ANZ - Alternative Land Use Field Trip (5)

Tuesday 22nd March 2011.

Field Trip Leaders: David Stone and Allan Bilbrough

Focus for the Day: This trip will focus on the changing land-uses in the North Canterbury region.

Programme.

7.30 am	Depart Methven Resort
9.30 am	Kate Valley Landfill. (Toilets on site) Speaker Bob Bennett and discussion
10.30 am	Organic Hill Country Farming – Andrew and Sara Heard The successful conversion of a conventional North Canterbury Hill Country Farm to an Organic Farm.
12.00 am	Lunch - Waipara Hall- provided by Glenmark Church Ladies.
1.00 pm	Depart for Omihi.
1:20 pm	Eders Black Currents, Omihi Valley Mark Eder – Spray Free fruit production.
2.20 pm	Depart for Vineyard
2.30 pm	Vineyard Development - Gwyn William Gwyn Williams – Vineyard development Bruce and Andrew Moore- Glenmark Water harvesting Irrigation Scheme.
3.30 pm	Depart for Pegasus Town
4.00 pm	Pegasus Town – Urban Development John Greenwood, General Manager, Residential and Commercial Sales.
4.30 pm	Depart for Hotel.
6.00 pm	Arrive Hotel

In the spirit of the OCCUPATION, HEALTH AND SAFETY ACT the Owners have taken all reasonable care in making your visit to the property as safe as possible, they clearly point out, you enter the property at your own risk.

The Owners and IFMA Congress organizing committee will accept no responsibility for any incident or injury to any person or property that takes place while you are visiting the property.

Visit 1 - Kate Valley Landfill – A Summary.

The Kate Valley Landfill is situated in the coastal hills of North Canterbury, about 70kms, North of Christchurch. It was established within the last 10 years and is considered as a model landfill facility in New Zealand. It is the most comprehensively engineered land disposal facility in the South Island, and one of only a few in New Zealand in full compliance with the Resource Management Act (1991), NZ Landfill Guidelines, EAA and European Commission International Standards.

Kate Valley is only permitted to accept non-hazardous refuse.

History:
The total area of 3500ha (8650 acres) was farmed through from the 1950's to the mid 90's by the Lands and Survey Department (a Government Department dealing with Crown Land) as the area was badly infested with Nassella tussock. "Tiromoana" and "Wash Creek" stations were farmed as typical North Canterbury hill country farms producing lightweight prime lambs, store lambs, fine wool and store cattle.

Transwaste Canterbury Ltd which owns the Kate Valley Landfill and all of Kate Valley is a joint venture company with 50% owned by 5 Canterbury Councils and the balance by Canterbury Waste Services Ltd (CWS)

Site Suitability and Landfill Design
Geologically the site is very suitable for a landfill, having underlying material of low permeability siltstones over 200m in depth, allowing very little infiltration of water. No aquifers of any significance lie beneath or around the site.

Although the site has low permeability owing to the excellent natural containment of the siltstone, a man made synthetic liner system is also used beneath the landfill.

Leachate that has percolated through the refuse is collected at the base of the landfill and contained by the liner. It then flows to a sump at the lowest of the landfill before being pumped into storage tanks for transportation back to the Bromley Sewage Treatment Plant in Christchurch for treatment.

Gas collection wells are installed progressively within the landfill during its development, connecting to a gas processing facility. Initially the gas is flared, but as volumes increase it will be used for the production of electricity.

Surface water is separated into storm water and water that has contacted refuse, with the former being channelled via a system of surface drains to a permanent site sedimentation pond. Rainfall which falls on working areas of the landfill is eventually collected as leachate.

The landfill is covered daily with local soils and compacted, to prevent odour, windblown litter and to seal the refuse from birds and rodents.

As part of the establishment of Kate Valley, Transwaste has set aside an area of 410ha (1013 ac) in the middle of Kate Valley – known as Tirimoana Bush.
Public walkways have been established around the Bush linking Mt Cass Road to the Coast and along the top of the ridge to Mt Cass itself.

Visit 2 - Mt Cass Station, Waipara.

Vision: "to be leaders in profitable, sustainable, low cost, organic livestock systems".

Background:
Mt Cass Station was purchased in 2008 .The property came about after Trans Waste Canterbury bought farmland for the Kate Valley Landfill site. They retained 1000ha for the landfill, surrounding hills and a significant area of nature reserve. The remainder was purchased by Organic Farm Holdings Ltd which is a partnership between Leeston organic farmers Tim Chamberlain and Rose Donaghy. Mark Houghton Brown, who farmed organically in the UK before emigrating, with his family, to Nelson, NZ and Andrew and Sara Heard who live on and manage the property.

Organic conversion began in March 2008 with Biogro NZ.
Currently C2 status (5 March 2011).

Staff
The farm team consists of 3 fulltime employees, a casual shepherd and a casual weedman, part time office administrator and an organic consultant. Management are focused on building a skilled, productive, and happy team.

Areas; 1425ha freehold, 638ha grazing licence, 700ha leasehold.
200 hectares suitable for cash cropping and 500ha forestry grazing.

Soils Vary markedly over the property.
Aspect: Varies markedly over the property
Rainfall varies from 625 to 1000ml/pa, with frequent summer droughts

Stock: total capacity of 14500 stock units

5000 Lamb Supreme ewes, 1000 hoggets
3500 Wiltshire ewes, 900 hoggets (includes 400 Wiltshire stud ewes).

The stud objective is to produce an easy care woolless sheep, that meets the challenges of an organic regime.(worms and fly). It is planned to move all Hoggets to lamb off farm this winter in order to simplify systems and optimize their growth.

150 Angus cows, 150 yearlings, 200 R2 bulls CMP contract, 200 R2 steers organic contract, and 100 other trading animals. Cattle are complimentary grazers and are needed to provide clean ground for lambs however profitability is a concern and we are negotiating dairy and other specialist contract grazing arrangements

350 Boer X goats. Currently managed purely for weed control, the challenge is to turn this enterprise into a profit centre in its own right

Crops:

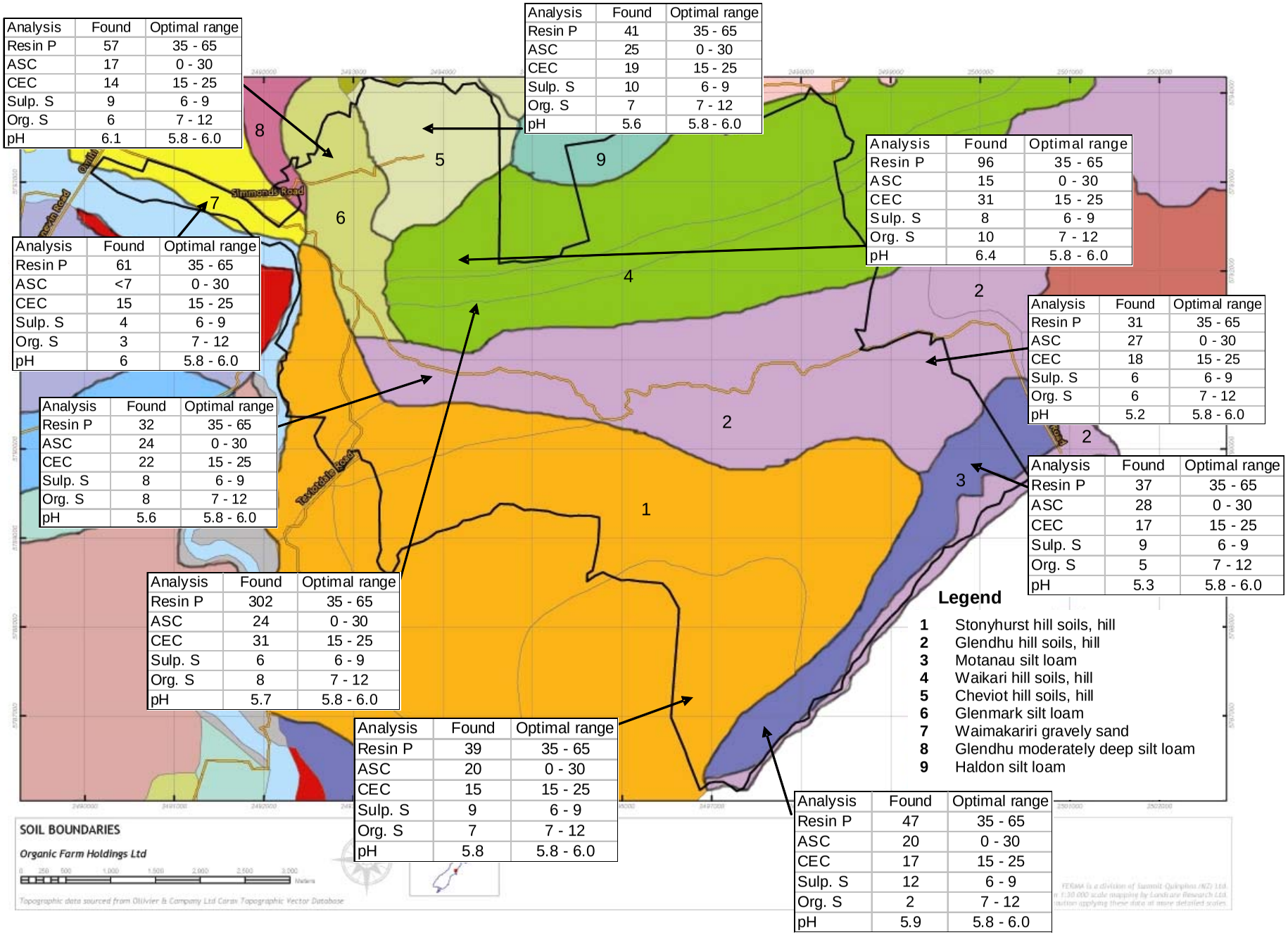
Linseed	20-40 ha	organic contract with Midlands Seeds.
Echinacea	4 ha	
Oats	20-40 ha	planned for spring sowing.
Lucerne	100 ha approx	lucerne mix pastures established with the purpose of filling gaps in the growth curve and increase the quality of summer feed.
Winter feed	60ha	short rotation ryegrass
Supplementary feed		baleage and hay

Fertiliser; Lime, RPR and sulphur are applied as required following soil test analysis.
2010: 300ton lime with sulphur by truck, 70 ton pelleted fine lime and sulphur by plane.
Autumn application of RPR planned.

Weed & Pest; gorse a serious weed in some areas, woody weeds plentiful also.
Management includes root raking, strategic fencing, goats and some handcutting and spot spraying with organic herbicide and mulching. A subdivision and fencing program is being instigated to increase grazing pressure and tree planting is being considered in some problem areas.
Nassella: grubbing done by contractors. In 2010, 53441 plants grubbed,1521 man hours
Rabbits: currently controlled with shooting.(approx 2000 rabbits shot annually)

Carbon; 22ha of pre1990 forest
18 ha of post 1989 exotic forest
regenerating indigenous is being claimed to fund further plantings.

Strengths: high quality team, significant scale, strong organic markets with material premia available, natural fertility, cooperative landlords, varied aspect, geography and climate, stunning areas of biodiversity, location near to major population centre, good access to major state highway.
Challenges: woody weeds, internal parasites, flystrike, compliance, teambuilding.
Opportunities: specialist livestock and crops, development and marketing of value added products, tourism
Threats: volatile currencies, uncertain interest rates, increasing frequency of extreme weather events



Analysis	Found	Optimal range
Resin P	57	35 - 65
ASC	17	0 - 30
CEC	14	15 - 25
Sulp. S	9	6 - 9
Org. S	6	7 - 12
pH	6.1	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	41	35 - 65
ASC	25	0 - 30
CEC	19	15 - 25
Sulp. S	10	6 - 9
Org. S	7	7 - 12
pH	5.6	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	96	35 - 65
ASC	15	0 - 30
CEC	31	15 - 25
Sulp. S	8	6 - 9
Org. S	10	7 - 12
pH	6.4	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	61	35 - 65
ASC	<7	0 - 30
CEC	15	15 - 25
Sulp. S	4	6 - 9
Org. S	3	7 - 12
pH	6	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	31	35 - 65
ASC	27	0 - 30
CEC	18	15 - 25
Sulp. S	6	6 - 9
Org. S	6	7 - 12
pH	5.2	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	32	35 - 65
ASC	24	0 - 30
CEC	22	15 - 25
Sulp. S	8	6 - 9
Org. S	8	7 - 12
pH	5.6	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	37	35 - 65
ASC	28	0 - 30
CEC	17	15 - 25
Sulp. S	9	6 - 9
Org. S	5	7 - 12
pH	5.3	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	302	35 - 65
ASC	24	0 - 30
CEC	31	15 - 25
Sulp. S	6	6 - 9
Org. S	8	7 - 12
pH	5.7	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	39	35 - 65
ASC	20	0 - 30
CEC	15	15 - 25
Sulp. S	9	6 - 9
Org. S	7	7 - 12
pH	5.8	5.8 - 6.0

Analysis	Found	Optimal range
Resin P	47	35 - 65
ASC	20	0 - 30
CEC	17	15 - 25
Sulp. S	12	6 - 9
Org. S	2	7 - 12
pH	5.9	5.8 - 6.0

Legend

1. Stonyhurst hill soils, hill
2. Glendhu hill soils, hill
3. Motanau silt loam
4. Waikari hill soils, hill
5. Cheviot hill soils, hill
6. Glenmark silt loam
7. Waimakariri gravely sand
8. Glendhu moderately deep silt loam
9. Haldon silt loam

Visit 3 - Mark and Louise Eder,

"Omihi Creek", Omihi, North Canterbury.

Objectives – To Grow and Export Spray Free Fruit.

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Farm Details

Area- 170 ha (420 acres) 160ha in Black currents (395 acres)
Rainfall 600-700mm/annum (26-28inches) irregular spread- farm exposed to North West winds (fohn wind)
Altitude 100m a.s.l.
Soils – mainly clay loams – very fertile- ph 6-6.9, Olsen P levels 60+ - low in S- sprayed on leaves.
Irrigation- from 4 wells- using 20litres/sec-applied by trickle tape- all controlled by computer.
Yields – Second harvest should be 10t/ha , aiming for 15t/ha.

Topics for Discussion-

Fertilizers
Irrigation
Crop Yields
Products
Markets
Labour
Other Enterprises- Contracting.

Take Home Message – Black Currents are a good use of land in this location

Visit 4 – Williams Family Vineyard

Purchased 1999 and first development of grapes in 2000, (1.6ha) completed 2001 (1.8ha)

Objective
"To have a vineyard that has a consistency of quality and yield, and to be able to assess the wine that was made from the grapes produced"

To achieve this, a close planted vineyard on a north facing slope, in a European style, was developed. There is little or no dependence on irrigation

The focus is on a small but high quality vineyard that is managed to the standards required.

Weather
Summer/autumn predominately warm and dry, Winter cool and dry. Average rainfall is 600mm (24inches) highly unpredictable as to when it will fall. Snow not uncommon Winds are SW and NW. The property is sheltered from the Nor-East winds by a range of coastal hills.

Growing risks include frost and unpredictable weather during the flowering and setting of the crop.

Management

Pruning in the winter is a combination of cane pruning and spur pruning where appropriate. Vines bud numbers are limited to 12-16 each. All pruning and plant matter are mulched back into the ground sward.

Canopy management shoot thinning is commenced after flowering, accurate shoot and bunch numbers are set to match vines performance and quality/yield requirements.
Trimming and leaf management are conducted as required during season. Apart from pruning setting the canopy to balance the fruit load is a critical task.

Harvest is conducted when required by the winemaker and in those areas of the vineyard they deem to be ready. Parcels of between 1500-4500kgs per day can be picked.

Seasonal requirements, mowing is done as required; crop spraying is conducted on a regular basis during the season with elemental Sulphur as the key product. Main pest and disease pressure comes from Powdery Mildew and Botrytis. Under-vine weed spraying as required usually twice per annum. Round-up and Buster usual herbicides.

Irrigation. Used to establish vines but hardly used at all now. Only in areas that may need it some seasons

Fertilisers. Annual soil testing. Lime, soil conditioners and base requirements meet to maintain base standards along with improvement of soil health. Foliar sprays contain Zinc, Boron Molybdenum and Magnesium as required. Fertilisers not used to drive production more to meet the needs of the plants and the production of fruit

SWNZ The vineyard has achieved sustainable winegrowing status under the Sustainable Wine NZ, Programme

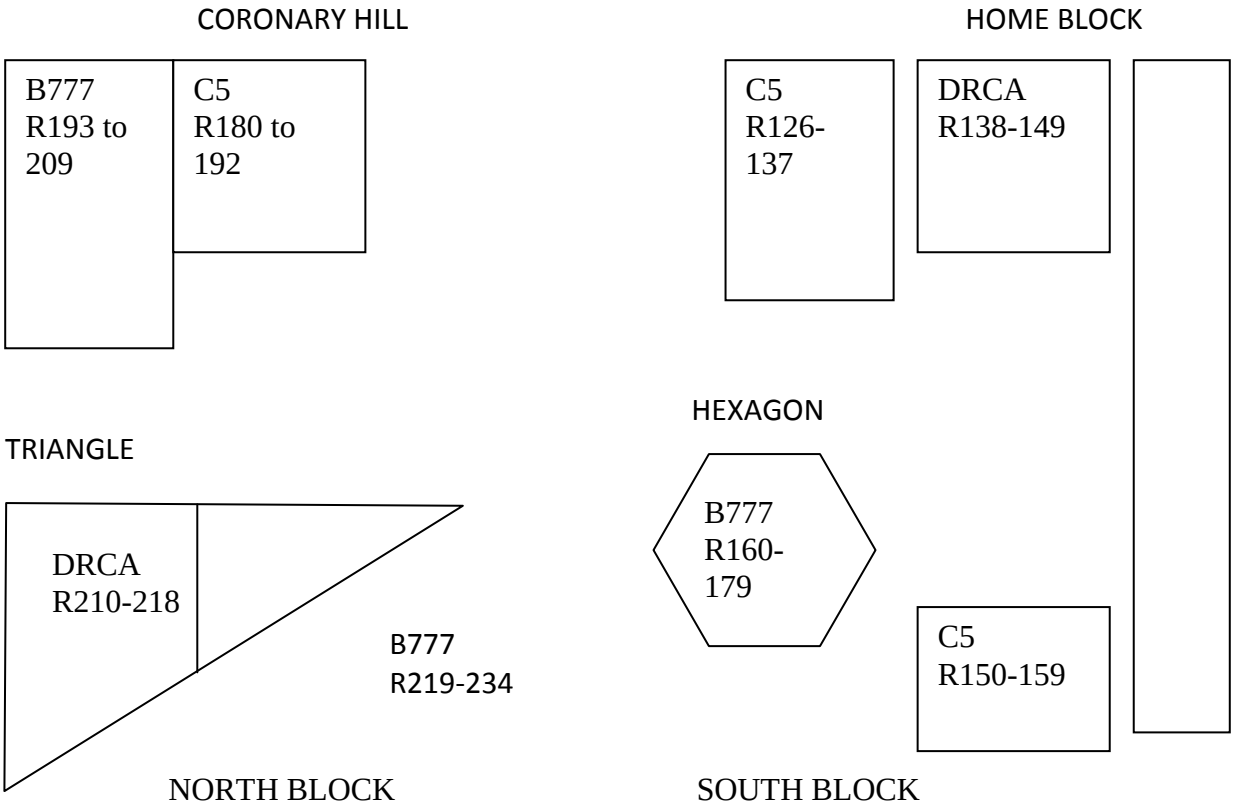
Soils
The soils are Hygrous Rendzinas and related soils. Typically the can have a dark brown or black topsoil, heavy clay with seams and deposits of limestone. Areas can have some rock deposits and green sandstone can be found at lower depths. They have high levels of potassium and iron. Average pH here is 6.0 but in patches higher pHs can be recorded. Sulphur levels generally low.

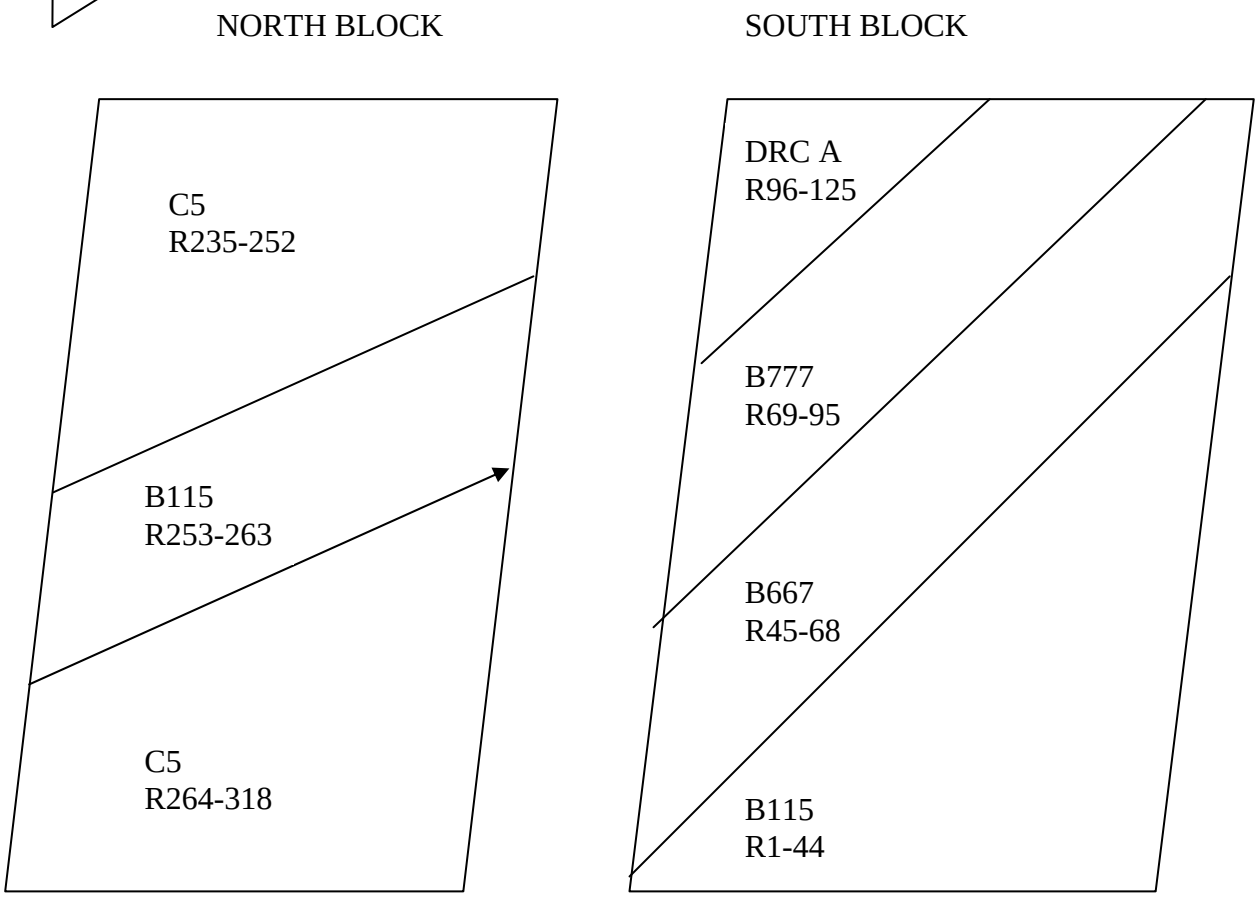
Marketing
Parcels of grapes have been sold to various wineries around the district and Canterbury. It has been good to be able to assess the quality of these grapes and resulting wines.
Currently a 2 ton lot, and a 3ton lot are sold for cash while the balance, approx 11-12 tons is committed to a share-farming arrangement with a local winery.
In the future the vineyard may develop it's own label approx 100 cases.
Vineyard production capacity is approx 1000-1200 cases,
Share-farming has enabled the owners to raise the income from grapes, while still concentrating on the vineyard tasks to produce quality grapes.

Owners Background
Gwyn spent 8 years in the Regular Army as a commissioned officer. This was followed by 3 years practical farm work in Mid Canterbury before attending Lincoln College, and completing a Diploma of Agriculture and a Diploma of Farm Management. The first farm he managed near Burnham, south of Christchurch, in 1983 had 16 acres of grapes newly planted. Times were tough for sheep and crop farmers at this time and the investors sold out of farming and continued with the grapes. Gwyn became aware of the developing grape industry in Waipara and over time became more involved in it. The Williams moved into the area in 1993.
Gwyn currently holds a position on the NZ Winegrowers Board, President of Waipara Winegrowers and on the Board of Hurunui Tourism.

Discussion:
Alternate land use viticulture
Previous farm history
What is special
Weather, soils, fertility
Motivation
What are the drivers of this vineyard its purpose
SWNZ accreditation

WILLIAMS HILL DIAGRAMATIC VINEYARD PLAN





Visit 5 – Pegasus Town - A Summary.

Pegasus Town is located in the Waimakariri District, approximately 25kms North of Christchurch on State Highway No 1.

History:
Approval for the development was received in January 2002 and major earthworks and contouring began mid 2006. The area was 340 ha initially with the Mapleham Block being acquired subsequently.

Adjacent to the complex is a significant area to the Ngai Tahu, the Kaiapoi Pa, where in 1831 Te Rauparaha, a marauding chief from the North Island, massacred the local Maori, the Ngai Tuahiri. Land has been set aside opposite the Pa site as an open space reserve.

The main street of Pegasus is aligned to form a visual direct line of contact between Kaiapoi Pa and the Tutaepatu Lagoon in the South East.

The land was originally a typical coastal complex of sandhills and wetter swampy areas between the dune ridges. This area grazed mainly young beef and dairy stock.
The area adjacent to the State Highway consisted of deep medium to heavy silt loams and was farmed as an intensive mixed cropping farm.

Development:
The Residential sites had soil added and were compacted. This meant no houses were damaged during the September 4, 2010, magnitude 7.1 earthquake.

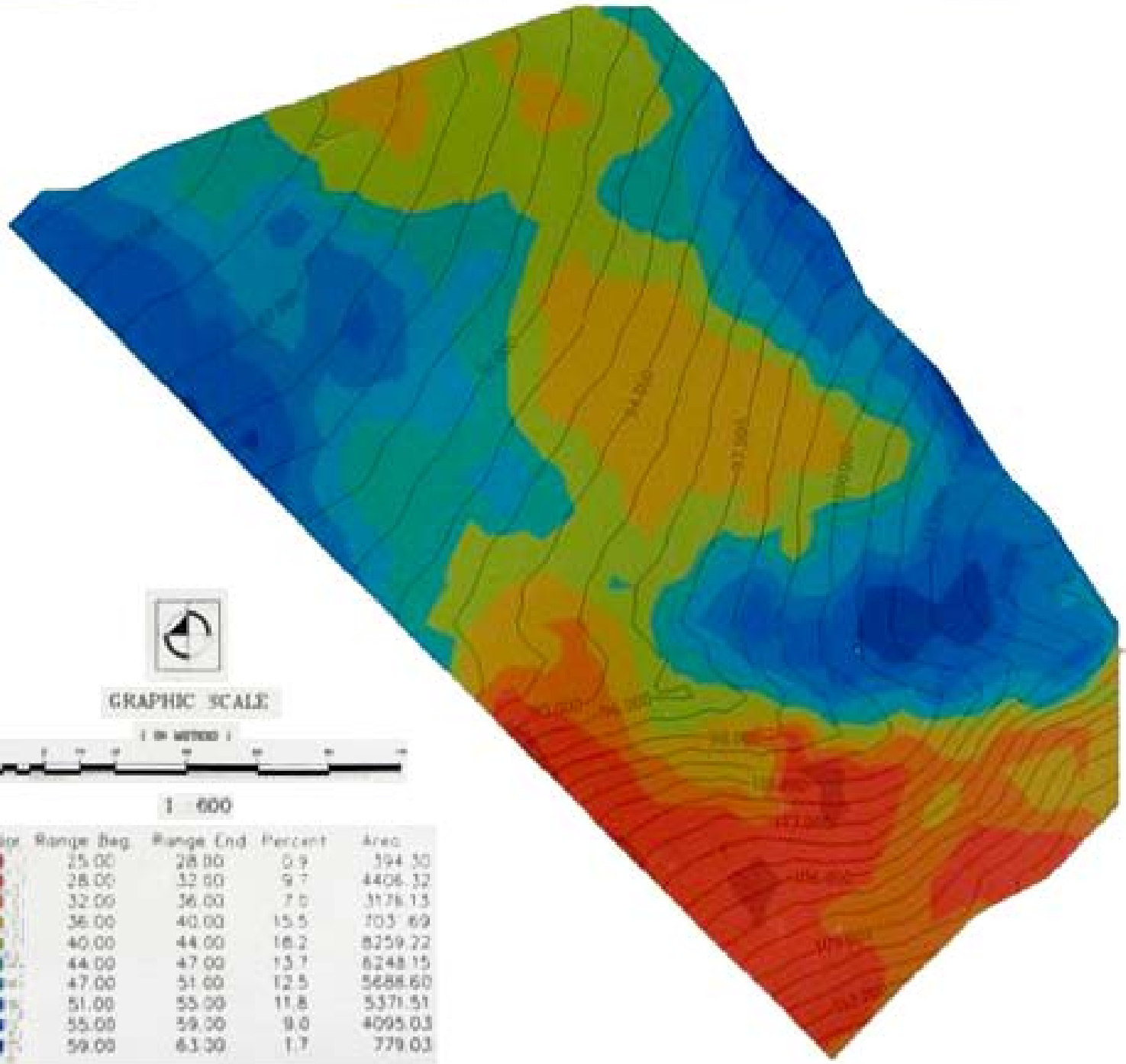
When finished , Pegasus will be home to up to 7,000 people, with 1180 residential sites and up to 1500 higher density units in the form of Terrace Housing and Apartment living. There will be 107 retail and service outlets, plus additional commercial office space.

Completed amenities now open include:

- 14ha recreation lake and 20 ha reserves, parks and open spaces.
- Pegasus Golf Club – an 18 hole Championship Course, with driving range, tennis courts, Pro Shop, gymnasium, Café and Bar.
- Access to surf beach – Pacific Ocean.

Proposed amenities will include-

- Primary School and pre- school.
- Community Centre and Surf Club on the beach.
- An aquatic centre
- A library and Community Centre
- 150 bed Hotel
- An active retirement village complex with more than 150 appartments and units available for purchase.
- A business park.
- A major supermarket initiative.



GRAPHIC SCALE

1 600

Color	Range Beg.	Range End	Percent	Area
	25.00	28.00	0.9	394.50
	28.00	32.00	9.7	4406.32
	32.00	36.00	7.0	3176.13
	36.00	40.00	15.5	703.69
	40.00	44.00	18.2	8259.22
	44.00	47.00	13.7	6248.15
	47.00	51.00	12.5	5688.60
	51.00	55.00	11.8	5371.51
	55.00	59.00	9.0	4095.03
	59.00	63.30	1.7	779.03

Gwyn Williams Property