requirement that waste must be processed through a waste transfer station or equivalent within local authority areas is the provision for special waste. The concern of the objectors, which we share, is the potential for the special waste category to be significantly expanded, and thus avoid the minimisation techniques of the local authorities. Our concern that this special waste category could increase is overcome by the proposed approach suggested by Transwaste, and our decision to continue to define waste to be received at the landfill as residual municipal solid waste. This will mean that even special waste requires certification by the relevant council. In certifying

(a) waste minimisation policies;
(b) the material is suitable for the landfill;
(c) is sourced within Canterbury;

the relevant council's attention is at least drawn to the special waste that is intended to be delivered. This should avoid the potential for an increasing quantity of waste which has not undergone any minimisation procedures to be forwarded to the landfill. Disposal of special waste also requires the consent of the landfill operator. It is difficult to see the landfill operator granting such consent if it is merely a method of avoiding local authority control. There are many circumstances in which we accept that delivery directly to the site is appropriate, and we understand that the current tonnage involved is in the order of 10,000 to 20,000 tonnes per year. This would include such waste as building materials, seafood waste products and the like. We are satisfied on reflection that with the controls suggested the potential for the special waste category to supplant control through transfer stations is minimal, particularly with the residual requirement remaining. We will discuss this issue again as it applies to particular conditions in due course. For current purposes, however, discussion of these matters sets the scene for the scope of the application and our consideration of the particular issues.

[142] It is now our intention to deal with each of the categories set out in section 104(1). This may involve, at least in respect of indigenous vegetation, a discussion of section 6(c) during the course of discussing the effects of the activity. We will however also discuss Part II of the Act before dealing with the particular conditions that are also in dispute if the Court is minded to grant consent.

KEY ISSUE 2 : EFFECTS OF THE PROPOSAL

[143] As can be expected with an activity of this scale, there are a number of effects to be addressed. In this case, a number of those effects are no longer in contention. These include Maori cultural issues, impacts on air quality, health, birds and vermin, litter, property values, sewage and waste water, traffic, visual and landscape impacts, and effects on the national roading network. These are all matters which were not at issue before this Court. This is not to say they are not matters of importance. Rather, all parties accept in light of the evidence and the conditions of consent, that if the Court is otherwise minded to grant consent, these matters are appropriately addressed through the conditions of consent recommended by the Commissioners and supported by Transwaste before this Court.

[144] Certain other issues (for example, potential impact on the wine growing area, and social impacts) derive from the concerns of the objectors to issues such as groundwater and seismic faulting. Although these were significant concerns before the Commissioners, in this case no particular evidence was advanced. Although evidence (particularly from the Goulds who live at nearby Mt Cass Station) had been pre-circulated prior to the trial, the objection of that party and the evidence was withdrawn at the commencement of the hearing.

[145] Similarly, effects on traffic, although raised and addressed in the evidence of Transit, had been resolved by agreement with the applicant by the commencement of the case.

[146] Attempting to undertake some synthesis of the very disparate and sometimes confusing evidence of the experts, we have decided to analyse effects under the following topics:

(1) subsoil and ground condition issues;
(2) groundwater issues;
(3) surface water issues;
(4) marine environment issues;
(5) extreme events, including:
    (a) seismic
    (b) rainfall/groundwater
    (c) liner failure
    (d) combination events
(6) ecosystem effects (excluding effects on Remnant A);
(7) positive effects;
(8) effects on beech Remnant A including section 6(c).

Ground conditions/subsoil

[147] One of the key issues raised by CTGTW related to the geological conditions, particularly the potential for existing faults and fractures which might:

(a) shift considerably during a seismic event; or
(b) allow penetration of groundwater towards the Waipara area.

[148] There did not appear to be a significant dispute as to the general underlying geology of the site. However, the Court was faced with two primary witnesses in this matter, both of whom are well respected in their field, but who held opposing points of view.

[149] Dr Brown, who holds degrees in civil and geological engineering, has been involved in construction aspects of projects in tertiary rocks in New Zealand, involving similar geology to that at Kate Valley. Dr Brown was of the view that there was a regional lineament through the landfill footprint on the site which could be indicative of a secondary fault showing:

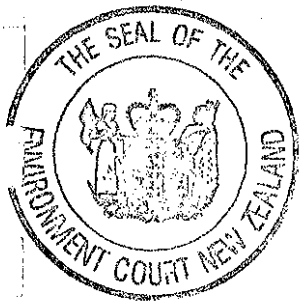
(a) past movement on the site and the potential presence of an existing fracture in the tertiary sediments on the site; and

(b) a fault-line for future potential movement in the landfill.

[150] Dr M D Yetton is an engineering geologist called for Transwaste. He was of the view that, notwithstanding the indication at first viewing of a potential lineament, further investigation demonstrated that there was no lineament on the site and, furthermore, that he was satisfied that there was no existing fracture of the tertiary sediments, nor was there any secondary fault-line through the site. This view was supported by Associate Professor J R Pettinga, an engineering geologist, also called by Transwaste, Mr P B Riley, a consultant engineer with considerable experience in engineering geology, and Dr B W Riddolls, an engineering geologist, called by the Regional Council. Notwithstanding the other experts reaching a different conclusion and the levels of cross-examination to which he was subjected, Dr Brown was of the opinion that he had properly identified a lineament running through the site.

[151] Having heard all the evidence, we consider that the parties may have been, to some extent, talking past each other. Dr Yetton and others had identified a potential lineament running through the site which had led to further investigations. The real issue was not that there was an apparent lineament in the site, but whether this was an indicator of subsurface faulting. Dr Brown's criticism was that there had been inadequate benching or bore logs undertaken to be sure that there was not an underground fault or fracture. In this regard Dr Brown pointed to the loss of a portion of core samples explained by the other expert witnesses as being due to the sand being washed away. In support of his argument that there may be fault-lines on the site, he pointed to an oil-seep found in the footprint of the landfill. He later acknowledged that this was not a oil-seep, notwithstanding his statement of fact in his original evidence.

[152] Effectively we have concluded that, with the exception of Dr Brown, the other engineering geologists were satisfied that the investigations had precluded the possibility of any fracture or secondary fault through the landfill footprint. Because of the nature of the studies undertaken, which were in his view limited, Dr Brown concluded that further investigation at the minimum was necessary. We cannot criticise Dr Brown for his caution but we do not agree with his conclusion. We are satisfied that



there is no evidence of either a fracture or a secondary fault through the footprint of this site. This matter can and will be checked at the time that the subsurface is exposed during the course of construction of the works. It is a condition of the consent that the subsurface geology be checked after benching and prior to any further works being undertaken. In the event that a fault is detected, then appropriate remedial steps and/or abandonment of the site will need to be considered. To that extent, with the imposition of appropriate conditions as to engineering design, it will be the responsibility of the engineers to satisfy themselves that the underlying geology is such that the seismic and permeability criteria are met. We are not satisfied that there is any evidence of an existing fracture sufficient to allow water to permeate through the underlying sediment and particularly through the Tokama siltstone towards the Waipara area.

[153] There was also discussion regarding the potential for the saddle area to slip, either within the landfill footprint or on the outer face. We have concluded that any surface movement of the sediments overlying the Tokama siltstone would not affect the integrity of the underlying tertiary sediments either by introducing fractures or, alternatively, by increasing their permeability. There is evidence of other areas where Tokama siltstone has been exposed and shows good long-term weathering characteristics. We accept that even the overlying Greenwood formation is a sediment of low permeability and that both of these formations are often referred to as "soft rock" or "papa". We also accept that the slope on the underlying Tokama siltstone is such that it dips to the east, meaning that any water falling on the landfill footprint side would flow towards the sea at the bottom of the valley rather than towards Waipara Valley. With a permeability of $1x10^{-8}$ metres/second to $4x10^{-8}$ metres/second (which is a low permeability), we are satisfied that the prospects of groundwater flow through the Tokama siltstone towards Wairapa are negligible.

[154] This is also consistent with the major geological faults in the area, with the primary alpine fault to the west and the Omihi fault zone and Hamilton fault zone near the Wairapa River. The effect of these nearby faults has been to create uplift and fold structures to the east towards the underlying coast, of which the Kate Valley forms part. Dr Yetton summarises:

The effect of this canoe-shaped trough in the strata (in particular that part of it formed in the thick Tokama siltstone) is to further isolate the groundwater systems of Kate Valley and Teviotdale Stream from the Waipara River catchment.

[155] We also accept Dr Yetton's evidence that there is little evidence of joints and fractures in either the Tokama siltstone or the Greenwood formation. Based on this evidence, it is most unlikely that any apparent lineament would be indicative of either fracturing or a secondary fault. In any event, we are satisfied that the further steps taken by the applicant to investigate the site are sufficient to make that possibility remote. However, adopting a cautious approach, inspection of the subsurface geology on exposure would enable these predictions to be confirmed or otherwise.

Groundwater

[156] As we have discussed, we are satisfied that there is no reasonable prospect of groundwater flowing across Pine Saddle to Teviotdale Ridge towards the Waipara River. Such groundwater flow would be dependent upon fractures or jointing being contiguous so as to allow any such water to exit.

[157] A secondary argument for the CTGTW, again supported by Dr Brown and also by Dr Pyke (a landfill engineer called by CTGTW), was that there is a prospect of groundwater coming to or close to the subsoil level of the landfill. In support of this were several piezometric measurements undertaken near the foot of the landfill showing positive water flows. What such an evaluation overlooks, in our view, is the changes to the groundwater hydrology that will occur as a result of the landfill construction. In particular, the installation of subsoil drains (now proffered by Transwaste) and the liner with surface water collection systems are likely to make a significant difference to the potential for water to reach the subsurface in the landfill footprint. We accept the evidence of Transwaste's witnesses that there is no realistic prospect of water levels reaching the ground surface once the works are underway. Having regard to the fact that the landfill footprint will occupy nearly the entire valley, there is little additional surface area on which water could permeate into the soils. Roadways will have water diversion and collection systems, as will the landfill. We conclude that the changes to

ground surface levels will further direct the groundwater flow in a down-hill direction towards the detention and wetland areas.

[158] We note the site of seep referred to by Dr Brown near the current access road. It is inevitable that the spring or water source of the seep would be exposed as part of the earthworks for this project. To that extent Transwaste would be able to examine it and determine whether or not it represents any form of geological fault or would otherwise compromise the development.

[159] We are satisfied with respect of groundwater matters that any potential problems will be picked up by the installation of the subsurface drains which are now offered by the applicant. We consider that with the installation of appropriate monitoring (to detect the presence of leachate), the ability to cut off the outflow from this pipe and adequate storage will allow remedial steps to be taken. Any leachate that did reach the groundwater is likely to be captured in these subsurface drains and directed towards the collection point, where it can be treated and added to the leachate otherwise collected or isolated, pumped and taken off site.

[160] Having regard to the extremely low permeability of the soils beneath the liner and the subsoil (the Tokama siltstone), we are satisfied that any leachate that may not be captured by the drainage system will take a considerable period to move beyond the landfill footprint (many hundreds of years). Even then we are satisfied that the groundwater flow would be in the downstream direction and is likely to surface in the surface water above or at the detention dam. Accordingly, that would be so diluted by general surface water flow it is unlikely to be detectable. In any event, downstream monitoring of the detention pond and/or Ella Wetland would enable the parties to detect if there was any contamination and take appropriate steps.

[161] In conclusion, we are satisfied that the groundwater issues are adequately covered in terms of the application and conditions of consent and that there would be no adverse effects beyond the site and, in all probability, none beyond the landfill footprint itself.

Surface water

[162] Water which infiltrates the landfill footprint would be captured by the internal drainage system above the liner and treated as leachate. Not all water falling on the landfill footprint would be collected as leachate as a quantity is absorbed by the waste or evaporates. The surface water around the landfill can be adequately controlled by on-site drainage. Below the toe bund, Transwaste intends to manage surface water by utilising the existing stream, inserting a detention dam close to the toe bund and expanding Ella Pond into Ella Wetland approximately one kilometre downstream. Both of these steps, together with planting of the riparian margin, are likely to have considerable environmental benefits generally. We are satisfied that there is likely to be an overall improvement in surface water quality as a result of this application.

[163] We will discuss shortly the potential for extreme events – seismic and flood events – to impact upon water quality. We did not understand the parties to be advancing evidence that there would be a degradation in water quality if the site operated in accordance with its design. We understood the concern to be that extreme events may compromise the integrity of the landfill. In any event, we have concluded that there is no evidence of adverse effects on surface water as a result of this application (subject to our discussion of extreme events).

The marine environment

[164] PBBUA produced evidence from Mr W H Guse, a fisheries biologist working for Abalone Aquaculture Limited in Amberley. Mr Guse identified the marine environment off McIntosh's Beach as being the coastal area downstream of Kate Valley. He described it as a nursery area for a wide range of marine animals and a permanent habitat for plants and animals, including micro and macro algae, mussels, oysters, abalone and crayfish. He described the popularity of the area for diving for abalone and crayfish, for the collection of mussels and clams, fishing and swimming. None of this evidence was in dispute, nor was there any significant dispute that leachate had the potential to adversely affect the marine environment. He pointed out the potential for heavy metals, particularly, to accumulate in the biota and the potential for other contamination from the landfill to affect the marine environment generally. He cites the

Regional Council's maximum concentrations for Coastal Contact Recreation Water Quality as set out in the amendments to the Proposed Regional Coastal Environment Plan (May 2001). This states the concentrations of dissolved fractions of metals, showing the low levels required before effects may be encountered. These include:

Arsenic	50 mg/m^3
Cadmium	2 mg/m^3
Chromium	50 mg/m^3
Copper	5 mg/m^3
Lead	5 mg/m^3
Nickel	15 mg/m^3
Zinc	50 mg/m^3

He then cites the levels of various metals predicted to be contained in the leachate. We cite only their mg/m^3 for comparative purposes:

Chromium	300 mg/m^3
Manganese	20,000 mg/m^3
Nickel	100 mg/m^3
Copper	< 100 mg/m^3
Zinc	10,000 mg/m^3
Cadmium	100 mg/m^3
Lead	< 1,000 mg/m^3
Arsenic	< 1,000 mg/m^3
Mercury	< 1 mg/m^3

[165] Mr Guse gave an example of heavy metal contamination where a bronze impeller used in the abalone farm resulted in copper concentrations of 70 mg/m^3 and 75% mortality within a few days. The basic concerns raised by Mr Guse are not in dispute by any party and the Regional Council accepts that discharge of leachate to the coastal environment would be a serious cause of concern.

[166] Putting aside all the multiple redundancy measures to prevent such leachate being discharged, we consider that the matter can be examined in an alternative way. Any leachate that did escape in its raw form into the watercourse would have to flow three kilometres downstream to reach the sea. If we accept that the concentrations of

the raw leachate are at the levels indicated by Mr Guse (which did not appear to be disputed by any other party), we are left with two major dilution elements. The first is the 30,000 cubic metre detention dam, the second is the 100,000 cubic metre wetland system. Between each of these elements, any leachate would have to travel via the stream and therefore would be subject to mechanical mixing and dilution. The leachate would be diluted in both the detention dam and wetland systems before it could enter the watercourse downstream of Ella Pond and thus flow towards the sea. Additionally, it is possible that some heavy metals would settle out in these ponds.

[167] The type of extreme event that would be necessary to move the leachate directly through the system would involve mixing freshwater at significantly higher levels then normal rainfall. For example, it would need to be sufficient to exceed the capacity and overflow the detention dam and Ella Pond with little or no impoundment time. Looking at the robustness of the design of these systems, such an event would be one of immediate failure with such significant dilution of the leachate that we have serious doubts as to whether any detection downstream would be possible.

[168] Mr Guse himself accepted in cross-examination that he was not suggesting that the raw leachate concentration would reach the sea. We have concluded that diluted leachate could only do so in the event of failure because inflows exceeded the capacities of both the detention dam and the wetland area to impound the leachate. In those circumstances, we are satisfied that the level of dilution would be such that very low concentrations would reach the coastline. Even then we note that the Waipara River has significant discharges adjacent to McIntosh Beach and the type of event that would lead to this would also result in very high volumes of water being discharged from the river. In the end, we accept the evidence of the Regional Council Consents Manager, Mr L Fietje, who noted:

(a) the sediment pond was designed to manage a 10% Annual Exceedance Probability (**AEP**) design flood with provision to pass a 1% AEP design flood;

(b) the sedimentation pond spillway is designed for a one in a hundred year Average Recurrence Index (**ARI**);

(c) the water supply dam spillway is designed to a one in ten thousand year ARI, with sufficient freeboard to contain a floodway from a burst sedimentation pond;

(d) both are designed to a one in ten thousand year ARI maximum credible earthquake;

(e) that for flows in excess of the capacity of the primary structures, a secondary flow path would be provided to allow surplus water from critical storms up to a 0.01 AEP.

[169] Mr Fietje advises that the Regional Council accept calculations that up to 500 m^3 of leachate could be released into the dam as a result of a complete liner failure and leachate storage facility failure. Cogently, Mr Fietje says:

> *In a complete failure scenario of the toe bund, liner, sedimentation dam and water storage dam, elevated concentrations of chemicals and suspended material would be released into the proposed wetland in the middle reach of the valley, potentially resulting in death to aquatic species downstream of the water storage dam.*
>
> *However, given the proposed design, construction and mitigation measures, and the potential massive dilution of contaminant concentrations in Kate Valley from supplementary flows, I consider that all failure scenarios are highly unlikely, and therefore so is the potential for leachate to contaminate surface water.*

[170] We agree entirely and, as a result, consider, having regard to the considerable mixing and dilution that would occur downstream of the wetland, that the prospect of any adverse effect within the marine environment, even as the result of a total and catastrophic failure, is negligible. In practical terms, we have concluded that there will be no adverse effect on the marine environment as a result of this project.

Risk and effects of extreme events

(a) Rainfall/groundwater

[171] This issue is interconnected with that of liner failure, which we will deal with next. Both relate to static stability and were largely matters addressed by Dr Pyke. Both Dr Pyke and Dr E Kavazanjian Jr are engineers based in California, who have undisputed expertise in relation to landfill design. Dr Kavazanjian was called by Transwaste in rebuttal to the evidence of Dr Pyke and is a person with both considerable practical experience and academic qualifications in geotechnical matters. Dr Kavazanjian is Professor (Research) of Civil Engineering at the University of Southern California with responsibilities including landfill engineering and geotechnical earthquake engineering. He is co-author of the United States Environmental Protection Agency guidance document on municipal solid waste landfills and a co-author of the Gunseal Design Manual developed by GSE Lining Technology to assist engineers in designing and constructing encapsulated geosynthetic clay liners like the one proposed for use at Kate Valley. Furthermore, he has been involved in the design and/or construction of liner systems for some 21 landfill projects which utilise geosynthetic clay liners. He is associated with Geosyntech Consultants who are leading landfill engineers.

[172] There were a number of other witnesses who gave evidence on geotechnical issues in relation to groundwater and rainfall issues. The standard of evidence we had on this issue was very high and particularly detailed. We do not intend to recite the evidence of each of the expert witnesses in this area, but merely to list our conclusions:

(1) In light of the adoption of Dr Kavazanjian's recommendation of subsoil drains being installed, we are satisfied that groundwater will be prevented from reaching the underside of the liner. Firstly, the subsoil drains would remove any excess water that did reach that position. Secondly, the very low permeability of the Tokama siltstone would not mean that elevated periods of rainfall would lead to saturation of the Tokama siltstone and the raising of the water table to such an extent that it reached the bottom of the landfill liner.

(2) We accept that there would be a positive water balance on the site, namely that more rain will fall than is evaporated. However, the on-site systems for surface water collection and leachate collection are sufficient for us to conclude that there would be no significant effect on the landfill as a result of higher than average annual rainfall.

(3) The benching of the landfill footprint leads us to the conclusion that this site is not directly comparable with steep-sided gullies and that some co-efficients of resistance must be provided for. The installation of the subsoil drains further re-assures us that resistance will be provided having regard to the compacted subsoils above those drains.

(4) We are satisfied that the toe bund will also provide a physical resistance to any static movement of the landfill and that the design of that toe bund is sufficiently robust.

(b) Liner system failure

[173] Dr Pyke discussed his concerns that the potential for water to permeate the liner system, either from leachate above or from groundwater below, would lower any resistance co-efficient and lead to a stability failure of the landfill. He agreed that subliner drainage was necessary if the project was to proceed. This adaptation was conceded by Transwaste during the course of the hearing. As discussion progressed, it became clear that the concept of encapsulated bentonite where there was a bonding to the layers above and below was not the subject of Dr Pyke's previous analysis. His static analysis was not based upon a bonded encapsulated GCL option. Although his concerns had particular relevance to static stability, these were linked with a combination of seismic events which we will discuss in a moment. Having examined all the evidence, we prefer the evidence of Dr Kavazanjian as to the potential for full hydration of the encapsulated GCL.

[174] Having regard to both the subsoil and above liner drainage systems, the general slope of the landfill and benches, we are satisfied that the risk of full hydration is negligible, and systems are in place to manage the consequences in the unlikely event it should occur. Once the landfill is completed and sealed, the risk of instability of the entire landfill is significantly lower.

[175] As we will discuss shortly, we feel that Dr Pyke has combined all the most extreme scenarios with an intermediate point of landfilling to create the worst possible scenario. The difficulty with this approach in respect of the liner hydration is that Dr Pyke himself accepted that it would take some considerable time for the liner to become fully hydrated. We accept that Dr Pyke is correct in that protective steps do need to be taken to ensure that the encapsulated liner is not punctured. We are satisfied, however, that the management system proposed by the applicant would be sufficient to minimise any potential puncture of the GCL liner and to avoid any adverse effect as a result of that. We also accept that bentonite is utilised because of its impermeability to water and the fact that any punctures will lead to only hydration around the immediate area of the puncture.

[176] The technical arguments as to groundwater levels and liner failure could be referred to in engineering terms as issues of static stability. Engineers design to a factor of safety which is the basis of calculating robustness of the design. Unity (1) is considered adequate whereas figures below 1 would be considered to be of higher risk. Dr Pyke suggests that a factor of safety for construction and groundwater design of 1.5 would be essential and in fact goes on to suggest the same level for combination seismic and other extreme events. Dr Kavazanjian says factors of safety lower than 1.5 are used and we accept that evidence. It would be appropriate at this stage to cite the landfill design criteria noted in Volume 7 of the application at page 34:

	Design case	*Minimum design factor of safety*
(1)	*Construction slopes – design conditions*	*1.3*
(2)	*Construction slopes – elevated groundwater*	*1.1*
(3)	*Final design – design conditions*	*1.5*
(4)	*Final design – elevated groundwater*	*1.3*
(5)	*Final design – extreme groundwater*	*1.1*
(6)	*Final design – Design Basis Earthquake (DBE)*	
	• *Displacement of liner*	*<0.3 metres*
	• *Displacement of capping layer*	*< 1 metre*
(7)	*Final design – Maximum Credible Earthquake (MCE)*	
	• *Displacement of liner*	*< 1 metre*
	• *Displacement of cap*	*< 3 metres*

[177] Dr Kavazanjian says that table needs to include a caveat stating that liner interface sheet strength should be based upon large displacement strengths (residual strengths). Dr Kavazanjian would also add that when an encapsulated geosynthetic clay liner is employed, the factor of safety for final design should exceed 1.0 for the fully hydrated condition. He considers this a prudent, fail-safe condition that provides redundancy and enhanced reliability to the design. Dr Kavazanjian emphasises that this approach avoids the question of method and relies on an outcomes approach.

(c) Seismicity

[178] Prior to formulating our conclusions, we should discuss the context in which seismicity was raised. This devolved to the potential movement of the landfill during a maximum credible earthquake (MCE). It is a calculation as to the maximum possible earthquake that could occur on the site. We did not understand there to be a significant dispute between the parties as to the MCE for the site being 0.70 g peak ground acceleration (**PGA**). Although the engineers have used peak ground acceleration measured in this case in g, the same could also be represented in terms of peak ground acceleration, metres/second or, for comparative purposes, with Richter scale. Historical data would indicate that the 1901 Cheviot earthquake had a PGA of 0.4 g at its Cheviot epicentre. This figure is broadly similar to the 150 year return PGA for Kate Valley of 0.37 g. There was no serious dispute by Dr Pyke that 0.7 g was an appropriate figure for the MCE or that MCE was an appropriate design parameter. Dr Pyke has asserted in his evidence that in a maximum credible earthquake that:

> *Deformations would exceed one metre and that substantial disruption and puncturing of the liner would occur. The computed factors of safety of as low as 0.4 would in fact indicate displacements in the order of tens of metres and massive disruption of the liner system.*

[179] Transwaste has now offered that the factor of safety table just cited be included as a condition of consent. This being the case, the maximum deformation possible in a maximum credible earthquake would be displacement of the liner of less than one metre. In support of his suggestion that there would be displacement in the tens of metres, Dr

Pyke quoted from Makdisi and Seed (1978)[4]. In cross-examination on that chart, Dr Pyke accepted that with a yield acceleration divided by maximum average acceleration close to 0 (which are the parameters used by Makdisi and Seed), the range of displacement would still be in the order of 1-5 metres. We accept that the evidence establishes that in this case the yield acceleration is divided by maximum average acceleration. The basis of this chart is that the more resistance the system has to acceleration (yield strength), the more acceleration will be required before it yields. A peak ground acceleration of 0.7 equates to a little over 7 on the Richter scale.

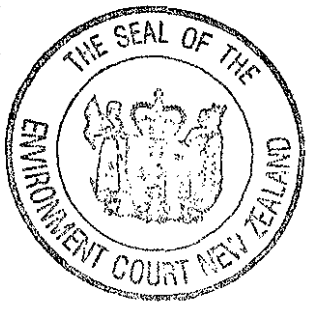
[180] In simple terms it would be necessary for the structure to have virtually no resistance to ground acceleration before displacement in the order of metres would be achieved in terms of the Makdisi and Seed analysis. In our view, the problem quite simply does not arise. If, as is now proposed, a condition is imposed that the design ensure that the deformation of the liner is below one metre in a maximum credible earthquake, then it is a requirement of the design that there would not be displacement of the liner in the tens of metres. We must also conclude that Dr Pyke's evidence to this Court that there could be such displacement is unrealistic and not based upon the displacement chart of Makdisi and Seed 1978, as was asserted.

[181] In fact, it became clear through the course of Dr Pyke's evidence that he was basing his calculation of low yield strength on not a maximum credible earthquake *per se* but on a concatenation of three circumstances, namely:

(1) saturation of the liner;
(2) groundwater at or above the ground surface;
(3) a maximum credible earthquake.

(d) Combination of extreme events

[182] We have already discussed in general terms the risk of each of these events occurring within the life of the landfill. It is clear from those discussions that we have



[4] Makdisi and Seed (1978) was a reference which formed the basis of some information in Table 5.3 of Volume 8, the Landfill Engineering Report, submitted by Transwaste. However, a full reference is not given in the report.

concluded that the design of this landfill is particularly robust and is designed in terms of hundreds of years rather than for the life of the consent. That is completely appropriate having regard to the size of the infrastructure, its importance to the region and potential impacts. Although any of the individual circumstances are very unlikely to occur, we are not satisfied that if all three events occurred at the same time that there would be displacement of the liner in the order that Dr Pyke has suggested. Dr Kavazanjian was able to discuss displacement of liners in other earthquake situations and suggested that there was no evidence to suggest displacement in the order alleged by Dr Pyke. We agree. There is simply no evidence before this Court on which we can form a conclusion that there is likely to be displacement of the liner in the tens of metres, even if there was an underlying and undetected secondary fault running through the site. To this extent we prefer the evidence of the applicant's witness on this issue.

[183] As to the question of whether the Court should take into account the combination of such risks, we accept the submission of Ms Perpick for the Regional Council that such an approach does not represent either current or proper practice or an appropriate approach for this Court. It requires the Court to conclude that there will be an extreme rainfall event at the same time that there is elevated groundwater conditions as a result of ongoing rainfall over a considerable period, say one or two years, at the same time that there is a maximum credible earthquake. We are unable to conclude that the cautious approach implicit in the Act means that nothing should occur on the basis that there should never be a low probability risk. To combine very low probability events into a *sum of all fears scenario* is, in our view, neither contemplated under the Act nor appropriate. We have already undertaken an examination of the potential effects of such massive failure. We agree with the conclusions of Mr Fietje, which we have already quoted, that in the event of a total failure of the landfill, toe bund and leachate collection system, there would still not be any significant adverse effects on the environment.

Ecosystem effects excluding Remnant A

[184] We have already discussed in general terms the potential effect on surface waters. In terms of the application and conditions applying, we have been unable to identify any particular negative effects on the ecosystem as a result of this activity being granted consent. We accept that the roading and earthworks will have an immediate

effect on the flora and fauna in their path. We understand the applicant seeks to avoid any impact on some rare snails near the road entry to the site and we are satisfied that the general conditions over the construction will seek to avoid, so far as possible, any ongoing sedimentation of the stream beds or effect on the vegetation beyond the immediate footprint of the works.

Positive effects

(i) Ecological

[185] In looking at the ecosystem, we have concluded that it is not possible to ignore the positive effects that will flow from the granting of consent. There are significant benefits in our view to the general ecosystem of Kate Valley and probably the wider Canterbury region as a result of granting this consent. The ability to secure around 400 hectares as a conservation management area is of significant benefit to the region. It is acknowledged by the other parties that the planting programme envisaged as part of this application is of benefit.

[186] There are concerns that the applicant seeks to fund the planting from the ongoing income from the site and it may not undertake the works as is prescribed. In our view that matter can be addressed by the Court requiring the works to be undertaken from the grant of consent independent of any income received from the site. It is clear that the plan and certain development will need to be undertaken prior to commencing landfill operation on the site. In those circumstances the applicant would have the option of either surrendering the consent if it did not intend to undertake any works, or complying with the Court's directions to undertake ecological works initially. The difficulty is what weight should be given to these positive effects. From the diagram attached (Annexure **H**), it can be seen that these works are not insubstantial. There are landscaping works around the site, together with the extensive conservation management area. The management plan is intended to include requirements for replanting, improvement of riparian margins and the valley generally. It will enable the parties to look at connecting the Ella Bush SNA, the Ella Pond, and the Ella Peaks Scenic Reserve with the Mt Cass Scenic Reserve in the longer term. Although there

will still be some general management areas on which we assume farming will continue, we are satisfied that this site will eventually constitute a reserve of regional significance. Although plans are at an early stage, it seems to us inevitable that there will be an element of public recreation on this area, and accordingly, one can see cultural, recreational and social benefits to the Canterbury population in the long term.

[187] Associate Professor Norton has over twenty years field work experience on ecological patterns within Canterbury, including the Mt Cass Scenic Reserve. His expertise was not in dispute before this Court. In addition to discussing in detail the question of Remnant A, Associate Professor Norton produced three documents which he believed were relevant to the consideration of this matter by the Court. These are attached as **"I"**, **"J"** and **"K"** to this decision and are:

Attachment "I"	Five year outcomes for restoration of the Kate Valley conservation management area;
Attachment "J"	Likely constraints to the restoration of the Kate Valley conservation management area; and
Attachment "K"	Proposed conditions for resource consent.

[188] Both Dr Simpson and Dr Meurk approved of the restoration programme designed by Associate Professor Norton and acknowledged the benefits of it.

(ii) Closure of Burwood Landfill

[189] It was suggested that the ability to operate this consent would avoid the potential for there to be further applications to continue to operate Burwood Landfill. Although at this stage we cannot anticipate what the reaction of the Council or Court may be to such applications, we accept that Burwood has significant risk of contamination compared with the current site. It is, however, difficult for us to quantify that benefit as a consent may very well be refused for any extension to the operation of Burwood in any event.

(iii) Providing a regional landfill

[190] It was argued that one of the significant benefits of this regional landfill was to allow an approach which avoided a proliferation of smaller and less well controlled landfills. That benefit, of course, turns on the Court concluding that there are no significant adverse impacts of the operation of this landfill. We accept, however, in general terms that there are advantages in reducing the number of landfills in the region, particularly if this involves the closure of older landfills not designed to the same standards. We also acknowledge that there is a positive effect in providing for a landfill for the region's population. Again that benefit is difficult to quantify.

[191] Transwaste did not suggest that there were significant national benefits although there would be some benefit in less seepage into the underlying geology from a number of landfills and from the escape of methane gases from the landfill. Largely the benefits are at a regional and district level.

[192] A significant buffer zone around this landfill must be a significant positive benefit, not only recognised in terms of the Hurunui District Plan (assessment criteria 1.2.6(g)) but in terms of potential impacts on surrounding communities.

Removal of beech Remnant A

[193] There is no doubt that the removal of Beech Remnant A caused the Commissioners considerable concern. In the end a condition was imposed by them preventing its removal. This would have a significant constraint upon the operation of the landfill, restricting it to about 30-40% of its maximum design capacity. Considerable evidence on this matter was given to the Court, with the three major witnesses being Associate Professor Norton for the applicant, Dr Simpson for the Hurunui District Council, and Dr Meurk for Urban Landscapes Group. Before considering the substantive argument, we make two preliminary points:

(1) It was acknowledged by all the experts that Remnant A does have value and represents indigenous biodiversity. In short, its removal would be an adverse effect and needs to be considered as such under section 104(1)(a).

(2) Transwaste had obtained a compliance certificate from the District Council, which entitles them to remove the entire Remnant. That they had not already removed Remnant A was more a matter of acting responsibly than of legal approval.

Permitted baseline

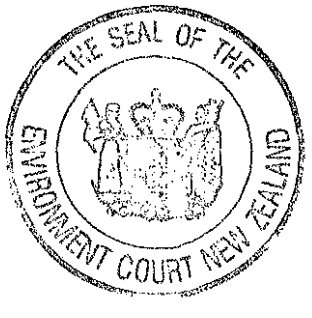
[194] This brings into question the issue of permitted baselines which the Court of Appeal discussed in ***Arrigato Investments v Auckland Regional Council***[5] as follows:

> *Thus the permitted baseline in terms of Bayley, as supplemented by Smith Chilcott Limited, is the existing environment overlaid with such relevant activity (not being a fanciful activity) as is permitted by the plan. Thus, if the activity permitted by the plan will create some adverse effect on the environment, that adverse effect does not count in ss 104 and 105 assessments. It is part of the permitted baseline in the sense that it is deemed to be already affecting the environment or, if you like, it is not a relevant adverse effect. The consequence is that only other or further adverse effects emanating from the proposal under consideration are brought to account.*

[195] Mr Hughes-Johnson, appearing for CTGTW, argued that although Remnant A falls within the permitted baseline, the real issue is:

> *Whether in a particular case which justifies the approach, the finding that the primacy given to Part II justifying refusal of a consent in the face of a baseline argument is supportable in law.*

[196] It appears to us that the suggestion of a primacy of section 6 matters is misconceived. This has now been stated in a number of decisions, including that of ***New Zealand Rail***[6] and ***Maguire v Hastings District Council***[7] and most recently in the



5 [2001] NZRMA 481 at para 29.
6 [1994] NZRMA 70.
7 [2001] NZRMA 557.

decision of ***Auckland Volcanic Cone Society v Transit***[8]. The matters under section 6 are to be recognised and provided for in the context of achieving the purpose of the RMA under section 5. Put more pointedly in ***Ngai Tumapuhiaaranga Hapu Me Ona Hapu Karanga v Carterton District Council***[9]*:*

> *I am afraid it is difficult to escape the conclusions that in this instance the appellant is pinning its hopes on an interpretation of ss. 6, 7 and 8 that would confer a power of veto over an otherwise legitimate proposal. I do not believe that was the purpose of those sections, or any of them.*

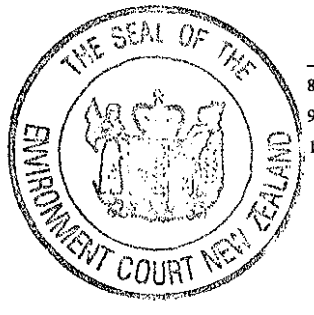
[197] In ***Auckland Volcanic Cones*** the High Court then went on to discuss the effect of section 6 if the project is not of national importance. The Court noted[10]:

> *... Section 6 and for that matter the balance of Part II (ss.7 and 8) fall to be considered in the context of assessing whether the purpose of the RMA has been met. The wording of section 5 includes reference to the need for "people and communities to provide for their social, economic and cultural wellbeing and ... safety." People and communities in that context must include issues at a regional or even district level as submitted by Mr Enright.*

And later at paragraph 38*:*

> *The Environment Court accepted, as we do, that ss 6, 7 and 8 must be considered against the stated purpose of the Act, that of sustainable management referred to in s5. The Environment Court considered that the SH20 motorway extension was a matter of sufficient importance that to approve the notice of requirement satisfied the purposes of sustainable management.*

[198] At paragraph 39 the Court stated:



8 HC [2003] NZRMA at 316 paras 27-36.
9 AP 6/01, (H.C.) Chisholm J, para 35.
10 Above at paragraph 36.

That a s.6 matter is one of the factors to be recognised and provided for, but is not determinative was recognised by the Court of Appeal in ***Watercare Services Limited v Minhinnick [1998] NZRMA 113.***

> *The Court must weigh all relevant competing considerations and ultimately make a value judgement on behalf of the community as a whole. Such Maori dimension as arises will be important but not decisive even if the subject matter is seen as involving Maori issues ... While the Maori dimension, whether arising under section 6(e) or otherwise, calls for close and careful consideration, other matters may in the end be found to be more cogent when the Court, as the representative of New Zealand society as a whole decides whether the subject matter is offensive or objectionable under s314.*

[199] And at paragraph 40:

> *Whether the proposed development in each case satisfies the purposes of the Act after recognising and providing for section 6 matters will be a question of fact and degree involving the exercise of broad judgement by the Environment Court, which is a specialist Court.*

[200] In our view section 6 properly highlights that the protection of areas of significant indigenous vegetation is a matter of national importance. Even if we determine that this area is not an area of significant indigenous vegetation, the adverse effects of its removal must be taken into account. This is, of course, subject to the proviso that it is mandatory for the Court to take into account as a permitted baseline any activity which is permitted. In our view this brings into clear play the interface between the operative District Plan and section 6(c).

[201] We will discuss the provisions of the Plan shortly, but we note that this area has not been recognised in the Plan as an area of significant indigenous vegetation. However, it is recognised in the Plan that the District Council has not been able to undertake a full assessment of all indigenous vegetation areas within its district and has instead provided assessment criteria to examine whether a particular indigenous vegetation area is significant. Even where an area is significant indigenous vegetation, the Plan provides for its removal provided it is less than one hectare in area. There was a factual dispute between the parties as to whether this particular area is less than one

hectare in total. There were also disputes between the parties as to whether it is a significant area, being accepted that it contains indigenous vegetation.

[202] As to the argument as to whether the area is greater than one hectare, we have concluded that we prefer Transwaste's evidence on this matter and that the remnant area is some 7,300 square metres (0.73 ha). Slightly to the east of Remnant A there is an area of broad leaf shrubland of some 1,406 square metres, which for the current purposes we are prepared to include as part of area A, giving a total of some 8,800 square metres. Even providing for some interconnection of land between these two portions, the total area would not exceed one hectare. We do not accept that the 640 square metre shrubland area to the north should properly be included and particularly there seems no basis that it should be joined to Remnant A directly. In our view Remnant A is most properly described by the sharp shoulders of the gully in which the indigenous vegetation remnant has persisted.

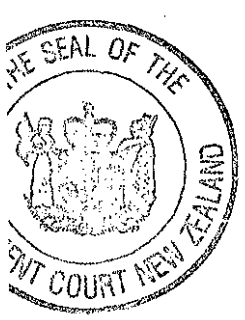
[203] The issue is therefore relatively pointed. If the area is protected under section 6(c), then its removal under the Plan as a permitted activity would therefore be a failure to recognise and provide for a matter of national importance (a mandatory requirement under the Act). The provisions of the operative Plan in this regard have been the subject of considerable negotiation, debate and argument between the parties. It has been subject to full and rigorous public participation, ending with the compromise presented to the Court and now forming part of the operative Plan. While it is possible for the Court to go behind the terms of the Plan to find that matters of national importance have not been recognised within it, that would require a finding that the Plan itself is inadequate in dealing with the matters which it is obliged to address in terms of the obligations under section 31 and Part II of the Act. Rules must be for the purpose of carrying out the functions of the authority under the Act and achieving the objectives and policies of the Plan (see section 76(1)). The provisions of the Plan must meet the Council's obligations, not only in respect of the objectives and policies of the Plan, but also under the superior documents, including Part II of the Act.

[204] The assumption of PBBUA and CTGTW in this case appeared to be that one could ignore the provisions of the Plan and move directly to establishing matters under Part II of the Act. Although one can understand this approach in respect of Transitional

Plans, which have not been prepared under the Act, and even under Proposed Plans, which have not been subject to public and participatory procedures, it is difficult for us to accept that this is the appropriate approach in respect of an operative plan. We have concluded that where a plan is operative, there is a rebuttable presumption that it has been prepared in accordance with the Council's obligations under the Act and in pursuance of Part II of the Act. In fact, we did not understand anyone in this case to argue that the Plan was not prepared in accordance with the Act. These indigenous vegetation provisions had been the subject of extensive negotiations and discussions over the way in which the obligations under Part II and section 6(c) in particular would be incorporated into the Plan. These negotiations involved the Minister of Conservation, the Hurunui SNA Group (represented before this Court), the Regional and District Councils, a significant number of residents and other interested bodies throughout the Hurunui district.

[205] We had regard to the evidence given to us and we are satisfied that the assessment criteria included as Appendix E2 to the Hurunui District Plan represents the community's approach to section 6(c) in identifying ecologically significant areas under Part II of the Act. A copy of that criteria is annexed hereto and marked **"L"**. The criteria were not significantly disputed by the experts and Dr Simpson also assessed ecological significance by the same criteria but on a site-specific basis. Interestingly, the District Plan does not deal with significance at a district level but in terms of its ecological district.

[206] The Hurunui district is made up of many ecological districts and Kate Valley is part of the Motunau ecological district. Dr Simpson concludes that this remnant is a good example in this particular locality as opposed to the Motunau ecological district as a whole. Dr Simpson later went on to discuss Motunau ecological district and suggested that if the ecological district framework was redrawn today, the districts would be very much smaller. Case law in this area has suggested that the significance of the area may be on a regional or district basis[11]. The derivation in this plan to ecological districts (i.e. smaller portions of the district) has given some framework to the significance as that word is used in section 6(c) but may be at a finer grain than that anticipated in the Act.



11 ***Minister of Conservation v Western Bay of Plenty District Council*** A71/2001 at para 18.

However we are unable to see any basis on which we should break it down into even smaller sub-portions of an ecological district or begin to insert new districts. Because of the wording of the Plan we are prepared to accept that the matter should be judged against the significance of the area within the ecological district. We must also take into account that areas of less than 1 hectare may be removed as of right, and that this all appears to give some meaning to the word "area".

[207] In the end we prefer Associate Professor Norton's overall ranking of low for Remnant A for the following reasons:

(a) Associate Professor Norton has considered this remnant in the context of the entire ecological district. That is the correct evaluation that needs to be undertaken in terms of the Plan;

(b) Associate Professor Norton was able to utilise far more ecological data and was able to undertake a more detailed assessment than that of Drs Simpson and Meurk.

[208] Dr Meurk accepts that there are some 441 hectares of beech forest in the Motunau ecological district, of which some 132 hectares are formally protected. Dr Meurk particularly makes the point that much of the beech remnant in this ecological district is not protected. (Neither Remnant A nor Remnant B on this site are protected at the current time). Dr Meurk's main thesis before this Court was that there should be a defined bottom line for acceptable loss of primary habitat which in his view would be retaining at least 10% of the land area in indigenous forest. In essence he was arguing before this Court a completely different approach to section 6(c) which had no basis in the District Plan. Further Dr Meurk broke down the beech in the ecological district to a north and south area, being south of the Mt Cass Range. Thus although he accepted that certain of the criteria, for example size and shape, did not give a high ranking for Remnant A, he overrode this by the fact that it is only one of two stands in the area. Dr Meurk unfortunately did not address how refusing this consent would advance the protection of Remnants A and B. Remnant A in any event can be removed as of right and Transwaste holds a compliance certificate to that effect. We have concluded that Dr Meurk fails to take into account the way in which the Plan has approached this matter or

the delicate balances achieved between the importance of indigenous vegetation and allowing the removal of areas under one hectare.

[209] To avoid the 1 ha rule Dr Meurk sought to include other areas within the remnant but we have already discounted this approach on the factual evidence before us and our site visit. Both Dr Simpson and Dr Meurk accept the benefits of the protection of Remnant B in the enhancement of that area and planting of new indigenous forestry if the consent is granted.

[210] Overall therefore we have concluded that this is not an area of significance in terms of section 6(c) of the Act or as meeting the criteria of Appendix E2 of the Plan. (In our view there is no distinction between the two approaches). We conclude that whether the effect is under section 6(c) or otherwise, the removal of Remnant A is an adverse effect contemplated by the Plan as a permitted activity and Transwaste hold a compliance certificate to that effect.

[211] There was also a dispute as to whether Remnants "A" and "B" were parts of the same *area* as that word is used in section 6(c). Dr Norton said they were remnants of a larger forest previously covering the Motunau ecological district and were accordingly part of the same ecological area. Dr Simpson disagreed and highlighted the distance between the remnants of over 1 km, and the differences in position and ecology.

[212] We acknowledge that the sites are physically distant. We must deal with the environment as it now exists and cannot connect the two remnants with hypothetical forest that may have existed in the past. On the other hand, the areas can be seen as referring to ecological districts (areas) in section 6(c) especially in the context of this Plan.

[213] In the circumstances of this case the distinction is of no particular moment because:

(a) we have concluded Remnant A is not an area of significance under section 6(c);

(b) the Plan permits removal of up to one hectare of indigenous vegetation. Even if connected to Remnant B this removal would be permitted.

(c) the issues of ecological distinctions are addressed in terms of significance which we have discussed.

[214] We have concluded that we are unable to take into account any adverse effect of Remnant A's removal. In light of the Court of Appeal's decisions which we have mentioned on this issue, such discounting of this adverse effect is mandatory and cannot be taken into account by this Court.

[215] Accordingly both on a factual and/or legal basis we have concluded that the removal of Remnant A is not an effect to be taken into account in this matter. We acknowledge that the Transwaste have proffered a condition which would delay the removal of Remnant A for at least five years from the grant of consent. It provides that as much of the natural material from this remnant is retained as is possible as part of the restoration project. The intent is to re-establish, as far as is possible, the genetic diversity of Remnant A as part of the restoration programme on the nearby land not involved in the landfill footprint.

The provisions of the operative district plan

[216] A number of objectives and policies of the Plan are relevant to this application, including objectives 1 to 7 inclusive and their relevant policies, as well as objectives 10, 12, 13, 14 and 15 of the Plan with their associated policies. Having regard to the significant number of annexures we will not annex these but have had regard to them all. We note some particularly relevant provisions for current purposes.

[217] Policy 2.1 provides:

> *To identify significant natural areas within the District, including areas of indigenous vegetation, habitats of indigenous fauna, wetlands and natural features.*

[218] The Plan has identified significant natural areas in respect of a number of areas of the site not including the landfill footprint. For example, Ella Pond (site 7 map 4), Ella Bush (site 8 map 4) and the Glenafric crab site (G39, map 4) are all areas identified in the Plan. These would fall within the Conservation Management Area if the proposal is granted and the restoration and other protection ensures that no construction works are proposed within the area and that steps to protect these areas would be incorporated within the conservation management plan.

[219] Policy 4.5 provides:

> *To retain, and promote the establishment of, riparian vegetation, particularly indigenous vegetation, to mitigate the adverse effects of land uses on water quality and to enhance the conservation, cultural and aesthetic values and the natural character of water bodies.*

Objective 13 provides for the safe disposal of minimal production of waste within the district. Policy 13.1 provides:

> *To encourage the adoption of waste management practices which implement the concepts of cleaner production and which employ the following hierarchy:*
>
> 1. *reduction;*
> 2. *reuse;*
> 3. *recycling;*
> 4. *recovery;*
> 5. *residue management.*

Policy 13.2 provides:

> *To ensure that the District's landfills and other waste disposal facilities are managed in the way that avoids, remedies or mitigates adverse effects.*

[220] We have already discussed the Plan allowing for the removal of indigenous vegetation of less than one hectare in area as a permitted activity. This could include significant indigenous vegetation. Curiously none of the witnesses considered it

necessary to discuss the provisions of the Plan in relation to permitted activities notwithstanding the presentation of a compliance certificate. The Court understands that the matter is effectively controlled by Rule A7.1.1.

> *General*
>
> *Any activity that complies with the conditions for permitted activities under Rule A7.2 is permitted, provided it also complies with the district-wide rules and the Rules for Environments of Special Concern in Section B.*

There are more controls in respect of significant natural areas which are controlled under Rule A7.1.2. It was common ground that Remnant A and B are not included as significant natural areas. Clearance of indigenous vegetation is a condition for a permitted activity under 7.2.1(e) which reads:

> *Clearance of indigenous vegetation*
>
> *(i) No clearance of indigenous vegetation not already significantly modified by any farming practice other than as provided for in:*
>
> – *Section A2 – Landscape*
> – *Section A7 – Natural Environment*
> – *Section B2 – Coastal Environment*
> – *Section B3 – Hurunui Lakes area*
>
> *shall be permitted of greater than 1 hectare over a 5-year period on any separate certificate of title.*

The note to this rule states:

> *Rule 7.2.1(e) is an interim rule pending completion of surveys contemplated by Policy 2.1. The intention is that upon receipt of such surveys the Council will initiate a change/variation to the Plan to identify within the area reviewed by such surveys any particular Significant Natural Areas with appropriate modification of the above rule to take this into account.*

[221] As already discussed Rule A10.3(d) constitutes landfills as an unrestricted discretionary activity with landfills defined in the plan as *an area used for the disposal of solid waste into or onto land.*

[222] Overall the District Plan is focused on protecting ecosystems, landscapes and the quality of air, water and soil and avoiding, remedying or mitigating the adverse effects of any activity within the district. The Plan clearly contemplates that landfills may be established within the district at appropriate locations, provided the other policies, objectives and provisions of the Plan achieve sustainable management in the circumstances of the case. It is clear to us that the Plan contemplates that any adverse effects may be avoided, remedied or mitigated by the imposition of conditions or by the refusal of consent if appropriate. In respect of Remnant A this confirms our previous discussion that the Plan contemplates the removal of indigenous vegetation below one hectare, at least for an interim period, while the Council undertakes a consideration of significant natural areas. The assessment criteria set out in Appendix E2 of the plan provides a basis on which such an assessment can be conducted.

The regional plans

[223] We have already discussed the Regional Policy Statement and also the provisions of the air quality section of the Proposed Canterbury Natural Resources Regional Plan. Looking at the matter broadly, we again conclude that these plans contemplate landfills within the region, provided there is an appropriate approach to the avoidance, remedying and mitigation of adverse effects. We are not directed to any particular provisions of the Plan which raise new or different assessment criteria for the purposes of this evaluation and consider that the relevant matters to be considered under the Plan are already subsumed within the discussion we have outlined earlier in this decision.

Other matters

[224] In respect of the regional discharge application, section 104(3) requires consideration of:

(a) The nature of the discharge and sensitivity of the receiving environment; and

(b) Possible alternative methods.

[225] The question of whether alternatives arise in respect of the District Council land use requirements is a mute point. In light of our conclusion on the absence of any significant adverse environmental effects it is possible to argue that the applicant is not required to consider alternatives on these land use consents.

[226] For practical purposes we regard this as amounting to sophistry when we are specifically required to take into account section 104(3) with reference to the discharge applications. One of the consents relates to the discharge of the waste itself, and thus there is an overlap with the land use consent to that extent.

(a) Nature of discharge and sensitivity of the receiving environment

[227] We have already discussed certification provisions by local authorities for the type of waste that can be received at the landfill. The design of the landfill is to avoid contamination of the surrounding environment (the subsoils and waters) as the result of discharge. We are satisfied that the particular design enables a robust approach which will ensure that the receiving environment is not adversely affected by the discharge. To that extent this discussion has already been subsumed within the earlier parts of our decision.

(b) Possible alternative methods

[228] We accept that the extent of consideration of alternatives is directly related to the extent of the adverse effects on the environment of allowing the activity[12].

[229] A major contention of the objectors (particularly of Mr J G Lawson and Mr M R Harper) in this regard was that there were other methods of dealing with waste which may make a landfill of this size unnecessary. This addressed the question of whether or

12 ***Andrews v Auckland Regional Council*** A9/99.

not, for example, organic waste should continue to be discharged and supported the condition imposed by the Commissioners that no organic waste be received after 2008. There was also a suggestion that the proposed size of the landfill was not necessary because certain new technologies available may be able to significantly reduce the tonnage being forwarded to the landfill. Mr Lawson from Global Renewables Limited, Australia, gave evidence of a processing technique which removed up to 70% of the waste stream. However, he accepted in cross-examination that this involved the removing, recycling and recovery of materials from the waste stream and acknowledged that if Christchurch City or any other District Council was already undertaking this work (for which evidence was given), then this would reduce the effectiveness of the process. In respect of organic waste there was a suggestion that a particular form of Mechanical Biological Resource Recovery (**MBRR**) technology would be beneficial to Christchurch. Mr Lawson gave evidence that putrescible waste, being organic matter capable of being significantly decomposed by micro-organisms, could be treated in an MBRR facility by composting, refining and renewable energy recovery. However, even on this basis it was accepted there would still be waste requiring a landfill.

[230] In short we accept the submission of Mr Gould for Transwaste that in the circumstances of this case the MBRR treatment facility advocated by the PBBUA is not an alternative to the landfill. However, such a facility could minimise the use of the landfill. To that extent such an approach may very well fit within the policy direction of one or more of the Councils to minimise waste in terms of their Local Government Act obligations.

[231] We have already concluded that for the Councils to undertake such a process of waste minimisation is an appropriate corollary to the existence of the landfill. If the landfill takes longer to be filled, then it will represent a resource to the community for a significantly longer period than currently anticipated. We have seen no evidence that would suggest to us that having no landfill would represent a realistic alternative or that the continuation of the use of the Burwood landfill would constitute a better alternative.

[232] We consider that exhaustive appropriate investigation of alternatives has been undertaken and are satisfied that a landfill is going to be necessary whatever

minimisation steps are taken by Councils. The only ensuing issue is the rate at which it may be utilised.

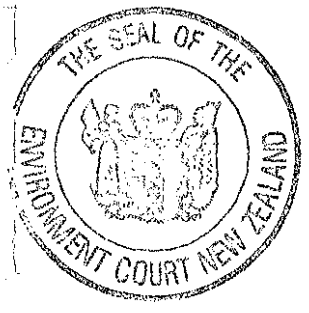
(c) Risk and multiple redundancy

[233] This application constitutes multiple levels of redundancy. The matter was addressed in some detail in the decision of the Court in ***Land Air Water Association v Waikato Regional Council***[13]. Any one or more components of the design may be sufficient to avoid adverse effects. However, the philosophy of this design is to have multiple safeguards in the event of failure. As we have already discussed it cannot realistically cover every form of risk no matter how remote (i.e. a meteor strike). The intention is to represent a robust design that would respond to most eventualities. The features that gives the Court particular confidence in this case is the underlying geology of the site and the topography of the valley with a fall towards the wetland area around a kilometre distant. The size of that valley means that it is likely that any catastrophic failure of the system would be captured on that plateau before moving through the stream gorge towards the sea.

[234] As has previously been said[14], the Resource Management Act is not a no-risk statute and the Court must give weight to the enabling provisions of the Act while adopting a cautious approach. The levels of redundancy in this case are conservative and comprehensive and give a commensurate level of confidence in the final design. That is a matter which we believe can properly be taken into account in the overall assessment under section 5.

KEY ISSUE 3 – THE CONDITIONS

[235] We have already discussed the conditions relating to source of waste and definitions of residual and special waste. We assume that these changes are incorporated within the conditions of consent now proposed by Transwaste (Annexure **C**) together with the suggested new conditions.



13 A110/01 at page 13 and 34-43.

14 ***Shirley Primary School v Telecom Mobile*** 1999 NZRMA 66 at para 106; ***Contact Energy Limited v Waikato Regional Council*** A4/2000 at para 305.

General condition 13

[236] Peer Review Panel. The consensus of the parties appeared to be that this condition was inappropriate and unsustainable. It imposes an obligation on the Peer Review Panel to alert the consent holder to hazards. We agree that it is excessive and unnecessary and should be deleted. It is also in our view entirely impractical in that it would impose an unduly onerous role on the Peer Review Panel which could be the subject of separate legal obligations. We agree that the review condition will suffice to ensure appropriate monitoring of the consent.

General condition 33(iii)

[237] This condition imposed an additional ability for a review. However, none of the witnesses were able to point to any adverse effect that would arise that would not also trigger a review under condition 33(i) (ii) or (iv). Mr D S Patterson for the Regional Council seemed to suggest that condition 33(iii) would enable the Regional Council to review the consent to require alteration of the waste processing techniques or adapt the kerb-side collection strategy. He suggested it may even give them the power to exclude certain types of waste from the landfill.

[238] We agree entirely with Transwaste that if this is the intent of the clause it goes well beyond a proper and reasonable control to be imposed on the grant of consent. Effectively this would give to the Regional Council the power to alter the consent "on the run", and effectively to alter the outcomes in terms of capital cost versus proposed return during the course of the consent. In our view it would impose a completely unrealistic obligation on parties to change the entire basis upon which they had obtained consent at some undetermined time. We can see no proper reason for the retention of clause 33(iii) and conclude that it should be deleted from the consent.

[239] We also have remaining concerns as to whether or not such a condition would meet the principles of ***Newbury District Council v Secretary of State for the***

Environment[15], in particular what its purpose would be in terms of the Resource Management Act.

Land Use Consent RC 020067
Condition 12 – Alignment reconstruction upgrading of Mt Cass Road

[240] This matter has been resolved in discussion between Transwaste and Transit and a memorandum to that effect is before the Court. This has now been incorporated within the proposed changes to Condition 12.

Land Use Consent RC 020069
Condition 2 – All refuse to be compacted

[241] There appeared to be a consensus that compaction should take place where it made practical sense. There are clearly certain materials that do not benefit from compaction (i.e. seafood waste). Transwaste in its now proposed conditions of consent proposes a new Condition 2 to reflect the reality that compaction is not always practicable. It is now proposed that:

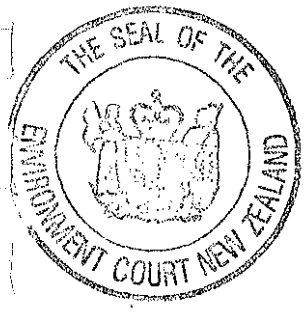
> *All refuse delivered to the site, with the exception of special waste or other waste that cannot reasonably or practicably be compacted, shall be compacted.*

[242] We agree that this adopts a pragmatic approach to the issue.

Condition 4 – Hours of operation

[243] Again there has been further discussions between the parties and with the Court with a view to trying to resolve this condition. Transwaste now seeks that the earlier Conditions 4 and 4(a) be deleted as being unnecessary and a new Condition 4 be inserted. That is now incorporated within the conditions before the Court.

[244] This provision reads:



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15 [1980] All ER 731.

Prior to the acceptance of first waste:

(a) Heavy vehicles associated with construction work on the landfill site shall not have access to the site before 6.00 am or after 8.00 pm Monday to Friday inclusive or before 7.00 am or after 6.00 pm on Saturday, Sunday and Public Holidays;

(b) All construction work on the site shall comply with the requirements of NZS6803:1999 "acoustics-construction noise";

Note – 'Heavy vehicle' is defined in condition 22.

[245] In our view this condition is clearer than the earlier condition and there is a reasonable balance between the needs of the constructing agency and those persons who may be affected by heavy traffic on the State Highway and/or Mt Cass Road.

Condition 5 – Noise levels

[246] Again there have been discussions between the parties to resolve this issue. The key change has been a move to measuring noise levels at the boundary to the site rather than at the nearest notional boundary. The proposed condition is:

> *The noise level (L_{10}) from landfill operations (including ongoing construction work not covered by condition 4) shall not exceed the following limits: Monday to Friday inclusive, 7.00 am to 7.00 pm, 50 dBA L_{10} Sunday and Public Holidays 7.30 am to 6.00 pm 45 dBA (L_{10}). At all other times 40 dBA L_{10}. As measured at the boundary of the site in accordance with the requirements of NZS6801:1991 and assessed in accordance with the requirements of NZS6802:1991.*

[247] We consider that the measurement at the boundary of these levels is more than reasonable, and in accordance with the noise levels we would expect to see elsewhere in the district.

Condition 13 and Special Condition 8 – Remnant A

[248] The proposed condition is based upon Dr Norton's suggested conditions with the following amendments needing to be made:

(1) The inclusion of the 50 hectares beyond the site and within zone 4;
(2) The fencing of Remnant A within 2 months of consent being granted and limitation of worker access;
(3) The preservation of Remnant A until needed for landfill development with a minimum period of five years from first acceptance of the waste;
(4) Collection of seeds and material for propagation to commence in the first seed season after consent is granted;
(5) Alter the timing to include a number of provisions prior to acceptance of first waste.

[249] Our reasoning for the addition is based on the following:

(a) the extra 50 hectares has been offered by Transwaste and can be incorporated on that basis;
(b) fencing of Remnant A will protect the Remnant over the five year period and avoid careless destruction or unnecessary access by workers;
(c) the five year minimum period of protection will allow time for replacement areas to be established. If the landfill takes longer to establish or fills more slowly Remnant A is retained in the meantime;
(d) the seed and natural propagation within the next seed season ensures the work is undertaken as soon as possible rather than when work starts on the landfill;
(e) the actions prior to acceptance of waste make sure the conservation plan and steps are commenced sooner rather than later.

[250] In general terms we consider that this additional condition is appropriate with the following comments. It is our view that the obligations arising under this should be independent of any cashflow from the landfill. This restoration work should form part of the capital requirements for the project rather than being subject to the vagaries of the

financial success or otherwise of the landfill. To that end we consider that there should be incorporated within that condition a specific provision for the costs of that project to be funded directly by Transwaste. It may be that there should be incorporated some form of bond or financial contribution towards that.

Condition 47 and Special Condition 9 – Financial contribution

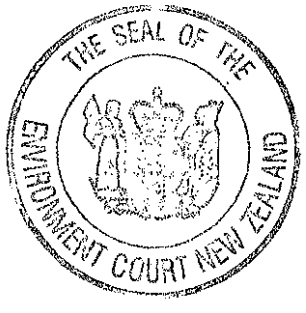
[251] Transwaste and Hurunui District Council have reached an agreement on the re-worded Condition 47 which is now included in the proposed conditions.

Discharge Permit CRC 021913

Conditions 3, 7 and 8 and Special Condition 10 – Separation of waste

[252] The question of separation of waste is connected with our decision on the scope of the application and the definition of residual waste. Just as the Commissioners considered that the controls over hazardous and green waste in Conditions 3, 7 and 8 met the appropriate balance in terms of volume and the like, we consider that the implications on the source of waste and the definition of 'residual waste' are essential to our determination as to whether separation of waste is required. On the basis of our conclusion on those issues we are of the view that the appropriate balance is met without the need to impose further restraints. Thus with the adoption of the changes to Conditions 3 and 3(a) which we have already discussed. We have concluded that no further controls by way of Conditions 7 and 8 are necessary and therefore should be deleted.

[253] The applicant now proposes that former Condition 7(a) becomes 7, and that former Condition 8(a) becomes 8. That deletion in our view is appropriate only if the control over source, i.e. from Canterbury, and a certification as to residual waste is incorporated. In those circumstances we are satisfied that the conditions now proposed would adequately meet the Court's concerns.



Discharge Permit CRC 021919

Special Condition 3 – Rock mass stability

[254] Mr Kortegast for Transwaste has suggested a reworded condition which reads:

> *Prior to construction of the siltation control dam an investigation of the slopes adjoining the dam embankment footprint and the pond area shall be carried out to assess the long term stability of these matters. This investigation work shall take into account the results of the required detailed investigation of the proposed siltation dam and its foundations.*
>
> *The permanent slopes around the siltation pond and embankment shall be designed with appropriate factors of safety for design groundwater and seismic loadings. Where natural slopes exhibit potential mass or shallow instability the slope shall be stabilised by soil removal, buttressing, drainage or such other measures as determined to be necessary.*
>
> *The design engineer shall prepare a report addressing the design of these slopes that shall be provided to the Peer Review Panel and to the Regional Council prior to construction.*

[255] That replacement provision appears to have met with general agreement and we consider it is a more appropriate approach to a specified design solution. In our view this will ensure that the best practicable option is adopted for the rock mass stability issues.

Special condition 4 – Surface water bypass drains

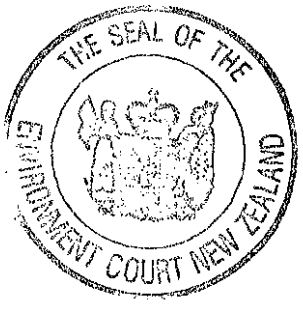
[256] Transwaste sought that this condition be deleted on the basis that it was unnecessary. The Regional Council agrees with that, and this was endorsed by Dr Pyke. We are of the view that the condition is unnecessary and can be deleted.

New conditions

[257] There was a recommendation from Dr Kavazanjian that we add a requirement for under-drainage to Condition 3 of RC 021914. The condition has now been added with a new (c) clause and under-drainage systems sized and specified to ensure effective sub-liner drainage, with a separate collection sump from the leachate collection system. In light of discussions between the parties on the encapsulation of the geosynthetic clay liner it is now proposed that Condition 4 be altered as follows:

> *Leachate and containment (lining) system for the landfill shall consist of the following, from bottom to top:*
>
> *(a) 500 millimetres of in situ compacted soils with a permeability co-efficient of not more than 1 x 10^{-7} metres per second;*
>
> *(b) An encapsulated geosynthetic clay liner comprising:*
>
> - *A 0.5 mm textured HDPE layer with welded seams;*
> - *A geosynthetic clay liner (GCL);*
> - *A 1.5 mm textured HDPE layer with welded seams;*
>
> *(c) A geotextile geocushion layer;*
>
> *(d) A 500 mm liner protection layer or gravel leachate drainage layer as indicated in drawing C24 of the Assessment of Environmental Effects (**AEE**).*

[258] Other liner design systems may be adopted provided equivalent or better performance is demonstrated by the consent holder. Although this provision does specify a design solution rather than an outcome, this is the basis upon which the case was advanced to this Court. However, we consider that the proviso that other liner designs can be used if they provide equivalent or better performance would put a significant onus on Transwaste to establish that all the features met by the current design would be equaled or better. To that extent we agree that such a new condition is appropriate in the circumstances of this case.



Landfill stability - CRC 021914

[259] It is now proposed that Table 5.1 of Volume 7, Landfill Engineering Report is incorporated in the condition. We have discussed this table previously relating to factors of safety and this is incorporated in the draft designs which are attached. In our view this sets out a design parameter rather than specifying a design. We agree that this is an appropriate approach and will ensure that the best possible design is adopted, meeting these parameters as minimum requirements. Accordingly this condition is approved by the Court.

Part II matters

Sections 5, 6 and 7

[260] In considering the particular issues raised on appeal against the grant of consent, we have reached the conclusion that overall we prefer the applicant's evidence on these issues.

[261] We now consider Part II of the Act as an overall check on the intermediate steps we have reached. There is the danger, particularly in large cases, of the Court becoming overly focussed on the individual issues before it without taking an holistic overview of whether the application advances the core purpose of the Act and sustainable management as that term is defined under section 5. We have therefore concluded that we should now stand back from the case and look at how all of these intermediate decisions integrate into a final decision. In other words, will the application as now framed advance sustainable management as that term is defined in the Act? In that regard there are various community interests which must be represented and enabled while sections 5(2)(a), (b) and (c) are appropriately met.

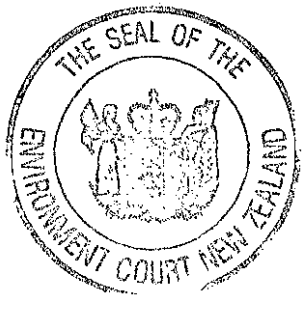
[262] All of these issues require qualitative judgements to be made by the Court. We have concluded, for example, that this application will safeguard the life-supporting capacity of the air, water, soil and ecosystems provided the various conditions and limitations we have discussed are met. Similarly we consider that a reasonable balance has been met by the applicant in avoiding, remedying or mitigating potential adverse

effects on the environment. We are convinced that with the levels of multiple redundancy and conditions imposed, the adverse effects of the landfill will be minimal. Furthermore, looking at the significant benefits in terms of site improvements, we have concluded that overall the effect of allowing this activity would be one of significant benefit to the community in terms of providing a community resource and rehabilitation of indigenous vegetation.

[263] We recognise the concerns of some of the appellants that the site could constitute a "black hole" and may undermine waste minimisation efforts within the region. We are not convinced of this argument because of the particular constraints that are imposed upon the conduct of this activity. It is our conclusion that there are minimal effects of this activity and would assume that alternatives would need to show benefits in environmental terms to warrant differential in cost. It appears to us that these concerns of the appellants are misfounded. They are based on an assumption that a landfill will necessarily create significant adverse effects on the environment. We have concluded that, having regard to the conditions of consent in this case, such effects will not occur.

[264] When we look at matters such as section 6(d) (access to rivers), section 7(c) (maintenance and enhancement and amenity values), and section 7(f) (maintenance and enhancement of the quality of the environment), we have concluded that the conservation management area and in fact the overall integrated development of the site has significant potential for benefits, not only to the immediate area but to the wider region.

[265] We have already discussed in some detail the provisions of section 6(c). The provisions of sections 6(d), 7(aa), 7(b), 7(c), 7(d) and 7(f) all come into consideration in this application. We recognise that there would be some enhancement of public access to and along the river and potentially the coastal marine area, depending on the level of development. Having regard to the uncertainty of the nature of that development for public use however, we cannot give any particular weight to this issue.



[266] In terms of section 7(aa) we note that the provision of the 400 hectare conservation area is likely to advance the stewardship of this area together with the wider public interest in the area and its ecosystems. To that end we must conclude that

there are advantages in this application for the maintenance and enhancement of the amenity values of this area, particularly by the restoration project and conservation management area. Further we are satisfied that the conditions imposed would avoid, remedy or mitigate any potential effects of the landfill operation on the amenity of the area. It is our view that the intrinsic values of the ecosystems would at least be maintained and, in all probability, significantly enhanced as a result of the restoration project and conservation management area. Although we recognise that Remnant A would be removed, that is a matter where the adverse effect is already permitted and forms part of the permitted baseline.

[267] Overall we consider that the quality of the environment in this area is likely to be significantly enhanced in the long term as the conservation management area is retired from pastoral farming and allowed to return to its more natural ecological state.

[268] The Act has a single purpose of sustainable management where all the matters we have discussed must be integrated to reach a final decision. There is no evidence to convince us that a landfill is not required in the region and we have concluded, that the evidence in favour of this site is overwhelming. With the limitations imposed by the conditions we consider that this application represents an effective integration of the various matters provided for sustainable management.

[269] The object of the Act is to promote sustainable management which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety. We have concluded that the granting of this application would enable the Canterbury region to provide for all of these matters by providing a properly designed landfill. In the end we are not satisfied that the other groups, the Hurunui SNA, Urban Landscapes Group, PBBUA and the CTGTW are not enabled by the granting of this application. We were given no evidence by them regarding social, economic or cultural effects. The only evidence given on potential contamination of the marine environment (health and safety) was not sustained on the evidence. We are satisfied that the natural and physical resources will be maintained by this application to meet the foreseeable needs of future generations. In particular we see the enhancement of the natural elements of the area as a considerable benefit to the local and regional community. Further, we see this application as safeguarding and to a large extent

enhancing the life-supporting capacity of the water, soil and ecosystems in the medium to long term.

[270] Finally we consider that the effects that have been identified can be adequately avoided, remedied or mitigated by appropriate conditions. Accordingly, subject to finalisation of the conditions applicable, we have concluded that a grant is appropriate.

OVERALL OUTCOME

[271] This Court confirms the grant of consent to Transwaste for the proposal as outlined before this Court and largely contained within the various volumes produced with the application. There have however been a number of substantial changes as a result of this case and we have concluded that the design is significantly better, both from a technical and social impact point of view.

[272] We consider that the cases in opposition to this application have been advanced appropriately and with supporting evidence. All the parties constrained the range of their arguments by agreement and evidence advanced was pertinent to the points before the Court. Transwaste has made a number of changes to conditions which we consider deliver a considerably better outcome for the region.

[273] We were aware both prior to this hearing and through the course of the hearing of a sense of frustration by counsel for Transwaste at what was perceived as being unreasonable delays in the processing of the application. Although we do not preclude any applications for costs, we would suggest, in the circumstances, the process has achieved the outcome desired in terms of the Resource Management Act, namely:

(a) it has been public and participatory. The parties have had a full opportunity to address their concerns before the Court, supported by appropriate expert evidence.

(b) the majority of the time in this case was occupied with the case for Transwaste and the Councils. There can be no suggestion of inappropriate conduct by counsel in the conduct of their cases of the cross-examination of other witness.

(c) all parties have been successful to some extent. Issues relating to source of waste and the HDPE liner design were matters of some importance.

[274] We have largely confirmed the changes to conditions as sought by the applicant and as attached as annexure **C**. There will however need to be minor variations to incorporate our conclusions in respect of Remnant A, and in respect of the source of waste and residual definitions. We direct that the changes be circulated to the other parties within twenty working days, and any comments to be forwarded to the Transwaste counsel within ten working days thereafter. If the changes are not agreed, then Transwaste is to forward the draft conditions, together with any comments by all parties thereon to the Court within ten working days thereafter. The Court will then issue final directions in terms of the wording of the consents.

[275] An application for costs is not encouraged but if any party seeks to make an application for costs, the same is to be filed within fifteen working days, a reply thereto within ten working days and a final reply within five working days. In the event no application is made within time, costs will lie where they fall.

DATED at CHRISTCHURCH this 19th day of March 2004.

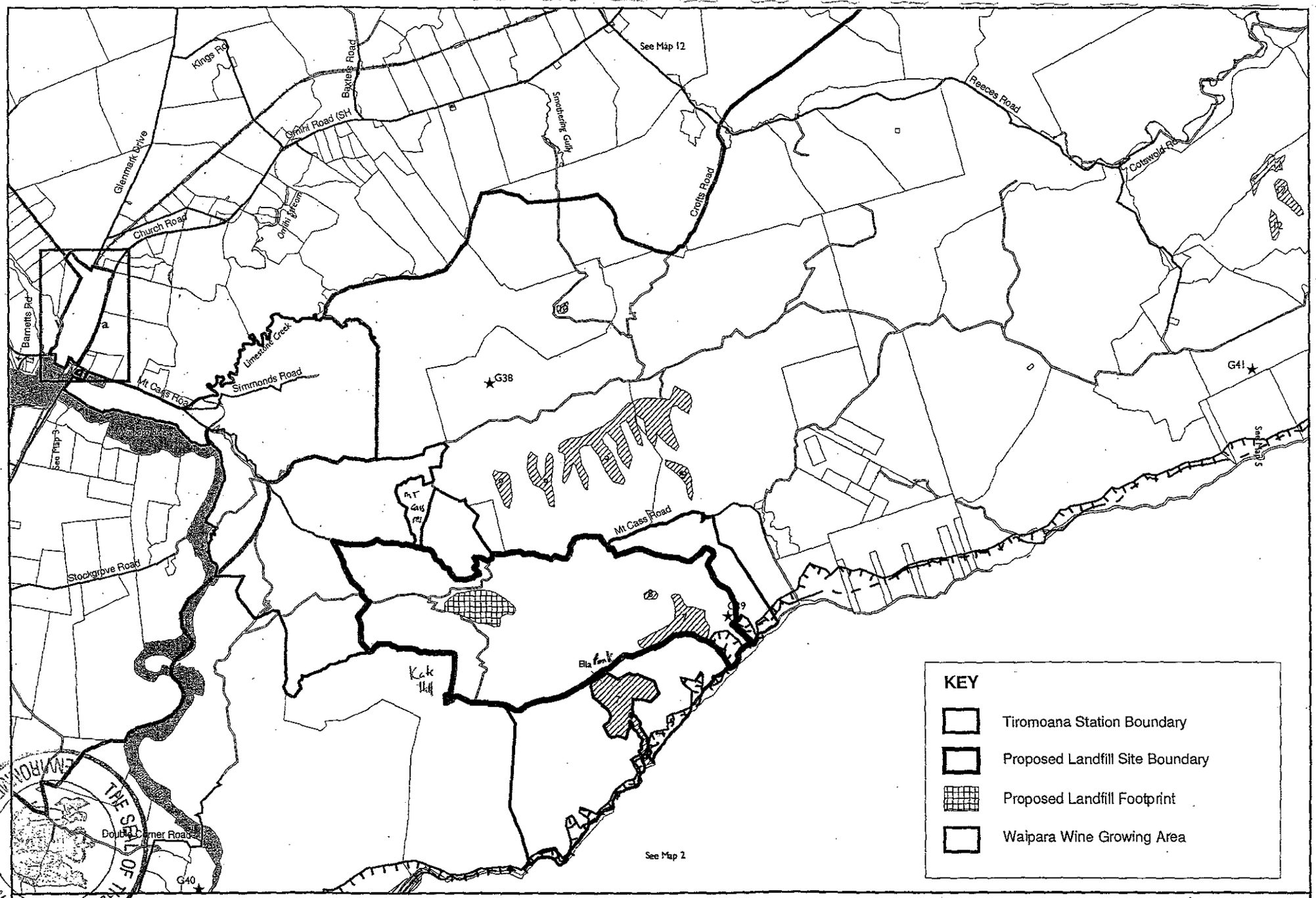
J A Smith
Environment Judge

Issued[16]: 22 MAR 2004

THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

16 Smithje\Jud_Rule\D\RMA 317-03(Mk 2).doc.

ANNEXURES



Map 4a

Hurunui District Planning Map overlaid with proposed regional landfill site boundary and Waipara Wine Growing Area
Revision 2 - September 2003

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A WATER PERMIT CRC021916: to take and use up to 40,000 cubic metres per year of surface water from Pump Creek for a potable water supply at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	The taking of surface water is authorised only for the potable water supply as shown on the Drawing C3 General Site Arrangement.
3	The Consent Holder shall monitor the quantity of water taken from the potable water supply system. The volume of surface water taken shall be recorded at monthly intervals. The annual volume of surface water shall be reported in writing to Canterbury Regional Council by 1 October each year for the period up to 30 June.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5	The abstraction of water in terms of this permit shall be limited to basic domestic requirements for site staff whenever the flow in Pump Creek is at or below one litre per second.

ENVIRONMENT COURT NEW ZEALAND THE SEAL OF THE

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A WATER PERMIT CRC021917: to take groundwater.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Groundwater shall only be taken from a groundwater under-drainage system installed beneath the Landfill footprint, or in related slope cuts or relief drains needed to enable Landfill construction.
3	The Consent Holder shall measure the volume of groundwater taken from the groundwater under-drainage system. This shall be recorded.. The volume of groundwater per month shall be reported in writing to the Canterbury Regional Council by 1 October every year.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED
A DISCHARGE PERMIT CRC021918: to discharge groundwater into water.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Any groundwater under-drainage flows shall be discharged to the surface water drainage system and routed through the sedimentation pond.
3	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A DISCHARGE PERMIT CRC021919: to divert stormwater from a landfill and dam water in constructed sedimentation ponds at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of the diversion channel and, if needed to prevent scour, at intermediate locations.
3	All permanent diversion channels shall be designed to manage a 1% AEP (Annual Exceedance Probability) design flood. Bench drains and other temporary drains shall be designed for the 20% AEP event. Diversion channels shall be designed such that if this capacity is exceeded the preferential (secondary) flow path is, as far as practicable, away from the Landfill.
4	The primary sedimentation pond shall be designed in accordance with the Auckland Regional Council publication *"Erosion and Sedimentation Control – Guidelines for Land Disturbing Activities ARCTP90 March 99".*
5	Diversion channels and cut-off drains shall be maintained to minimise the infiltration and run-off of stormwater onto the Landfill from areas outside the Landfill footprint.
6	All diverted stormwater shall be treated in the sedimentation ponds as shown on the Drawing C3 General Site Arrangement.
7	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
8	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities – March 1999."*
9	The sedimentation ponds shall be designed to manage a 10% AEP design flood, with provision to pass a 1% AEP design flood.
10	The Consent Holder shall be solely responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent. To this end, all channels shall be engineered to preclude excessive channel erosion at peak velocities.
11	The volume of water dammed in the sedimentation pond shall not exceed 30,000 cubic metres.
12	The sedimentation pond dam shall be designed, constructed and monitored following the procedures set out in the NZSOLD Guidelines November 2000, and the procedures shall be reviewed by the Peer Review Panel. During construction, the dam works shall have the capacity to pass an event with an ARI of 10 years.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED

A DISCHARGE PERMIT CRC021920: to discharge treated stormwater from a Landfill into Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the sedimentation ponds to prevent scour.
3	The Consent Holder shall continuously monitor (15-minute readings) water entering the sedimentation pond and water flowing out of the pond outlet for the following parameters: • pH • conductivity. Trigger levels to indicate potential leachate contamination shall be set using the following: PH = the mean plus or minus three standard deviations of baseline stormwater pH data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition. Conductivity = the mean plus three standard deviations of baseline stormwater conductivity data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition.
4	The monitoring system shall be fitted with an alarm to indicate when trigger levels for pH ~~and~~ or conductivity have been exceeded at either the pond inlet or the outlet. The sedimentation pond shall be configured such that in the case of contamination being detected at the outlet, the outflow can be stopped for conditions which do not result in flow over the auxiliary spillway, and shall include provision for pumping to enable contaminated stormwater to be recirculated to the Landfill or diverted to the leachate system for treatment as leachate.
5	If the trigger levels for continuous pH and conductivity monitoring are exceeded, the Consent Holder shall take a grab sample of water and analyse this sample for the parameters listed below: • pH • conductivity • ammoniacal nitrogen • nitrate nitrogen • alkalinity • chloride • potassium • total organic carbon Sampling shall be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of the grab sample analysis shall be reported to Canterbury Regional Council within two weeks of sampling, unless otherwise agreed in writing by Canterbury Regional Council.
6	If monitoring of the discharge system indicates leachate contamination, then the Consent Holder shall take immediate steps to prevent further leachate contamination.

7	The Consent Holder shall immediately report to Canterbury Regional Council on actions taken and further actions proposed to address leachate contamination.
8	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
9	The point of compliance is the outlet to the water supply pond, as shown on Drawing C3. An indicator monitoring point shall be established at the outlet to the sedimentation pond as shown on the drawings in the Monitoring and Contingency part of the Landfill Management Plan.
10	All water quality sample analyses required shall be undertaken using standard methods as detailed in the "Standard Methods for the Examination of Water and Waste Water 1998", 20th edition by APHA and AWWA and WEF or by some other method approved in advance in writing by Environment Canterbury. A laboratory that is accredited to ISO/IEC Guide 25 for those specific tests shall carry out all testing.
11	The Canterbury Regional Council willshall be informed of the trigger levels set in condition 3 of this consent, and the data and calculations used to determine these trigger levels.
12	No stormwater coming into contact with refuse shall be discharged as stormwater, but instead shall be considered as leachate and discharged into the leachate collection system.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021921: to take and use up to 200,000 cubic metres of surface water per year, for a water supply for a Landfill and associated activities, including the realignment, reconstruction, and upgrading of part of Mt Cass Road at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	The taking of surface water is authorised only for the Landfill and associated activities, including the realignment, reconstruction, and upgrading of part of Mt Cass Road.
3	The Consent Holder shall monitor the quantity of surface water taken for the water supply system. The volume of water taken shall be recorded at monthly intervals. The annual volume of water taken in the preceding year up to 30 June, shall be reported in writing to Canterbury Regional Council by 1 October.
4	The rate of take shall not exceed 200,000 cubic metres per year.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A WATER PERMIT CRC021922: to divert and dam water in a constructed water storage pond at Tiromoana Station, Mt Cass Road
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	For stormwater flows in excess of the capacity of the primary structure, a secondary flow path shall be provided and maintained to allow surplus stormwater from critical storms, up to the 0.01% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	A flow of at least 1.5 litres per second shall be maintained in Kate Creek downstream of the monitoring point on the outlet of the water storage dam (as shown on the drawings in the Landfill Management Plan), whenever the water storage dam is receiving an inflow.
5	The Consent Holder shall be responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent. To this end, all channels shall be engineered to preclude excessive channel erosion at peak velocities.
6	The volume of water dammed in the water storage pond shall not exceed 200,000 cubic metres.
7	The water storage dam shall be designed, constructed and monitored following the procedures set out in the NZSOLD Guidelines November 2000, and the procedures shall be reviewed by the Peer Review Panel.
8	The dam shall be constructed to a standard for a flood with an ARI of 100 years for the service spillway, and a flood with an ARI of 10,000 years for emergency spillway design. During construction, the dam works shall have the capacity to pass an event with an ARI of 10 years
9	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED
A DISCHARGE PERMIT CRC021923: to discharge water from a water storage dam into Kate Creek at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	There shall be no discharge at the point of compliance that results in any of the following effects: (a) the production of any conspicuous oil or grease film, scums or foams or floatable or suspended material; (b) any conspicuous change in colour or visual clarity; (c) the rendering of freshwater unsuitable for consumption by farm animals; (d) any significant adverse effect on aquatic life in Kate Creek downstream of the discharge point.
3	Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the dam to prevent scour.
4	The Consent Holder shall continuously monitor (15-minute readings) water flowing out of the outlet for the following parameters: • pH • conductivity Trigger levels to indicate potential leachate contamination shall be set using the following: PH = the mean plus or minus three standard deviations of baseline stormwater pH data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition. Conductivity = the mean plus three standard deviations of baseline stormwater conductivity data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition. The monitoring system shall be fitted with an alarm to indicate when trigger levels for pH ~~and~~ or conductivity have been exceeded at the outlet. The dam shall be configured such that in the case of contamination being detected at the outlet, the outflow can be stopped for conditions which do not result in flow over the auxiliary spillway, and shall include provision for pumping to enable contaminated stormwater to be recirculated to the Landfill or diverted to the leachate system for treatment as leachate.
5	The Consent Holder shall monitor the water in the water supply pond every three months, for the following parameters: • pH • conductivity • ammoniacal nitrogen • nitrate nitrogen • alkalinity • chloride • potassium • total organic carbon

	• soluble zinc • COD Sampling shall be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of such monitoring shall be reported in writing to Canterbury Regional Council within two months of sampling.
6	If the trigger levels for continuous pH and conductivity monitoring are exceeded, the Consent Holder shall take a grab sample of water and analyse this sample for the parameters listed in Condition ~~6~~ 5 of this consent. The results of the grab sample analysis shall be reported to Canterbury Regional Council within two weeks of sampling, unless otherwise agreed in writing by Canterbury Regional Council.
7	If monitoring of the stormwater discharge system indicates leachate contamination, then the Consent Holder shall immediately report to Canterbury Regional Council on actions taken and further actions proposed to address leachate contamination.
8	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
9	The point of compliance is the outlet to the water supply pond, as shown on Drawing C3. An indicator monitoring point shall be established at the outlet to the sedimentation pond as shown on the drawings in the Monitoring and Contingency part of the Landfill Management Plan.
10	All water quality sample analyses required shall be undertaken using standard methods as detailed in the "Standard Methods for the Examination of Water and Waste Water 1998", 20th edition by APHA and AWWA and WEF or by some other method approved in advance in writing by Canterbury Regional Council. A laboratory that is accredited to ISO/IEC Guide 25 for those specific tests shall carry out all testing.
11	The Canterbury Regional Council ~~will~~shall be informed of the trigger levels set in condition 4 of this consent, and the data and calculations used to determine these trigger levels.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A LAND USE CONSENT CRC021924: to disturb the beds of Kate Creek by constructing a Landfill, a sedimentation pond, a water storage dam, a weir, and associated roads and tracks, and erect structures and trees within 7.3 m of a waterway at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Works shall not cause erosion of the banks or bed of the streams.
3	Machinery shall be free of plants and plant seeds prior to use in the riverbed.
4	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
6	The suspended sediment concentration in Kate Creek during dam construction, measured at the point of compliance 300m downstream of the weir, shall be no more than 10% higher than the concentration measured 100 m upstream of the site of the dam construction.
7	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities – March 1999."*
8	There shall be no storage of fuel or refuelling of machinery anywhere in the bed of the river.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A LAND USE CONSENT CRC021925: to disturb the beds of Wash Creek by erecting a culvert, embankment, and water storage dam and erect structures and trees within 7.3 m of a waterway at Tiromoana Station, Mt Cass Road.
DURATION: 5 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	The exercise of this consent shall not increase the suspended sediment concentration of the water by more than 50 grams per cubic metre at any point further than 300 metres downstream of the water storage dam.
3	The works shall be carried out in accordance with the details submitted in the consent Application.
4	Works shall not cause erosion of the banks or bed of the streams.
5	Machinery shall be free of plants and plant seeds prior to use in the riverbed.
6	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.
7	General earthworks and sediment control measures hall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
8	There shall be no storage of fuel or refuelling of vehicles or machinery anywhere in the bed of the river.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A WATER PERMIT CRC021926: to divert and dam water in Wash Creek by erecting a culvert at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	The capacity of the primary structure shall allow surplus stormwater from critical storms, up to the 0.01% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	The diversion of water shall not impede the passage of fish or cause fish stranding.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021927: to divert and dam water in a constructed water storage pond for stockwater supply in Wash Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	For stormwater flows in excess of the capacity of the primary structure, a secondary flow path shall be provided and maintained to allow surplus stormwater from critical storms, up to 0.1% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5	General earthworks and sediment control measures hall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
6	The damming of water in Wash Creek shall not impede the passage of fish.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021929: to divert and dam water in a constructed weir in Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	For stormwater flows in excess of the capacity of the primary structure, a secondary flow path shall be provided and maintained to allow surplus stormwater from critical storms, up to 1% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5	The Consent Holder shall be responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent. To this end all channels shall be engineered to preclude excessive channel erosion at peak velocities.
6	The diversion and damming shall not impede fish passage or cause fish stranding.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021930: to discharge water from a weir into Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	There shall be no discharge at the point of compliance, which is located 300 metres downstream of the weir, that results in any of the following effects: (a) the production of any conspicuous oil or grease film, scums or foams or floatable or suspended material; (b) any conspicuous change in colour or visual clarity; (c) the rendering of freshwater unsuitable for consumption by farm animals; (d) any significant adverse effect on aquatic life in Kate Creek downstream of the discharge point.
3	Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the weir to prevent scour.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021931: to discharge water and sediment to land in circumstances that may result in a discharge to water of Wash Creek and Kate Creek and their unnamed tributaries, associated with constructing and operating a Landfill and associated culverts, embankments, roads and tracks, construction of a sedimentation pond, two water storage ponds, and a weir at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

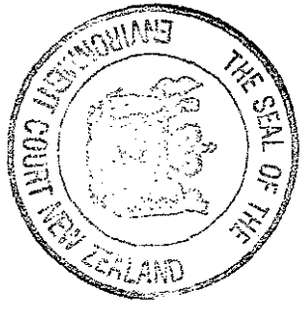
IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	General earthworks and sediment control measures hall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
3	All investigations, design, supervision of construction, operation, monitoring and aftercare shall be undertaken by a Registered Engineer experienced in such works, or works of a similar nature.
4	The Consent Holder shall construct and maintain appropriate stormwater management measures, including drains and sediment traps for the interception and treatment of stormwater run off from the works. These measures shall remain in place over the duration of the construction period and for a period following construction to allow suitable cover of vegetation to establish on restored areas.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.



PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A LAND USE PERMIT CRC022020: to install and use above-ground storage tanks.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	A series of 25 cubic metre tanks shall be placed on site and used to store leachate collected from the Landfill, prior to its removal from the site via road tanker.
3	The number of tanks on site at any one time shall depend on the volume of leachate produced but shall be sufficient to provide five days worth of storage.
4	The tanks, transfer pump and surrounding truck load-out area shall be located within a bund designed to contain 125% of the maximum volume of leachate stored.
5	The Consent Holder shall undertake measures to prevent the generation of odour from the leachate storage tanks. These measures may include but not be limited to: (a) The sealing of storage tanks; and (b) The use of biofilters; and (c) Aeration devices fitted to the tanks.
6	The storage tanks and pump-station shall be fitted with alarms and a telemetry system. The alarm shall be triggered when leachate stored in the tanks reaches a certain level.
7	Design plans of the storage tanks and bunded facility shall be provided to the Canterbury Regional council prior to works commencing.
8	A "Storage Tank Installation Certificate" shall be signed by the person responsible for the construction and installation of the leachate storage facility or a person competent in the construction and installation of such facilities. This certificate shall be submitted to the Canterbury Regional Council within one month of construction of the storage facility and shall certify that the storage facility is installed and constructed in accordance with Conditions (1) – (7) of this consent.
9	The storage tanks, containment bund, transfer pump, alarms and telemetry system shall be maintained in an operational state at all times.
10	The Consent Holder shall include within the Landfill Management Plan provisions for the storage, handling, use or disposal of hazardous materials, chemicals and waste.
11	Where spillages occur, the Consent Holder shall ensure that all spilled materials and contaminated soil and stormwater are properly contained, pumped or removed into suitable holding containers and removed from site.
12	The Consent Holder shall ensure that all site personnel are trained in hazardous material and waste handling and spill contingency and emergency procedures.
13	The Canterbury Regional Council may, on any one of the last five working days of June or November each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

ANNEXURE 1

Special Conditions

The following additional conditions shall form part of the overall consent to the Application and shall specifically attach to the indicated consents.

Special Condition 1: Assurance that GCL liner does not become excessively hydrated (CRC021914)

A. *The applicant shall prepare a detailed Management Plan to control, manage and monitor the hydration level of the GCL liner so as to maintain it within the design standard.*

B. *A suitably qualified geo-technical engineer shall inspect the edges and any exposed parts of the liner system, on at least an annual basis, and after weather events capable of causing surface water infiltration, in any situation where such infiltration has occurred and at the completion of each stage of filling. The geo-technical engineer shall provide an annual report to the consent holder, and the Regional Council and shall provide certification that the degree of hydration is within design limits and that in his or her view the degree of hydration does not result in any elevated risk of mass failure. The Management Plan shall outline the processes to be followed in the event that such certification cannot be provided. This shall include a process for deciding whether further development of the landfill can safely occur and for determining appropriate mitigation measures. (Copies of the management plan, report and certification are to be provided by the consent holder to the Regional Council and to the Peer Review Panel, within 7 days of completion of the document)*

C. *In the event that the certification outlined above cannot be obtained at the end of any phase of filling, subsequent stages shall not proceed until redesign work demonstrates that a satisfactory level of stability can be assured and certified by the design engineer (such certification to be provided to the Peer Review Panel and the Regional Council).*

Special Condition 2: Removal of potential failure material upgradient of two major cuttings along northern access road (RC020069)

In the area upgradient of deep cuttings along the northern access road which will have its toe support removed, all soil material above the Tokama Formation (soft rock) shall be removed prior to excavation of the cuttings.

The lateral extent of the soil removal shall be defined by the points to the east and west of the cutting where the soil is undercut by the final excavation.

The upgradient extent of the soil removal shall be determined during the final investigation of this area (prior to final design) and shall be certified by the design engineer as having a factor of safety of at least 1.2 (see AEE). (A copy of such certification to be provided to the Peer Review Panel and to the Regional Council.)

Prior to excavation of the deep cutting into the Tokama Formation at these two locations, an investigation of the rock slope stability of these areas shall be carried out taking into account the unfavourable bedding at these locations.

The design engineer shall certify that the rock cuttings have a factor of safety (FOS) greater than 1.1 under both design groundwater conditions and design earthquake loadings. . (A copy of such certification to be provided to the Peer Review Panel and to the Regional Council.)

In the event that stability cannot be certified (FOS > 1.1) under "Design Earthquake Loading and Design Groundwater Levels" the potentially unstable rock mass shall be excavated to provide a stable batter over the life of the landfill and its extended after care period.

Special Condition 3: Removal of any potentially unstable rock mass above proposed silt pond (CRC021919)

Prior to construction of the Siltation Control Dam an investigation of the slopes adjoining the dam embankment footprint and the pond area shall be carried out to assess the long term stability of these batters.

All soil material above the northern side of the dam embankment and pond shall be removed to the ridge line.

The investigation shall determine the factor of safety against failure of the rock mass in this area under varying groundwater and seismic conditions.

The design engineer shall certify that the rock mass has an adequate factor of safety under design groundwater and seismic loadings.

*If the investigation reveals that an adequate factor of safety cannot be achieved, **all** rock material above the critical potential failure plane shall be removed.*

This investigation work shall take into account the results of the required detailed investigation of the proposed siltation dam and its foundations.

The design engineer shall prepare a report addressing each of the matters in this condition and that shall be provided to the Peer Review panel and to the Regional Council.

Special Condition 4: Surface water by-pass drains (CRC021919)

The proposed zigzag surface water drainage channels located around each of the landfill phases shall be modified/redesigned to have bends not less than 135° or other such configuration as a suitably qualified hydraulic/civil engineer will certify as being appropriate for the site conditions.

The selected hydraulic/civil engineer shall certify the configuration of such drains and any necessary special hard surfacing and shaping (cross section) as being sufficient and appropriate to prevent overflow of water into the waste mass (under all operational phases/conditions) under an ARI 100 storm event. (A copy of such certification to be provided to the Peer Review Panel and to the Regional Council.)

Special Condition 5: Dam safety guidelines (CRC021919)

Both the siltation control dam and the water storage dam shall be investigated and designed in accordance with the New Zealand Dam Safety Guidelines as

promulgated by the New Zealand Society on Large Dams (as agreed by the applicant).

The investigation, design, peer review and monitoring of the dam shall take into account the following factors:

- *The public are known to frequent the lower end of Kate Valley and the beach at the Kate Creek outlet*
- *The potential incremental consequences of failure in terms of socio-economic, financial and environmental matters would cause major damages in that the landfill would likely need to be closed, requiring extensive rehabilitation work.*

Special Condition 6: Retention of Kate Valley in consent holder's ownership (RC020069)

The entire Kate Valley catchment area presently held within the applicant's ownership shall remain in the consent holder's ownership for as long as the Kate Valley landfill is biologically active.

The biologically active life of the landfill shall be defined as the period over which LFG is being produced in concentrations exceeding 5% (v/v) in air or the concentrations of ammonaecal nitrogen or other leachate contaminants exceed levels that would protect 95% of species within the downstream data set of aquatic organisms.

Special Condition 7: Gross pollution control structures (RC020069)

Gross pollution control (GPC) structures shall be erected at selected points along Kate Creek to intercept waste matter being carried towards the coast via this waterway. These GPC structures shall be regularly cleared of waste matter after storm events.

Special Condition 8: Protection of beech remnants (RC020069)

The landfill shall be redesigned so as to avoid earthworks in the location of beech Remnant A. Remnants A and B shall both be protected from any harm deriving from the construction or operation of the landfill. The consent holder shall also ensure that both Remnants are fenced off from stock and it shall control weeds and pests within those areas for the life of the landfill. Any redesign required by this condition shall ensure that the landfill footprint does not extend beyond the footprint shown in the application material, and the final finished height of the landfill shall be no higher than that shown in the application material. Any conditions in any of the consents that refer to plans or management plans shall be read as being subject to this condition.

Special Condition 9: Financial contribution (RC020069)

Pursuant to section 409 of the Resource Management Act 1991, the consent holder shall pay a financial contribution, being 0.25% of the assessed value of the development, to the Hurunui District Council, prior to the commencement of the placement of refuse at the site. In the event, that beech Remnant A is not protected, the amount of this contribution shall increase to 0.4% of the assessed value of the development.

Special Condition 10: Restrictions on waste acceptance (CRC021913)

A. *No waste, other than **residual Municipal Solid Waste** (MSW), shall be accepted for disposal. The definition of MSW shall be any non-hazardous, solid waste from a combination of domestic, commercial and industrial sources. It includes putrescible waste, garden waste, uncontaminated biosolids, and clinical and related waste (including contaminated waste sterilised to a standard acceptable to the Department of Health). It may include a small proportion of hazardous waste from households, and small commercial premises that is not detectable using standard screening procedures at either transfer stations or other waste reception facilities. Such quantities are small - generally <200 ml/t, or <200 g/tonne. It also includes site-generated process sludges in comparatively small quantities (e.g. LCS condensate, evaporator sludges, sludges from leachate treatment and sediment control facilities), and non-hazardous sludge wastes (e.g. wastewater treatment plant sludges) consistent with maintaining workable sludge/waste ratios for operations and stability purposes. The definition of "**residual**" shall mean that part of the municipal waste stream remaining, once all practicable and economic measures have been adopted to reduce, recover, reuse and or recycle material within the waste stream.*

B. *From 1 January 2005, the Consent Holder shall only accept waste from transfer stations or other waste reception facilities that provide facilities for the separation of hazardous waste by users of the facility and which promote the merits of such separation to users.*

C. *From 1 January 2008 the consent holder shall only accept waste (other than special waste) from transfer stations or other waste reception facilities that provide for and encourage the separation of green waste by users of the facility, and from that date, no loads of separated green waste shall be received at the landfill.*

ANNEXURE 2

Applicant's proposed condition for Remnant B

The Consent Holder shall provide for the long-term protection and management of beech remnant B by:

- *The registration of a Covenant in a form to be approved by the Manager, Hurunui District Council, which provides legal protection in perpetuity of an area, the boundaries of which are to be agreed between the Consent Holder and Hurunui District Council and failing agreement specified by the Council, around beech Remnant B, of approximately 8 hectares in area;*

- *The permanent removal of grazing from the area so defined prior to commencement of first placement of waste within the landfill;*

- *Initiating and continuing weed and pest control within the area so defined during the operating life of the landfill;*

- *Carrying out beech and other native plant propagation and seedling transplant from Remnant A into the area so defined with appropriate support/buffer planting over the period until Remnant A is removed by landfill construction (approximately 10 years following commencement of the landfill); and*

- *Ongoing monitoring and management of native forest, including beech restoration within the area so defined, during the operating life of the landfill.*

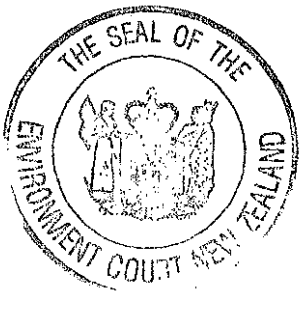
Note: This condition does not form part of the consent but was the condition offered by the applicant on the basis that Remnant A was not to be protected. In our view, it should be included if the protection of Remnant A is not upheld.

FURTHER CLARIFICATION SOUGHT FROM THE APPLICANT RESULTING FROM SUBMISSIONS RECEIVED FROM MESSRS ORR, HILL AND ASSOCIATE PROFESSOR DONALDSON.

1. From dispersion modelling, (incorporating revised meteorological data if appropriate), indicate how the concentration of threshold and non-threshold contaminants (please nominate) would change with distance (show locations of maximum concentrations and increments under the worst meteorological and topographical conditions (this to include air drainage down valleys) for the Kate Valley locality. Relate these concentrations to acceptable health risk criteria.

2. Would the incorporation of long term local meteorological data into the dispersion estimates conducted by Dr Jones, or matters raised in Professor Donaldson's submission cause Dr Jones to alter the conclusion reached in his evidence relating to health risk assessment for the Kate Valley landfill?

3. Would reassessments resulting from above cause Dr Jones to alter his conclusions relating to location, frequency and intensity of odours to be expected from the proposed Kate Valley landfill?



CHANGES TO CONDITIONS OF CONSENT PROPOSED BY THE APPLICANT

Key to Highlighted Colours

Green represents changes to appealed conditions that have been agreed by all relevant parties

Blue represents changes to appealed conditions proffered by the Applicant that have not been agreed with relevant other parties

Yellow represents new conditions arising from the hearing that have been proffered by the Applicant, and which have not yet been commented on by all other relevant parties

Purple represents changes which are consequential to one of the other changes sought

SCHEDULE 1 - General Conditions which shall apply to all of the following consents:

HDC - RC020069 and CRC021906, CRC021911, CRC021912, CRC021913, CRC021914, CRC021915, CRC021916, CRC021917, CRC021918, CRC021919, CRC021920, CRC021921, CRC021922, CRC021923, CRC021924, CRC021925, CRC021926, CRC021927, CRC021929, CRC021930, CRC021931, and CRC022020

1	All works shall be undertaken generally in accordance with the following documents (where applicable), except where amendments are required by conditions of these consents. In the event of differences or conflict between the measures described in the documents, and the conditions, the conditions shall prevail: • Transwaste Canterbury Ltd, Kate Valley Regional Landfill Resource Consent Applications dated April 2002, and Drawings contained within the Assessment of Effects on the Environment; except as amended within the evidence given by witnesses for Transwaste Canterbury Ltd during the hearing of the resource consent applications, or except to the extent required as a result of the Special Conditions attaching to these consents [redacted]. The site is defined on Figure 1.3 of the Drawings.
2	Detailed designs of all works shall be forwarded to the Hurunui District Council and the Canterbury Regional Council prior to works commencing.
3	All investigations, design, supervision of construction, operation, monitoring and aftercare shall be undertaken by a Registered Engineer experienced in such works, or works of a similar nature.
4	As-built drawings shall be forwarded to Hurunui District Council and Canterbury Regional Council following completion of principal works and structures, which shall include the sedimentation dam, water storage dam, toe bund, leachate collection system, landfill gas system, landfill access road, and landfill cells. These drawings shall include: • 0.25 metre contours for the liner base; • final elevations of the HDPE liner prior to placement of the leachate drainage layer sufficient to monitor future movement of the base; and • spot levels to plus or minus 10 millimetres at leachate collection sump locations. They shall also include copies of field records showing details of the exposed ground surface prior to liner placement, including a record of any sub-liner ground improvements undertaken.
5	A certificate signed by the person or persons responsible for designing the principal works and structures of the landfill or a competent person shall be submitted to the Hurunui District Council and the Canterbury Regional Council within one month of completion of the principal works and structures associated with the landfill to certify that the works were carried out in accordance with the design plans submitted, as required by Conditions 1 and 4 of this Schedule.
6	(a) The Landfill Management Plan shall be in accordance with Conditions 7, 8 and 9 of this Schedule. (b) The Landfill Management Plan shall be reviewed by the Peer Review Panel established by Condition 11 of this Schedule. (c) At least three months prior to landfilling activity commencing a Landfill Management Plan shall be forwarded to the Canterbury Regional Council and Hurunui District Council.
7	The LMP shall provide details of the procedures to be put into place to operate the Landfill in compliance with conditions of these consents and to minimise the potential for adverse effects due to the operation of the Landfill. In addition, environmental objectives or outcomes for the performance of the components of the landfill operation shall include: **a) Management:** LMP Objectives: o To operate in full compliance with the resource consent requirements and demonstrate this through reporting procedures to Consent Authorities. o To liaise closely with neighbours and the local community, including Iwi representatives, regarding Landfill operations issues. o To ensure that no adverse effects on the environment occur from site operations. o To provide a safe working environment for people on the site. o To efficiently and economically utilise the site's capacity.

- To maintain an independent review process for the design, construction, operation and aftercare of the landfill to assess whether the work is undertaken by appropriately qualified personnel in accordance with good practice.

- Land ownership
  Objective:
  - To retain ownership of the Kate Valley catchment by Transwaste Canterbury Ltd for the operating life of the landfill and aftercare period.
- Operational responsibilities
- The management structure
- Staffing including the use of contractors
- Training of staff
  Objectives:
  - To safeguard the health and safety of people on the site.
  - To ensure compliance with regulations and resource consent conditions.
  - To ensure familiarity with emergency procedures.
  - To ensure familiarity with accidental discovery protocols.
  - To maximise the efficiency and quality of landfill operations.
  - To prevent the disposal of hazardous waste.
  - To facilitate accurate record keeping.
- Health and safety procedures
  Objective:
  - To ensure all site personnel are fully aware of the content and obligations in the Health and Safety Plan.
- Community involvement including details of complaints procedures
  Objectives:
  - To be a good neighbour.
  - To encourage and facilitate public feedback.
  - To facilitate effective communication with the local community through the Community Liaison Group.
  - To abide by the provisions of the Charter of Understanding between Transwaste Canterbury Ltd, Te Runanga o Ngai Tahu and Te Runanga o Ngai Tuahuriri.

b) Design and Construction:

Design and Construction Objectives:

- To achieve equivalent performance with USEPA Subtitle D (in respect of the liner) and the CAE Landfill Guidelines criteria, in order to provide a landfill where all components are essentially "state-of-the-art" for New Zealand, directly comparable with systems that would be required for a similar landfill in Australia or the USA.
- To use Quality Assurance and Quality Control Procedures in accordance with Section 4 of the CAE Guidelines 2000.
- To ensure that the risks of excessive liner hydration, slope failure and dam failure are minimised and that the measure required by special conditions 1, [redacted] 5 are addressed.
- To optimise leachate containment through adoption of a very high performance liner.
- To provide a robust, effective leachate drainage system with ready access for cleaning and rehabilitation.
- To control stormwater and moisture ingress into the landfill such that the site is able to be operated so as to provide effective waste stabilization, while avoiding excessive leachate generation.
- To provide for active LFG extraction at an early stage, and throughout the active and post-closure phases.
- To use incineration of LFG in an approved flare (with the potential for energy conversion for electricity generation, or other appropriate uses such as for leachate volume reduction).
- To utilise an advanced cover system to ensure effective site rehabilitation, while minimizing long term leachate generation.
- To limit face access, thus enabling the size of the active area to be minimised.
- To minimise stockpiling, both within and outside the footprint.
- To enable comprehensive stormwater and silt control, with all catchment runoff routed via one sedimentation pond situated in the main valley.

- To facilitate gravity drainage of leachate from the landfill.
- To maximise flexibility to cater for variations in airspace demand.
- To enable early closure scenarios to be readily provided for.
- To provide good wind shelter to initial phases.
- To configure slopes and benches so that the synthetic liner components can be readily installed.
- To ensure the basegrade slopes are stable for both the construction and long term cases.
- To comply with all conditions of these consents.

- Site access

  Objectives:
  - To ensure only vehicles that are covered by a Waste Cartage Contract have access to the landfill.
  - To manage waste vehicle landfill arrival timing to minimise peaks in off-site and on-site traffic.
  - To manage waste vehicle landfill arrival timing to maximise the time gaps between landfill-related heavy vehicles on Mt Cass Road and State Highway 1.
  -
  - To ensure no unauthorised access to the landfill.
  - To ensure that vehicle movements remain within approved limits.
  - To ensure that all waste being transported to the landfill is securely contained in a manner that prevents the escape of liquid or solid material from the vehicle, either in motion or at rest.
  - Waste haul vehicles accessing the site shall comply with the following standards:
    - Euro III Vehicle Emission Standard EU Directive 1999/96/EC
    - European Truck Noise Standard EU Directive 96/20/EC
  - To ensure that all landfill users have a current Landfill Users Contract.
  - To ensure that all landfill users are fully aware of the Waste Acceptance Protocol.
  - To provide safe intersections.
  - To minimise road maintenance requirements.
  - To minimise effects of road upgrading on the environment.

- Fencing and security

  Objectives:
  - To ensure no stock can get onto the landfill site.
  - To fully control access to the landfill working areas.
  - To ensure that only authorised persons access operational areas.

- Earthworks
- Liner construction

  Objectives:
  - To contain leachate and LFG generated within the landfill and limit their migration into the underlying soil and groundwater.
  - To provide attenuation of chemicals within the liner layers.
  - To ensure liner design is consistent with the objectives set out in Section 4.7 of the CAE Landfill Guidelines (2000), and is consistent with meeting USEPA Subtitle D design requirements.
  - To minimise opportunities for liner hydration

- Stormwater and silt control

  Objectives:
  - To divert as much stormwater as possible away from the active face of landfill so that operational leachate volumes are minimised.
  - To design stormwater systems so as to minimise liner hydration
  - To provide effective drainage of the final surface of the landfill so that scour of the cap is prevented and long term seepage into the landfill is minimised.
  - To keep all stormwater runoff from landfill activities within the Kate Valley catchment, to maximise runoff available for water supply storage, and ensure environmental impacts on surrounding catchments are minimised.

- To control silt runoff from the site so that silt discharges below the water supply dam are not greater than those currently occurring naturally.
- To detain flows from runoff so that deposition of transported sediment can occur through settlement.
- To minimise disturbed earthworks areas.

- Leachate collection and treatment

  Objectives:
  - To have no liner penetrations.
  - To ensure the average leachate head on the liner does not exceed 300 mm.
  - To ensure all main leachate collector drains and sumps are readily accessible for cleaning and flushing.
  - To maximise gravity flow.
  - To ensure leachate storage tanks are contained within a bunded area with 25% more holding capacity than the tanks.
  - To ensure that the removal of leachate from site for treatment is undertaken safely in accordance with the Code of Practice for Hazardous and Liquid Waste.
  - To ensure continued compliance with requirements of the CCC Trade Waste Permit.
- Landfill gas collection and treatment

  Objectives:
  - To control odours so that there shall be no odour or particulate matter that causes an objectionable effect beyond the boundary of the land owned by the Consent Holder, or land over which the Consent Holder has rights.
  - To ensure maintenance of methane concentrations at monitoring probes located at the property boundary below the lower explosive limit (LEL), which corresponds to 5 percent methane by volume.
  - To ensure maintenance of methane concentrations in on-site structures at or below 25 percent of the LEL, or 1.25 percent by volume.
  - To provide for the treatment of recovered landfill gas by combustion.
  - To ensure that surface emission concentrations above the areas of the landfill surface that are closed or are under intermediate cover, are maintained at less than 5,000 ppm as methane.
- Onsite roading

  Objectives:
  - To provide maintenance and service access to the landfill and surface drains.
- Site amenities and infrastructure including water and power reticulation

  Objectives:
  - To ensure continued provision of potable water from Pump Creek.
  - To ensure sufficient water is available in the water storage dam for all landfill operational and construction requirements.
  - To maintain the required minimum flows in Kate Creek.
  - To ensure adequate water storage for fire-fighting.
  - To ensure all fuelling is undertaken in designated areas.
  - To ensure all fuelling and chemical storage areas are suitably bunded.
  - To ensure equipment is parked overnight or long term in designated areas.
- Restoration and landscaping

  Objectives:
  - To rehabilitate disturbed areas.
  - To provide for the conservation and enhancement of native vegetation communities and wetlands in the middle and lower Kate Valley.
  - To provide practical and sustainable screening of landfill operations.
  - To provide wind shelter and assist with litter control.
  - To provide erosion control.

Operation:

- Management of site users including traffic management

  Objectives:
  - To manage landfill traffic to provide a safe working environment for all people on site.

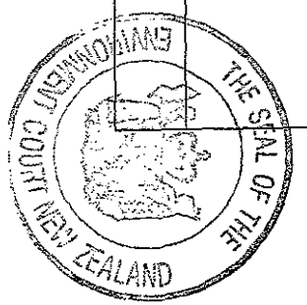
c)

- To maximise efficiency of container transfer.
- To minimise waste cartage vehicle turnaround time.
- To minimise waste container turnaround time.

- Waste Acceptance Criteria and procedures
  Objectives:
  - To ensure the receiving environment is protected.
  - To ensure the health and safety of people is protected.
  - To ensure all waste received is compatible with the landfilling operation.
  - To ensure all waste landfilled complies with the "Waste Acceptance Criteria", set out in consent CRC021913.
  - To ensure that the composition of all special waste is identified.
  - To ensure that all special waste disposal is pre-booked.
  - To ensure that appropriate provisions for disposal of each special waste load are in place before the waste arrives at the landfill.
  - To provide a suitably protected and controlled location for temporary storage of inadvertent hazardous or otherwise unacceptable waste.
- Placing of refuse and daily cover
  Objectives:
  - To achieve a minimum in-situ refuse density of 850 kg per cubic metre, inclusive of temporary and intermediate cover.
  - To ensure no compaction equipment operates closer than 1 m to the landfill liner protection layer.
  - To maintain a working face that is as small as possible.
  - To cover all refuse daily.
  - To ensure no special waste is placed within 3 m of the base or sidewall liners.
  - To record the location of special waste by survey.
  - To ensure that disposal of odorous loads only takes place when the following measures are in place:
    - Odour masking chemicals are available
    - An appropriately sized pit is available
    - Meteorological conditions are suitable
    - Equipment is available to immediately cover the waste
- Leachate management
- Landfill gas management
- Nuisance control
  Objectives :Litter
  - To avoid wind-blown litter outside the site boundaries.
  - To ensure litter does not accumulate on screens and litter fences.
  - To maintain a clean and tidy site.

  Objectives :Odour
  - To ensure effective daily cover of at least 150 mm of soil or equivalent alternative material.
  - To keep the working face as small as practicable.
  - To ensure effective intermediate cover of at least 300 mm thickness.
  - To avoid excavation into old areas of refuse as far as practicable.
  - To minimise water ingress to the working face.
  - To achieve early and progressive installation and extraction from the LFG system in the active landfill areas.
  - To avoid having gas wells unconnected to the extraction system.
  - To ensure provision for standby power to avoid flare outages.

  Objectives :Dust
  - To minimise the extent of unvegetated areas.
  - To enforce vehicle speed limits on site.



- To ensure sealed road surfaces are regularly swept.
- To keep unsealed road surfaces and working areas moist where potential for dust emissions outside the site boundary exists.

Objectives :Noise

- To operate the landfill within the site boundary noise limits.
- To ensure all site machinery is well-maintained
- To maintain an operative Noise Management Plan detailing mitigation measures if noise complaints are received.

Objectives: Fire

- To ensure that adequate fire control equipment is present on site and operable at all times, for all fires, including landfill fires.
- To maintain an operative Fire Plan in conjunction with the Ashley Rural Fire Committee

- Site security

  Objective:
  - To control access to the site at all times.
- Facilities maintenance including weed and pest management

  Objectives:
  - To liaise with neighbours over weed and pest management strategies.
  - To avoid the establishment of vermin, insect and bird populations through effective management of the refuse disposal process and area.
- Incident Contingency Plans for transportation of waste and leachate

  Objective:
  - To ensure that all waste and leachate transporters have current incident contingency plans meeting the Ministry for the Environment Code of Practice for the Transport of Hazardous and Liquid Waste and are consistent with the Transport Contingency Plan as required in condition 32 of this consent.

d) Maintenance of:

- Leachate collection system
- Landfill gas collection system
- Leachate storage tanks

e) Monitoring and Contingency with respect to surface water, groundwater, leachate, landfill gas, and nuisance:

- Monitoring locations
- Monitoring parameters
- Monitoring frequency
- Detection limits
- Reporting
- Trigger levels (for each monitoring location) for implementing contingency/remedial actions
- Proposed contingency measures

  Objectives:
  - To ensure that potential contaminants are retained within the Landfill site.
  - To ensure that injury to people is avoided or minimised.
  - To ensure that damage to property is minimised.

f) Aftercare:

- The final landform and landuse
- Capping and revegetation

  Objectives:
  - To minimise ingress of rainwater into the landfill.
  - To minimise erosion and cracking of the cap through design, planting and maintenance.
- Weed and pest management
- Operation and maintenance of leachate management systems
- Operation and maintenance of landfill gas management systems

	• Ongoing monitoring, including groundwater, surface water, landfill gas and site capping • Responsibilities for aftercare Objectives: o To ensure that sufficient funds are collected and managed over the operating life of the landfill to provide a long term funding source for aftercare costs.
8	The Consent Holder, by 1 October of each year, shall complete a review of the Landfill Management Plan to ensure that management practices result in compliance with the conditions of these consents. Any proposed revisions shall be reviewed by the Peer Review Panel, and then forwarded to Canterbury Regional Council and Hurunui District Council.
9	Landfill operations shall at all times be in accordance with the current provisions of the LMP.
10	The Consent Holder shall retain an appropriately experienced person to supervise the operation of the Landfill. That person shall compile an annual report on the operation of the Landfill, including: (i) the status of landfilling operations on the site and work completed during the preceding year; (ii) any difficulties which have arisen in the preceding year and measures taken to address those difficulties; and (iii) activities proposed for the next year of the Landfill operation. (iv) collated summaries and analyses of all monitoring and other data required under these consents, including in particular all information relating to groundwater, surface water, odour, dust, litter and noise. (v) Outlining any short or long-term adverse effects that are likely based on monitoring results obtained and on any Peer Review reports or reports prepared in accordance with Special Conditions 1 [redacted] 5. This report shall be forwarded to Hurunui District Council and Canterbury Regional Council by 1 October each year, unless otherwise agreed in writing with Hurunui District Council and Canterbury Regional Council.
11	The Consent Holder shall establish, at its own cost, an Independent Peer Review Panel, to review the design, construction, operation and after-care of the Landfill and to assess whether or not the work is undertaken by appropriately qualified personnel in accordance with good practice. The Independent Peer Review Panel shall comprise at least two persons who shall be: • independent of the Consent Holder • experience in landfill design, construction and management • experience in landfill geotechnical, groundwater and surface water aspects • recognised by their peers as having such experience, knowledge and skill • approved in writing by Hurunui District Council and Canterbury Regional Council.
12	The Independent Peer Review Panel shall prepare an annual report for the Consent Holder on the adequacy of the following matters: • management and monitoring plans • site preparation, including hydrogeological and geotechnical issues • liner design and construction and use of on-site materials • water control, including stormwater and leachate management • compaction, including method and degree • waste acceptance • cover material used • monitoring, modelling and records • rehabilitation. The Peer Review Panel shall take into account the matters covered by Special conditions 1, [redacted] 5 [redacted] and address any issues arising
13	[redacted]
13	Where the Independent Peer Review Panel does not have the expertise in any of the areas it is required to report on, as detailed above, it may, with the agreement of the Consent Holder and Canterbury Regional Council, engage the services of an appropriate expert to report on the relevant matter to the Independent Peer Review Panel. The report shall form part of the review provided by the Independent Peer Review Panel as required by this condition. Copies of all reports shall be sent to the Consent Holder, Hurunui District Council and Canterbury Regional Council by 1 October each year.

14 (a) Prior to the placement of refuse the Consent Holder shall provide and maintain in favour of Hurunui District Council and Canterbury Regional Council (for this clause called the Councils) for their respective interests, a financial assurance (bond) which, in the event of default by the Consent Holder, would:

- Secure compliance with all the conditions of these consents and enable any adverse effects on the environment resulting from the Consent Holder's activities, and not authorised by a resource consent to be avoided, remedied or mitigated (Remedial action);
- Secure the completion of rehabilitation and closure in accordance with the approved Aftercare section of the Landfill Management Plan (Closure):
- Ensure the performance of any monitoring obligations of the Consent Holder under this consent, as well as any site aftercare obligations such as care of the landfill cap and pollution prevention infrastructure (Aftercare);
- Provide for reconstruction of the landfill landform in the event of a mass movement
- Provide for early closure costs in the event of abandonment of the site

(b) The amount (quantum) of the bond may vary from time to time but at any given time shall be sufficient to cover the estimated cost at that time (including any contingency) of:

i) Remediation of any adverse effect on the environment that may arise from the site. The estimated costs shall be determined by the Consent Holder by means of a quantitative risk assessment to ensure that the 90 percent confidence limit on remedial action costs is provided. An experienced environmental risk assessment practitioner shall conduct such a risk assessment. The Consent Holders environmental risk assessment practitioner shall be approved by the Councils and the method of conducting the risk assessment shall be made clear to the Councils, including all assumptions drawn to conduct the assessment. The risk assessment shall include (but not be limited to) the factors listed below, the likelihood of any of these events occurring and the likely remedial costs:

- Excessive hydration of the landfill liner;
- Excessive leachate seepage through liner;
- Failure of leachate collection system
- Escape of leachate from leachate dam;
- Surface water contamination within or beyond the boundary of the premises;
- Groundwater contamination within or beyond the boundary of the premises (except where the contamination is within a designated attenuation zone)
- Illegal dumping of hazardous and/or inappropriate waste;
- Instability of landfill batters;
- Underground migration of landfill gas;
- Significant and ongoing odour problems;
- Failure of gas extraction system;
- Landfill fires;
- Erosion of landfill cap;
- Failure of any of the dams;
- Slipping/mass failure of the landfill mass;
- Gross pollution of the adjoining ocean environment, and.
- Failure to establish and or maintain vegetation cover on cap

ii) Rehabilitation and closure of the site in accordance with the conditions of the consents. These works shall include:

- Capping and re-vegetation in accordance with the details of the Landfill Management Plan;
- Installation of gas and leachate collection infrastructure where it is not installed progressively throughout the life of the landfill; and
- Decommissioning of infrastructure no longer required.

The cost estimate must provide for the rehabilitation of the largest area of the landfill that may be open (filled and uncapped) at any stage. In the event that capping materials are required to be imported to the site, the Consent holder shall allow for the cost of importation to be included in the estimate of costs.

iii) Monitoring and management of the site and its effects both before and after closure or abandonment of the site. In this context, closure shall mean completion of capping of the final landfill cell. The bond shall provide for the total area of landfill filled at a given time. The estimation of the bond for site monitoring and management costs shall consider (but not be limited to) the following aspects:

- Inspection of landfill cap and landfill infrastructure including leachate collection system;
- Repair of landfill cap and infrastructure;

	• Landscape maintenance of vegetated landfill cap; • Leachate and stormwater treatment and/or disposal; • Decommissioning of leachate storage ponds; • Maintenance of groundwater bores and gas collection wells • Ongoing extraction and management or usage of landfill gas; and • Monitoring program for: o Groundwater; o Surface water; o Leachate; and o Landfill gas.
15	The Consent Holders bond shall be in a form agreed between the Consent Holder and the Councils and shall, subject to these conditions, be on terms and conditions agreed between them.
16	Unless the bond is a cash bond, a guarantor acceptable to the Councils shall guarantee the performance of all of the conditions of the bond. The guarantor shall bind itself to pay for the carrying out and completion of any condition of the bond in the event of the Consent holder defaulting on its environmental obligations with respect to the landfill facility as assessed by the Councils.
17	The Consent holders bond shall name the Councils as the party able to draw on the bond. The bond shall be available to the Councils regardless of whether it is required as a result of any deliberate or inadvertent act of the Consent holder or its agents.
18	The amount of the bond shall be initially set on the basis of cost estimates established by means of a risk assessment prepared by the Consent holder, which shall be submitted to the Councils for review and approval prior to the commencement of placement of refuse at the site. The amount of the bond must cover costs associated with three operational aspects, as indicated in Condition 14 above:
19	Should the Consent Holder and the Councils be unable to reach mutual agreement on the form, terms and conditions, or amount of the bond, then the matter shall be referred to arbitration in accordance with the provisions of the Arbitration Act 1996. Arbitration shall be commenced on advice by either party that the amount of the bond is disputed, such notice to be given within 14 days of receipt by the Councils of the amount of the bond established by the Consent Holder. If the parties cannot agree upon an arbitrator within 7 days of receiving advice that the amount of the bond is in dispute, then an arbitrator shall be appointed by the President of the Institute of Professional Engineers of New Zealand (IPENZ). Such arbitrator shall give an award in writing within 30 days after his/her appointment, unless both parties mutually agree that time shall be extended. The parties shall bear their own costs in connection with arbitration. In all other respects, the provisions of the Arbitration Act 1996 shall apply.
20	If the decision of the arbitrator is not made available by the 30th day referred to above, then the amount of the bond shall be fixed by the Councils, until such time as the arbitrator does make his/her decision. At that stage, the new amount shall apply. The Consent holder shall not place further refuse at the site if the variation of the existing bond or new bond is not provided in accordance with this condition.
21	The amount of the Consent holder's bond shall be reviewed every five years from the first placement of refuse at the landfill, by means of a risk assessment using the criteria in condition 14. More frequent reviews may be undertaken at the Councils discretion, in which case the Councils shall provide the Consent holder with no less than 30 days notice in writing of the review. If, on review, the amount of the bond to be provided by the Consent holder is greater than the sum secured by the current bond, then within 30 days of the Consent holder being given written notice by Councils of the new amount to be secured by the bond, the Consent holder and the guarantor shall execute and lodge with the Councils a variation of the existing bond or a new bond for the amount fixed on review by the Councils. No further refuse shall be placed at the site if the variation of the existing bond is not provided in accordance with this condition.
22	The Consent holder may apply to have the bond amended, discharged or reviewed at any time, in which case the Council shall advise the Consent holder of its decision on the application within 60 days of it receiving the application. An application by the consent holder to amend the amount of the bond should be supported by a risk assessment carried out in accordance with the methodology detailed in condition 15.
23	The bond shall be maintained in favour of the Councils for a minimum period of 25 years following closure or abandonment of the landfill site. Closure shall mean completion of capping of the final landfill cell, or closure following abandonment prior to the final landfill cell being completed. If the landfill has been monitored and a risk assessment approved by the Councils affirms that there are no existing or potential adverse environmental effects from the landfill operation, then the Councils may at their discretion discharge the bond before the 25 year period has concluded. The bond period may at Council's discretion be extended beyond 25 years if a risk assessment to the satisfaction of Council conducted 25 years after landfill closure indicates that the landfill continues to pose a threat to the environment.
24	The following aspects shall be considered in a risk assessment determining whether to amend or discharge the Consent holders bond:

	• Environmental performance (eg verification that groundwater is not polluted); • Sensitivity of the environment; • Degree of waste stabilisation as reflected by the cessation of landfill gas and leachate generation; and • Cap integrity. All costs relating to the bond shall be paid by the Consent Holder, other than in relation to arbitration (see above), in which case both parties shall bear their own costs. The decision to review the discharge of the bond should be based on the risk assessment criteria and methodology given in condition 14.
25	The Consent Holder shall undertake ongoing liaison and consultation with the property owners of Mt Cass Road and Te Runanga o Ngai Tuahururi, by senior Landfill staff during the operation of the Landfill and the aftercare period.
26	The Consent Holder shall ensure that there are sufficient resources available at all times to deal with public complaints. To this end, the Consent Holder shall provide a 24 hours per day, 7 days per week contact service, to facilitate the handling and resolution of any complaints. A complaints register shall be kept by the Consent Holder and the Consent Holder shall advise the relevant Council of any complaint received within 5 working days of the Consent Holder receiving the complaint, and of the remedial action taken. The Consent Holder shall make the complaints register available to the Councils upon request. A nominated person from the landfill management team will be available at all times to respond to all complaints, or notifications of emergencies or other unforeseen events and shall be able to be on-site within 30 minutes.
27	The Consent Holder shall, prior to the landfilling of any waste, advertise (by way of a local mail out and community advertisements) and hold a public meeting to offer local residents the opportunity to establish a Community Liaison Group. (a) Any such Community Liaison Group shall consist of a maximum of three representatives of the property owners of the Waipara/Omihi area; two representatives of the property owners of Mt Cass Road; and one representative of the Consent Holder. (b) A representative from each of the consent authorities shall be invited to attend meetings in an observer capacity. (c) The members of the liaison group shall be offered the opportunity of a quarterly site inspection, a quarterly meeting opportunity, and provision of any information to which the Councils are entitled by virtue of these conditions regarding the development and operation of the site, at the Consent Holders expense. (d) The prime purpose of the quarterly meetings with the Community Liaison Group will be to: a. Explain the progress of the landfill operation; b. Listen to, and discuss as far as practicable any community and cultural concerns with the landfill operation; c. Present and discuss the complaints register and results of any monitoring and/or reporting as required by the conditions of regional and district council consents.
28	In the event that any human remains or archaeological deposits are discovered, the works in that area of the site shall cease immediately and the Police, Tangata Whenua, and/or New Zealand Historic Places Trust, and also the Hurunui District Council, shall be notified as soon as practicable. Works may recommence with the written approval of the Hurunui District Council. Such approval shall be given after the Hurunui District Council has considered: i) Tangata Whenua interests and values; ii) the Consent Holder's interests; iii) any archaeological or scientific evidence; iv) any requirements of the Historic Places Trust; and v) any requirements of the Police
29	In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts), the Consent Holder shall follow the procedures detailed in the Accidental Discovery Protocol dated 28 September 2000.
30	Pursuant to Section 125 of the Resource Management Act the period with which the consent holder may give effect to this consent shall be 5 years from the date of the grant of consent.
31	The Consent Holder shall pay to Hurunui District Council and Canterbury Regional Council any administrative charge fixed in accordance with Section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under Section 36 of the Resource Management Act 1991.
32	Prior to the commencement of operation of the landfill, the consent holder shall prepare, in consultation with Transit NZ, a Transportation Contingency Plan and submit this to the Canterbury Regional Council and the Hurunui District Council. This contingency plan shall cover all likely incidents involving the transport of waste to, and leachate from, the landfill and shall be based on full environmental risk assessments for typical areas neighbouring proposed transport routes. Such assessments shall include the likely quantity and nature of potential hazardous materials to be transported, possible exposure routes, adverse effects that may result from such exposure and the sensitivities of potential receiving environments.
33	Pursuant to Section 128 of the Resource Management Act 1991 either consent authority may commence a review of any of the conditions of any of the consents for

	which that authority is responsible, within one month following the commencement of construction and thereafter on any one of the last five working days of June or November each year for any of the following purposes: i) To deal with any actual or potential adverse effect on the environment which may arise from the exercise of the consents and which it is appropriate to deal with at a later stage; and /or ii) To require the consent holder to adopt the best practicable option to remove or reduce any adverse effect on the environment, deriving from any discharges; and /or ~~iii) To require the consent holder to adopt the best practicable option to remove or reduce the amount of any constituents of the waste stream or reduce waste volumes to the landfill.~~ iii) For the purpose of dealing with any risks or hazards arising as a result of excessive hydration of the liner, seismic events, movement of the landfill mass, or any other unforeseen event.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE HURUNUI DISTRICT COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A LAND USE CONSENT RC020067: To undertake all aspects of the alignment, reconstruction and upgrading of Mt Cass Road and adjoining land, involving cut and fill earthworks.

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	All works shall be undertaken generally in accordance with the following documents (where applicable), except where amended by conditions of consents). Where there may be differences or apparent conflict between the measures described in the documents, the conditions shall prevail: • Transwaste Canterbury Ltd, Kate Valley Regional Landfill Resource Consent Applications dated April 2002, and Drawings contained within the Assessment of Effects on the Environment; except as amended within the evidence given by witnesses for Transwaste Canterbury Ltd during the hearing of the resource consent applications. The site is defined on Figure 1.3a of the Application.
2	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the Auckland Regional Council Technical Publication "TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".
3	All investigations, design, supervision of construction, operation, monitoring and aftercare shall be undertaken by a Registered Engineer or Engineers experienced in such works, or works of a similar nature.
4	The works shall be contained within the areas outlined on the Drawings submitted with the Application.
5	The Consent Holder shall provide appropriate signage during the works to indicate the area of works.
6	Noise generated from activities relating to construction of the site access road, and upgrading of existing roads, shall comply with the provisions of NZS6803:1999 "Acoustics-Construction Noise".
7	The Consent Holder shall not carry out any construction works on Mt Cass Rd adjacent to or within 300 metres in any direction of the vineyard boundary shown as Points A and B, Drawing Mt Cass Road Upgrading, Hurunui District Council 30/10/2002 (attached) on Mt Cass Road at a time during any harvest season or period during which vines are being pollinated.
8	During the initial construction of the landfill and landfill access road, (prior to the commencement of landfill operations), the total number of heavy vehicle movements to the landfill site, prior to the completion of the landfill access road and Mt Cass Road upgrading, as recorded on Forestry Road within 50 metres of Mt Cass Road, in any seven day period, shall not exceed an average of ten heavy vehicles per day.
9	The consent holder shall provide a Traffic Management Plan in accordance with Transit New Zealand Code of Practice for Temporary Management July 2000 and amendments 1-3 to the consent authority for certification prior to construction commencing. On certification the plan shall be implemented as part of the works.
10	During construction of improvements to Mt Cass Road, the consent holder shall be responsible for ensuring water equipment is provided and shall ensure its use so that surfaces are kept damp to prevent dust being emitted to adjoining private land or the State Highway as far as practicable.
11	That laybys be constructed outside the properties at 20, 51 and 133 Mt Cass Road respectively to allow the school bus to pick up outside the traffic lane and that centreline and edge lines be installed as part of the reconstruction of Mount Cass Road between State Highway 1 and the landfill access road.
12	Prior to the placement of any refuse in the landfill, the following roading works shall be undertaken: ▪ the intersection of Mt Cass Road with State Highway 1 shall be upgraded in accordance with Supplementary Drawing 6 (Eliot Sinclair Partners Drawing182028/33) an acceleration lane/sealed shoulder for trucks turning left from Mt Cass Road into State Highway 1 shall be constructed generally in accordance with the plan labelled Drawing No SK1 Revision A (attached) which shall be prepared in consultation with Transit NZ and is required to be certified by Transit NZ. The

	acceleration lane shall comprise a sealed road shoulder of 3.5m in width for a distance of 300 200 metres on the eastern side of State Highway 1 starting at the intersection with Mt Cass Road and extending south towards the Waipara Bridge. After 300 200 metres the lane/sealed shoulder shall taper for a further 105m.
13	That during the upgrading of Mt Cass Road in the vicinity of the intersection with State Highway 1, traffic is to be managed in accordance with Transit New Zealand's "Interim Code of Practice for Temporary Traffic Management".
14	The Consent Holder shall design and construct sealed shoulders on the existing Mt Cass Road for approximately 1.4 kilometres from RP 200 to RP 1600 as shown on Sheets 4 to 5 of Drawing 182028 prepared by Eliot Sinclair and Partners contained in the Proposed Canterbury Regional Landfill at Kate Valley- Volume 3: Figures and Drawings, dated April 2002. That this work include upgrading all existing property accessways in accordance with Hurunui District Council Proposed Plan Figure A5.3. The road pavement, and associated features, required under this condition shall be designed for a 35-year life based on the "Likely" traffic volumes specified in the report contained in Appendix W of the AEE.
15	The Consent Holder shall design and construct a sealed pavement partly on new alignment and partly on the existing Mt Cass Road for approximately 3.6 kilometres from RP 1600 to the landfill access road as shown on Sheets 6 to 11 of Drawing 182028 prepared by Eliot Sinclair and Partners contained in the Proposed Canterbury Regional Landfill at Kate Valley- Volume 3: Figures and Drawings, dated April 2002. The road pavement, and associated features, required under this condition shall be designed for a 35-year life based on the "Likely" traffic volumes specified in the report contained in Appendix W of the AEE.
16	The Consent Holder shall undertake strength testing on the existing Mt Cass Road for approximately 1.4 kilometres from RP 200 to RP 1600 as shown on Sheets 4 to 5 of Drawing 182028 prepared by Eliot Sinclair and Partners contained in the Proposed Canterbury Regional Landfill at Kate Valley- Volume 3: Figures and Drawings, dated April 2002. The Consent Holder shall, in consultation with Hurunui District Council, determine the residual life of the existing road pavement and the cumulative traffic loading at which time a structural overlay of the existing road will be necessary.
17	The Consent Holder shall design and construct a granular overlay and seal as determined by Condition 16. The road pavement, and associated features, required under this condition shall be designed for the greater of: • The remaining life of the landfill, based on 35 years from the opening of the landfill, and based on the "Likely" traffic volumes specified in the report contained in Appendix W of the AEE. • 20 years based on the "Likely" traffic volumes specified in the report contained in Appendix W of the AEE.
18	The design work described in conditions 14 to 17 shall be carried out in accordance with current industry standards including the following: (a) Rural Road Design – Guide to the Geometric Design of Rural Roads; Austroads, 1989 (b) Guide to Traffic Engineering Practice Part 5: Intersections at grade; NAASRA 1991 (c) Pavement Design: A Guide to the Structural Design of Pavements; Austroads 1992 (plus New Zealand Supplement of November 1995) (d) Bituminous Sealing Manual: Transit New Zealand 1993 (e) Manual of Traffic Signs and Markings: Parts 1 & 2 - Transit New Zealand/Ministry of Transport 1992 (f) Safety Barriers – Consideration for the provision of Safety Barriers on Rural Roads; NAASRA 1987.
19	Engineering design plans and geotechnical reports for the works required under conditions 14 to 17 shall be submitted to and approved by the Hurunui District Council prior to the work being undertaken.
20	The construction work and materials described in conditions 14 to 17 shall be carried out in accordance with Transit New Zealand Standard Specifications.
21	That the Mt Cass/ Landfill intersection be constructed to provide "Safe Intersection Sight Distance" and be in accordance with the Austroads Guide to traffic Engineering Practice: Part 5.
22	The Consent Holder shall ensure that no vegetation will be disturbed or removed beyond the limit of the works.
23	The Consent Holder shall strip topsoil, store separately from the work site, and replace over the completed batters and fill embankments.
24	The Consent Holder shall stockpile materials, particularly topsoil, for as short a time as possible, to minimise weed growth and loss of soil from stormwater runoff.
25	The Consent Holder shall sow the batters and fill embankments as soon as possible after the earthworks are completed, preferably during spring and early summer. The Consent Holder shall ensure the grass seed mix is free of weeds, and the areas are fenced off from grazing to allow for suitable establishment and stabilisation of the soil.
26	The Consent Holder shall reinstate haul roads at the completion of construction through appropriate contouring and grass sowing measures.
27	The Consent Holder shall apply adequate nutrients to ensure good seeding establishment and subsequent growth. The chief main nutrients utilised shall include lime, phosphate, potash, and sulphur.
28	The Hurunui District Council shall inspect oversown areas to assess any requirements for regrassing. The consent holder shall undertake oversowing measures as requested as requested in writing by the Hurunui District Council to improve establishment.

29	That all the costs of road stopping and vesting be met by the consent holder and that survey plans of the land to be vested and stopped be provided to the Hurunui District Council after the completion of construction works.
30	Following the completion of the road construction works as-built drawings shall be forwarded to Hurunui District Council.
31	In the event of any disturbance of Koiwi Tangata (human bones) or taonga (treasured artefacts) the Consent Holder shall follow the procedures detailed in the Accidental Discovery Protocol dated 28 September 2000 submitted with the Application.
32	Prior to the works commencing the Consent Holder shall prepare a Management Plan for the storage, handling, use or disposal of hazardous materials, chemicals and waste. A copy of the plan shall be forwarded to the Hurunui District Council.
33	Where spillages of hazardous materials, chemicals or waste occurs, the Consent Holder shall ensure that all spilled materials and contaminated soil and stormwater are properly contained, pumped or removed into suitable holding containers and removed from site.
34	The Consent Holder shall ensure that all site personnel are trained in hazardous material and waste handling and spill contingency and emergency procedures.
35	At the conclusion of the road works, the Consent Holder shall remove all spent containers of hazardous materials and dispose of in a safe and proper manner.
36	The Consent Holder shall pay to Hurunui District Council any administrative charge fixed in accordance with Section 36 of the Resource Management Act 1991, or any charge prescribed in accordance with regulations made under Section 36 of the Resource Management Act 1991.
37	Pursuant to Section 125 of the Resource Management Act 1991 the period with which the consent holder may give effect to this consent shall be 5 years from the grant of this consent.
	Advice Note The applicant should contact Transits' network management consultants, Opus International Consultants at least three months prior to works commencing to apply for approval to work on the State Highway pursuant to section 51 of the Transit New Zealand Act 1989.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE HURUNUI DISTRICT COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A LAND USE CONSENT RC020069: To carry out the construction, development, operation and rehabilitation, and associated activities, of a landfill designed to accept municipal solid waste.
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions and the special conditions 6 [illegible] Annexure 1. Where there may be differences or apparent conflict between the general conditions and the conditions below, the conditions below shall prevail.
2	There shall be no general public access to the site. Refuse shall be delivered to the site only in vehicles suitable for the transport of refuse, with waste securely contained (fully enclosed or covered) in a manner that prevents the escape of liquid or solid material from the vehicle, and offensive or objectionable odour, either in motion or at rest, and by parties who have been given prior authorisation by the Consent Holder. All refuse delivered to the site, with the exception of special waste or other waste that cannot reasonably or practicably be compacted, shall be compacted.
3	All vehicles with access to the landfill face must go through the wash down area before travelling on a public road.
4	No construction work on the landfill shall be undertaken before 6.00 am or after 8.00 pm Monday to Friday inclusive, or before 7.00 am or after 6.00 pm on Saturday, Sunday and Public Holidays.
4A	All construction work on the site prior to the first acceptance of waste shall comply with the requirements of NZS 6803: 1999 "Acoustics – Construction Noise".
5	The noise level (L_{10}) from landfill operations (including ongoing construction work not covered by Condition 4) measured at or within the notional boundary as defined in NZS 6802: 1991 shall not exceed the following limits: Monday to Saturday inclusive 7.00 am to 7.00 pm 45.50 dBA(L_{10}) Sundays and public holidays 7.30 am to 6.00 pm 45 dBA (L_{10}) At all other times 35.40 dBA(L_{10}) Noise shall be measured at the boundary and assessed in accordance with the requirements of NZS 6801: 1991 – Measurement of Sound and assessed in accordance with the requirements of NZS 6802: 1991 – Assessment of Environmental Sound.
6	The hours of operation of the landfill shall be as follows: after acceptance of waste. Landfill operations (including ongoing construction work not covered by Condition 4) shall be permitted only between the hours of 6.00am and 10.00pm Monday to Friday inclusive and between the hours of 8.00am and 8.00pm on Saturdays, Sundays and Public Holidays, except that on-site operations at the landfill shall be permitted outside the stated hours in the event of disruption to normal operations as result of adverse weather conditions. (Provided however that extraordinary operation shall not occur on more than 20 days in any calendar year The Consent Holder shall notify the Council within 24 hours of the event. As part of the notification the Consent Holder shall detail the: (a) nature of the disruption; and

	(b) the hours during which the landfill continued to operate beyond normal hours. This information shall also be made available to the Community Liaison Group on request.
7	Heavy vehicles associated with the transportation of waste and leachate shall not enter the landfill site before 7am or after 9pm Monday to Friday inclusive or before 9am or after 5pm on Saturdays, Sundays and Public Holidays. (Note: "heavy vehicle" is defined in condition 22) The consent holder shall ensure the noise from landfill vehicle on Mt Cass road complies with "Transit New Zealand Guidelines for the Management of Road Traffic Noise – State Highway Improvements 1999".
7A	The Consent Holder shall construct a stockproof fence around the perimeter of the site, and a 2 metre high security fence around the amenities area, as indicated on the Drawing C26 Amenities Platform Area, submitted with the Application.
8	The Consent Holder shall undertake progressive rehabilitation and landscaping works as each stage of the Landfill is completed, and maintain such works, in accordance with the Landscape Management Plan as required in Conditions 9 to 14.
9	Three (3) months prior to commencing excavation and site works, the Consent Holder shall prepare and submit to the Council, a detailed Landscape Management Plan in accordance with the conditions 10, 11, 12, 13, and 14 for certification by the Manager Environmental Services.
10	The Landscape Management Plan shall be prepared by a qualified Landscape Architect. The Landscape Management Plan shall set out the proposed staging and timing of detailed design with indicative implementation and shall incorporate the following: (a) The screen plantings SL1, SL2 and SL3 illustrated on Drawings 34 and 35 of the Landscape and Site Rehabilitation Report (Appendix H), prepared by Boffa Miskell Ltd, amended to ensure continuation of the principal existing views of the sea from Mt Cass Road. (b) The landscape treatments as detailed in Section 3.2 of the Landscape and Site Rehabilitation Report (Appendix H), prepared by Boffa Miskell Ltd. (c) The sequential Landfill zones with temporary and permanent rehabilitation, together with indicative final contours and the proposed end use for each area restored. (d) The treatment of stockpile and borrow areas not required for any 6 month period, with the objective of avoiding erosion. (e) The transition between grazing land use and forestry use, including management of fire risk, with the objective of minimising fire risk from dry grass.
11	The Landscape Management Plan shall include detailed landscape drawings with the following: • Schedules of planting species • Phasing of implementation for each locality • Site preparation requirements and proposed protection (fencing) • Average planting densities • Grades of plantings with any staking and fertiliser requirements • Soil amelioration practices if required • Irrigation and pest control measures if required • Maintenance programmes detailing the manner in which the planting described above will be maintained.
12	The Consent Holder shall commence implementation of the planting for each stage as identified in, and in accordance with the priorities and time frames outlined in, the Landscape Management Plan.
13	~~The landfill shall be redesigned so as to avoid earthworks in the location of beech Remnant A. Remnants A and B shall both be protected from any harm deriving from the construction or operation of the landfill. The consent holder shall also ensure that both Remnants are fenced off from stock and it shall control weeds and pests within those areas for the life of the landfill. Any redesign required by this condition shall ensure that the landfill footprint does not extend beyond the footprint shown in the application material, and the final finished height of the landfill shall be no higher than that shown in the application material. Any conditions that refer to plans or management plans shall be read as being subject to this condition.~~ The Consent Holder shall provide for the long term protection, restoration and management of a Conservation Management Area in Kate Valley. The area is identified on Supplementary Drawing 10, dated September 2003, entitled "Kate Valley Conservation Management Area", and comprises approximately 410 hectares in area. For the absence of doubt, the "Kate Valley Conservation Management Area" shall incorporate the area of approximately 50 hectares shown as within Zone 4 in Supplementary Drawing 10, which is to the south-east and outside of the Kate Valley Site as identified in the applications for resource consent. The Consent Holder shall at its cost: (a) register a covenant in a form to be approved by the Manager, Hurunui District Council, which provides legal protection in perpetuity of the Kate Valley Conservation Management Area, within two years of the issuing of this consent. (b) provide boundary fencing around the entire Conservation Management Area within two years of the issuing of this consent and prior to the commencement of landfill operations.

	(c) permanently remove grazing from the Conservation Management Area upon completion of the boundary fencing, and prior to the commencement of landfill operations. (d) within two years of the issuing of this consent, and prior to the commencement of landfill operations, commission and submit to the Council, a detailed restoration plan ("the Restoration Plan") for the Kate Valley Conservation Management Area prepared by a qualified Ecologist experienced in restoration ecology, for certification by the Manager, Environmental Services. (e) incorporate in the Restoration Plan the following vision and long term outcomes, and will provide a detailed programme of activities to be carried out in the first five years of landfilling: • **Vision** In 300 years time the Kate Valley Conservation Area will be restored to a predominantly forest ecosystem including coastal broadleaved-mixed podocarp-broadleaved and black beech forests, where dynamic natural processes occur with minimal human intervention, where the plants and animals typical of the Motunau Ecological District persist without threat of extinction, and where people visit for recreation and to appreciate the restored natural environment. • **Outcomes** At the end of the 35 year consent period, the following outcomes will have been achieved within the Kate Valley conservation area: ▪ Vigorous regeneration will be occurring within the existing areas of shrubland and forest sufficient to ensure that natural successional processes are leading towards the development of mature forest appropriate to local conditions. ▪ The existing korimako (bellbird) population has expanded and kereru (native pigeon) are now residing within the area. ▪ The beech forest remnant known as "Remnant B" has been secured and enhanced. ▪ Restoration plantings and natural regeneration will have been sufficient to ensure good connectivity of regenerating forest between Remnant "B", Ella Bush SNA and Ella Peak Scenic Reserve. ▪ At least one additional black beech site has been established. ▪ The area is being actively used for recreational, educational and scientific purposes. (f) commence and continue implementation of the Restoration Plan in accordance with the priorities and timeframes outlined in the Restoration Plan. These will include: • incorporating an annual report on progress on the Restoration Plan into the annual Landscape Report to the Council, which is required by Condition 15 of this consent. • sourcing all plant species used for planting either from Kate Valley itself or from the southern part of the Motunau Ecological District. • initiating and continuing animal and plant pest control programmes within the Conservation Management Area during the operating life of the landfill. • providing for carrying out beech propagation and seedling transplant from Remnant A into the Conservation Management Area with appropriate support/buffer planting over the period until Remnant A is removed by landfill construction. • providing controlled public access for recreational, educational and scientific use to the Conservation Management Area by a walking track within the Area linking Mt Cass Road to the coast. (g) fence Beech Remnant A to ensure cessation of grazing within the remnant within two months of the issuing of this consent. (h) preserve Beech Remnant A for the longest practical period until its removal is required by landfill development. This period is to be at least five years from commencement of landfill operations. (i) commence collection of beech seeds and other suitable material from Beech Remnant A in the first seed season after issuing of this consent, and continue annually until the remnant is removed, or sufficient suitable material has been gathered to achieve the relevant Restoration Plan outcomes, whichever comes first.
14	At the time of submitting the Landscape Management Plan to the Council as required by Condition 9, the Consent Holder shall enter into a performance bond to the value of $100,000 in accordance with Section 108(1) of the Resource Management Act for the purpose of remedying any failure in achieving effective screen planting SL1, 2 and 3 Drawing 35 of the Landscape Management Plan over a ten (10) year term following the commencement of consent. The bond shall also cover the cost of remedying any failure of rehabilitated grassed areas and water control. The bond shall be on the terms and conditions required by the Council and in a form acceptable to the Council and shall be prepared by the Councils solicitor, at the expense of the Consent Holder. The bond shall be a cash bond or shall be guaranteed by a surety

	acceptable to the Council.
15	The consent holder shall submit annually a Landscape Report to the Council. The report shall be submitted during the month of the anniversary of the commencement of the implementation of the Landscape Management Plan. The landscape report shall detail planting, maintenance and plant and animal pest control activities undertaken during the previous year and detailed plans for landfill stages proposed in the following year. This annual report shall also be made available to the Community Liaison Group on request.
16	The final finished surface of the Landfill shall, following settlement and capping, not exceed the levels shown on Drawing C16 Final Development Plan included with the Applications.
17	All permanent buildings erected on the site shall be painted to blend with the surrounding area.
18	All permanent buildings on the landfill site shall be finished with colours that maintain a reflectivity of no more than 37%.
19	The Consent Holder shall, prior to the commencement of landfill operation, commission a site specific lighting design, to minimise light spill and glare beyond the boundaries of the site, by a Registered specialist Electrical Engineer approved by the Manager Environmental Services , Hurunui District Council, covering the following site locations: • Office/weighbridge • Containers transfer area • Workshop and shall construct all lighting in those locations in accordance with the approved design.
20	The Consent Holder shall prior to the commencement of operation of the landfill, commission a site specific lighting design, and operational procedures, to minimise light spill and glare from landfilling operations, by a Registered specialist Electrical Engineer approved by the manager, Hurunui District Council, for each of the phases of the landfill. The design and operational procedures shall be incorporated into the Landfill Management Plan and adhered to at all times when the landfill is operating during the hours of darkness.
21	Prior to landfill operations commencing, Mt Cass Road, (from State Highway 1 to the Landfill access road), the junction of Simmonds Road and Mt Cass Road, the junction of the Mt Cass Road and the Landfill access road, shall be realigned, reconstructed, and upgraded in accordance with the documentation included in the application and pursuant to the conditions of consent RC 020067.
22	The total number of vehicle movements to or from the site in any seven day period shall not exceed 1090, of which no more than 600 shall be heavy vehicles. For the purpose of this condition heavy vehicle means a motor vehicle (other than a motorcar that is not used, kept, or available for the carriage of passengers for hire or reward) in which the gross laden weight exceeds 3500 but does not include an emergency response vehicle designed solely or principally for that purpose.
23	The Consent Holder shall record the number and type of vehicle movements to and from the site on a daily basis. This record shall be made available to the Hurunui District Council on request.
24	There shall be only one working face for general refuse operating at any one time. No working-face shall exceed the dimensions of 30 m by 30 m at any time.
25	The uncovered areas of the working face shall be kept to a practicable minimum and all necessary steps shall be taken to minimise odour from the working face.
26	Windowing of refuse by removal of cover material shall, as far as practicable, take place immediately prior to placement of subsequent refuse lifts, but in any event not longer than two hours, prior to the commencement of refuse placement.
27	Refuse shall be covered with clean fill or soil cover to a minimum depth of 150mm at the end of each working day. Approved alternative daily cover materials, such as tarpaulins, may be used in lieu of the clean fill or soil cover. No refuse shall remain exposed overnight.
28	There shall be no burning of waste materials on site.
29	The Consent Holder shall provide, and continuously operate at all times that waste is being placed, a wind speed measurement device within 100 metres of the working face. For each phase of the landfill the Consent Holder shall develop a trigger level average wind speed measured over a ten minute period, for the cessation of the placing of waste based on the spread of litter. The trigger level shall be approved in writing by the Manager: Environmental Services, Hurunui District Council. The Consent Holder shall ensure that the disposal of refuse ceases when the average windspeed over a ten minute period exceeds the approved trigger level.
30	The consent holder shall ensure that litter from its site is managed so that there are no nuisance deposits of litter beyond the boundary of the land owned by the Consent Holder, or land over which the Consent Holder has rights. There shall be a minimum of weekly monitoring and if required, clean up, together with monitoring and cleanup following any wind event which causes cessation of landfill operations.
31	Should litter escape on Mt Cass Road, due to litter falling or being blown from vehicles delivering refuse to the site, the Consent Holder shall be responsible for the clean up of all falling litter and weekly monitoring and clean up of Mt Cass Road.
32	No access to the site shall be permitted to vehicles delivering refuse to the site unless they are fully enclosed or covered to prevent the escape of litter.

33	If wind blown litter from the landfill finds its way onto adjacent land, the Consent Holder shall be responsible at the request of the landowner for the removal of this litter.
34	The Consent Holder shall, as necessary, control wind blown litter by the erection of litter control fences around the operational portion of the Landfill.
35	During construction and operation of the landfill, the consent holder shall be responsible for ensuring water equipment is provided to ensure that surfaces are kept damp to prevent dust generation beyond the boundaries of the site.
36	The Consent Holder shall engage a suitably qualified independent pest control organisation to undertake a vermin survey of the site prior to commencement of operation and then at intervals of not more than twelve months for the period of the landfill operation following the commencement of this consent. The results of such survey's are to be made available to the Council within two weeks of its completion and the Community Liaison Group on request. If increased vermin levels are reported the Consent Holder shall take immediate action to reduce vermin.
37	No stormwater coming in contact with refuse shall be discharged as stormwater, but instead shall be considered as leachate and discharged into the leachate treatment/disposal system.
38	All permanent diversion channels shall be designed to manage a 1% AEP (Annual Exceedance Probability) design flood. Bench drains and other temporary drains shall be designed for the 20% AEP event. Diversion channels shall be designed such that if this capacity is exceeded the preferential (secondary) flow path is, as far as practicable, away from the Landfill.
39	Suitable scour protection of concrete, rock or timber construction shall be utilised as necessary to prevent scour of drains, including at their inlet and outlet points.
40	Diversion channels and cut-off drains shall be maintained to minimise the infiltration and run-off of stormwater onto the Landfill from areas outside the Landfill footprint.
41	All diverted stormwater shall be treated in the sedimentation ponds as shown on the Drawing C3 General Site Arrangement.
42	Waste haul vehicles accessing the site shall comply with the following standards: • Euro III Vehicle Emission Standard EU Directive 1999/96/EC • European Truck Noise Standard EU Directive 96/20/EC
43	In the event of closure of the landfill before it has reached its design profile ("early closure"), the Consent Holder shall provide a Closure Plan to Hurunui District Council and Canterbury Regional Council, detailing the construction works necessary to close the operating landfill and move to the aftercare stage. The Closure Plan shall be reviewed by the Peer Review Panel, and their report is to be provided to the Hurunui District Council and Canterbury Regional Council.
44	A certificate signed by the person responsible for designing the early closure of the landfill and associated systems and structures or a competent person shall be submitted to the Hurunui District Council and the Canterbury Regional Council within one month of completion of closure construction to certify that the works were carried out in accordance with the design plans submitted, as required by condition 45 of this Schedule.
45	In addition to the fees paid for processing this application the consent holder shall pay to the Council a monitoring fee of $3600. This monitoring fee covers the cost of setting up a monitoring programme in conjunction with the operation of this consent. Site inspections and work required to ensure ongoing compliance with the conditions imposed shall be charged at the hourly rate specified in the Hurunui District Council Resource Management Schedule of Fees and Charges.
46	The Consent Holder shall contribute $5850 plus GST per annum, increased annually by the Construction Cost Index, commencing on the first anniversary of the date of first placement of waste, to the Hurunui District Council as full contribution towards all maintenance, resealing and reconstruction of the first 5.2 km of Mt Cass Road during the operating life of the landfill.
47	[redacted]
[redacted]	(Special Condition 2) In the area upgradient of deep cuttings along the northern access road which will have its toe support removed, all soil material above the Tokama Formation (soft rock) shall be removed prior to excavation of the cuttings. The lateral extent of the soil removal shall be defined by the points to the east and west of the cutting where the soil is undercut by the final excavation. The upgradient extent of the soil removal shall be determined during the final investigation of this area (prior to final design) and shall be certified by the design engineer as having a factor of safety of at least 1.2 (see AEE). (A copy of such certification to be provided to the Peer Review Panel and to the Regional Council.) Prior to excavation of the deep cutting into the Tokama Formation at these two locations, an investigation of the rock slope stability of these areas shall be carried out taking into account the unfavourable bedding at these locations. The design engineer shall certify that the rock cuttings have a factor of safety (FOS)

	greater than 1.1 under both design groundwater conditions and design earthquake loadings. (A copy of such certification to be provided to the Peer Review Panel and to the Regional Council.) In the event that stability cannot be certified (FOS > 1.1) under "Design Earthquake Loading and Design Groundwater Levels" the potentially unstable rock mass shall be excavated to provide a stable batter over the life of the landfill and its extended after care period.
49	([redacted]) The entire Kate Valley catchment area presently held within the applicant's ownership shall remain in the consent holder's ownership for as long as the Kate Valley landfill is biologically active. The biologically active life of the landfill shall be defined as the period over which LFG is being produced in concentrations exceeding 5% (v/v) in air or the concentrations of ammonaecal nitrogen or other leachate contaminants exceed levels that would protect 95% of species within the downstream data set of aquatic organisms.
50	([redacted]) Gross pollution control (GPC) structures shall be erected at selected points along Kate Creek to intercept waste matter being carried towards the coast via this waterway. These GPC structures shall be regularly cleared of waste matter after storm events.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A LAND USE CONSENT CRC021906: to disturb the beds and realign the channel of Omihi Stream by constructing a bridge and embankment and erect structures and trees within 7.3 m of a waterway at Tiromoana Station, Mt Cass Road.

DURATION: 5 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the Auckland Regional Council Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
3	All investigations, design, supervision of construction, operation, monitoring and aftercare shall be undertaken by a Registered Engineer experienced in such works, or works of a similar nature.
4	The exercise of this consent shall not increase the suspended sediment concentration of the water of the Omihi Stream by more than 50 grams per cubic metre at any point further than 300 metres downstream from where work is occurring, except for the 24 hours immediately following the completion of the cutting in of the new channel to the existing channel.
5	Works in Omihi Stream shall not prevent the passage of fish.
6	Works shall not cause erosion of the banks or bed of the streams.
7	Machinery shall be free of plants and plant seeds prior to use in the riverbed.
8	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.
9	The Consent Holder shall, in consultation with Canterbury Regional Council, replace any riparian vegetation lost during physical works. The affected areas include the riparian margins upstream and downstream of the proposed Omihi Stream bridge.
10	There shall be no storage of fuel or refuelling of vehicles or machinery anywhere in the bed of the river.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED

A WATER PERMIT CRC021911: to divert water in the Omihi Stream by constructing a bridge and embankment at Tiromoana Station, Mt Cass Road.

DURATION: 5 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Diversion of water in Omihi Stream shall not prevent the passage of fish or cause fish stranding.
3	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021912: to discharge water and sediment to land in circumstances that may result in a discharge of water to unnamed tributaries of Omihi Stream and Wash Creek associated with constructing and operating a bridge and embankment, and the realignment, reconstruction, upgrading and operation of part of Mt Cass Road and adjoining land at Tiromoana Station, Mt Cass Road.

DURATION: 5 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the Auckland Regional Council Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
3	All investigations, design, supervision of construction, operation, monitoring and aftercare shall be undertaken by a Registered Engineer experienced in such works, or works of a similar nature.
4	The Consent Holder shall construct and maintain appropriate stormwater management measures, including drains and sediment traps for the interception and treatment of stormwater run off from the works. These measures shall remain in place over the duration of the construction period and for a period following construction to allow a suitable cover of vegetation to establish on restored areas.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021913: to discharge waste onto land in circumstances that may result in contaminants (or any other contaminants emanating as a result of natural processes from those contaminants) entering water.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions
2	Waste shall only be discharged onto, or into, land on those areas of the site identified as the Landfill Footprint on Drawing C3
3	No waste, other than ~~**residual**~~ **Municipal Solid Waste** (MSW), shall be accepted for disposal. The definition of MSW shall be any non-hazardous, solid waste from a combination of domestic, commercial and industrial sources. It includes putrescible waste, garden waste, uncontaminated biosolids, and clinical and related waste (including contaminated waste sterilised to a standard acceptable to the Ministry of Health). It may include a small proportion of hazardous waste from households, and small commercial premises that is not detectable using standard screening procedures at either transfer stations or other waste reception facilities. Such quantities are small - generally <200 ml/t, or <200 g/tonne. It also includes site-generated process sludges in comparatively small quantities (e.g. LCS condensate, evaporator sludges, sludges from leachate treatment and sediment control facilities), and non-hazardous sludge wastes (e.g. wastewater treatment plant sludges) consistent with maintaining workable sludge/waste ratios for operations and stability purposes. ~~In terms of the above, "**residual**" shall mean that part of the municipal waste stream remaining, once all practicable and economic measures have been adopted to reduce, recover, reuse and or recycle material within the waste stream.~~
3A	The consent holder shall only accept waste: • that meets the landfill's acceptance criteria; and • that originates from an area in which the relevant local authority has certified to Transwaste that it has adopted a Waste Management Plan in terms of s.539(1)(a) of the Local Government Act 1974, which incorporates provision for the collection and reduction, reuse, recycling, recovery, treatment, or disposal of waste in the district in terms of s.539(2)(a) of the LGA; and that originates only from local authority areas in the South Island of New Zealand.
4	No liquid waste, other than site generated liquid waste, shall be accepted for disposal. The definition of liquid waste shall be any waste that has a solids content of less than 20%, except such waste that passes the Paint Filter Liquids Test (EPA Method 9095A).
5	Medical wastes shall be acceptable for disposal in accordance with NZS 4304:2002 *"Health Care Waste Management".*
6	Hazardous waste shall not be accepted for disposal at the Landfill. The definition of "hazardous waste" shall be: (i) any waste[1] that: (a) Contains hazardous substances at sufficient concentrations to exceed the minimum degrees of hazard specified by *Hazardous Substances (Minimum Degrees of Hazard) Regulations 2000* under the *Hazardous Substances and New Organism Act 1996*, or (b) Meets the definition for radioactive material included in the *Radiation Protection Act 1965 and Regulations 1982*[2]. An indication of what sources waste are likely to meet these criteria can be found in the New Zealand Waste List; and (ii) Wastes which exhibit the characteristics of toxicity and eco-toxicity which following testing using the US EPA Toxicity Characteristic Leaching Procedure (TCLP) result in leachable concentrations of contaminants in excess of the leachable concentration values in NSW EPA "TCLP Values for Solid Waste Landfills (1998)". Where NSW EPA TCLP values do not exist for a substance for which a disposal request is made, the TCLP limit shall be set at the lesser of: (a) NZS 9201 Trade Waste Bylaw limits; or (b) 100 times the New Zealand Drinking Water Standard (2000); or

	(c) 1000 times the 95 percent level of protection trigger values for freshwater as listed in Table 3.4.1 of "Australian and New Zealand Guidelines for Fresh and Marine Water Quality" (ANZECC, 2000). The definition of "hazardous waste" shall not include small quantities of waste products containing potentially hazardous components that are not likely to have adverse effects on the environment, such as can reasonably be expected to be contained in the municipal waste stream. [1]Waste is defined as any material, whether it is liquid, solid or gas, that is unwanted and unvalued (defined by the W-Code)and discarded or discharged (defined by the D/R-Code) by its holder. In the context of defining waste, 'unwanted and unvalued' relates, but is not limited to, any material from the categories listed in the W-Code. **W-Code: Categories of materials that are unwanted or unvalued** *This list is taken from Table 1 of OECD Decision C(88)90(Final).* W1 - Production residues not otherwise specified below W2 - Off-specification products W3 - Products whose date for appropriate use has expired W4 - Materials spilled, lost or having undergone other mishap including any materials, equipment etc. contaminated as a result of the mishap W5 - Materials contaminated or soiled as a result of planned actions (e.g. residues from cleaning operations, packing materials, containers, etc.) W6 - Unusable parts (e.g. reject batteries, exhausted catalysts, etc.) W7 - Substances which no longer perform satisfactorily (e.g. contaminated acid, contaminated solvents, exhausted tempering salts, etc.) W8 - Residues of industrial processes (e.g. slags, still bottoms, etc.) W9 - Residues from pollution abatement processes (e.g. scrubber sludges, baghouse dusts, spent filters, etc.) W10 - Machining/finishing residues (e.g. lathe turnings, mill scales, etc.) W11 - Residues from raw materials processing (e.g. mining residues, oil field slops, etc.) W12 - Adulterated materials (e.g. oils contaminated with PCBs, etc.) W13 - Any materials, substances or products whose use has been banned by law in the country of exportation W14 - Products for which there is no further use (e.g. agriculture, household, office, commercial and shop discards, etc.) W15 - Materials, substances or products resulting from remedial actions with respect to contaminated land W16 - Any materials, substances or products which the generator or exporter declares to be wastes and which are not contained in the above categories [2] Radioactive material means any article containing a radioactive substance giving it a specific radioactivity exceeding 100 kilobecquerels per kilogram and a total radioactivity exceeding 3 kilobecquerels.
~~7~~	~~From 1 January 2005, the Consent Holder shall only accept waste from transfer stations or other waste reception facilities that provide facilities for the separation of hazardous waste by users of the facility and which promote the merits of such separation to users.~~
7[8]	Special Wastes, (being Municipal Solid Waste, but which require special handling or testing or certification procedures), shall only be accepted if their disposal has been pre-booked, and are accompanied by a manifest detailing its nature, composition and source in sufficient detail to demonstrate compliance with the waste acceptance criteria. All Special Wastes shall be specifically buried on a load by load basis, and immediately covered.
~~8~~	~~From 1 January 2008 the consent holder shall only accept waste (other than special waste) from transfer stations or other waste reception facilities, that provide for and encourage the separation of green waste by users of the facility, and from that date no loads of green waste shall be received at the landfill.~~
8[9]	The Consent Holder shall maintain a record of: (a) The quantities and types of waste accepted at the Landfill; and (b) The actual location of the disposal of any special and odorous wastes. A copy of this record shall be forwarded to the Canterbury Regional Council by 1 October each year, unless otherwise agreed in writing by the Canterbury Regional Council.
9	Sludges, fine grained materials other than the liner protection layer, special wastes, or wastes with the potential to affect the physical or chemical integrity of the HDPE liner, shall not be placed within 3 metres of it.
10	To minimise the potential for hazardous waste to be disposed of at the Landfill, the following measures shall be taken: (i) A notice shall be clearly positioned at the Landfill entrance to identify wastes which are not accepted at the Landfill; and (ii) Random inspections of incoming loads for the presence of hazardous waste shall be undertaken. (iii) The delivery of material onto the site shall be supervised by the consent holder or their representative at all times. (iv) Each person delivering waste to the landfill site shall sign a written declaration or formal agreement with the consent holder that the deposited material meets the acceptance criteria specified in Conditions 3 – 5 of this consent. These records shall be held at the landfill site and shall be provided to the Canterbury

	Regional Council on request. (v) The site shall be surrounded by fencing and lockable gates. (vi) All entrances to the site shall be securely locked when the site is not supervised.
11	The Consent Holder shall immediately notify the Canterbury Regional Council if any vehicle(s) is turned away from the Landfill with waste that does not comply with the waste acceptance criteria detailed in Conditions 3 - 7. This notification shall include the vehicle registration number and source of the waste (if known).
12	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED
A DISCHARGE PERMIT CRC021914: to discharge leachate and other site-generated liquids from a landfill onto land, in circumstances that may result in contaminants (or any other contaminants emanating as a result of natural processes from those contaminants) entering water.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Leachate shall only be discharged onto or into, land on those areas of the site identified as the Landfill Footprint on Drawing C3.
3	The landfill shall be constructed with a: (a) Landfill liner to isolate leachate from the underlying strata; (b) Leachate collections system to remove leachate from the landfill and minimise any hydraulic gradient across the liner, and ~~if required~~ (c) An under-drainage system sized and specified to ensure effective sub-liner drainage, with a separate collection sump from the leachate collection system.
4	The leachate containment (lining) system for the Landfill shall consist of the following, from bottom to top: (a) 500 millimetres of in-situ or compacted soils with a permeability coefficient of not more than 1 x 10^{-7} metres per second; (b) an encapsulated Geosynthetic Clay Liner comprising: • a 0.5 millimetre textured high density polyethylene (HDPE) layer with welded seams • a geosynthetic clay liner (GCL) • a 1.5 millimetre textured high density polyethylene (HDPE) ~~flexible membrane liner~~ layer with welded seams (c) a geotextile geo-cushion layer (d) a 500 millimetre liner protection layer or gravel leachate drainage layer as indicated in Drawing C24 of the AEE. Other liner designs may be adopted provided equivalent performance is demonstrated by the consent holder.
5	Leachate drainage and liner grades shall be configured such that the design maximum head of leachate on the liner is no greater than 300 millimetres.
6	A final cover layer shall be constructed to the following minimum specification, from bottom to top, as each stage of the Landfill is completed: (a) 300 millimetres of poorly graded silt/sand material (capillary break layer) with a permeability coefficient of not more than 1x10^{-6} metres per second (b) 1200 millimetres of compacted clay (evaporative layer) with a permeability coefficient of not more than 1 x 10^{-7} metres per second; and (c) 100 millimetres of topsoil (grassed). Other cover designs may be adopted provided equivalent performance is demonstrated by the consent holder.
7	The Consent Holder shall include within the Landfill Management Plan provisions setting out how the Leachate Collection and Disposal System will be maintained to comply with all conditions.
8	The Consent Holder shall install three separate groundwater monitoring bores at or as close as practicable to map reference NZMS260 N34: 965-895, between the landfill toe bund and the inlet to the sedimentation pond and as close to Kate Creek as is practicable. (a) The deepest bore shall be drilled through the Greenwood formation to the top of the Tokama siltstone and screened over 6 metres at the base of the Greenwood Formation. The shallowest bore shall be screened at the water table and extend to a depth that provides at least 5 metres of submerged screen below the lowest water level. The intermediate depth bore shall be screened over 6 metres at a point located midway between the shallow and deep bores. (b) Each bore shall be installed in a separate hole, with a lateral separation of 5 metres between holes.
9	The Consent Holder shall install three, shallow groundwater monitoring bores into groundwater seep sites near the Teviotdale Stream at or as close as practicable to

	map references NZMS 260 N34: 956-893, 957-893 and 959-892. These bores shall be screened at the water table and extend to a depth that provides at least 5 metres of submerged screen below the lowest water level
10	The method of drilling monitoring bores shall not use fluids which might disturb the natural chemistry of the groundwater.
11	All monitoring bores shall be constructed and secured so as to prevent ingress of surface waters which would negate the groundwater monitoring function.
12	Groundwater monitoring shall commence at least 18 months prior to waste being accepted at the site, in order to establish baseline water chemistry in each bore and develop trigger levels. (a) Trigger levels shall be set to identify significant deviations of baseline groundwater quality for each parameter specified and be based on the mean plus three standard deviations of the baseline groundwater quality data measured after a minimum of four sampling rounds over at least 12 months. (b) If monitoring demonstrates that the trigger levels are exceeded, then further samples shall be taken and tested within 14 days. (c) If the exceedance of the trigger levels is confirmed, the Consent Holder shall immediately advise the Canterbury Regional Council and notify all downstream groundwater and surface water abstractors in the catchment where the exceedance has occurred; and shall prepare a report providing reasons for the exceedance and details of monitoring and remedial measures that shall be undertaken to mitigate any adverse environmental effects. This report shall be forwarded to the Canterbury Regional Council and the Hurunui District Council within 30 days of receipt of the monitoring results confirming the exceedance of trigger levels.
13	The Consent Holder shall monitor well water levels every 3 months, and analyse for the following parameters twice a year, to coincide with the winter groundwater level maximum (generally September) and summer groundwater minimum (generally April): • pH (field and laboratory) • conductivity (field and laboratory) • dissolved oxygen (field) • total organic carbon • alkalinity • sulphate • dissolved reactive phosphorus • chloride • sodium • potassium • calcium • magnesium • ammoniacal nitrogen • nitrate nitrogen • soluble boron • soluble zinc • silica.
14	Taking into account the information on water levels required by Condition 13, the Consent Holder shall prepare a report reviewing the predictions about changes to the groundwater divide and reduction in baseflows of the Teviotdale Stream and Kate Creek resulting from reduced seepage to groundwater, as described in Appendix E, Volume 11 of the Transwaste Canterbury Ltd document, entitled "Kate Valley Regional Landfill Application, Assessment of Effects on the Environment", dated April 2002. This report shall be forwarded to the Canterbury Regional Council within 5 years of the grant of this consent and at five yearly intervals thereafter.
15	The Consent Holder shall monitor for the following parameters once every year, to coincide with summer groundwater minimum: • SVOCs

	• VOCs
16	All samples required under this consent shall be analysed using the most appropriate scientifically recognised and current method by a laboratory that is certified for that method of analysis by an accreditation authority such as International Accreditation New Zealand (IANZ). The results of all analyses shall be provided to the Canterbury Regional Council within 30 working days of receipt of the results.
17	The Consent Holder shall monitor water quality in Kate Creek and the Teviotdale Stream at or about the sampling locations shown on Supplementary Drawing 8(a) (attached). To this end, the Consent Holder shall monitor for the following parameters twice a year, to coincide with low flow during the winter groundwater level maximum (generally September) and summer groundwater minimum (generally April): • estimate of flow • pH (field and laboratory) • conductivity (field and laboratory) • BOD5 • Chloride • Potassium • ammoniacal nitrogen • nitrate nitrogen • dissolved reactive phosphorous • potassium • total zinc • total boron • suspended solids. Sampling shall be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of such monitoring shall be reported in writing to Canterbury Regional Council within two months of sampling.
18	The Consent Holder shall monitor the volume of leachate withdrawn from the landfill and record this volume on a daily basis. This record shall be reported in writing to the Canterbury Regional Council by 1 October each year, unless otherwise specified in writing by the Canterbury Regional Council.
19	Water used for container or landfill face access vehicle washdown, shall be treated as leachate, with appropriate storage and treatment.
20	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
21	The landfill design shall ensure achievement of calculated minimum factors of safety and maximum displacements as listed in the following table.

DESIGN SCENARIO	MINIMUM DESIGN FACTOR OF SAFETY (FOS)
Construction slopes – design conditions	1.3
Construction slopes – elevated groundwater	1.1
Final Design – design conditions	1.5
Final Design - elevated groundwater	1.3
Final Design - extreme groundwater	1.1
	MAXIMUM DISPLACEMENT
Final Design – Design Basis Earthquake (DBE)	Displacement of Liner <0.3m, Displacement of capping layer <1.0m
Final Design – Maximum Credible Earthquake (MCE)	Displacement of liner <1.0m, Displacement of cap <3.0m

[redacted]	([redacted]) The applicant shall prepare a detailed Management Plan to control, manage and monitor the hydration level of the GCL liner so as to maintain it within the design

	standard. A suitably qualified geo-technical engineer shall inspect the edges and any exposed parts of the liner system, on at least an annual basis, and after weather events capable of causing surface water infiltration, in any situation where such infiltration has occurred and at the completion of each stage of filling. The geo-technical engineer shall provide an annual report to the consent holder, and the Regional Council and shall provide certification that the degree of hydration is within design limits and that in his or her view the degree of hydration does not result in any elevated risk of mass failure. The Management Plan shall outline the processes to be followed in the event that such certification cannot be provided. This shall include a process for deciding whether further development of the landfill can safely occur and for determining appropriate mitigation measures. (Copies of the management plan, report and certification are to be provided by the consent holder to the Regional Council and to the Peer Review Panel, within 7 days of completion of the document) In the event that the certification outlined above cannot be obtained at the end of any phase of filling, subsequent stages shall not proceed until redesign work demonstrates that a satisfactory level of stability can be assured and certified by the design engineer (such certification to be provided to the Peer Review Panel and the Regional Council).

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED

A DISCHARGE PERMIT CRC021915: to discharge to air, landfill gas, exhaust gases, dust, odour, and other contaminants from a Landfill.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	There shall be no objectionable odour or nuisance deposits of particulate matter beyond the boundary of the land owned by the Consent Holder, or land over which the Consent Holder has rights, as a result of any of the consent holder's activities on the site.
3	No working-face shall exceed the dimensions of 30 m by 30 m at any time. The working face is defined as that area where refuse is being placed and compacted in its final location, and does not include the push-run area. The uncovered areas of the working face and the push-run area shall be kept to a practicable minimum and all necessary steps shall be taken to minimise odour from the working face and the push-run area. Refuse shall be covered with clean fill or soil cover to a minimum depth of 150mm at the end of each working day. Alternative daily cover materials, such as tarpaulins, may be used in lieu of the clean fill or soil cover, with the approval in writing from the Canterbury Regional Council. No refuse shall remain exposed overnight.
4	To minimise odour emission during handling of odorous special wastes the following measures shall be taken: (a) Vigilant attention and control of odorous loads entering the landfill, including the rejection of unexpected highly odorous loads. (b) Highly odorous loads shall only be accepted if their disposal has been pre-booked, to ensure the following measures are prepared: (i) Availability of odour masking chemicals; (ii) An appropriately sized pit is available; (iii) Suitable meteorological conditions; and (iv) Suitable equipment being available. (c) Potentially odorous loads shall be required to be delivered during the normal working day and covered as soon as practicable and in any event not later than one hour following placement. (d) Generators of potentially odorous wastes shall be required to deliver the waste prior to putrefaction, where possible, or to apply suitable odour suppressing chemicals to the load before delivery. Loads not complying shall be refused entry and only accepted after treatment.
5	The concentration of methane in monitoring probes outside the Landfill footprint shall not exceed 5% by volume.
6	There shall be no visible emission, other than water vapour, light, heat haze, or steam, from any Landfill gas flare.
7	The concentration of methane at the surface of Landfill areas with intermediate or final cover shall not exceed 0.5% by volume.
8	The residual Nitrogen content of landfill gas in all extraction wells shall not exceed 20% by volume or exceed 5% oxygen by volume.
9	The Consent Holder shall install a landfill gas extraction system in accordance with the plans included in the Application.
10	All extraction wells shall be connected to the gas extraction system as soon as practicable and in any case not longer than 12 months after placing wastes within the radius of influence of the wells. Gas venting from the wells prior to connection to the gas extraction system may be burnt by passive flares.
	Except as provided in Condition 10, all extracted landfill gas shall be combusted in a flare or generator in accordance with the following: (a) Enclosed flares shall have the following minimum specifications: (i) flame arrester and backflow prevention devices, or similar equivalent system (ii) continuous automatic ignition system

	(iii) automatic isolation systems to ensure that there is no discharge of unburnt landfill gas from the flare in the event of flame loss (iv) adequate sampling ports to enable emissions testing to be undertaken, and (v) provision of safe access to sampling ports while emissions tests are undertaken (vi) minimum temperature at 750 °C and retention time of 0.5 seconds (vii) a permanent temperature indicator at half a diameter from the top of the flare with a visual readout at ground level. (b) Open flares shall comply with Condition 11(a)(i) and (ii) above. (c) Landfill gas fired generators shall comply with specifications 11(a)(i) to (a)(v) above.
12	The gas collection and treatment system shall be restored as soon as practicable in the event of a malfunction or fault.
13	A walkover site inspection shall be undertaken no less frequently than weekly. Any evidence of actual or potential landfill gas leaks, such as odour, cracks in the Landfill surface, gas bubbles, leaks in the gas extraction system, or vegetation damage, shall be investigated. Where necessary remedial action shall be undertaken as soon as practicable to minimise fugitive gas discharges.
14	Methane concentrations shall be measured and recorded on a monthly basis in each of the monitoring probes as shown on the drawings in the Landfill Management Plan outside of the Landfill footprint to demonstrate compliance with Condition 5.
15	Monitoring of surface emissions shall be carried out to demonstrate compliance with Condition 7 on a quarterly basis.
16	Landfill gas shall be monitored at each extraction well head or, if more appropriate, at manifold points, on a 3 monthly basis. The following parameters shall be measured and recorded: (a) gas flow rate (b) gas composition (% methane, % oxygen, % carbon dioxide) (c) gas temperature (d) ambient temperature (e) gas pressure (f) barometric pressure (g) ppm carbon monoxide if residual nitrogen exceeds 15%
17	Until such time as a permanent landfill gas flare or utilisation station is installed, landfill gas (blended) shall be monitored at each flare station on a three monthly basis. The following parameters shall be measured and recorded: (a) gas flow rate (b) composition (% methane, % oxygen, % carbon dioxide, ppm carbon monoxide) (c) gas temperature (d) ambient temperature (e) gas pressure (f) barometric pressure (g) hydrogen sulphide (h) total non-methane organic compounds.
18	Once a permanent landfill gas flare or utilisation station is installed, landfill gas (blended) shall be monitored on a continuous basis and recorded electronically; (a) gas flow rate (b) composition (% methane, % oxygen, % carbon dioxide, ppm carbon monoxide) (c) gas temperature (d) gas pressure
19	Once a permanent landfill gas flare or utilisation station is installed, landfill gas (blended) shall be monitored on a six-monthly basis. The following parameters shall be measured and recorded:

	(a) hydrogen sulphide (b) total non-methane organic compounds.
20	The Consent Holder shall measure and record on site weather conditions every 30 minutes. The parameters measured shall include: (e) wind velocity and direction (f) barometric pressure (g) rainfall, and (h) temperature.
21	The Consent Holder shall notify the Canterbury Regional Council of any complaints received by the Consent Holder regarding odour or dust as soon as practicable, and no longer than one working day after the complaint is received.
22	When complaints regarding objectionable or offensive odour or dust are received by the Consent Holder, the Consent Holder shall record the following details in a complaint log: (a) type and time of complaint; (b) name and address of complainant (if available); (c) location from which the complaint arose; (d) wind direction at the time of complaint; (e) the likely cause of the complaint; (f) the response made by the Consent Holder; and (g) action taken or proposed as a result of the complaint. The complaint log shall be available to the Canterbury Regional Council and Hurunui District Council at all times, on request.
23	The Consent Holder shall maintain a log of all inspections, investigations and actions taken with respect to the landfill gas system.
24	The Consent Holder shall submit a summary of landfill gas monitoring results to the Peer Review Panel at the end of each year.
25	The Consent Holder shall include within the Landfill Management Plan provisions setting out how the Landfill Gas Collection and Treatment system will be maintained to comply with all conditions.
26	If monitoring demonstrates that the methane gas concentration limit specified in Condition 8 is exceeded, then remedial action shall be carried out and the concentrations re-tested within 14 days. If this is not practicable, the Consent Holder shall prepare a programme of remedial action, including a timetable, within 14 days of the exceedance. The proposed programme shall be implemented within the proposed time period.
27	The Consent Holder shall provide sufficient on-site electrical generation, or other appropriate measures, to ensure the operation of landfill gas flare equipment is not interrupted for more than two hours through loss of mains power supply.
28	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021916: to take and use up to 40,000 cubic metres per year of surface water from Pump Creek for a potable water supply at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	The taking of surface water is authorised only for the potable water supply as shown on the Drawing C3 General Site Arrangement.
3	The Consent Holder shall monitor the quantity of water taken from the potable water supply system. The volume of surface water taken shall be recorded at monthly intervals. The annual volume of surface water shall be reported in writing to Canterbury Regional Council by 1 October each year for the period up to 30 June.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5	The abstraction of water in terms of this permit shall be limited to basic domestic requirements for site staff whenever the flow in Pump Creek is at or below one litre per second.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021917: to take groundwater.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Groundwater shall only be taken from a groundwater under-drainage system installed beneath the Landfill footprint, or in related slope cuts or relief drains needed to enable Landfill construction.
3	The Consent Holder shall measure the volume of groundwater taken from the groundwater under-drainage system. This shall be recorded.. The volume of groundwater per month shall be reported in writing to the Canterbury Regional Council by 1 October every year.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021918: to discharge groundwater into water.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Any groundwater under-drainage flows shall be discharged to the surface water drainage system and routed through the sedimentation pond.
3	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A DISCHARGE PERMIT CRC021919: to divert stormwater from a landfill and dam water in constructed sedimentation ponds at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of the diversion channel and, if needed to prevent scour, at intermediate locations.
3	All permanent diversion channels shall be designed to manage a 1% AEP (Annual Exceedance Probability) design flood. Bench drains and other temporary drains shall be designed for the 20% AEP event. Diversion channels shall be designed such that if this capacity is exceeded the preferential (secondary) flow path is, as far as practicable, away from the Landfill.
4	The primary sedimentation pond shall be designed in accordance with the Auckland Regional Council publication *"Erosion and Sedimentation Control – Guidelines for Land Disturbing Activities ARCTP90 March 99"*.
5	Diversion channels and cut-off drains shall be maintained to minimise the infiltration and run-off of stormwater onto the Landfill from areas outside the Landfill footprint.
6	All diverted stormwater shall be treated in the sedimentation ponds as shown on the Drawing C3 General Site Arrangement.
7	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
8	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities – March 1999."*
9	The sedimentation ponds shall be designed to manage a 10% AEP design flood, with provision to pass a 1% AEP design flood.
10	The Consent Holder shall be solely responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent. To this end, all channels shall be engineered to preclude excessive channel erosion at peak velocities.
11	The volume of water dammed in the sedimentation pond shall not exceed 30,000 cubic metres.
12	The sedimentation pond dam shall be designed, constructed and monitored following the procedures set out in the NZSOLD Guidelines November 2000, and the procedures shall be reviewed by the Peer Review Panel. During construction, the dam works shall have the capacity to pass an event with an ARI of 10 years.
[redacted]	([redacted]) [redacted]
[redacted]	([redacted])

	Both the siltation control dam and the water storage dam shall be investigated and designed in accordance with the New Zealand Dam Safety Guidelines as promulgated by the New Zealand Society on Large Dams (as agreed by the applicant). The investigation, design, peer review and monitoring of the dam shall take into account the following factors: • The public are known to frequent the lower end of Kate Valley and the beach at the Kate Creek outlet • The potential incremental consequences of failure in terms of socio-economic, financial and environmental matters would cause major damages in that the landfill would likely need to be closed, requiring extensive rehabilitation work.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021920: to discharge treated stormwater from a Landfill into Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the sedimentation ponds to prevent scour.
3	The Consent Holder shall continuously monitor (15-minute readings) water entering the sedimentation pond and water flowing out of the pond outlet for the following parameters: • pH • conductivity. Trigger levels to indicate potential leachate contamination shall be set using the following: PH = the mean plus or minus three standard deviations of baseline stormwater pH data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition. Conductivity = the mean plus three standard deviations of baseline stormwater conductivity data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition.
4	The monitoring system shall be fitted with an alarm to indicate when trigger levels for pH or conductivity have been exceeded at either the pond inlet or the outlet. The sedimentation pond shall be configured such that in the case of contamination being detected at the outlet, the outflow can be stopped for conditions which do not result in flow over the auxiliary spillway, and shall include provision for pumping to enable contaminated stormwater to be recirculated to the Landfill or diverted to the leachate system for treatment as leachate.
5	If the trigger levels for continuous pH and conductivity monitoring are exceeded, the Consent Holder shall take a grab sample of water and analyse this sample for the parameters listed below: • pH • conductivity • ammoniacal nitrogen • nitrate nitrogen • alkalinity • chloride • potassium • total organic carbon Sampling shall be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of the grab sample analysis shall be reported to Canterbury Regional Council within two weeks of sampling, unless otherwise agreed in writing by Canterbury Regional Council.
6	If monitoring of the discharge system indicates leachate contamination, then the Consent Holder shall take immediate steps to prevent further leachate contamination.

7	The Consent Holder shall immediately report to Canterbury Regional Council on actions taken and further actions proposed to address leachate contamination.
8	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
9	The point of compliance is the outlet to the water supply pond, as shown on Drawing C3. An indicator monitoring point shall be established at the outlet to the sedimentation pond as shown on the drawings in the Monitoring and Contingency part of the Landfill Management Plan.
10	All water quality sample analyses required shall be undertaken using standard methods as detailed in the "Standard Methods for the Examination of Water and Waste Water 1998", 20th edition by APHA and AWWA and WEF or by some other method approved in advance in writing by Environment Canterbury. A laboratory that is accredited to ISO/IEC Guide 25 for those specific tests shall carry out all testing.
11	The Canterbury Regional Council shall be informed of the trigger levels set in condition 3 of this consent, and the data and calculations used to determine these trigger levels.
12	No stormwater coming into contact with refuse shall be discharged as stormwater, but instead shall be considered as leachate and discharged into the leachate collection system.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: TRANSWASTE CANTERBURY LIMITED

A WATER PERMIT CRC021921: to take and use up to 200,000 cubic metres of surface water per year, for a water supply for a Landfill and associated activities, including the realignment, reconstruction, and upgrading of part of Mt Cass Road at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

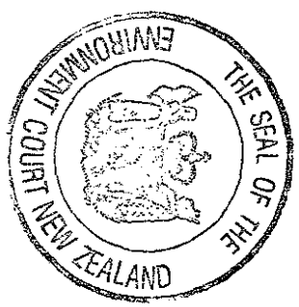
IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	The taking of surface water is authorised only for the Landfill and associated activities, including the realignment, reconstruction, and upgrading of part of Mt Cass Road.
3	The Consent Holder shall monitor the quantity of surface water taken for the water supply system. The volume of water taken shall be recorded at monthly intervals. The annual volume of water taken in the preceding year up to 30 June, shall be reported in writing to Canterbury Regional Council by 1 October.
4	The rate of take shall not exceed 200,000 cubic metres per year.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.



PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021922: to divert and dam water in a constructed water storage pond at Tiromoana Station, Mt Cass Road

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	For stormwater flows in excess of the capacity of the primary structure, a secondary flow path shall be provided and maintained to allow surplus stormwater from critical storms, up to the 0.01% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	A flow of at least 1.5 litres per second shall be maintained in Kate Creek downstream of the monitoring point on the outlet of the water storage dam (as shown on the drawings in the Landfill Management Plan), whenever the water storage dam is receiving an inflow.
5	The Consent Holder shall be responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent. To this end, all channels shall be engineered to preclude excessive channel erosion at peak velocities.
6	The volume of water dammed in the water storage pond shall not exceed 200,000 cubic metres.
7	The water storage dam shall be designed, constructed and monitored following the procedures set out in the NZSOLD Guidelines November 2000, and the procedures shall be reviewed by the Peer Review Panel.
8	The dam shall be constructed to a standard for a flood with an ARI of 100 years for the service spillway, and a flood with an ARI of 10,000 years for emergency spillway design. During construction, the dam works shall have the capacity to pass an event with an ARI of 10 years
9	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021923: to discharge water from a water storage dam into Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

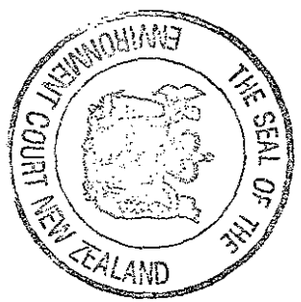
LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	There shall be no discharge at the point of compliance that results in any of the following effects: (a) the production of any conspicuous oil or grease film, scums or foams or floatable or suspended material; (b) any conspicuous change in colour or visual clarity; (c) the rendering of freshwater unsuitable for consumption by farm animals; (d) any significant adverse effect on aquatic life in Kate Creek downstream of the discharge point.
3	Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the dam to prevent scour.
4	The Consent Holder shall continuously monitor (15-minute readings) water flowing out of the outlet for the following parameters: • pH • conductivity Trigger levels to indicate potential leachate contamination shall be set using the following: PH = the mean plus or minus three standard deviations of baseline stormwater pH data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition. Conductivity = the mean plus three standard deviations of baseline stormwater conductivity data from three months of continuous monitoring of the upper Kate Creek surface water system prior to refuse deposition. The monitoring system shall be fitted with an alarm to indicate when trigger levels for pH or conductivity have been exceeded at the outlet. The dam shall be configured such that in the case of contamination being detected at the outlet, the outflow can be stopped for conditions which do not result in flow over the auxiliary spillway, and shall include provision for pumping to enable contaminated stormwater to be recirculated to the Landfill or diverted to the leachate system for treatment as leachate.
5	The Consent Holder shall monitor the water in the water supply pond every three months, for the following parameters: • pH • conductivity • ammoniacal nitrogen • nitrate nitrogen • alkalinity • chloride • potassium • total organic carbon • soluble zinc

	• COD Sampling shall be undertaken in accordance with protocols approved in writing by Canterbury Regional Council. The results of such monitoring shall be reported in writing to Canterbury Regional Council within two months of sampling.
6	If the trigger levels for continuous pH and conductivity monitoring are exceeded, the Consent Holder shall take a grab sample of water and analyse this sample for the parameters listed in Condition 5 of this consent. The results of the grab sample analysis shall be reported to Canterbury Regional Council within two weeks of sampling, unless otherwise agreed in writing by Canterbury Regional Council.
7	If monitoring of the stormwater discharge system indicates leachate contamination, then the Consent Holder shall immediately report to Canterbury Regional Council on actions taken and further actions proposed to address leachate contamination.
8	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
9	The point of compliance is the outlet to the water supply pond, as shown on Drawing C3. An indicator monitoring point shall be established at the outlet to the sedimentation pond as shown on the drawings in the Monitoring and Contingency part of the Landfill Management Plan.
10	All water quality sample analyses required shall be undertaken using standard methods as detailed in the "Standard Methods for the Examination of Water and Waste Water 1998", 20th edition by APHA and AWWA and WEF or by some other method approved in advance in writing by Canterbury Regional Council. A laboratory that is accredited to ISO/IEC Guide 25 for those specific tests shall carry out all testing.
11	The Canterbury Regional Council shall be informed of the trigger levels set in condition 4 of this consent, and the data and calculations used to determine these trigger levels.



PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A LAND USE CONSENT CRC021924: to disturb the beds of Kate Creek by constructing a Landfill, a sedimentation pond, a water storage dam, a weir, and associated roads and tracks, and erect structures and trees within 7.3 m of a waterway at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Works shall not cause erosion of the banks or bed of the streams.
3	Machinery shall be free of plants and plant seeds prior to use in the riverbed.
4	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
6	The suspended sediment concentration in Kate Creek during dam construction, measured at the point of compliance 300m downstream of the weir, shall be no more than 10% higher than the concentration measured 100 m upstream of the site of the dam construction.
7	General earthworks and sediment control measures shall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities – March 1999."*
8	There shall be no storage of fuel or refuelling of machinery anywhere in the bed of the river.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A LAND USE CONSENT CRC021925: to disturb the beds of Wash Creek by erecting a culvert, embankment, and water storage dam and erect structures and trees within 7.3 m of a waterway at Tiromoana Station, Mt Cass Road.

DURATION: 5 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	The exercise of this consent shall not increase the suspended sediment concentration of the water by more than 50 grams per cubic metre at any point further than 300 metres downstream of the water storage dam.
3	The works shall be carried out in accordance with the details submitted in the consent Application.
4	Works shall not cause erosion of the banks or bed of the streams.
5	Machinery shall be free of plants and plant seeds prior to use in the riverbed.
6	All practicable measures shall be undertaken to minimise adverse effects on property, amenity values, wildlife, vegetation and ecological values.
7	General earthworks and sediment control measures hall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
8	There shall be no storage of fuel or refuelling of vehicles or machinery anywhere in the bed of the river.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021926: to divert and dam water in Wash Creek by erecting a culvert at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	The capacity of the primary structure shall allow surplus stormwater from critical storms, up to the 0.01% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	The diversion of water shall not impede the passage of fish or cause fish stranding.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT
Pursuant to Section 105 of the Resource Management Act 1991
THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**
A WATER PERMIT CRC021927: to divert and dam water in a constructed water storage pond for stockwater supply in Wash Creek at Tiromoana Station, Mt Cass Road.
DURATION: 35 years
IN CONNECTION WITH THE FOLLOWING PROPERTY:
LOCATION: 666 MT CASS ROAD, WAIPARA
LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.
SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	For stormwater flows in excess of the capacity of the primary structure, a secondary flow path shall be provided and maintained to allow surplus stormwater from critical storms, up to 0.1% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5	General earthworks and sediment control measures hall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
6	The damming of water in Wash Creek shall not impede the passage of fish.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A WATER PERMIT CRC021929: to divert and dam water in a constructed weir in Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	Suitable scour protection of concrete, rock or timber construction shall be placed at the beginning and end of diversion channels and, if needed to prevent scour, at intermediate locations.
3	For stormwater flows in excess of the capacity of the primary structure, a secondary flow path shall be provided and maintained to allow surplus stormwater from critical storms, up to 1% Annual Exceedance Probability, to discharge with a minimum of nuisance and damage.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
5	The Consent Holder shall be responsible for the structural integrity and maintenance of all dam works, and for any erosion control and energy dissipation works that become necessary as a result of the exercise of this consent. To this end all channels shall be engineered to preclude excessive channel erosion at peak velocities.
6	The diversion and damming shall not impede fish passage or cause fish stranding.

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PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021930: to discharge water from a weir into Kate Creek at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	There shall be no discharge at the point of compliance, which is located 300 metres downstream of the weir, that results in any of the following effects: (a) the production of any conspicuous oil or grease film, scums or foams or floatable or suspended material; (b) any conspicuous change in colour or visual clarity; (c) the rendering of freshwater unsuitable for consumption by farm animals; (d) any significant adverse effect on aquatic life in Kate Creek downstream of the discharge point.
3	Scour protection works of concrete, rock or timber construction shall be placed at the outlet of the weir to prevent scour.
4	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A DISCHARGE PERMIT CRC021931: to discharge water and sediment to land in circumstances that may result in a discharge to water of Wash Creek and Kate Creek and their unnamed tributaries, associated with constructing and operating a Landfill and associated culverts, embankments, roads and tracks, construction of a sedimentation pond, two water storage ponds, and a weir at Tiromoana Station, Mt Cass Road.

DURATION: 35 years

IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	General earthworks and sediment control measures hall be constructed and carried out in accordance with the principles contained within the ARC Technical Publication *"TP90 Erosion and Sediment Control – Guidelines for Land Disturbing Activities March 99".*
3	All investigations, design, supervision of construction, operation, monitoring and aftercare shall be undertaken by a Registered Engineer experienced in such works, or works of a similar nature.
4	The Consent Holder shall construct and maintain appropriate stormwater management measures, including drains and sediment traps for the interception and treatment of stormwater run off from the works. These measures shall remain in place over the duration of the construction period and for a period following construction to allow suitable cover of vegetation to establish on restored areas.
5	The Canterbury Regional Council may, on any one of the last five working days of June each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

PROPOSED RESOURCE CONSENT

Pursuant to Section 105 of the Resource Management Act 1991

THE CANTERBURY REGIONAL COUNCIL

GRANTS TO: **TRANSWASTE CANTERBURY LIMITED**

A LAND USE PERMIT CRC022020: to install and use above-ground storage tanks.

DURATION: 35 years

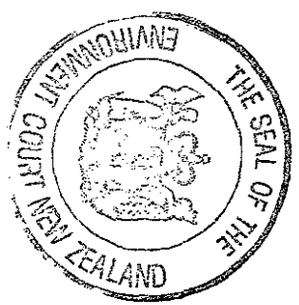
IN CONNECTION WITH THE FOLLOWING PROPERTY:

LOCATION: 666 MT CASS ROAD, WAIPARA

LEGAL DESCRIPTION: contained within Sections 1, 3, 4, 5, 6 and 7 S.O.18668, Sections 8, 9, 12 and 14 S.O.18669 and Section 15 S.O.18670, all comprised in Certificate of Title CB35D/977; Rural Section 38811 comprised in Certificate of Title CB3A/26; Part Bed of Omihi Stream; and Part Section 2 S.O.10082, Parts Rural Section 22646, Parts Rural Section 22646X and Parts Rural Section 25242, more particularly defined as parcels B and C on S.O.17195, which are Crown Land by Gazette 1963 p65 and by Transfer 573383 all in the Canterbury Land District.

SUBJECT TO THE FOLLOWING CONDITIONS:

1	This consent is subject to the general conditions listed in Schedule 1 – General Conditions.
2	A series of 25 cubic metre tanks shall be placed on site and used to store leachate collected from the Landfill, prior to its removal from the site via road tanker.
3	The number of tanks on site at any one time shall depend on the volume of leachate produced but shall be sufficient to provide five days worth of storage.
4	The tanks, transfer pump and surrounding truck load-out area shall be located within a bund designed to contain 125% of the maximum volume of leachate stored.
5	The Consent Holder shall undertake measures to prevent the generation of odour from the leachate storage tanks. These measures may include but not be limited to: (a) The sealing of storage tanks; and (b) The use of biofilters; and (c) Aeration devices fitted to the tanks.
6	The storage tanks and pump-station shall be fitted with alarms and a telemetry system. The alarm shall be triggered when leachate stored in the tanks reaches a certain level.
7	Design plans of the storage tanks and bunded facility shall be provided to the Canterbury Regional council prior to works commencing.
8	A "Storage Tank Installation Certificate" shall be signed by the person responsible for the construction and installation of the leachate storage facility or a person competent in the construction and installation of such facilities. This certificate shall be submitted to the Canterbury Regional Council within one month of construction of the storage facility and shall certify that the storage facility is installed and constructed in accordance with Conditions (1) – (7) of this consent.
9	The storage tanks, containment bund, transfer pump, alarms and telemetry system shall be maintained in an operational state at all times.
10	The Consent Holder shall include within the Landfill Management Plan provisions for the storage, handling, use or disposal of hazardous materials, chemicals and waste.
11	Where spillages occur, the Consent Holder shall ensure that all spilled materials and contaminated soil and stormwater are properly contained, pumped or removed into suitable holding containers and removed from site.
12	The Consent Holder shall ensure that all site personnel are trained in hazardous material and waste handling and spill contingency and emergency procedures.
13	The Canterbury Regional Council may, on any one of the last five working days of June or November each year, serve notice of its intention to review the conditions of this consent for the purposes of: (a) dealing with any adverse effect on the environment which may arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.



ANNEXURE 7

RELEVANT DISTRICT PLAN RULES

(g) No tree which will reach more than 3 metres high shall be planted within 3 metres of a publicly owned sewer, water, or storm-water pipeline.

Note: Refer to Rule A7.2.1(b) regarding controls placed on planting of the margins of rivers and lakes and coastal cliffs

A1.2.4 Separation distances between residential & intensive farming activities

Note: Refer to Section D for the definition of 'intensive farming'

(a) No new residential activity sited on an adjoining property other than new residential activity within the property on which the intensive farming activity is located, may be established within 500m of an intensive farming activity listed in Appendix A1, "Schedule of Intensive Farming".

(b) No intensive farm may be established less than 500m from a residential or open space zone or from an existing residential activity other than an existing residential activity within the property on which the intensive farming activity is proposed.

Note: Residential and open space zones are located within Section B1 – Urban Areas

A1.2.5 Minimum area requirements

Except as otherwise stated in this Plan, the minimum area requirement for dwelling units shall be one dwelling per 5ha of total site area, other than in the Boyle Village and Engineers' Camp, in which the maximum site coverage of 35% for residential zones in urban areas shall apply.

A1.2.6 Separation distances between sewage treatment & residential activities

Note: Refer to Policy 10.1

(a) No new residential activity, other than new residential activity within the property on which the sewerage treatment facility is located, may be established within 500m of an existing sewage treatment facility, including effluent ponds for on-farm waste disposal, and land-based effluent disposal areas.

(b) No sewage treatment facility, including effluent disposal ponds for on-farm waste disposal and land spreading on-farm or off site from which it originates, may be established less than 500m from an existing residential or open space zone or from an existing residential activity other than an existing residential activity within the property on which the sewerage treatment facility is proposed.

A1.2.7 Height

(a) Unless otherwise specified in this Plan, the maximum height of any building or structure shall be 10 metres.

Note: Refer to Rule B1.2.3 for height limits within urban areas

(b) Structures exempt from Rule A1.2.7(a) are:

- Utility Poles
- Flagpoles
- Wires

- Television and radio antennas (not masts)
- Chimneys (up to 15 metres)
- Ventilation shafts
- Solar heating devices
- Gable end roofs (no more than one-third of the gable height)
- Eaves
- Antennas that are no more than 1 metre square in area on any side (not including brackets or attachments), and dish antenna that are no more than 1,200mm in diameter
- Lightning rods

Note: Additional height controls apply to some utilities under Rule A6.2

(c) Subparagraphs (a) and (b) above shall not apply to utility masts.

Note: Refer to Rule A6.2(h) for height controls governing utility masts.

A1.2.8 Artificial light

Light emissions from a site shall not exceed a measurement of 8 lux (lumens per square metre) measured 1.5 metres above the ground at the boundary.

Note: There is no sunlight access rules in the District other than in urban areas – refer to Rule B1.2.4

A1.2.9 Noise

Note: Refer to Policies 10.1 and 10.9

Unless otherwise specified, the following noise limits shall apply to all activities in the District:

(a) Measurement and assessment of environmental noise: except where expressly provided elsewhere in this Plan, noise shall be measured in accordance with the provisions of NZS 6801:1991 "Measurement of Sound", and assessed in accordance with the provisions of NZS 6802:1991 "Assessment of Environmental Sound".

(b) Noise limits:

(i) All activities accept those in an industrial zone

All activities shall be designed and conducted so as to ensure that the following noise limits are not exceeded, at or outside the boundary of the site:

55 dBA L10	7am – 7pm daily
45 dBA L10	7pm – 7am daily
75 dBA Lmax	All days between 10pm and 7am

In the case of residential dwellings and/or zones, noise is to be measured at any point at or within the boundary of any residential zone, or the notional boundary of any habitable residential building in any other zone.

The notional boundary is defined as a line 20 metres from the facade of any rural dwelling or the legal boundary where this is closer to the dwelling.

(ii) Activities within an industrial zone – no activity may generate noise which exceeds 75dBA L10 at all times measured at or outside the boundary of the site: provided that, where the site adjoins a non-industrially zoned site, no activity may generate noise which exceeds the limits set out in Rule A1.2.9(b)(i).

(c) Blasting – airblast overpressure from blasting on any land shall not exceed a peak non-frequency-weighted (linear or flat) level of 115dB, provided this level may be exceeded on up to 5% of the total number of blasts over a period of 12 months. The level should not exceed 120 dB (Lin peak) at any time.

(d) Airport and heliport noise – noise associated with use of land for aviation purposes, including circuit, take-off and landing approach flight operations shall not exceed the limits in Table 1 below, when assessed in accordance with the provisions NZS 6807: 1994 "Noise Management and Land Use Planning for Helicopter Landing Areas". For the purpose of this rule, clauses 1 to 4 of NZS 6807:1994 shall not apply. Measurement of sound shall be in accordance with NZS 6801:1999 "Acoustics-Measurement of Environmental Sound".

Table 1: Limits of acceptability

Affected land use	Ldn – day – night average sound level (dBA)	Lmax night-time maximum sound level (dBA)
Industrial	75	n/a
Commercial	65	n/a
Residential	50	70
Rural (at notional boundary)	50	70
Residential (internal)	40	55

Note: 1. For the purpose of this rule, nighttime is defined as 10pm to 7am the following day.
2. Exemptions under Rule A1.2.9(i)(i) include transient rural aviation activities. The scope of NZS 6807:1994 also limits application of the standard and these rules.

(e) Audible bird-scaring devices – audible bird-scaring devices (including firearms) may be operated in accordance with the following conditions:

(i) Devices shall not operate between sunset and sunrise.

(ii) Devices shall not be used within an urban area or within 200m of an urban area.

(iii) Impulsive noise from bird-scaring devices shall not exceed ASEL 65dB when assessed at any point within the notional boundary of any dwelling on any other site.

(iv) For the purpose of this rule an 'event' includes clusters of up to three shots from gas operated devices, or three multiple shots from a firearm in rapid succession.

(f) Vibration due to blasting – at any point at, or within the boundary of, any residential zone, or the notional boundary of any habitable residential building in any other zone or area, any vibration from a site due to blasting shall not exceed a peak particle velocity of 5mm/sec provided this level may be exceeded on up to 5% of the total number of blasts over a period of 12 months. The level should not exceed 10mm/sec at any time.

(g) Construction noise – construction noise shall not exceed the recommended limits in, and shall be measured and assessed in accordance with, the provisions of NZS 6803P:1984 "The measurement and assessment of noise from construction, maintenance, and demolition work".

(h) Temporary military training activities – noise emissions from any temporary military training activity measured at, or outside, the boundary of the site, except in the case of residential dwellings located in the rural area, are to be measured at the notional boundary of any habitable building, and shall not exceed:

Time		Limits (dBA):	
(any day)	L10	L95	Lmax
0630 – 0730	60	45	70
0730 – 1800	75	60	90
1800 – 2000	70	55	85
2000 – 0630	55		

Note: Impulsive noise resulting from the use of explosives and small arms is not to exceed 122 dBC

(i) Exemptions – the above noise limits shall not apply to the following activities:

(i) Normal agricultural practices undertaken for a limited duration, such as harvesting.

(ii) Activities within roads which comply with Rule A5.1.1.

(iii) Emergency services call out sirens.

A1.2.10 Screening of non-residential activities

(a) In non-urban areas – when viewed from:

- a strategic or district arterial road, or a collector road
- an adjoining residential site or
- an open space zone

the following activities shall be screened in accordance with Rule A1.2.10(c):

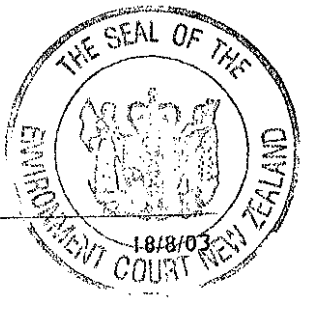
(i) Parking, disposal, use or repair of vehicles which is not accessory to a permitted residential activity.

(ii) Non-residential buildings.

Screening shall not be necessary for:

(iii) Buildings accessory to residential or farming activities.

(iv) Accessory buildings (other than in (iii) above), which meet the setback requirements for principal buildings in Rule A1.2.2.



(b) In urban areas:

(i) In accordance with Rule A1.2.10(c), any space on a site zoned Industrial or business, shall be screened from an adjoining site which is zoned residential, open space or rural lifestyle.

(ii) All parking areas of four or more spaces adjoining a property zoned as residential or open space shall be screened in accordance with Rule A1.2.10(c).

(c) If no screening exists, the screening shall be in the form of either:

(i) Trees and/or shrubs planted a maximum of 2 metres apart that, on maturity, provide a solid screen up to a height of at least 1.8 metres; or

(ii) A solid wall or fence to a height of at least 1.8 metres.

(d) Any screening shall be undertaken within 2 months of any activity commencing on the industrial or business site.

Note: Screening need not be restricted to the boundary of a site

A1.2.11 Restriction on continuous linear length of a building

(a) In all areas except for residential and open space zones in urban areas, no building shall be more than 30 metres long without having an offset in plan of at least 2 metres or an offset in height of at least 2 metres. Provided that this rule shall not apply to glasshouses or farm accessory buildings.

(b) In residential and open space zones, no building shall be more than 20 metres long without having an offset in plan of at least 2 metres or an offset in height of at least 2 metres.

A1.2.12 Demolished buildings

All material from demolished or partly demolished buildings shall be removed from a site within 2 months of the demolition being completed.

A1.2.13 Signs

Note: Refer to Policy 10.8

(a) One sign up to 0.6m² in display area is permitted per site, except for a site zoned industrial or business that does not adjoin a residential or open space zone, for which the provisions of Rules A1.2.13(h) and (i) shall apply. For sites adjoining any state highway one sign up to 3 square metres in display area is permitted.

Note: The road controlling authority (Transit New Zealand) regulates signs within the State Highway road reserve. Refer to the Transit New Zealand Guideline "Planning for a Safe and Efficient State Highway Network". Local roads are administered by the Hurunui District Council.

(b) No freestanding signs above 2 metres in height are permitted in residential zones.

(c) Except for temporary signs all signs shall be situated wholly within the site on which they are to be erected and to which the sign relates.

(d) Temporary signs (and their fixtures), except for real estate signs, up to 2.4m² in display area are permitted for up to 2 months, provided that the sign is in conjunction with a temporary or one-off activity and that it is removed within 48 hours of the activity to which the sign related ceasing. All temporary signs shall comply with the rules regarding minimum visibility, minimum separation distance between signs and lettering/design criteria (Rule A1.2.13 (l), (m) and (n)).

(v) Noise emissions from any temporary military training activity measured at the legal boundary shall not exceed:

Time	Limits (dBA):		
(any day)	L10	L95	Lmax
0630 – 0730	60	45	70
0730 – 1800	75	60	90
1800 – 2000	70	55	85
2000 – 0630	55		

Note: Impulsive noise resulting from the use of explosives and small arms is not to exceed 122 dBC.

A1.2.15 Earthworks

Note: Refer to Policies 1.1, 1.2, 1.3, 1.4, 4.1, 4.2, 4.3, 17.7 and 18.4. Refer to Section D – Interpretation for the definition of earthworks.

All activities involving earthworks, shall comply with the following conditions:

(a) Bulk earthworks:

(i) No bulk earthworks in excess of 100 cubic metres or exceeding 500 square metres in area shall be undertaken above 900 metres.

(ii) No bulk earthworks below 900 metres in altitude shall be undertaken in circumstances where this will lead to:

Unacceptable scarring of the landscape in any visually prominent location or cause destruction of significant natural values with reference to the criteria in Appendix E2 or heritage values or cause adverse impacts on water bodies through siltation from runoff.

(iii) For the purpose of sub-clause (ii) above "unacceptable scarring" means an impact arising from the physical alteration to the natural character of the land from the earthworks activity after taking into account the effect of any mitigation measures where such are proposed.

(b) Earthworks (but excluding tracks providing foot access) shall not be carried out within 20 metres of any river, 50 metres of any wetland, or 100 metres of any lake with the following exemptions:

(i) Earthworks associated with water and soil conservation activities or if carried out under the authority of Environment Canterbury or a resource consent.

(ii) Earthworks carried out for reasons of public or personal safety.

(iii) Maintenance of existing fence-lines, vehicle tracks, firebreaks, drains, ponds, dams or crossings.

River for the purpose of this rule means any river or stream with a normal channel width flow of greater than 1.5 metres averaged over the reach of the river between a point of 40m upstream and a point of 40m downstream from that point of the river adjacent to where the proposed earthworks are to be located.

Note: Refer to the Regional Coastal Environment Plan

(c) No earthworks shall require the clearing of more than 5000m² of vegetation.

A1.2.16 Hours of operation for activities involving the sale of alcohol

Any activity involving the sale of alcohol for consumption on the premises, where the site on which it is located, fronts to or adjoins a residentially zoned site, shall comply with the following hours of operation:

Any day: 7.00am to 10.00pm

A1.2.17 On-site car parking standards

The following standards for on-site parking shall apply where:

- An activity is established on a site or
- There is a change of activity or
- A building is constructed or substantially reconstructed, altered or added to.

(a) On-site car parking requirements

(i) General Requirements

Minimum on-site parking standards shall apply to all specified activities in accordance with the table below. Where a particular site contains more than one activity, the parking requirement for each activity shall be separately determined where the gross floor area of an activity exceeds 10% of the total gross floor area; otherwise the activity shall be assessed as ancillary to the main use. In determining parking requirements, any fraction more than one-half shall be regarded as one space. Unless otherwise specified, all standards are the minimum required for the relevant activity.

On-site parking requirement

Activity type	On-site parking requirement	Explanation
Residential	1 per dwelling unit. 1 per camp or caravan site. Plus 1 per 2 non-resident employees.	This applies to residential activities involving independent residents: that is, where the residents are independently mobile in their own vehicles. The accommodation could be serviced or un-serviced, permanent or non-permanent. Examples include dwelling houses, apartments, all visitor accommodation, camping grounds, and retirement villages.
Turnover	1 per 4 licensed or design visitor capacity. Plus 1 per 2 employees.	This applies to activities which involve a relatively high turnover of visitors. Parking is generally required to either drop-off and pick-up users, or for groups of visitors at staggered intervals. Visitors in this context means those persons for whom the facility is designed. In terms of mobility and vehicle use, visitors to the facilities may either be independent such as students at an adult education centre, or dependent such as patients in a hospital. Examples of "turnover"" facilities includes hospitals, day care centres, institutional care, prisons, adult education centres and sport centres.

(c) On-site loading requirements

All activities requiring loading/unloading shall provide at least one on-site loading area, designed and constructed in accordance with the standards shown in Figure A1.1.

A1.2.18 Servicing hours

There shall be no servicing of activities or operation of vehicles, other than those activities associated with residential activities, between 10pm and 7am Monday to Sunday inclusive within 50 metres of a residential site.

A1.2.19 Vehicle movements

Note: For a definition of "vehicle movements" refer to Section D - Interpretation

Except within industrial and business zones, the maximum number of vehicle movements shall be as follows:

(i) Heavy vehicles – 4 movements per day

(ii) Other vehicles – 20 movements per day

These limits shall not apply to the movement of vehicles associated with primary production activities, the construction of structures or with business or household relocations.

A1.2.20 Buildings on ridges (excluding urban areas)

(a) No building or structure outside urban areas on a ridgeline shall be visible against a backdrop of sky when viewed from any point within 1 kilometre from any strategic arterial, district arterial or collector roads, or Lake Sumner Road (including unformed sections). This rule shall exclude:

(i) Buildings or structures on a ridgeline which have a visible backdrop of land, sea or vegetation viewed from all points along such roads.

(ii) Farm accessory buildings and structures including barns, hay sheds, fences, water tanks, fertilizer bins and stock water troughs.

(iii) Utility accessory buildings up to but not exceeding 10 square metres in floor area with a maximum height of 3 metres.

(iv) Masts up to but not exceeding 10 metres in height and with a maximum width of 0.65 metres, (exclusive of antennas, mounting arms and supports).

Note: For road classifications see Appendix A5.1.

A1.3 Restricted discretionary activities

(a) The following activities that do not meet the conditions for permitted activities shall be restricted discretionary activities for which the Council has restricted its discretion to the matters specified:

(i) Buildings and structures which do not meet the setback provisions of Rule A1.2.1, Rule A1.2.2 and Rule A1.2.20. In considering applications for resource consent under this rule, the Council shall restrict it's discretion to the following matters:

(a) Height, bulk and location

C1.2 Criteria for assessing resource consent applications

C1.2.1 Assessment of land use consents

The matters contained in sections 104 and 105, and in Part II of the Act apply to the consideration of all resource consents for land use activities. In addition to these above matters, the Council shall apply the assessment matters, where relevant, as set out below:

(a) The relevant matters stated for the consideration of any controlled or discretionary activity;

(b) Whether the proposed activity would compromise the objectives and policies pertaining to the Environment of Special Concern or the district-wide rules contained in the Management Code;

(c) Whether conditions can be devised to avoid or mitigate any adverse effects of the proposal to any standard or term;

(d) The environmental outcomes intended to be achieved for the Environment of Special Concern or District-wide matter.

C1.2.2 General assessment criteria for land use consents

(a) That the design and location of any proposed building is in sympathy with the environment and is not considered to detrimentally affect the visual amenity of the area;

(b) The nature of any goods or products, including hazardous substances, that are to be used or stored on the site and the degree to which they affect the quality of the locality or public safety;

(c) The hours of operation or frequency with which the activity is proposed to be undertaken and the extent to which it will affect the amenity of the area in terms of noise generation, effect on public safety and efficiency, privacy and community identity and character;

(d) The outcome of any recommendations made by a relevant expert;

(e) The outcome of any consultation undertaken with the Regional Council, the Department of Conservation, iwi or any other organisation;

(f) The degree to which any adverse environmental effects are to be remedied to mitigated;

(g) The extent to which any ecological, heritage, conservation and landscape values of the area will be maintained and enhanced.

C1.2.3 Specific criteria for assessing subdivision consent applications

Note: Refer to Section A3 - Subdivision and Issue 12 - Efficient Infrastructure and Development

(a) The following matters will be considered, where relevant:

(i) The ability of every allotment of land to site a conforming dwellinghouse or a principal building and to be utilised in a manner that can comply with the Plan provisions.

(ii) The provision for disposal of sewage and stormwater without risk to public health or the environment.

(iii) The provision or ability of every allotment to have vehicular access to a formed road or proposed formed road.

(iv) The cumulative impacts on the District's infrastructure and its efficient use and development.

(v) The provision of access within every lot.

(vi) The ability of any existing or likely proposed building to comply with all standards in this Plan.

(vii) Whether the area's amenity values and character will be protected or enhanced.

(viii) The appropriateness of the subdivision in relation to any sites or resources of significance to tangata whenua, including water quality.

(ix) The appropriateness of the subdivision in relation to Part II of the Act.

(x) Whether any visually obtrusive or environmentally damaging earthworks associated with the proposed development of the subdivided land will be avoided or minimised.

(xi) Whether the subdivided land is subject to pollutants that may be hazardous to future occupiers of the land.

(xii) Whether the lot has an adequate building platform to allow a complying building to be constructed that will not be subject to unacceptable risks from natural hazards or will significantly exacerbate the risks to other properties and people.

(xiii) The provision for a potable water supply in sufficient quantities that meets the policies and rules in this Plan.

(xiv) Whether the allotment(s) comply with section 321 of the Local Government Act 1974 in regard to access to a legal road.

(xv) Cross-boundary effects between potentially environmentally incompatible activities, such as the proximity of dwellings near vineyards in the Waipara Wine Growing Area.

Note: Refer to Appendix E4

(b) For a staged unit development, whether the proposal has been granted resource consent or a certificate of compliance has been issued.

(c) For the assessment of multiple-lot subdivision, the following matters will also be considered where relevant:

(i) If the appearance of the natural landforms, topography and features is generally maintained by avoiding unnecessary changes to the landform or landscape features or by instituting appropriate contouring, shaping, planting, restoration and other measures;

(ii) If any significant natural or heritage features are recognised, protected or enhanced;

(iii) If new roads and vehicular accesses to link lots with the existing roading network are adequate to meet the expected and likely demand;

(iv) If a common vehicle access is provided to avoid separate access points onto public roads;

(v) If there are adequate linkages to schools, recreational spaces, shops and other facilities, or whether improvements to existing linkages can be made;

(vi) If new roads and vehicular accesses are designed to a speed regime that is consistent with their road function;

(vii) If there is adequate provision for pedestrian and cyclist access, and linkages with the roading network and the existing pedestrian and cyclist access network;

(viii) If there is adequate provision for pedestrian access through the provision of footpaths, lighting, kerb and channelling;

(ix) If there is adequate and suitable space to provide for recreational facilities;

(x) If there is sufficient public open space to provide an attractive outlook and to enhance local amenity values;

(xi) The extent to which existing planting is to be protected or new planting provided to maintain amenity and landscape values, while providing for adequate sunlight access, building sites, access, sightlines and safety;

(xii) Whether the proposal makes use of any landscape treatment techniques to maintain and enhance amenity and visual values in a manner that complements the existing character and landscape of the vicinity;

(xiii) If proposed lots are of a suitable size, shape and location to provide opportunities for new habitable and principal buildings to be designed to maximise sunlight access;

(xiv) If the design of the proposal recognises or enhances the existing character of the area, including lot sizes, planting, natural features, and landscape;

(xv) If the number, design and location of lots and building sites avoids a visual impact that is inappropriate to the character of the area or mitigates the impact by limiting the area affected (such as by promoting cluster housing);

(xvi) If adequate buffer distances are provided to avoid or mitigate any potential for adverse effects to be created on new lots from current or likely future activities occurring on adjacent properties;

(xvii) If the design and the location of lots and building sites avoids any natural hazards, and if not, then the nature of the activity and the degree to which it may increase the potential risk to human life, property and/or the environment.

(d) For a subdivision of a building, the following matters will also be considered as relevant:

(i) Whether the use of the building complies with all requirements of this Plan or has an applicable resource consent or has existing use rights.

(ii) Whether the building complies with all Building Code requirements and has been lawfully erected, including any change of use.

(iii) Whether the new allotments meet, or can meet, the requirements of section 46(4) of the Building Act 1991.

(e) Approval of discretionary activities:

Consent to an application for subdivision as a discretionary activity may not be granted if one or more of the above criteria for assessment is not met. In addition, consent may not be granted under the following circumstances:

(i) For proposed leases of a building or part of a building not involving a cross lease, company lease or unit title, if Council is not satisfied that the subject building has been lawfully erected.

(ii) For a proposed cross lease or unit title:

- If Council is not satisfied that any proposed covenant, unit or auxiliary unit boundary has taken into account all relevant requirements under this Plan; or

- If the building has not been completely framed up to and including roof level so that Council can be satisfied that the building has been built in accordance with the requirements of this Plan; or

- If the cross lease is to be staged, the Council is not satisfied that the lot has sufficient area for further complying development and that such development will be free from inundation and is capable of being adequately serviced;

- If the application is for a staged unit title subdivision, if a unit development plan has not been approved.

(iii) For subdivision of land within areas of outstanding landscape value, Natural Hazard Areas, or land contaminated by hazardous substances, consent may not be granted if the proposed allotment is likely to be contrary to objectives, policies and other provisions relating to the management of the areas.

C1.2.4 Specific criteria for assessing land use consent applications – District-wide matters

Note: Refer to Section A1 – Environmental Amenity and Issue 10 – Environmental Amenity

(a) Environmental amenity:

(i) Setbacks/separation distances/amenity planting

- The extent to which the intrusion into the setback requirement is necessary to enable more efficient, practical and/or pleasant use of the remainder of the site or the long term protection of significant trees or natural features on the site;
- Any adverse effects of the proximity or bulk of the building in terms of the loss of access to daylight on adjoining sites;
- The provision of landscaping or screening to compensate for the yard encroachment;
- For a front setback the extent to which alternative practical locations are available on the site without intruding into the front setback;
- The extent to which an encroachment into the front setback will detract from the pleasantness, coherence, openness and attractiveness of the site as viewed from the street and adjoining sites;
- The adverse effects of the building intrusion into the front setback on the outlook and privacy of people on the adjoining sites;
- The extent to which any building encroaching into the front setback will be compatible with the appearance, layout and scale of other buildings and sites in the surrounding area;
- The extent to which a proposal would introduce the potential for cross-boundary effects between potentially environmentally incompatible activities, such as the proximity of residences near vineyards in the Waipara Wine Growing Area;

Note: Refer to Appendix E4

- Any adverse effects on the continued use and development of the land in the vicinity, such as in the Waipara Wine Growing Area and;
- The visual effects of amenity tree planting setbacks, particularly from public places or on local landscape and amenity values.

(ii) Height:

- The extent to which the proposed buildings will be compatible with the scale of other buildings in the surrounding area;

- The effect of the increased height in terms of visual dominance by buildings of the outlook from other sites, roads and public open spaces in the surrounding area, which is out of character with the local environment;

- The extent to which the increased height would have an adverse effect on the sites in the surrounding area in terms of loss of privacy through being overlooked from neighbouring properties;

- The extent to which the proposed building will overshadow adjoining sites and result in reduced sunlight and daylight admission and;

- The ability to mitigate any adverse effects of increased height, such as through increased separation distances between the building and adjoining sites or the provision of screening;

- In the case of telecommunication facilities, the extent to which the operational ability of the telecommunications equipment requires such a facility to be in an exposed area and outside the height restrictions.

(iii) Artificial light:

- The effect of the light on adjoining and other properties;

- Whether a reduction in the size of the glare source is possible; and

- Whether the direction in which the light is aimed and the duration and hours of operation of the activity requiring the lighting can be changed to reduce adverse effects.

(iv) Noise:

- That the proposed noise levels will not create a nuisance to any person;

- That the frequency and duration of the proposed noise above the level in the District Plan is insufficient to cause a significant adverse effect on the amenities of the surrounding sites;

- The necessity for the frequency, duration and level of noise, having regard to the best practicable options, the nature of productive rural activities in the rural areas, and other land use activities within the locality;

- That the proposed noise levels will not adversely affect the health and safety of any person; and

- Any recommendations from a suitably qualified person(s).

(v) Screening of non-residential activities:

- The effect of reduced landscaping and screening in terms of the visual impacts of the buildings and the scale of these buildings;

- The importance of landscaping and screening on the particular site concerned taking into account the visual quality of the surrounding environment; and

- The extent to which the site is visible from adjoining sites and the likely consequences on outlook from these sites of any reduction in landscaping or screening standards.

(vi) Continuous building length:

- Any adverse effects of the continuous building length in terms of visual dominance by buildings of the outlook from the street and adjoining sites, which is out of character with the surrounding environment; and

- The extent to which the continuous building lengths detracts from the pleasantness, openness and attractiveness of the site as viewed from the street or adjoining sites.

(vii) Signs:

- That the sign relates well to built and natural features existing in the vicinity of the proposed location of the sign, and is visually appropriate to the area;

- That the sign does not block the view of any built or natural feature of particular significance to the District or region;

- That the sign will not cause any nuisance to any person;

- That any sign to be erected adjacent to a State Highway has been given approval from Transit New Zealand; and

- That the sign has been designed to consider sight distances, the use of colour on the sign, the shape of the sign is to be distinct from the shape of road signs, the avoidance of reflective materials on all signs where it could reflect the light from the lamps of any motor vehicle on the road.

(viii) Earthworks:

- The visual impact on the immediate vicinity and on any areas of landscape value;

- The effects of sediment and stormwater runoff on stream systems, habitats and adjacent properties;

- The effects on ground water quality and quantities, including from leachate;

- The effects on amenity values;

- The ability to mitigate any adverse environmental effects, including site and vegetation restoration, landscape treatment and planting, and engineering measures;

- The removal of material by wind, and any off-site effects; and

- Any activities which will enhance the use of the site.

(ix) Relocation of buildings (including containers):

- The proposed location of the building on the site, and its visibility from off-site;

- The current appearance, condition and design of the building and any proposed changes to be made to the building, and the suitability of those changes to the visual amenities of the proposed location; and

- Any other matters relating to the visual character of the building or its proposed surroundings, such as topography, and existing and proposed planting.

(x) Quarrying and mining:

- The risk of adverse effects on neighbours such as dust nuisance, noise, lighting or traffic generation;
- The visual impacts from surrounding areas and roads, including of stockpiling;
- The height, volume, location and duration of stockpiling and it's extent and appearance;
- The appearance and size of any crushing plant and any other machinery used on the site;
- The period and time the crushing plant would be visible and/or above ground;
- The ability to adequately plant slopes of any excavation;
- The effect on the stability of any adjoining land or roads, taking into account slope erosion or collapse;
- The intensity, frequency and duration of hours of operation and any likely impacts;
- The number and proximity of adjoining residential sites;
- Adequate provision of a buffer area between urban management areas and quarrying and mining activities. It is considered that a minimum buffer zone of 500 metres would be created between any mining activity and any urban zone in which no quarrying or mining would be undertaken;
- The likelihood of community effects, both negative and positive, including the effects on the quality of life of surrounding residents in terms of communities being able to provide for their economic, social and cultural well-being and for their health and safety;
- The impacts on hydrology and ecology;
- Potential of contamination of soil or ground water from stored material;
- The impacts on kaitiakitanga, waahi tapu, other taonga and mahinga kai;
- The effects of increased traffic generation on roading networks servicing any quarry or mine operation which might affect the health and safety of people, in terms of compatibility with existing type and volume of traffic, compatibility with pedestrians, cyclists, horse riders and other road users;
- The likelihood of the roading structure being capable of carrying the impacts of heavy vehicles in terms of standard and construction and intersection safety, for the duration of the quarrying and mining activity;
- Likelihood that quarry materials could accumulate on road surfaces and create a hazard or nuisance;
- Potential for vehicle conflict;

- The likely daily, weekly and monthly vehicle movements;
- The ability to provide on-site car parking and heavy vehicle access and circulation;
- The likelihood that the land will be restored at a later date and the purpose for which it will be restored;
- The timeframe and management of the rehabilitation process; and
- Provision for adequate bonding of rehabilitation work as an assurance to the community and an investment in the future of the site.

(b) Landscape

Note: Refer to Section A2 – Landscape and Issue 7 – Important Landscapes

(i) General:

In assessing any application for an activity in an area identified by the Plan as outstanding, reference should be made to landscape studies and reviews relevant to the Hurunui District.

(ii) Forestry, earthworks or clearance:

- Visual effects;
- Effects on pest and weed control, particularly wilding tree spread;
- Effects of stormwater and sediment runoff off-site;
- Effects on erosion control and soil and water conservation;
- Effects on fire control;
- The proposal's consistency with the recommendations of the New Zealand Forest Code of Practice in respect of the above matters;
- Effects on ecological systems;
- The application of landscape guideline concepts specific to the landscape type of the proposed activity;
- The application of guidelines for controlling the spread of wilding trees, including FRI guidelines for "Control and Management of Wilding Trees in the Canterbury High Country" ;and
- The content of any planting, management or harvesting plan.

(c) Esplanade reserve and esplanade strips:

Note: Refer to Section A4 – Esplanade Reserves and Strips and Issue 9 – Access to Resources of Significant Value

In addition to any other relevant considerations, Council shall have regard to the following matters in respect of any application to reduce or waive an esplanade reserve or esplanade strip requirement:

- The compatibility of the proposed esplanade reserve or esplanade strip with the physical characteristics of the coastal or riparian margin;
- The location of any existing buildings or structures on the land and their significance in influencing the width of any required esplanade reserve or esplanade strip;
- Recreational, ecological and/or conservation values;
- Other measures proposed, or already in place, to facilitate public access or to cater for conservation values (such as access strips or covenants);
- The outcome of any consultation undertaken with any relevant organisation (such as the Department of Conservation, Environment Canterbury or conservation and recreation groups); and
- The ability of the landowner to use the site in an effective and reasonable manner

In considering a resource consent application to totally waive an esplanade reserve or esplanade strip requirement, the Council will consider whether there are circumstances, such as those listed in rule A4.3.2, that warrant a waiver, rather than the variation of the width.

(d) Transportation

Note: Refer to Section A5 – Transportation and Issue 12 – Efficient Infrastructure and Development

(i) Traffic generation:

- Any adverse effects in terms of noise and vibration from vehicles entering or leaving the site or adjoining road, which is incompatible with the noise levels acceptable in the area;
- Any adverse effects in terms of glare from headlights of vehicles entering or leaving the site which is an intrusion for residents or occupants of adjoining residential sites;
- Levels of traffic congestion or reduction in levels of traffic safety which are inconsistent with the classification of the adjoining road;
- Any cumulative effect of traffic generation from the activity in conjunction with the traffic generation from other activities in the area; and
- The ability to mitigate any adverse effects of the additional traffic generation such as through the location and design of vehicle crossings, parking and loading areas or the provision of screening.

(ii) Activities in road reserve

In addition to any other relevant considerations, the following matters shall be given regard to in respect of an application for an activity within road reserve:

- Current and likely future traffic volumes and patterns on the road and connecting roads;
- Current and likely future traffic problems;
- The ability of the road to accommodate effectively any changes in traffic volumes and patterns;
- The potential for pedestrian, vehicle conflict;
- Vehicular access to and from adjoining sites, with particular regard to traffic sight distances, the ability to turn off and into sites, and the safety of pedestrians; and
- The ability of roads to accommodate parking safely, without adverse impacts on the road's ability to accommodate through-traffic and adjoining sites' vehicular access.

(iii) Parking standards

Whether:

- Parking can be provided on a nearby site, with the area occupied by parking being legally tied to the title of the application site;
- A cash payment in lieu of parking would be appropriate to the circumstances;
- There is sufficient off-street public parking in the vicinity;
- The provision of parking would have an adverse effect on the special character or amenities of the site;
- It can be demonstrated that the specified standard is inappropriate in the particular circumstances;
- The car parking area proposed to be used can serve two or more individual activities which have different peak parking demands;
- The parking demand can be accommodated on-street without generating adverse parking or environmental effects on other properties and activities.

(iv) Access for rural selling places

- Whether there would be any adverse effects on the safety and/or function of the frontage road;
- Whether the speed of vehicles travelling on the frontage road is likely to exacerbate the adverse effects of the access on the safety of road users; and
- Whether the existing road width of the roads is adequate to allow vehicles to pass slowing or turning vehicles safely.

(v) Property accesses

- Whether the access point is sufficiently removed from any intersection having regard to traffic volumes on the roads, and the 85th percentile speed of vehicles using the roads, to prevent conflict and confusion between vehicles turning at the access point or at the intersections;
- Whether there is a need to separate entry and exit points in order to reduce potential traffic confusion and conflict;
- Whether the physical form of the road will minimise the adverse effects of access (e.g. whether the road offers good visibility, whether a solid median barrier will stop unsafe right hand turns or a flush median will assist right hand turns);
- Whether particular mitigation measures, such as a deceleration lane, are required due to speed and volume of vehicles on the road;
- The design of the crossing will facilitate traffic exiting the site to safely enter the traffic stream;
- Whether there is adequate queuing and parking space on the site so that vehicles do not queue over vehicle crossings or on roading network;
- The design of the crossing in relation to pedestrian and cycle safety;
- The effects of the location of the access on the amenity and safety of neighbouring properties;
- Any cumulative effects of the introduction of extra access points in relation to access for other activities in the vicinity;
- Any cumulative effects of extra access points on the function of strategic arterial roads;
- Whether the proposed activity contributes to ribbon development along the roading network;
- The potential for any increased risk to road user safety.

(e) Utilities

Note: Refer to Section A6 – Utilities and Issue 12 – Efficient Infrastructure and Development

In addition to other relevant considerations, applications for utilities will be assessed against the following criteria:

(i) General

- The reasons for the proposed location, site or route;
- Whether the external appearance of the facility is compatible or acceptable in relation to the visual character of the area;
- The degree to which the proposed utility and its location can meet the minimum levels for radio frequency emissions set out in NZS 6609:1990 or any subsequent standard at any point where the facility could be approached by the public;

- Effects on the technical, operational or safety performance of other public utilities within close proximity of the proposed facility;
- The benefits of the facility to the community;
- The technical, operational or safety performance of other public utilities within close proximity of the proposed facility; and
- The degree to which any adverse environmental effects are to be remedied or mitigated.

(ii) Co-siting of utilities

If co-siting of facilities is not proposed (within 50 metres of each other) the applicant must demonstrate that co-siting is not a feasible option because:

- There is no other site available for co-siting;
- The existing facility is technically incompatible;
- An alternative site would have less adverse visual impact;
- There are significant practicable difficulties with using the site;
- Land ownership or legal difficulties; and
- The location of the existing structure will not provide the desired coverage nor meet technical or operational requirements.

(f) Natural environment

Note: Refer to Section A7 – Natural Environment and Issue 2 – Significant Natural Resources

(i) Conservation areas

- The nature, form and extent of the proposed activity and the effect of these factors on the character and integrity of the scheduled resource;
- Any measures proposed which will protect or enhance the characteristics of the conservation area;
- The availability of alternative sites, not being a conservation area, which could accommodate the activity;
- The relative biological, ecological, or other importance of the affected area including its rarity, population size, density and biological diversity;
- The effects of any vegetation removal on soil erosion, land stability, landscape features, water quality and vegetation species;
- Whether the proposal will affect matters of cultural or spiritual significance to tangata whenua ; and
- The outcome of any consultation undertaken with the Department of Conservation, Regional Council or any other relevant person or body, including any recommendations made by those parties.

(ii) Protected trees

- The nature, form and extent of the proposed activity and the effect of these factors on the character and integrity of the tree;
- Whether the applicant has the ability to undertake a complying development without work affecting the tree;
- Any measures proposed which will protect or enhance the characteristics of the tree;
- The outcome of any consultation undertaken with the Department of Conservation, Regional Council or any other relevant person or body, including any recommendations made by those parties
- The effect of any trimming or disturbance of the root system on its appearance or health and
- Any relevant recommendations made within the Boffa Miskell report dated 5 July 2000, and titled "Review of the Register of Protected Trees".

(iii) Wetland areas

Any development in a wetland area or the margins of a wetland shall be assessed against the following criteria. The extent to which:

- The drainage, extraction or uptake of exotic vegetation will lower the wetland water tables;
- There will be displacement of native vegetation from browsing or trampling by stock;
- There will be contamination, sedimentation or enrichment of indigenous wetlands;
- Stopbanking will divert natural floods;
- The wetland is important to landscape or ecosystem integrity;
- The wetland functions as a ponding area mitigating flood hazards and the effects of land use on water flows; and
- The wetland area is the habitat for indigenous fauna.

(iv) Forestry

The establishment of forestry within the Forestry Management Area shall be assessed against the criteria in the "Guidelines for Wilding Prevention" by Forest Research including:

- The species being planted and the ability to spread;
- The siting of plantings and their exposure for seed dispersal;
- Intensity of land use downwind of the Plantation.

(g) Heritage

Note: Refer to Section A8 – Heritage and Issue 8 – Heritage Resources

In addition to any other relevant considerations, applications regarding heritage items will be assessed against the following criteria:

- The category in which the feature is scheduled and the reasons for which it has been scheduled;
- The nature, form and extent of the proposed development, the effect of these factors on the character of the scheduled feature;
- The architectural design and appearance of any proposed alterations or additions, including assessment of how these will protect and enhance the heritage values of the feature;
- Any conservation plan or environmental impact assessment submitted with the application;
- The written consent, where necessary, of the relevant heritage protection authority where the feature is the subject of a heritage order;
- The outcome of any consultation with any relevant body or individual, such as the Historic Places Trust, the Department of Conservation or local iwi;
- The degree to which the proposal reflects the conservation principles contained within the ICOMOS NZ charter for the conservation of places of cultural heritage value;
- The registration (if applicable) and the reasons for this registration of the heritage resource under the Historic Places Act 1993;
- The importance (if any) of land surrounding the heritage resource;
- The impact the proposal has on the integrity/value of the heritage resource; and;
- The importance attributed to the heritage resource by the wider community.

(h) Natural hazards

Note: Refer to Section A9 – Natural Hazards and Issue 14 – Natural Hazards

In addition to any other relevant considerations, any application for an activity in a Natural Hazard Area shall be assessed against the following criteria:

- The probability and possible magnitude of an event;
- The type, scale and distribution of any potential effects from the hazard(s);
- The nature of the activity and the degree to which it may increase the potential risk to human life, property and/or the environment;
- Any recommendations from a qualified professional such as a specialist engineering geologist or geotechnical engineer;
- The outcome of any consultation undertaken with the Regional Council and any recommendations resulting from that consultation;

- The extent to which a proposed development meets the objective, functional requirement and performance provisions of the New Zealand Building Code; and

- Anticipated natural hazard damage and costs and the estimated benefits to the community of the proposed development. (Costs and benefits to take into account both monetary and non-monetary costs and benefits)

(i) Hazardous Substances

Note: Refer to Section A10 – Hazardous Substances and Waste Management Issue 13 – Waste Management and Issue 15 – Hazardous Substances

In addition to any other relevant considerations, the following matters shall be given regard to in respect of any application for a discretionary activity concerning radiation:

- The location and nature of the site and surrounding area;

- The extent and strength of the emissions and any measures taken to minimise and/or mitigate any effects;

- Measures taken to ensure the public is not exposed to any possible danger from activities or devices involving the emission of radiation; and

- The opinion or recommendation of an expert in the field of radiation.

C1.2.5 Specific criteria for assessing land use and subdivision consent applications – Environments of special concern

Note: Refer to Section B1 – Urban Areas and Issue 16 – Urban Areas

(a) Urban areas

Note: Refer to Section B1 – Urban Areas and Issue 16 – Urban Areas

(i) Height

Refer to C1.2.4(a)(ii)

(ii) Retailing

- The extent to which the retail activities will result in levels of traffic generation or pedestrian activity which are incompatible with the surrounding area; and

- Any adverse effects of increased levels of pedestrian activity as a result of the retail activities in terms of noise and disturbance and loss of privacy.

(iii) Recreation activities

- The extent to which any recreational activity will result in levels of traffic and/or pedestrian activity which are incompatible with the character of the surrounding township, and the extent to which the proposal will add to the recreational opportunities of the area; and

- The extent to which any proposed recreational building will be compatible with the character of the local environment, including the scale of other buildings in the surrounding area.

(iv) Access to sunlight

- The extent to which the proposed building will overshadow adjoining sites and result in reduced sunlight and daylight admission;
- The effect of the recession plane exceedence in terms of visual dominance by buildings of the outlook from other sites, roads and open space in the surrounding area; and
- The extent to which development on the adjoining site, such as large building setbacks, location of outdoor living spaces, or separation by land used for vehicle access, reduces the need for protection of adjoining sites from overshadowing.

(v) Traffic generation

Refer to C1.2.4(d).

(vi) Ashley Forest Village comprehensive development

In addition to other relevant matters, when considering a comprehensive development plan submitted as part of an application for subdivision within the Ashley Forest Village Comprehensive Development Zone, regard shall be given to the following criteria:

- That any landscaping is appropriate to the site and its environs and is proposed as part of the development of the site
- The design and appearance of any building is appropriate to the site and takes into account landforms
- The provision for disposal of sewage and stormwater without risk to public health or the environment
- That a potable water supply is available
- That any development is located in the appropriate area of the village
- Provision for areas for residential, rural lifestyle and open space development
- Provision of efficient patterns of roading
- Consideration to habitat protection and enhancement as part of any development
- The extent of consultation with the Waimakariri District Council in relation to cross-boundary environmental effects arising from any proposed development and the extent to which any such cross-boundary effects can be avoided, remedied or mitigated

(vii) Applications received after approval of comprehensive development plan

In relation to any application for subdivision or land use resource consent received after approval of a comprehensive development plan for the Ashley Forest Village Comprehensive Development Zone, the Council will have regard to the criteria at C1.2.5(a)(vi) and the consistency of any such application with the approved comprehensive development plan.

(b) Coastal Environment

Note: Refer to Section B2 – Coastal Environment and Issue 17 – Coastal Environment

In addition to any relevant considerations, the following matters shall be given regard to in respect of any application:

- The visual impact of the proposed activity or development and any measures to enhance the natural character of the coastal environment
- The nature of any measures proposed to avoid or mitigate any adverse effects and the extent to which any building or structure may cause a hazard
- The extent to which the landscape amenities and ecological values of the area will be maintained and enhanced
- The need for the proposal to be located in the coastal environment and the necessity for carrying out the works
- The extent to which any removal of vegetation or any cut or fill can be restored to resemble the natural landforms
- The nature of any measures proposed to protect or enhance natural and physical resources within the coastal environment and
- The need for adopting a precautionary approach to any proposed activity or development within the areas defined as being subject to seawater inundation

(c) Hurunui Lakes area

Note: Refer to Section B3 – Hurunui Lakes Area and Issue 18 – Hurunui Lakes Area

(i) General

In addition to any other relevant considerations, the following matters shall be given regard to in respect of any application:

- That the proposal will not generate a level of vehicular traffic which is inappropriate to the area;
- That the tranquillity of the area will remain generally unaffected;
- The proposal will not adversely affect any mahinga kai, ecological values or require the removal of indigenous vegetation;
- That the location and design of any structures are compatible with the natural environment, and are not visually obtrusive;
- The nature of any measures proposed to protect or enhance the Hurunui Lakes area;
- The extent to which any water-based activity may adversely affect the range of recreational opportunities available in the area;
- The extent to which any water-based activity is compatible with, and will not adversely affect significant natural conservation values or wildlife habitats;

- The extent to which any recreational activity (including activities on the surface of water bodies) will reduce opportunities for passive recreation, enjoyment and peace and tranquility;

- That the proposal will not adversely affect slope erosion or the occurrence of natural hazards; and

- The extent to which any activity that requires earthworks would have any impact on the amenity values, landscape values and natural conservation values.

(ii) Loch Katrine

In addition to any other relevant considerations, the following matters shall be given regard to in respect for an application for the proposed construction of publicly available huts within the Loch Katrine reserve:

- Whether the proposed location detracts from the natural character of the area

- Whether the proposed location deters from using the area for camping and leisure activities

- The location is inconsistent with any relevant reserve status

- Large areas of native vegetation would be removed

- The location would place pressure on the margins of a lake or river

- Access is available that would detract from the natural, scenic and recreational value of the area; and

- The location would not adversely affect wilderness areas or any historic buildings or archaeological features.

(d) Hanmer Basin

Note: Refer to Section B4 – Hanmer Basin and Issue 19 – Hanmer Basin

In determining whether to grant consent and what conditions, if any, to impose, Council will be guided by the following criteria:

- That any landscaping is appropriate to the site and its environs, and is proposed as part of the development of the site

- That any carparking areas are appropriately screened from any surrounding residential and rural sites

- The extent that the proposal is in accord with the design standards of the District Plan, the design treatments advocated by the "Guide to Building Design and Landscaping in Hanmer" which is intended to advocate appropriate building design within the township

- That the design and location of any proposed building is in sympathy with the environment and that the view of the building from any roads, or surrounding areas is not considered to detrimentally affect the visual amenity of the area

- The extent to which the proposal promotes the overall alpine character of Hanmer Springs

- The extent to which an activity will preserve trees, retain open spaces of importance and introduce new tree species

- The extent to which any proposal promotes pedestrian safety and convenience

- The extent to which any prominent skylines, ridgelines and natural features are protected

- The extent to which any activity will result in levels of traffic which are incompatible with the character of the surrounding area and

- The extent to which the proposal provides open space walkways and/or riding trails consistent with the alpine character of the Hanmer Springs township which will enable the establishment of an integrated pattern of greenways and open spaces through Hanmer Springs urban area

(e) Mount Lyford

Note: Refer to Section B5 – Mount Lyford and Issue 20 – Mt Lyford

In addition to the objectives and policies for the whole of the Mount Lyford Management Area, the following matters which are specific to each character area shall be used in the assessment of any concept plan:

(i) Skifield

- Recreational activities, including skiing and ice-skating, which are appropriate to the steeper mountain slopes;

- Infrastructure primarily associated with recreational activities which has only a minor effect on the visual and environmental amenity of the mountain slopes; and

- Chalet development, including for recreational clubs and organisations only where it is appropriate in the sensitive alpine environment and which does not detract from the predominately natural character of that environment.

(ii) Village chalets

- Chalet development with a distinctly alpine character which does not detract from the mountain landscape; and

- Infrastructure associated with the chalet development which has only minor effect on the amenities of both the village and the wider vicinity.

(iii) Village centre

- Facilities to support the ski and village development which do not detract from the amenities of the area, nor from the overall alpine character of the upper Mount Lyford Management Area

(iv) Recreational area

- A range of recreational activities which are compatible with the lower Mount Lyford Management Area environment and which are consistent with the overall character of the area and

- Chalet development where it is environmentally appropriate and which does not inhibit recreational activities

(v) In addition to any of the above matters and any other relevant considerations, regard shall also be had to the following matters when assessing any proposed activity within the Mount Lyford Management Area:

- The visual impact of the proposed activity or development and any measures to enhance the alpine character of the area
- The nature of any measures proposed to protect or enhance natural and physical resources within the management area
- Activities that will not exacerbate existing hazards or introduce significant new risks
- Provisions for effluent disposal and the appropriateness of on-site disposal systems as opposed to a community sewage effluent treatment and disposal system
- That any landscaping is appropriate to the site and its environs and is proposed as part of the development of any character area
- That all carparking areas are screened or landscaped to blend with the surrounding environment
- That the proposal for any character area provides adequate design standards for any building or structures to be erected that are in keeping with a high country alpine environment
- The extent to which an activity will preserve indigenous flora and fauna of the area and
- The extent to which any prominent skylines, ridgelines and natural features of the Mount Lyford Management Area are protected

C1.2.6 Assessment criteria for discretionary and non-complying activities

The assessment of a restricted discretionary activity, discretionary activity or non-complying activity shall include an assessment of the following factors. Whether:

(a) The degree of non-compliance with any particular condition, standard or term is minor, having regard to the purpose of that control; or

(b) It is unreasonable to require compliance with the condition, standard or term; or

(c) Conditions can be imposed to avoid or mitigate any adverse environmental effects resulting from the non-compliance with any condition, standard or term.

(d) Features about the site make compliance difficult, including its size, shape, access, topography, geotechnical constraints, or the presence of a natural hazard or vegetation.

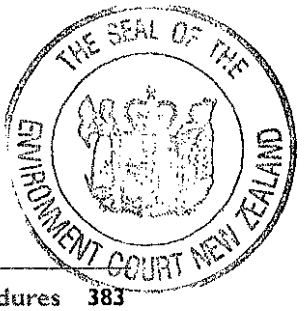
(e) Aspects relating to existing development makes compliance difficult, including the location or layout of existing buildings, the need for architectural coherence, the restoration or renovation of features, heritage features, the provision of special facilities for the community or groups within the community (such as the disabled).

(f) There are unusual amenity circumstances, including improvements to amenity on-site or in the immediate vicinity, the retention of vegetation or open space, screening, or shading, the preservation of privacy, to the improvement of public views.

(g) There are special environmental considerations, including noxious, dangerous, offensive or objectionable land uses in close proximity to the site, an unusually located building on an adjacent site, preservation of the natural character of the area, or the enhancement of the neighbourhood environment quality.

(h) There are unusual traffic (vehicular or pedestrian) conditions, including the volumes of traffic, traffic safety, efficiency of traffic movement, unusual traffic patterns, pedestrian amenity, adequate alternative provision for parking, improvement to existing parking, better design of access and parking facilities, and improved on and off-site access.

(i) Conformity with relevant industry codes of practice.



Appendix C1 – Assessment of environmental effects

(a) Matters to be included:

An assessment should include the following information, as applicable:

(i) A description of the site and its vicinity, including a description of the existing environment, both natural and physical (including land uses, roading and services);

(ii) A detailed description of the proposed activity, and, where it is likely that the activity may result in significant adverse environmental effects, a description of any other possible locations or methods for undertaking the activity, and an explanation of the reasons for selecting the proposed location, scale and type of activity;

(iii) A review of the appropriate resource management policy framework within which the proposal is assessed, including other resource consents required and relevant District Plan objectives and policies;

(iv) An assessment of the actual or potential effects on the environment of the proposed activity, including beneficial effects, adverse effects and cumulative effects (refer to the following tables for the range of potential effects that should be considered);

(v) Where the activity involves the use of any hazardous substances and installations, an assessment of any risks to the environment (particularly the health and safety of the community) which are likely to arise from such use;

(vi) Where the activity includes the discharge of any contaminant (subject to the requirements of any regional plan), a description of the nature of the discharge and the sensitivity of the proposed receiving environment to adverse effects, and any possible alternative methods of discharge, including discharge into any other receiving environment;

(vii) A description of the mitigation measures (including monitoring, safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce any adverse environmental effects, including an explanation as to why the use of possible alternative mitigation measures is not proposed (refer to the following tables for the range of potential mitigation measures that should be considered);

(viii) An identification of those persons interested or affected by the proposal, the consultation undertaken, and any response to the views of those consulted;

(ix) Where the scale or significance of the activity's effects are such that monitoring is required, a description of how the effects are to be monitored and by whom.

Where the scale or nature of the proposed activity's effects are likely to be significant, the assessment of effects may, as part of limiting the scope of effects, include the results of a scoping evaluation, in which the actual or potential significant effects are identified, thereby removing the need to address all possible effects. If an assessment has included a scoping exercise, the Council may require further information of the scoping exercise, particularly in terms of clarifying the range of effects that were first identified, and the reasons why certain effects were eliminated from further assessment.

Any of the above requirements may be waived if it is deemed that it would be inappropriate or unreasonable to include such matters.

(b) Matters to be considered:

Any person preparing an assessment of environmental effects should consider the following matters where relevant:

(i) Any physical effect on the locality, including any landscape and visual effects, and any effect on physical processes;

(ii) Any effect on ecosystems, including effects on animals or plants and any physical disturbance of habitats in the vicinity, and on public health and safety;

(iii) Any effect on natural and physical resources which may have aesthetic, recreational, scientific, historical, spiritual, cultural, or other special value for present and future generations;

(iv) Any effect on those in the neighbourhood and the wider community, including any socio-economic and cultural effects where such effects relate directly to an effect on the natural and physical resources (including amenity values);

(v) Any effect on the efficiency of infrastructure, including transportation, communications, and public services;

(vi) The effect of any discharge into the environment, including any emission of noise;

(vii) Any risk to the neighbourhood, the wider community or the environment through increased potential effects from natural occurrences or the use of hazardous substances or hazardous installations.

Table C1.1 – Schedule of potential environmental effects

Natural environment – Physical resources and processes; elements of the environment exposed to potential effects

Water:

- Surface area and quantity of water bodies (lakes, wetlands, rivers, sea), and groundwater systems (including aquifers)
- Quality (including chemical composition) and temperature of water bodies or groundwater
- Catchment boundaries and characteristics (e.g. runoff and flow rates, flooding patterns, recharge of aquifers)
- Coastal processes (e.g. tidal movement, littoral systems, currents)
- Snow and ice
- Deposition and sedimentation rates and characteristics (including particulate suspension)

Earth:

- Slope stability and susceptibility to erosion
- Outstanding landscapes or significant natural features
- Soil resources (quantity, versatility, characteristics)
- Erosion rates
- Compaction and settling
- Seismic characteristics (e.g. ground shaking, liquefaction, fault rupture features)
- Landforms
- Unique physical features

Atmosphere:

- Background radiation
- Air quality (gaseous and particulate composition)
- Climate (macro-and microclimate)
- Temperatures
- Air moisture
- Wind patterns

Measures to avoid, remedy or mitigate adverse effects:

- Riparian margin protection, protective vegetation in riparian margins, banish stock
- Fencing, covenants, and other protection measures
- Restoration of natural vegetation cover, prohibit certain noxious activities
- Erosion and sediment control measures, planting, ban vehicle access
- Stormwater control and drainage; stock management and fencing; rehabilitation of disrupted areas
- Prohibiting building on certain parts of a site
- Compaction of fill or soil, or other engineering works
- Modification of location, height, bulk, and design of proposed buildings, accessways, roads, etc.
- Restorative works to return soil conditions to a similar condition as prior to works
- Creation of lakes and wetlands using former quarry/excavation sites
- Air quality control mechanisms (e.g. filters, air scourers)
- Shelter planting

Note: This table is intended to provide a guide or checklist as to the types of environmental effects that may occur as a result of a proposed activity. It is not exhaustive, and should therefore be used for indicative purposes only. For any particular proposed activity, only some of the listed effects may be relevant, and an assessment of environmental effects should focus on the potentially significant effects. The mitigation measures listed above may not be at all appropriate for all circumstances. Some measures may be used to mitigate a number of different effects (for example, planting could be used for screening, site restoration, noise buffer and amenity purposes).

Table C1.2 – Schedule of potential environmental effects

Natural environment – Ecological resources and systems; elements of the environment exposed to potential effects

Flora:

- Native Trees and shrubs
- Other native flora (e.g. ferns, tussock)
- Wild exotic trees, shrubs, grasses and other flora
- Cultivated flora (e.g., plantation forests, orchards, crops, grasses)
- Microflora (e.g., lichen)
- Aquatic plants, including marine plants

Fauna:

- Birds
- Land animals
- Fish and shellfish
- Benthic organisms (i.e. organisms found at the bottom of an ocean or lake)
- Insects
- Microfauna (e.g., protozoa)

Ecological relationships:

- Barriers between habitats (e.g. isolation of unsustainable pockets of native forest or birdlife)
- Wildlife corridors
- Salination of water or soils
- Eutrophication
- Disease - insect vectors
- Areas of wetlands
- Areas of wilderness
- Scrub or weed infestation or encroachment
- Noxious animal encroachment
- Biodiversity
- Intrinsic values of natural environment

Measures to avoid, remedy or mitigate adverse effects:

- Riparian margin protection, protective vegetation in riparian margins
- Restoration of natural vegetation cover; new or additional planting to compensate for removal of vegetation, restorative works to return vegetation conditions
- Removal of noxious plants or animals
- Planting to connect habitats or groups of bush
- Prohibition of stock or vehicle access, fencing, erection of barriers
- Modification of location, height, bulk, and design of proposed buildings, accessways, roads, etc.
- Landscape treatment
- Creation of lakes and wetlands using former quarry/excavation sites
- Covenants or registration of interest on titles

Note: This table is intended to provide a guide or checklist as to the types of environmental effects that may occur as a result of a proposed activity. It is not exhaustive, and should therefore be used for indicative purposes only. For any particular proposed activity, only some of the listed effects may be relevant, and an assessment of environmental effects should focus on the potentially significant effects. The mitigation measures listed above may not be at all appropriate for all circumstances. Some measures may be used to mitigate a number of different effects (for example, planting could be used for screening, site restoration, noise buffer and amenity purposes).

Table C1.3 – Schedule of potential environmental effects

Human environment – Community health, safety and functioning; elements of the environment exposed to potential effects

Community health and safety:

- Quiet environment
- Fresh air free from odour
- Traffic and pedestrian safety
- Public safety
- Accessibility to public services

Community patterns:

- Active recreation (e.g. hunting, fishing, boating and aquatic sports, tramping, organised sports)
- Passive recreation (e.g. picnicking)
- Property values and land tenure
- Settlement patterns and community cohesiveness

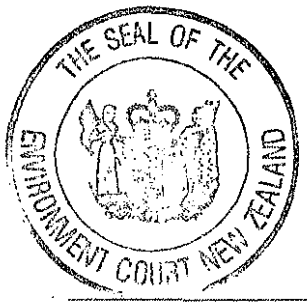
Infrastructure:

- Traffic flow efficiency and functions, parking needs
- Public transportation needs
- Water supply
- Waste and sewage disposal and treatment
- Stormwater disposal
- Energy supply (electricity, gas, other)
- Communications
- Development potential and restraints
- Capacity and amount of use of services and systems

Measures to avoid, remedy or mitigate adverse effects:

- Protection of important areas from any development, buffer areas
- Use of noise control measures on vehicles, sprinkling systems for yards
- Separation distances; noise control measures; limitation of hours of operation, number of people, numbers and types of vehicles; arrangement of activities on site; imposition of noise, vibration and blasting limits
- Building design measures (e.g. location of windows/doors, building materials)
- Prohibition of certain practices (e.g. fires)
- Management plan or risk management plan; safety measures; isolation/separation of some activities
- Limitation of intensity (number of people, scale of activity, number of vehicles, types of vehicles); control location, number and design of vehicle crossings; provision of on-site carparking spaces; screening and landscaping of parking area; limiting delivery times; provision of appropriate signs specifying access and egress from sites; provision of cycle lanes and car-free areas; speed control areas (humps visual cues)
- Treatment of contaminated water before entering the stormwater system
- Installation of energy efficient features into new buildings, equipment and devices
- Retrofitting of existing buildings

Note: This table is intended to provide a guide or checklist as to the types of environmental effects that may occur as a result of a proposed activity. It is not exhaustive, and should therefore be used for indicative purposes only. For any particular proposed activity, only some of the listed effects may be relevant, and an assessment of environmental effects should focus on the potentially significant effects. The mitigation measures listed above may not be at all appropriate for all circumstances. Some measures may be used to mitigate a number of different effects (for example, planting could be used for screening, site restoration, noise buffer and amenity purposes).



Attachment 12 - Transitional Canterbury Regional Plan

The Transitional Canterbury Regional Plan is derived from the provisions of previous bylaws and authorisations from the previous authorities that now constitute the Canterbury Regional Council. The rules of relevance to this application are summarised below:

North Canterbury Catchment Bylaw:
The North Canterbury Catchment Bylaw requires that resource consent be obtained for:

- The erection of crossings over a watercourse under the control of the Board
- The widening, deepening, alteration or diversion of the course of a watercourse under the control of the Board
- The removal of shingle from a watercourse under the control of the Board
- The planting of trees within the bed of a watercourse, or within 7.3 m of the bed of a watercourse under the control of the Board.
- The erection of any structure (including banks and dams) within the bed of a watercourse, or within 7.3 m of the bed of a watercourse under the control of the Board.
- The construction of a watercourse connected to a constructed watercourse under the control of the Board.

Any activity that is stated to require the approval of the Board, is deemed to be a discretionary activity.

Canterbury Regional Council Bylaw No. 2 Underground Water 1990:
The Canterbury Regional Council Bylaw No. 2 Underground Water 1990 requires consents for:

- The making or alteration, or causing any alteration or making of a bore. Every person intending to carry out work such as boring, drilling, pile driving, dredging or digging to a depth below ground level exceeding 8 metres is required to give 14 working days notice of such intent to Environment Canterbury
- The placement or discharge on, onto or into the ground any matter or thing that affects or is liable to affect detrimentally the quality of underground water either directly or indirectly; or allowing to remain in the ground any matter or thing which affects or is liable to affect detrimentally the quality of groundwater either directly or indirectly.

Every person having control of a bore is required to take such steps that are necessary to ensure that no pollution of any sort can enter the underground water system because of the existence of that bore.

Any activity that is stated to require the approval of the Board, is deemed to be a discretionary activity.

Clean Air Act 1972:
The schedules of the Clean Air Act still apply. The only activity associated with the landfill that would require consent is the operation of the landfill gas flares or engines, if the heat release exceeds 5MW, which would be the case for the proposed landfill at Kate Valley.

General Authorisations:
There are a number of general authorisations that authorise a range of activities. In summary these are for:

Abstraction of Surface Water and Ground Water

- The abstraction of surface water provided that the volume of water abstracted shall not exceed 10 m^3 per day, per property, at a rate not exceeding 5 litres per second.
- The abstraction of water from any groundwater resource provided that the volume abstracted shall not exceed 100 m^3 per day, per property, from any bore at a rate not exceeding 10 litres per second and the abstraction bore shall be further than 100 m from any bore on a neighbouring property or from any surface water resource, and the abstraction is required to occur on a property greater than 20 ha in area.

Proposed abstractions that do not meet the conditions of the general authorisation are discretionary activities.

Discharge and Diversion of Natural Water

- The diversion and discharge of natural water associated with minor realignments of and minor improvements to watercourses within its region are permitted. The term *'minor realignments of, and minor improvements to'* is defined as the diversion of natural water from within a surface flowing river, stream or drain, and the return of the flow to the original course of the waterbody provided that the points of diversion and return are required to be within one property.

Proposed discharges and diversions that do not meet the conditions of the general authorisation are discretionary activities.

Discharge of Sewage Tank Effluent

- The discharge of domestic sewage from a sewage tank into the ground is a permitted activity, provided that the discharge does not exceed 2,000 litres per day from any one installation. Where a property exceeds 200 ha in size, the total discharge from all installations shall not exceed 10,000 litres per day.

The discharge of any sewage effluent that does not meet the conditions of the general authorisation is a discretionary activity.

Discharge of Stormwater

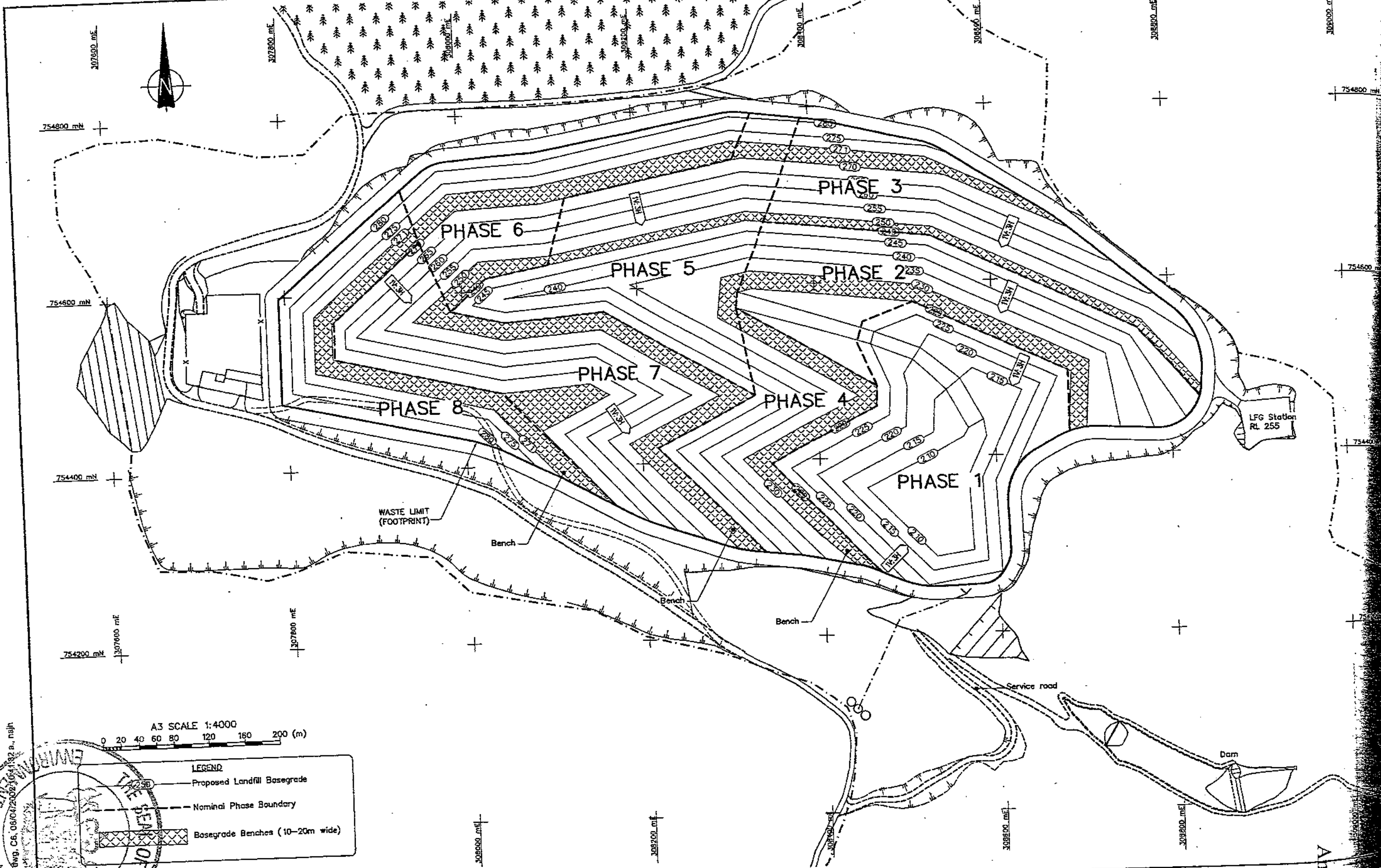
- The discharge of roof stormwater from buildings and structures either into the ground or directly into groundwater is permitted provided it is via a sealed system that excludes all other stormwater.
- The discharge of stormwater from roading into the ground, outside of the Christchurch City Council urban area, is a permitted activity.

These authorisations are subject to the condition that any discharge shall not cause erosion to the banks or bed of the receiving waterbody. Proposed discharges that do not meet the conditions of the general authorisation are discretionary activities.

Damming of Rivers or Streams

- The damming of intermittently flowing rivers and streams that flow only after rainfall, or during periods of wet weather, with a dam that does not exceed 3 m in height, is permitted subject to a range of conditions.

The damming of water other than specified in this general authorisation is a discretionary activity.



Annexure G

DESIGNED :	MVK	Mar.01		
DRAWN :	BKD	Mar.01		
DESIGN CHECKED :				
DRAFTING CHECKED :				
CADFILE : L:\\ 169 12. 100\ 169 12–C6				
APPROVED : NOT FOR CONSTRUCTION				
2	Consent Issue			
1	Basegrade Cont. Revised			

NOTES :
1. All dimensions are in metres unless noted otherwise.
2. Co-ordinates in term of Mt Pleasant Circuit (NZGD 1949).
3. Origin of levels: BM UF 34 (AFNN) RL = 64.027m Intersection of SH.1 and SH.7, Datum M.S.L (Lyttelton Datum)
4. Phase boundaries shown are nominal and are subject to change during landfill development.

CONFIDENTIALLY AND LEGALLY PRIVELEGED

FOR THE ADVICE OF LEGAL COUNSEL ONLY

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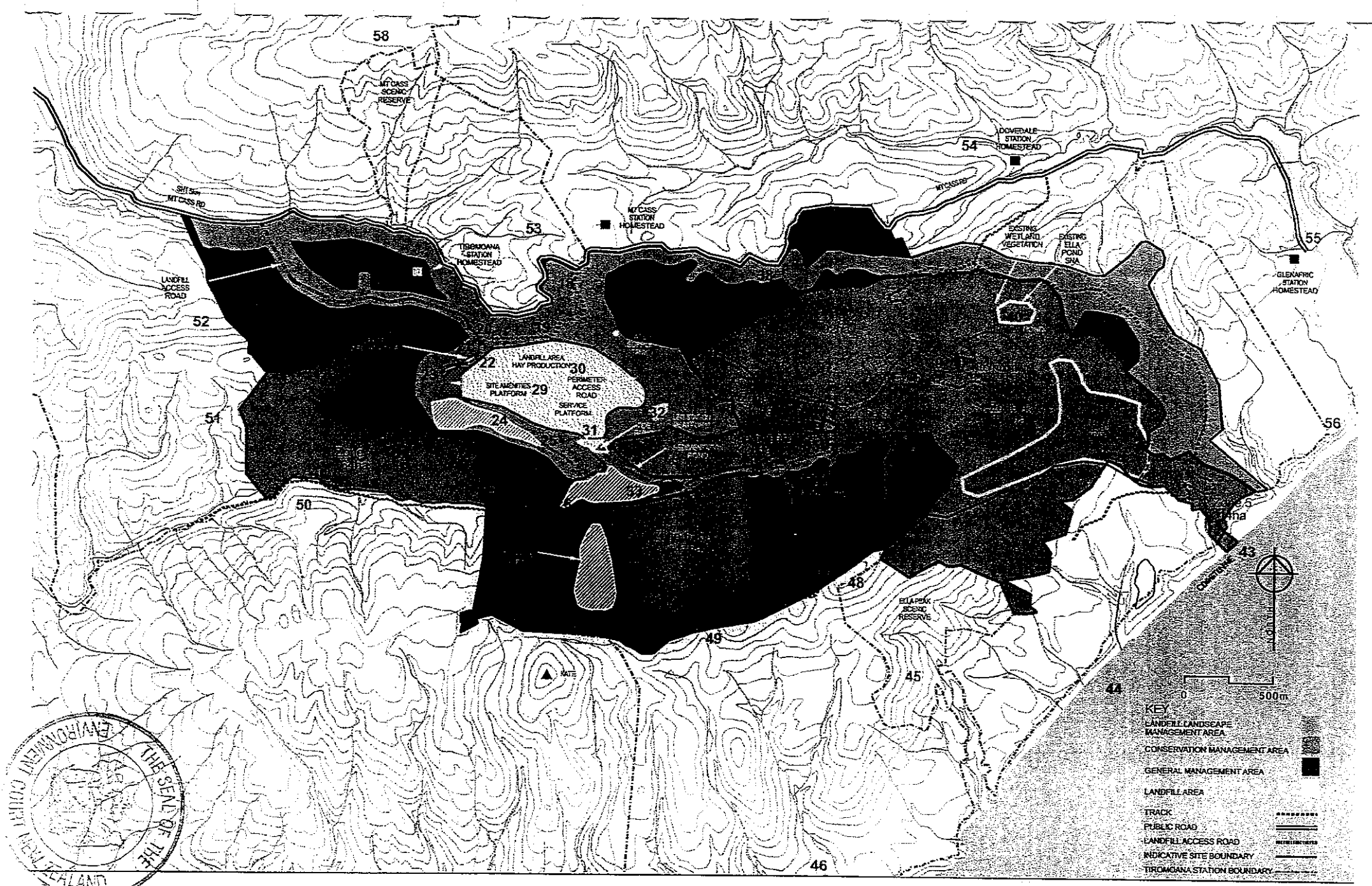
TRANSWASTE CANTERBURY

TITLE: KATE VALLEY LANDFILL
Overall Phase Sequence Plan

SCALES (AT A3 SIZE): 1:4000
PROJECT: 169 12



THE SEAL OF THE ENVIRONMENT COURT NEW ZEALAND

BOFFA MISKELL
planning • design • ecology

KATE VALLEY LANDFILL SITE

PLAN PREPARED BY BOFFA MISKELL FOR TRANSWASTE CANTERBURY
SCALE 1:20000 (A3), 1:10000 (A1), 30 SEPTEMBER 2003
JOB C8269 PLAN REF. HEARING-2002-10\HPAGE34-REV5a.DGN

Court Site Vist October 2003

LANDSCAPE MANAGEMENT AREAS

DRAWING 34 ISSUE 2

Annexure H

ATTACHMENT L

Five-year outcomes for restoration of the Kate Valley Conservation Management Area.

Outcome 1: Appropriate restoration planning has been implemented.
Explanation: The size of the conservation area being managed (c. 300 ha), the public interest in this area, and the diversity of management actions needed to meet the 35-year goals requires formalised management planning and review to be undertaken on an annual basis.
Performance indicator: The Kate Valley Conservation Management Area restoration plan has been completed, as have annual work plans, and the implementation of the restoration work has been reviewed annually.

Outcome 2: The ecological integrity of both the existing remnants of native woody vegetation and the restoration plantings has been secured.
Explanation: At present the area is heavily grazed by cattle and sheep which are having a significant adverse impact on ecosystem condition, especially through hindering natural successional processes. Additionally, domestic stock will have a significant adverse impact on restoration plantings should they have access to planted areas. Removal of all domestic stock is therefore a high management priority.
Performance indicator: The Kate Valley Conservation Management Area is free of all domestic stock, and if they do enter the area, they have been quickly and efficiently removed and the reasons for their ingress (e.g., damaged fence) has been remedied.

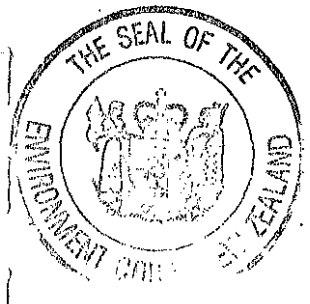
Outcome 3: The Kate Valley Conservation Management Area is kept free of high priority animal pests, while other animal pests are controlled to levels that do not threaten the restoration or other values of the area.
Explanation: Animal pests are the single biggest threat to the success of ecological restoration, as well as natural successional processes. Herbivores can significantly affect the growth of plantings and natural regeneration while predators have devastating impacts on fauna.
Performance indicator: Kate Valley has been kept free of the high priority animal pests identified in the restoration plan, or if they have established, they have been quickly and efficiently removed.

Outcome 4: Plant pests are controlled to levels that do not threaten restoration or other values.
Explanation: Plant pests also threaten the viability of both regenerating forest and restoration plantings, especially through competition, although this plan is pragmatic and recognises that not all exotic plants are necessarily pests. In fact, the restoration plan works with gorse to assist restoration.
Performance indicator: Key plant pests identified in this plan are controlled to a level that do not threaten the restoration or other values of the area.

Outcome 5: Restoration plantings covering an area of at least 5 ha are growing vigorously, and strategically located enrichment plantings have been established as plants become available.
Explanation: One of the primary objectives of restoration is to establish plantings to enhance connectivity between existing native shrubland and forest remnants and to enhance the black beech remnant. This outcome sees this area amounting to at least 5 ha in five years time. In addition, it is proposed to establish enrichment plantings of key native species such as totara, matai and kowhai to facilitate long-term succession and to provide food resources for native birds.
Performance indicator: The planted area exceeds 5 ha with planting survival >50%, and some enrichment plantings have been undertaken.

Outcome 6: A biodiversity monitoring programme has been established that enables the success of the restoration programme to be quantitatively assessed.
Explanation: Monitoring is an integral part of restoration management as it allows the success of the methods being used to be assessed, and adapted as appropriate, and it provides a means to report on this success to the various groups with an interest in restoration. Monitoring, however, needs to be carefully targeted to ensure that it can supply meaningful information that informs management without being an unreasonable part of the cost of restoration.
Performance indicator: A monitoring programme will have been established and all base-line monitoring completed and, as appropriate, re-measurements undertaken.

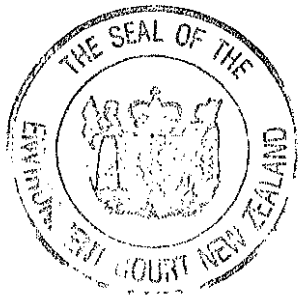
Outcome 7: The community of interest, including both the local Waipara community as well as the broader community and are well informed about the restoration project.
Explanation: Restoration is an exciting activity, especially as the outcomes are almost always positive (cf., some threatened species work) and results can be seen in only a few short years. However, there has been considerable concern with the Kate Valley landfill proposal and it is likely that there will be residual scepticism carried through from this to the restoration project. An increase in awareness of the restoration project will therefore hopefully result in an increase in support for restoration, and in the longer-term the use of the project for educational and scientific purposes.
Performance indicator: Appropriate methods have been used to increase the awareness of the community of interest in the Kate Valley restoration project including signage on the Mt Cass Road, production of a regular newsletter and establishment of a web page.



Outcome 8: The Kate Valley Conservation Management Area is being used for passive recreation, and for educational and scientific purposes.

Explanation: The Kate Valley Conservation Management Area has considerable potential for passive recreation (e.g., walking) and the opportunity for the public to access, on foot, a spectacular section of coastline not normally accessible, as well as to view native forest ecosystems and some unusual geological features. In addition, the conservation area provides considerable educational and research opportunities.

Performance indicator: A walking track has been established that links Mt Cass Road with the coast and the Kate Valley Conservation Management Area is being used at least twice per year by school/tertiary institute for educational purposes and at least two scientific studies have been established in the area.



ATTACHMENT M

Likely constraints to the restoration of the Kate Valley Conservation Management Area.

Constraint: Climate is likely to limit natural regeneration and restoration through low soil moisture availability and frost. The annual rainfall for Kate Valley is 921 mm (1986-2000 average). Soil moisture deficits are common during summer and during some years can lead to marked dieback in native vegetation. Natural regeneration into grassland and restoration plantings are particularly vulnerable, especially during the initial stages of establishment. Soil moisture levels are strongly affected by the present vegetation. In particular, soils under dense grass swards are very dry because the dense grass root mat quickly takes up any water that reaches the ground. In addition, winter frost can be a major source of mortality for some species in restoration plantings, especially for species such as ngaio and akeake.
Response: While mortality of natural regeneration can occur during particularly dry summers, the increasing cover of both native and exotic shrubland across Kate Valley in recent years (Section 9) suggests that this is not a major limitation. The primary response to dealing with soil moisture deficits and frost in the restoration plantings is to only use plants adapted to conditions in Kate Valley, including sourcing all plant material locally. Additionally, all plants will be hardened off before planting, planting will be timed to occur so that plants are well established before summer droughts but are not planted until after the worst of winter frosts, herbicide will be used to kill the grass sward before planting, and hand weeding and mulches will be used after planting as required to reduce competition for water. Watering will also be used during particularly bad droughts.

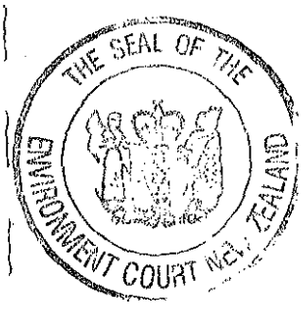
Constraint: Because of the frequent occurrence of long dry periods during summer, and the presence of gorse shrubland which burns readily, a wildfire could rapidly sweep through the Kate Valley Conservation Management Area destroying restoration plantings and natural regeneration.
Response: Ensuring that no burn-offs occur elsewhere on Transwaste Canterbury Ltd. land, liaising with adjacent landowners about the threat of burn-offs to restoration, informing the public of the fire danger through appropriate signs and other means, enforcing a total open fire ban in the conservation area, and maintaining water reservoirs for fire fighting purposes.

Constraint: Because adjacent land uses include pastoral farming and forestry, neighbouring spraying has the potential to damage natural regeneration and regeneration plantings if drift occurs.
Response: Liaising with adjacent landowners about the threat of spray-drift to restoration, and ensuring that any spraying undertaken on Transwaste Canterbury Ltd. Land (e.g., associated with plantation forestry) does not impact on the restoration area..

Constraint: Grazing by domestic stock (sheep and cattle) is presently a major limitation to natural regeneration, with most areas of regenerating forest and remnant forest having severely grazed understories. In addition, domestic stock can quickly destroy young restoration plantings if they gain access to these.
Response: All domestic stock will be removed from the Kate Valley Conservation Management Area at the start of the restoration project and fences will be regularly inspected to ensure that they do not gain entry in the future. Should domestic stock be found in the restoration area, they will be quickly removed.

Constraint: One of the major factors likely to limit restoration success, including through natural regeneration, is browsing and predation by introduced animals, especially possums, ungulates (deer and goats), lagomorphs (rabbits and hares), mustelids (stoats, ferrets and weasels) and rodents (rats and mice). Browsing reduces viability and growth rates of plants, especially young ones, while the impact of predation on invertebrate, reptile and bird species influences restoration success as these species play a key role in ecosystem processes such as pollination, seed dispersal and nutrient cycling.
Response: An ongoing and comprehensive animal pest control programme will be undertaken within the Kate Valley Conservation Management Area. In addition extensive animal pest control will be undertaken in association with landfill management.

Constraint: Introduced plant species have the potential to severely limit the restoration success. A number of grass species are highly invasive and competitive (e.g., browntop and cocksfoot) and can lead to the loss and poor health of plantings. There is considerable potential for invasive woody species already present, or present in adjacent areas (e.g., hawthorn, European broom, wilding conifers, willow and old man's beard) to expand their range and dominate large areas of Kate Valley.
Response: Grasses will be sprayed prior to the establishment of restoration plantings to reduce competition, while some hand weeding together with mulches will be used to reduce subsequent grass growth. Regular surveys and control operations will be undertaken for other identified problem weeds, especially woody weeds, with the aim of eradicating those species identified as a management priority.



Constraint: Several studies have commented on the importance of using planting stock of local genetic origin in restoration projects[75] because of concerns about local adaptation and maintenance of genetic integrity of existing plant populations. Planting of non-local material may result in loss of local adaptations (e.g., to particular environmental conditions) and eventually could lead to loss of overall genetic variation within particular species. It is therefore prudent to use plant material of local origin as local plants will be better adapted to local conditions than non-local plants (e.g., resistance to salt spray) and as a safe-guard for maintaining genetic diversity.
Response: To ensure that plants are adapted to local environmental conditions and to minimise the loss of genetic variability only locally sourced planting material will be used for the restoration plantings (preferably from within the Kate Valley Conservation Management Area or, when not available, from the coastal flanks of the southern part of the Motunau Ecological District).

Constraint: In using seed for propagation a key constraint for some species is year-to-year variation in seed production (called masting). Beech in particular is mast seeding[76], with years of heavy seed production separated by several years with little or no seed production.
Response: Where seed is to be used as the basis for plant propagation, consideration of mast years will be undertaken as part of propagation planning. In addition all efforts will be made to utilise plant material from Remnant "A" over the 10-year period before it is removed.

Constraint: The development of associations between planted species and various mycorrhizal fungi is important for restoration success. Mycorrhizal fungi are associated with plant roots and play a key role in nutrient uptake for many native plants. The importance of mycorrhizal fungi in restoration plantings is poorly understood, although research suggests that an absence of mycorrhiza may be a limiting factor for some species including beech and kanuka.
Response: Problems associated with mycorrihizal infections do not usually occur with natural regeneration, but can be an issue for plantings. Where possible, nursery propagation of seedlings for restoration will include inoculation with forest organic matter sourced from Remnant "A" to ensure the presence of mycorrhiza (especially for beech and kanuka). In addition, coarse woody debris from Remnant "A" and forest organic matter will be

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[75] Timmins, S. & Wassilieff, M. 1984, Register of protected natural areas in New Zealand. Department of Lands and Survey, Wellington; Simpson, P. 1992. Sustaining genetic integrity through restoration using local plant provenances. Pages 336-346 in Proceedings of the International Conference on Sustainable Land Management. Hawkes Bay Regional Council, Napier; Harris, W. 1997. Some perspectives in plant genetic variation and ecological restoration. Pages 26-30 in (eds) M.C. Smale and C.D. Meurk. Proceedings of a Workshop on Scientific Issues in Ecological Restoration. Manaaki Whenua Press, Lincoln.

[76] Allen, R.B. and K.H. Platt. 1990. Annual seedfall variation in *Nothofagus solandri* (Fagaceae), Canterbury, New Zealand. Oikos 57:199-206.

collected prior to the removal of Remnant "A" and spread through areas of restoration plantings and regenerating forest to facilitate the spread of indigenous biodiversity and/or to provide habitat for indigenous species to utilise.

Constraint: A key premise of restoration is that management will speed up the natural process of succession by establishing a cover of woody plants that will encourage the development of mature shrubland and forest. While some of the species that occur in these forests are wind pollinated and dispersed, many require birds for either pollination and/or dispersal. The importance of birds for dispersing seeds into restoration plantings has been highlighted in several studies. However, severe predation pressure appears to have reduced bird numbers to levels that may be limiting these processes and hence have the potential to limit restoration success. Furthermore, a diversity of plants is required to support viable bird populations in Kate Valley, especially in order to provide seasonally scarce food resources (e.g., at times when flowers or fruit are naturally scarce).
Response: Undertake predator control to reduce direct impacts on indigenous birds and through the strategic planting of key food resources for these birds where they are considered to be insufficient.

Constraint: The success of the Kate Valley Conservation Management Area restoration programme will not be realised for many years after the end of the life of the landfill. There is therefore potentially uncertainty over the long-term security of the restoration site beyond this time-frame.
Response: The Kate Valley Conservation Management Area will be covenanted through an appropriate organisation (e.g., QEII National Trust) to ensure that the tenure of the site as a conservation area is secured in perpetuity.

ATTACHMENT N

Proposed conditions for resource consent

1. The Consent Holder shall provide for the long term protection, restoration and management of a Conservation Management Area in Kate Valley. The area is identified on Supplementary Drawing 10 ("the Drawing"), dated September 2003, entitled "Kate Valley Conservation Management Area", and comprises approximately 410 hectares in area.

2. Pursuant to Condition 1 above, the Consent Holder shall register a covenant in a form to be approved by the Manager, Hurunui District Council, which provides legal protection in perpetuity of the Conservation Management Area, prior to completion of the first 12 months of placement of waste within the landfill.

3. Boundary fencing around the entire Conservation Management Area is to be provided prior to completion of the first 12 months of placement of waste within the landfill.

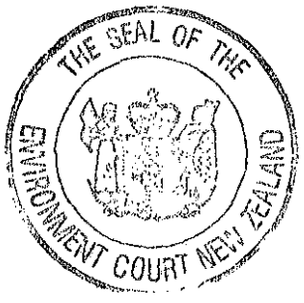
4. Grazing is to be permanently removed from the Conservation Management Area prior to completion of the first 12 months of placement of waste within the landfill.

5. Prior to completion of the first 12 months of placement of waste within the landfill, the Consent Holder shall at its cost commission and submit to the Council, a detailed restoration plan ("the Restoration Plan") for the Conservation Management Area prepared by a qualified Ecologist experienced in restoration ecology, for certification by the Manager, Environmental Services.

6. The Restoration Plan will incorporate the following vision and long term outcomes, and will provide a detailed programme of activities to be carried out in the first five years of landfilling;

   - **Vision**

     - In 300 years time the Kate Valley Conservation Area will be restored to a predominantly forest ecosystem, including coastal broadleaved, mixed podocarp-broadleaved and black beech forests, where dynamic natural processes occur with minimal human intervention, where the plants and animals typical of the Motunau Ecological District persist without threat of extinction, and where people visit for recreation and to appreciate the restored natural environment.



- **Outcomes**

  At the end of the 35 year consent period, the following outcomes will have been achieved within the Kate Valley conservation area:

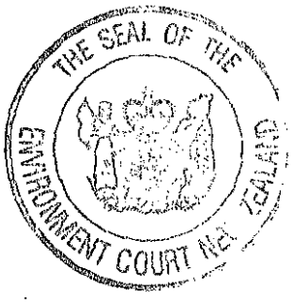
  - Vigorous regeneration will be occurring within the existing areas of shrubland and forest sufficient to ensure that natural successional processes are leading towards the development of mature forest appropriate to local conditions.
  - The existing korimako (bellbird) population has expanded and kereru (native pigeon) are now residing within the area.
  - The beech forest remnant known as "Remnant B" has been secured and enhanced.
  - Restoration plantings and natural regeneration will have been sufficient to ensure good connectivity of regenerating forest between Remnant "B", Ella Bush SNA and Ella Peak Scenic Reserve.
  - At least one additional black beech site has been established.
  - The area is being actively used for recreational, educational and scientific purposes.

7. The Consent Holder shall at its cost commence and continue implementation of the Restoration Plan in accordance with the priorities and timeframes outlined in the Restoration Plan.

8. An annual report on progress on the Restoration Plan will be incorporated into the annual Landscape Report to the Council, which is required by Condition 15 of RC020069.

9. All plant species used for planting are to be sourced either from Kate Valley itself or from the southern part of the Motunau Ecological District.

10. The Restoration Plan will require the Consent Holder to initiate and continue animal and plant pest control programmes within the Conservation Management Area during the operating life of the landfill.



11. The Restoration Plan will require the Consent Holder to provide for carrying out beech propagation and seedling transplant from Remnant A into the Conservation Management Area with appropriate support/buffer planting over the period until Remnant A is removed by landfill construction.

12. Controlled public access for recreational, educational and scientific use is to be provided to the Conservation Management Area by a walking track within the Area linking Mt Cass Road the coast.

Appendix E2

Criteria for identifying ecologically significant natural values

The purpose of these criteria is to identify ecologically significant values to encourage their wider public appreciation in Hurunui, and to promote their protection.

In determining whether an area is ecologically significant under Part II of the Resource Management Act the Council will have regard to the following criteria:

(A) Criteria relating to the ecological values of the area – the values of the place itself

(a) Representativeness – whether the area contains one of the best examples of a vegetation type, habitat, or ecological process which is typical of its Ecological District.

(b) Rarity – whether the area supports or is important for the recovery of, an indigenous species, habitat or community of species which is rare or threatened within the Ecological District or is threatened nationally.

(c) Diversity and pattern – the degree of diversity exhibited by the area in:

- Vegetation
- Habitat types
- Ecotones
- Species
- Ecological processes

(d) Distinctiveness/special ecological characteristics – the type and range of unusual features of the area itself and the role of the area in relationship to other areas locally, regionally or nationally, including:

- Presence of species at their distribution limit
- Levels of endemism
- Supporting protected indigenous fauna for some part of their life cycle (e.g. breeding, feeding, moulting, roosting), whether on a regular or infrequent basis
- Playing a role in the life cycle of migratory indigenous fauna
- Containing an intact sequence, or a substantial part of an intact sequence, of ecological features or gradients
- Supporting predominantly intact habitat or habitats with evidence of healthy natural ecosystem functioning

(B) Criteria relating to the ecological context of the area – its relationship with its surrounds

(e) Size and shape – the degree to which the size and shape of an area is conducive to it being or becoming ecologically self-sustaining.

11. The Restoration Plan will require the Consent Holder to provide for carrying out beech propagation and seedling transplant from Remnant A into the Conservation Management Area with appropriate support/buffer planting over the period until Remnant A is removed by landfill construction.

12. Controlled public access for recreational, educational and scientific use is to be provided to the Conservation Management Area by a walking track within the Area linking Mt Cass Road the coast.