

Dry drains seen as omen

John Keast Willowby

The tightening hand of drought is squeezing the life out of Mid Canterbury land.

Darryl Whiting has seen it happen, and he is a worried man.

Whiting farms at Willowby. His dry-land farm is south of Ashburton and 14km from the coast.

It has peat soils over a clay pan and was turned from a swamp many decades ago into productive sheep and cropping land.

A legacy of the swamps were nine deep drains. They ran summer and winter and in good years and bad.

Three years ago, Whiting noticed something neither he nor his father, George, had seen before. The drains began to go dry.

One by one, paddock by paddock, the water ebbed away.

Now there is just one drain with any water, and it barely breaks the surface.

Whiting fears, as the dry weather continues and more and more water is taken from deep aquifers across the Canterbury Plains, that it, too, will run dry.

He does not know where the water has gone, or why. He can only guess it is lack of rain recharge and constant pumping.

Whiting has no axe to grind. Each farmer, he says, is entitled to water.

He is sounding a warning. If this place can go dry, he says, beware.

Whiting says the drains were nearly always full or running.

He recalls summers when his header became bogged in the peaty soil; summers when one swampy bit of ground never went dry. Now it has.

George Whiting could not believe it when he saw the drains turn to dust. It

never happened in his 42 years on the farm.

He created some of the drains. Others were dug more than a century ago when the farm was part of the Longbeach Estate.

The ground, when the last drains were dug, was so heavy with water that planks had to be laid beneath the digger to stop it sinking.

It did not always work, which is why the channels, in places, change direction.

The sheep have moved into the dry drains now, eating out the water weed. They have saved Darryl Whiting a yearly chore.

Dry drains are just part of the problem on the Whiting farm.

The house well went dry at New Year, and now the house is supplied from a 3500-litre tank filled with water from a neighbour's irrigation bore.

Other house wells in the area have run dry, and others have been drilled deeper.

Whiting sees his farm — a farm with heavy soils and which had a bountiful natural supply of water — as something of a litmus paper.

Even the drain eels knew trouble was coming. As the water ebbed from the drains, they slithered from paddock to paddock, looking for another watery home.

Then there was nowhere to go. Whiting found them dead in his paddocks this summer.

● Environment Canterbury water scientists have warned water is over-allocated in many parts of Canterbury, and in parts of Rakaia and Selwyn many wells have run dry.

This week, scientists told The Press they were shocked that groundwater levels were at their lowest since records began in 1970.

Appendix 8a – Reliability of Supply within the Ashburton River Groundwater Allocation Zone

Submissions

1. When the applications were notified, four submitters mentioned a loss of reliability of supply and more specifically the water level in a bore on their property dropping to a level where the bore could not be used.
2. Three of these submitters were able to be contacted and it was confirmed by them that the water levels in a bore on their property and / or their neighbouring property had dropped to a level where they could not operate their pump.
3. Some of these wells had been abandoned, some deepened and some with submersible pumps had the pumps lowered down the bore to abstract from a deeper location. The results from this survey are shown in attached Summary 1 of submitters concerns regarding reliability.

Complaints database

4. The Canterbury Regional Council maintains a database of complaints related to the flow in streams and the reliability of supply for groundwater abstractions. Complaints are also registered through the Pollution hotline.
5. There have been 6 complaints in the ARGAZ since March 2003 made by bore owners experiencing a loss to their supply reliability in the pollution hotline database. These are summarised in Table 1.

Applications

6. Five applications that are the subject of this hearing reported reduced reliability of supply due to frequent restrictions as the driver of their applications to take groundwater. These applications are summarised in Table 2.

Conclusion

7. There are a number of existing groundwater users in the ARGAZ who have experienced a loss in their supply reliability over approximately the last 5 years. Evidence for this is documented in the Canterbury Regional Councils complaints database, submissions made for applications being heard at this hearing as well as consent applications for this hearing.

Appendix 8a Summary 1. Ashburton River Groundwater Allocation Zone Submitters Reporting Reduced Reliability

Patricia Bishell

Well went dry summer 05-06 (Gartarton Rd area). A neighbour was asking all neighbours whether they had dry wells and reported that many had gone dry at the same time. Their shallow well (unknown depth) was unable to be deepened, so a new well was drilled at a cost of \$20, 000. They are now retired and do not have the money to drill again.

J G & J M Roulston

Bore L37/1339 ran dry 8 December 2005 after 40 years. Have now drilled bore K37/1483 to 41 m for domestic and stockwater. If water levels drop further would need to install a new pump and tank and would require more energy.

B G & A S Leslie

Submission states that bore unable to pump summer of 2004, had well redeveloped by Washingtons. After redevelopment still only able to yield 10.64 L/sec at 42.38 m, consented rate is 14 L/sec. Concerned about the ongoing subdivision in the Tinwald/Westerfield/Mayfield Road area. Considers that takes from underground aquifers in their vicinity impact on the yield of their bore.

Appendix 8a Table 1. Pollution Hotline Complaints in Ashburton River Groundwater Allocation Zone

Date of complaint	Catchment Number	Location	Description	Investigation Details
11/01/2006	6860400	Dromore Hatfield Road	Letter addressed to Angus McKay, relating to conversation with him on 7 January. Deep concern regarding the drying up of our wells and that of another neighbouring property in the Overdale area. See full letter	see attached reply, stating unlikely that the drying up of wells is related to the start up of the take from the Hood well
18/03/2003	6860500	Mainwarings Road	concerned Pyes are pumping from 3 bores Mainwarings Rd. L36/1147 and L36/1206 are consented but he said Mr Stewart was in the yard is sure there are 3 bores pumping. McLachan are currently having problems with 022204, they consider they are adversely affected unwilling to give written approval	Rang Mr Stewart to check what he had seen - he said he saw two wells 50m apart in the farm yard. He was irrigating from both, lateral irrigators, it was late morning. He has three wells in line. See attached emails between Jenny and consultants, there are three wells, which have been GPS. Informed Mr Stewart on 25 March that we are happy with our investigation and information supplied.
16/11/2005	6860500	Mainwarings Road	I believe that the bore pump on the Swank Enterprise property on Mainwarings Road is operating. The well on my property is below the trigger level of <53m BGL which puts their pumping in breach of their consent. My well was measured by Ecan on 9/11/05 and has not recovered since then.	Site inspection by self and Kevin McFall at 1430 on Tuesday 15 November 2005. There was no evidence that irrigating was occurring, however the Pump and outflow pipe on bore L36/1317 was pressurised but no flow rate could be detected. Inquiries established that water was not being pumped from the bore but the system was pressurised only. No evidence of a breach of the Alpine (Swank) consent. NFA required.
9/11/2004	6880200	Stranges Road	Received a call from Graham Small Stranges Road, today. He was told to ring us if his take was affected by the Riversdale take which started over the last week. Graham had to shut one irrigator down last night, going to have to reduce the nozzle size on one irrigator. Another option he does have is to pump out of the creek which he is not keen to do as it is not reliable. So can one of your volunteer to give him a ring and discuss with Graham Riversdale Farming take. Jackie	see attached emails Sarah PC Investigated Riversdale take 3/12. All found to be compliant. Letter sent to Small signed by Mike Freeman (reference CO6C/19317).
26/01/2006	6880300	Thompsons Track	irrigating from bore K36/0185 when he is in fact only consented to take water from K36/0186 which is about 200 metres away. The complainant feels that this is at least partially responsible for his house well becoming unreliable.	Rebecca IO is processing consents for him at the moment, he is going to ring him and discuss above
6/03/2003	6880510	Tramway Road, Mt Somers	Consent CRC921499 (Hydes S K & N R) 14 State i.e. application lodged within 6 months of expiry. Complainant alleges that Hydes are irrigating from a shallow bore (14 m) and thus due to the dry period at present they are depriving the area of necessary groundwater for both stock water supply and domestic purposes.	Discussed with John. Applications lodged: CRC021736 & CRC000677 are currently on hold awaiting further information. Depending on circumstances he could be considered an affected party and hence be notified of the applications either direct or via the newspaper. Suggested he write to Leo Fietje re his concerns so that he is considered w.r.t the applications. Informed John that we (ECan) would try and check Hydes consent next week to ensure they are complying with the rate of take. Informed Sri Hall, Team Leader Consents Investigations - Surface water of Johns' concerns.

Appendix 8a Table 2. Reliability of Supply for Ashburton River Groundwater Allocation Zone Applicants

Consent	Name	Reliability Issues
CRC052214	Sheate P J & M J	CRC951542 surface, becoming unreliable
CRC052731	D.G & C.M. Williamson Farming Limited	CRC960696 surface water is frequently on restriction, may give up.
CRC052786	Alford Park Limited	CRC950930.2 CRC950929, CRC950928, CRC950927.1 all surface from Taylor's stream becoming unreliable
CRC063817	Shearer, H & M	46.7 ha irrigated by border dyke scheme, becoming unreliable
CRC064232	Ross Tait Ltd	CRC951956 and CRC951957, surface becoming unreliable.

Appendix 8b – Reliability of supply within the Valetta Groundwater Allocation Zone

Submissions

8. Following notification 100 submissions from five submitters mentioned a loss of reliability of supply and more specifically the water level in a bore on their property dropping to a level where the bore could not be used.
9. Four of these submitters were able to be contacted and it was confirmed by them that the water levels in a bore on their property had dropped to a level where they could not operate their pump. Some of these wells had been abandoned, some deepened and some with submersible pumps had the pumps lowered down the bore to abstract from a deeper location. The results from this survey are shown in attached Summary 1 (including Table 1).

Complaints database

10. The Canterbury Regional Council maintains a database of complaints related to the flow in streams and the reliability of supply for groundwater abstractions. Complaints are also registered through the Pollution hotline.
11. Since January 2004 there have been ten complaints made by bore owners in the VGAZ who had experienced a loss to their supply reliability. These are summarised in Tables 2 and 3.

Applications

12. Sixteen applications that are the subject of this hearing reported reduced reliability of supply due to frequent restrictions as the driver of their applications to take groundwater. These applications are summarised in Table 3.

Review of recent consents granted

13. A review of consents granted since the previous VGAZ hearing indicates there were 14 instances where applicants have applied for a change of the conditions to their original consent due to reduced reliability or inability to obtain their consented volumes.
14. These applicants either added an additional (deeper) bore or deepened an existing bore. There are a further six consents where the applicants added or deepened bores as deeper bores provide more reliable yields. The results of this investigation are shown in Table 4.

Conclusion

15. A number of existing groundwater users in the VGAZ have experienced a loss in their supply reliability over approximately the last 5 years. Evidence in support of this is documented in the Canterbury Regional Councils complaints database, submissions made for applications being heard at this hearing as well as the consent applications for this hearing.

Appendix 8b Summary 1. Valetta Groundwater Allocation Zone Submitters Reporting Reduced Reliability

Paul Cornelius

Considers ECan has over-allocated water and that the zone is over allocated.

On occasions when they have run out of water they were driven to the costs of needing tanks (about \$3000), and the need to transport water in (at \$100 load), which is simply to tide them over until the well driller is available. Mr Cornelius has recently had to spend \$30,000 re-drilling his well. Mr Cornelius notes that if these properties were part of a District Council scheme, much like Winchmore, they would have greater protection of their water supply.

Knows of 7-8 other properties on Gartarton Road where bores have gone dry and the owners have either had to deepen them or drill new wells. Mr Cornelius has raised the issue of water levels in his wells and has been advised that “ It’s your problem that you have an inefficient well”. Mr Cornelius advised that people on these lifestyle blocks couldn’t afford to drill to great depths to ensure that water is available.

Mr Cornelius raised that with irrigation practices becoming more efficient and storing water, he has noticed declining flows in the Ashburton Hinds drainage district and that water previously available to downstream users is no longer there. Mr Cornelius reported that these drains were all dry in the 2005-2006 summer when these applications were lodged.

Russel Kingan

His well has been down since the mid 70s at a depth of around 30 feet. His well went dry 3 to 4 years ago, but is fine now. Heavy irrigation has not been happening for a while and the “problem area” has been subdivided, so no problems since then.

Warwick Sparks (Anwick Farm)

Concerned because the price of the property included available water that they are now not able to easily access. Domestic well has now gone dry. Had to bring in tank to transport water from the irrigation well to the newly installed tank for the house. Had to channel pipes to be able to channel water from the irrigation bore (K37/1509, 54 m) to the house tank. Noticed that as more bores were drilled the water level dropped further. Measures his water level monthly and has noticed that with increasing numbers of bores his water levels have declined further. Had to put his pump down further because the water table dropped and wanted to avoid seizing the pump.

P W & J M George

Not against people putting in bores provided they do not affect him. Takes water from Barford Drain and a shallow well (K37/0078, 15.09 m). Has noticed that there is less water than six to seven years ago.

Mr George states “ Experts and engineers suggest that deep bores do not influence levels in shallow wells. My case in point is, when Cloverdale Dairy Farm, which is 10 kilometres further towards Ashburton from us, commences irrigation, wells below

them either went completely dry or their water levels dropped within a matter of weeks.” Mr George conducted a survey on properties below Cloverdale on Maronan Road, which had either dry wells or have had to deepen their wells. Further investigation provided details of well numbers and depths, as follows in Table 1:

Bore owner	Bore (depth)	Comments
D Breed	K37/0832 (17.9 m)	Drilled in 1999, concerned about water levels.
A J Laxton	K37/0520(10 m)	Deepened bore to K37/1783 (48 m) in Sept 2003. Wells database notes the following comment regarding well K37/0520 “Reportedly (from a neighbour) dry since Sept 2002. There have been many problems with this well in the past.” 21 March 2003.
T Soal	K37/0510 (10 m) has gone dry	Wells database records “Went dry end of Oct / start of Nov 2002 and was dry for about 8 weeks. On 14/1/02 was not able to turn on full. This is the first year in 10 that the well has been completely dry. Was low last year, but apart from last 2 years – no trouble.” 21 March 2003.
L Drummond		A deeper well had to be installed though the shallow well was not dry. No details of depth of shallow well (K37/1274). Applicant applied to drill well K37/2117 (55 metres) though the wells database has no record of this well yet being drilled and bore permit CRC040859 has now expired.
M McKinistry	K37/0099 (7.15 m)	Deepened to K37/1711 (48 m). Comment in wells database for bore K37/0099 records “Started to go dry in Aug 2002, completely dry by mid Sept. Has never been dry before (drilled 1987), but has been low.” 21 March 2003.
G McKenzie	K37/1757 (10.75 m)	Comment in wells database “Went dry late Oct/ early Nov 2002 The water level slowly came back up in mid Dec, but is still low. The well has never been dry in the 3 years prior to this.” 21 March 2003.
J Cox	K36/0672 (9.8 m)	Wells database records the following comment “Reportedly (from neighbour) has had water level problems in 2002/2003.” 21 March 2003.

Table 1. Results of survey by P George.

G J & R B Marshall

Submission states that they rely on shallow well for domestic water, supply failed in summer 2005 despite a self-imposed conservation policy. Cannot afford to embark on a well-deepening exercise. Current water situation is precarious and any further up-stream abstractions could be disastrous.

G L Findlay

Submission states that house ran dry. Irrigation bore only able to provide sufficient water for domestic supply, therefore hazelnut harvest reduced to 10 to 20 %.

N & A Chalmers – Valetta & Ashburton River

At the hearing for Mr and Mrs Chalmers they expressed concerns at the fact they could no longer irrigate from surface waterways as they had in the past, given the

decrease in availability of water. They considered Council's management and in particular, over-allocation of groundwater to be responsible for this.

Appendix 8b Table 2. Customer Services Well and spring complaints register

Date of Complaint	Well or Springs	IDENTIFIER (Well No, etc)	Reduced Yields (Well) or Flow (Spring)	GIS Location & Physical Location	Relevant details the complainants provides relating to the problem	CALLER contact details
28/01/2004	Well	K37/1693	well dry landlord won't do anything about it 213 Maronan Road	213 Maronan Road, Tinwald	informing us	Amber Hammond
1/12/2005	Well	K37/0979	Well dry	Frasers Rd Tinwald	From speaking to owner	Mrs Jackman
7/12/2005	Well	K37/0627	Well dry	Longbeach Road, Willoby	expecting to be out of water by tonight, blaming irrigators especially neighbour Ian MacKenzie Consent 000336.1	Neville Brough
9/02/2006	Springs		Level of Dawsons Drain has been affected			Alastair Joyce
14/02/2006	Springfed drains	K37:0883-8657	Flemington Drain dry	Fords Road, Flemington.	Dry for a short period 2-3 years ago, otherwise not dry. This summer dry from approx mid December, used for stockwater and irrigation. Major problem.	Mr Bryant, owner of well K37/0581
14/02/2006	Springfed drains	K37:0756-8639	Spicers Drain dry	Half Chain Road, Flemington	Dry for first time in family memory - stretching back to 1901. Used for stockwater and irrigation	Mr Bryant, owner of well K37/0581
16/02/2006	Well	K37/2754	Well has gone dry	Fords Road, Ashburton	First time well has gone dry in 40 years	Mrs Cumberland
pre april 08	Well	Not numbered	Bore has gone dry, goes dry for 15 seconds	75 Fords Road, Ashburton		Barry Mccloy

Appendix 8b Table 3. Pollution Hotline Complaints in Valetta Groundwater Allocation Zone

Date of Complaint	Catchment Number	Location	Description	Investigation Details
14/01/2002	6920000	Frisbys Road	Vernon Whyte advises that the cumulative effect of all of the irrigation consents upstream of his property is causing the spring that supplies his irrigation water to dry up. The Whyte surface irrigation take is authorised by consent CRC001342.	18/1/02 Discussed Vernon Whyte's concerns with Kevin McFall. As in attached file note. 18/1/02 Discussed matter with Vernon Whyte. Established that: * At the moment there was an adequate flow in the spring to allow irrigation. * The flow started lat
24/11/2003	6910000	Stoneylea Road	Consent 020683 had problems with K-line could only run 6 in March 03, just tried now to run the Kline could not get 5 running off it. Blaming Deebury Pastoral Ltd Client CO6C/20407 for their take of water. Deebury is irrigating quarter of rotation	Visited Robertson and ascertained that it was unlikely Deebury was affecting Robertson Bore. However compliance check of Deebury has found them operating bores that are not consented. Enforcement action followed.
17/09/2004	6920600	Emersons Road	Alleged that consent being exercised by Andrew Chapman upstream is affecting his ability to take water - in that the Stormy Creek at his pump shed was dry last summer. Maintains that a 400 - 600m gallery installed to facilitate water to his centre pivot	Also refer to EIR No. 20042446 27/10/2004. Onsite meeting organised with Keith Jackson between Kevin McFall and Lindsay Anderson. Look at options of installing a transducer to measure the water level of Stormy Creek - not practical to do so. Advise

Appendix 8b Table 4. Reliability of Supply for Valetta Groundwater Allocation Zone Applicants

Consent No	Applicant	Reliability Issues
CRC041730	Yollom Farm Limited	CRC951893.1 surface and CRC951892.1 surface abstractions to be replaced
CRC050064	Mr & Mrs L P & M M Read	CRC960546 surface and CRC012612,surface , will surrender or amend supplementary.
CRC050163	Mr & Mrs C C & L A Fleming	Surface consent CRC951927, unreliable. May surrender
CRC050331	Mr & Mrs P A & G J Blain	CRC951696 surface, may be surrendered.
CRC050911	Mr Alan John White	86 ha used to be irrigated by depressed springs flooding but now springs not reliable.
CRC051392	Longbeach Estate Limited	Only take water when flow conditions on CRC951894 surface prevent abs, unreliable
CRC051418	Messrs P J & C J Hampton	Also has CRC960184.1 (G water) and CRC960186 (g water)to augment CRC960185 (surface)
CRC051661	Mr & Mrs P G & D L Lowe	CRC951619 surface and CRC 951621 surface, unreliable.
CRC051668	Eskdale Farm Limited	CRC960871 surface, unreliable.
CRC051809	Mr Bryan Murray Gosling	May replace border dyke scheme.
CRC051961	Mr & Mrs L W & D I Molloy	CRC001051 surface unreliable may surrender.
CRC052262	New Zealand Rural Property Trust Nominees Limited	CRC012024 surface needs augmenting
CRC052635	Mr Raymond Francis Girvan	CRC001811 ground water . Shallow bore unreliable, may give up
CRC054174	Stoddard DJ and MJ	CRC952158.1 surface , CRC952157 surface, CRC952155 surface
CRC063097	Read D J	CRC960122 surface and CRC960123 surface, unreliable may give up.
CRC064345	AJC Farming Company Limited	CRC960285 surface

Appendix 8b Table 5. Applications granted, since previous Valetta Hearing decision, that either added or deepened bores due to reliability issues

Consent	Applicant	Quote from AEE	Existing Wells (depth in metres)	Additional well (or replacement) details	Locality
CRC960629.5	Mr E J & Mrs A A Body	na	K37/2362 (53.96)	K37/3002 (104 m)	Hinds
CRC001224.1	Mr & Mrs A C & E M Pierce	Existing consent to continue but allow us to dig deeper to get water for household, stock and irrigation. At present we have no water in house.	K37/1018 (10 m)	K37/2644 (44 m)	Tinwald
CRC042709.2	Mr & Mrs C E & M E Ross	Bore K37/2276 was drilled and was bone dry. Given this the applicant obtained bore permits for another two wells.	K37/2276	K37/3004 K37/3005	Westerfield
CRC041747.1	Mr & Mrs C E & M E Ross		K37/2113 (155.75 m)	K37/2991 (80 m)	Weterfield
CRC971169.2	Mr D P Saunders	na	K37/0609 (8 m)	K37/2905 (48 m)	Willowby
CRC011980.1	A D & I M Neumann		For wrong aee K37/1203 (11.35)	K37/2916 (60.5 m)	Willowby
CRC001347.1	Messrs D A & A B & Ms J R Geddes		K37/1025 (17m)	K37/2985 (60 m)	Willowby
CRC991947.2	Mr E G Ludemann		K37/0870 (28.8 m)	K37/2578 (55 m)	Winslow
CRC040124.1	Sikorsky Trust	The applicant wishes to deepen this bore, as at this depth, it is becoming increasingly unreliable.	K37/1701 (84 m)	K37/3021 (100 m)	Hinds

CRC952156.2	Messrs D J & M J Stoddart	Over recent times the yields from the applicant's shallow (A1 aquifer) bores have become insufficient such that the maximum of rate consented under consents CRC952156.2 and CRC952159.2 is unobtainable.	K37/0350 (9.8 m) K37/0531 (8.3 m)	K37/2853 (60 m)	Willowby
CRC952159.2	Messrs D J & M J Stodart	Over recent times the yields from the applicant's shallow (A1 aquifer) bores have become insufficient such that the maximum of rate consented under consents CRC952156.2 and CRC952159.2 is unobtainable.	K37/0352 (6.1 m) K37/0353 (7.4 m)	K37/2854 (60 m) K37/2855 (60m)	Willowby
CRC941586.1	Mr M J Blair	In recent times the applicants bore has exhibited lower than normal water levels, consequently the applicant has not been able to abstract groundwater at the desired rate. The applicant intends to increase reliability of supply of groundwater for irrigation purposes by abstracting from proposed bore K37/2763 (50 metres deep). The applicant has no intention of increasing the rate or volume of water abstracted. Further it should be highlighted that K37/2673 is to be a replacement bore number for bore K37/0532 (the applicant intends to deepen bore K37/0532) and no lateral movement of the point of take is anticipated.	K37/0532 (18.3m)	K37/2763 (50 m)	Tinwald
CRC980659.1	Mr & Mrs A M & A L Schmack	Bore K37/0732 (9.7 metres deep) is screened in the A1 aquifer and during irrigation season often unreliable. The bore intermittently goes dry and the property often goes without irrigation water, which creates negative economic impacts.	K37/0732 (10 m)	K37/2375 (60 m)	Laghmor
CRC021756.3	Decade Dairies Limited		K37/0621 (10 m) K37/0641 (15 m)	K37/2958 (45 m)	Tinwald
CRC000702.1	Mr & Mrs P W & J M George	The applicant has had increasing difficulty in abstracting the permitted amount of groundwater from bore K37/0078. The decline in water levels is considered to result from increases in abstraction from the groundwater aquifer, less groundwater recharge from the up-gradient border irrigation scheme because of increases in the efficiency of water use within the scheme and consecutive winters with lower than expected aquifer recharge through rainfall.	K37/0078 (15 m)	K37/2904 (100 m)	Maronan

CRC030420.3	Waioto Farm Limited	The applicant seeks authorisation to deepen bore K37/ 1503 to greater than 110 metres below GL and to take and use groundwater from this depth. It is our experience that deeper bores in the area provide more reliable yields.	K37/1503 (72 m) K37/1504 (87 m)	K37/2925 (120 m)	Westerfield
CRC951567.1	Mr & Mrs N R & A J Chalmers	The applicant sought to include additional bores to supplement unreliable surface water abstractions, particularly in late summer when flows tend to be low.	K37/0603 (41.7 m) L37/0235 (41.7 m)	L37/1209 (43.1 m) L37/1245 (40.4 m) L37/1246 (36.7 m)	Waterton
CRC960294.2	Winsby Holdings Limited	The reason for our need to change is that our current bore of 8 metres is no longer reliable to supply the domestic, stockwater and irrigation requirements for our property.	K37/0607 (8 m) K37/0608 (8 m)	K37/2740 (49.2 m)	Willowby
CRC971312.1	Mr & Mrs K B & R A Townshend	The intention of this consent variation is to augment the supplies of the existing operation by redistributing the location of groundwater abstraction on the applicant's property to provide a reliable source of water during periods of low rainfall, which to some extent will reduce the stress on both the existing groundwater abstraction and Dawson's Drain.	K37/0020 (41 m) K37/0634 (70.6 m) K37/0635 (59.5 m)	K37/1545 (39.6 m)	Ashburton
CRC960014.1	Mr B J & Mrs R A Keen	The applicant has been experiencing some supply difficulties with bore K37/0059 and so intends to drill an additional bore.	K37/0059 (20 m)	K37/2900 (42 m)	Willowby
CRC001377.3	RG Young & Hubbard Churcher Trust Management Ltd	The applicant has been experiencing supply difficulties with the relatively shallow bores on this consent and so intends to alter the consent to allow abstraction to occur from a greater depth.	K37/0707 (15 m) K37/0708 (15 m) K37/0709 (15 m)	K37/2871 (100 m)	Winslow

CRC960963.4	Messrs A G Yeoman & P S Quaid	The applicant has been experiencing supply difficulties with the shallow bores on this consent and so has drilled two deep bores (K37/2748 & K37/2749)	K37/0637 (13.8 m) K37/0638 (11.4 m) K37/0639 (9.9 m) K37/0640 (10 m)	K37/2748 (94.6 m) K37/2749 (101.25 m)	Ashburton
CRC991027.1	Mr & Mrs A & B M Morrison	The applicant has been having supply difficulties with this bore, being unable to gain access to the full allocated-rate of 30 litres per second at times. Because of this the applicant is applying to alter this consent to include abstraction from an additional bore.	K37/0689 (91.5 m)	K37/1860 (82 m)	Mayfield
CRC040871.1	Mr & Mrs M A & C D Scott	The applicant has been experiencing supply difficulties with bore K37/0360 and so intends to drill an additional bore.	K37/0360 (33.5 m) K37/1663 (60 m)	K37/2810 (66 m)	Tinwald
CRC972529.1	Mr & Mrs W R & D R Lovett	This application proposes to change the location of take permitted by CRC972529.1 from the Andersons, Kennaughs and Lovetts drains to bore K37/1664, 600 millimetres in diameter and 10 metres deep. The change to the shallow bore is because of the unreliability of drain flows as a result of the increased take of groundwater up-gradient of the applicants land area.	SWAP points K37/2780 K37/2781 K37/2782	K37/1664 (10 m)	Willowby
CRC950967.2	Mr & Mrs P F & J A Stoddart	The applicants operate a mixed crop and arable farm on Grahams Road. Currently the farm is irrigated from bores K37/0554 and K37/1597 (CRC950967). However, because the two wells do not produce enough water to efficiently run the irrigation system, the applicants would like to vary the consent to include a third well K37/2199.	K37/0554 (60 m) K37/1597 (64.9 m)	K37/2199 (60 m)	Tinwald
CRC001345.2	Messrs D A & A B & Ms J R Geddes	It is proposed that recently drilled bore K37/2374, 45 metres deep, will replace shallow bore K37/1024.	K37/0972 (9.9 m) K37/1024 (10 m)	K37/2374 (45 m)	Willowby
CRC980391.1	Mr A G Yeoman	The performance of the 250 millimetre diameter well – k37/0665, has not been acceptable to the applicant and so a new well has been drilled (K37/2159- drilled under consent CRC041387) as a replacement. The depth of the new well is 64.41 metres.	K37/0665 (59.2 m) K37/0735 (60 m)	K37/2159 (64.4 m)	Westerfield

Appendix 9. Ashburton River- applications granted since effective allocation moved to 100% of Interim Allocation Limit listed in Variation 4 of Chapter 5 of the PNRRP.

Consent Number	Applicant	Application details	Annual volume imposed?	Notified	New/ Change/ Transfer	Decision Date
CRC050332.1	P T & M J Binnie	Remove Maximum Rate of Take condition, correct consented location of pumping bore		No	C	01/04/2008
CRC011820.2	Woodhams Ashburton Woolscour Ltd (Christchurch)	Transfer water to CRC080795	Annual volume proposed for consent water transferred to CRC080795, annual volume proposed for each portion of transfer and not in excess of volume allocated to existing consent in the	No	C	21/02/2008
CRC080795	Allenton Rugby Football Club Inc	Water transferred from CRC011820.1 for irrigation	Annual volume proposed for consent, water transferred from CRC011820.1, annual volume proposed for each portion of transfer and not in excess of volume allocated to existing consent in the database	No	T	14/02/2008
CRC030636.1	Mr L R & Mrs. H J Digby & Whitehouse Six Trustees Limited	Increase rate of take from 93 to 164 litres per second, increase volume from 6,698 cubic metres per day to 12,960 cubic metres per day to provide for efficient irrigation	Annual volume proposed based on 254 hectares of pasture, volume proposed same as that allocated to previous consent on database	No	C	18/01/2008

CRC030594.1	Mr & Mrs. A D & J M Begg	Change consented location of pumping bore and deepen from 10 metres to 50 metres, and increase combined maximum rate of take from 83 to 100 litres per second and increase the volume of water taken from 118,325 cubic metres per 18 days to 86,400 cubic metres per ten days.	Annual volume proposed based on 190 ha arable crops and pasture	No	C	30/07/2007
CRC042190.2	Gregory Partnership	Remove Maximum Rate of Take condition	Annual volume on existing consent	No	C	28/07/2007
CRC051210.1	Pekanga O Te Awa Farms Limited	Remove Maximum Rate of Take condition, correct consented location of bores	Annual volume on existing consent	No	Change	28/08/2007
CRC062040	Pudding Hill Lodge Limited	Certificate of compliance		No	Certificate of compliance	07/08/2007
CRC050167.2	Mr D L Fisher	Remove Maximum rate of take condition, correct location of bore	Annual volume proposed to mitigate effect of removing MRT	No	C	19/07/2007
CRC080061	Cairndhu Dairy Limited	Certificate of Compliance		No	Certificate of compliance	18/07/2007
CRC051306.1	Mr J M Blair	Add two additional bores Increase irrigation area	Annual volume on existing consent	No	C	29-May-2007
CRC951901.1	Mr A N Titheridge	Decrease rate and increase return period volume	Proposed annual volume	No	C	29-May-2007

CRC980714.1	J F Rickard & Sons Limited	Increase instantaneous rate from 24.1 to 40 L/sec (on single bore within combined rate) Correct irrigation plan Correct consented bore locations		No	C	14-Mar-2007
CRC050942.1	Mr J J Nish	Increase irrigation area	Annual volume on exiting consent	No	C	01-Feb-2007
CRC032236.1	Delos Farm Limited	Add additional well to be able to abstract consented rate		No	C	19-Jan-2007
CRC030519.1	Mr & Mrs M G & S J Hunter	Change pumping bore Change use to include stockwater and domestic	Annual volume imposed based on irrigation component	No	C	21-Dec-2006
CRC041831.1	Mr M N Holdaway	Add additional bore		No	C	14-Dec-2006
CRC030652	Cates & Lovett Farming Partnership	Application is for same rates and volumes as per CRC921779, notifiable prior to council directive re replacement consents in red zones	Annual volume imposed as per WQN9	No	N	07-Dec-2006
CRC030683.1	Messrs R M & G C R Kingsbury	Add additional bore Increase combined rate from 64 to 104 L/sec Increase return period volume from 46,080 cubic metres per 10 days to 74,880 cubic metres per 10 days`	Annual volume proposed	No	C	01-Dec-2006
CRC050167.1	Mr D L Fisher	Remove reference to well diameter		No	C	27-Oct-2006
CRC031192.1	Jetol Farm Limited	Change pumping bore as consented bore not drilled prior to bore permit expiry		No	C	05-Oct-2006
CRC041567.1	Jetol Farm Limited	Add additional bore to allow consented rate to be abstracted		No	C	05-Oct-2006

CRC050834.1	Mr & Mrs R W L & J M Johnson	Change depth of abstraction on existing pumping bore Add additional bore to allow consented rate to be abstracted		No	C	05-Oct-2006
CRC050289.2	Marwin Farm Limited	Change of use to allow irrigation of dairy	Annual volume on existing consent	No	C	04-Oct-2006
CRC980714.1	J F Rickard & Sons Limited	Change pumping bore		No	C	29-Sep-2006
CRC012088	Rangitata Holdings Limited	Application is for same rates and volumes as per CRC921779, notifiable prior to council directive re replacement consents in red zones	Annual volume imposed	No	N	17-Aug-2006
CRC051397	Mr P N Butterick	Change in land use from CRC030697 to dairying Increase rate from 115 to 130 L/sec Granted as continuation of CRC030697	Annual volume imposed	No	C	17-Aug-2006
CRC030271.1	Mr G A Bennett	Correct consented location of bore Amend condition limiting depth of abstraction		No	C	25-Jul-2006
CRC030598.1	Mr & Mrs R D & D J Withers	Change point of take to take from an alternative bore		No	C	05-Apr-2006
CRC011788.1	Mr & Mrs K G & G M Smith	Add additional bore		No	C	13-Mar-2006
CRC030376.1	Jersey Willows Limited	Change point of take to take from an alternative bore		No	C	13-Mar-2006

Appendix 10. Applications granted since last Valetta hearing (where decision date was after 21-12-04)

Consent Number	Applicant	Application Details	Annual volume imposed?	Notified	New/ Change/ Transfer	Decision Date
CRC000366.2	M W Gilbert	Reduce rate of take from 45 to 42 litres per second. Reduce volume from 65,142 cubic metres per 18 days to 59,875 cubic metres per 18 days.	Reduce annual volume from 320,760 cubic metres to 299,376 cubic metres. Remaining volume transferred to CRC074048	No	C	17/4/2008
CRC040069.2	E G Ludemann Limited	Increase irrigation area	Annual volume proposed based on existing 174 hectare irrigation area. Existing allocation based on arable pasture, consented annual volume based on intensive land use	No	C	15/04/2008
CRC000371.2	Mr & Mrs C W & N J Davison	Add 110 metre deep bore.	Annual volume on existing consent	No	C	10/04/2008
CRC074048	Mr & Mrs D J & B J Quigley	Transfer water from CRC000366.2.	Annual Volume proposed. Sum of annual volume on this cosnetn and CRC000366.2 not in excess of that consented in CRC000366.1	No	T	10/04/2008
CRC960629.5	Mr E J & Mrs A A Body	Increase daily volume of water abstracted from 7722 cubic metres per seven days to 2290 cubic metres per day. Include irrigation of dairy pasture. Deepen pumping bore from 56 to 104 metres deep.	Annual volume proposed. Increase in database allocation as previous estimate based on arable pasture	No	C	10/04/2008

CRC001224.1	Mr & Mrs A C & E M Pierce	Change pumping bore to 44 metre deep bore		No	C	03/04/2008
CRC042291.1	Mr N B I Ormrod	Remove maximum rate of take condition		No	C	04/03/2008
CRC011735.2	Mr R K Baxter	Change consented location of bores. Remove maximum rate of take condition		No	C	19/02/2008
CRC042709.2	Mr & Mrs C E & M E Ross	Change use to include irrigation of dairy pasture Include additional 140 metre deep pumping bore, remove maximum rate of take condition and change aquifer test condition date	Annual volume proposed based on intensive pasture. Decrease in database estimation.	No	C	14/02/2008
CRC041747.1	Mr & Mrs C E & M E Ross	Change use to include irrigation of dairy pasture. Include additional deep pumping bore (80 metres deep) and remove maximum rate of take condition	Annual volume based on intensive pasture. Increase in database estimation as recorded as arable	No	C	05/02/2008
CRC971169.2	Mr D P Saunders	Increase irrigation area and change the pumping bore to include a deeper bore, 48 metres deep	Annual volume proposed based on original irrigation area	No	C	01/02/2008
CRC082489	Kanuka Syndicate Limited	Certificate of compliance		No	Compliance Certificate	30/01/2008
CRC082436	Mr A J & Ms K E Dunlea	Certificate of compliance		No	Compliance Certificate	23/01/2008

CRC042277.1	Meadow Lee Limited	Correct consented locations of bores. Set maximum pump rate for each bore, not in excess of existing combined maximum. Change to include irrigation of dairy pasture.	Annual volume proposed. Annual volume slightly higher than database estimation as single soil PAW used.	No	C	10/01/2008
CRC082159	Mr B M Gosling	Certificate of compliance		No	Compliance Certificate	21/12/2007
CRC011980.1	A D & I M Neumann	Add 60.5 metre deep bore to allow consented rates and volumes to be abstracted	Annual volume proposed	No	C	18/12/2007
CRC021572.1	Mr & Mrs G M & J M Waddell	Change use to include irrigation of dairy pasture. Add a 120 metre deep bore. Increase combined maximum rate of take from 45 to 63 litres per second, increase volume consented from 39,164 cubic metres per 11 days to 56,160 cubic metres per ten days	Proposed Annual volume based on 100 hectares, annual volume higher than estimate in database, annual volume able to be reasonably achieved at existing rates	No	C	29/11/2007
CRC040031.1	Mr & Mrs W S & P A Green	Remove maximum rate of take condition, reduce volume consented from 93,815 cubic metres per 14 days to 93,139 cubic metres per 14 days and change consented locations of pumping bores		No	C	29/11/2007
CRC042585.1	Eiffelton Community Irrigation Scheme Inc	Remove maximum rate of take condition, change condition on depth of screening of bores		No	C	09/10/2007
CRC001347.1	Messrs D A & A B & Ms J R Geddes	Add an additional deeper bore 45 metres deep		No	C	20/09/2007

CRC041812.3	Moonshine Farms Limited	Increase irrigation area to overlap with CRC050375 until that application is determined, remove aquifer test condition, remove maximum rate of take condition and reduce rate of take from individual bore with no change in combined rate of take	Annual volume on existing consent	No	C	03/09/2007
CRC040069.1	E G Ludemann Limited	Increase irrigation area	Applicant proposed annual volume based on 174 hectares previously consented	No	C	07/08/2007
CRC991947.2	Mr E G Ludemann	Remove existing consented bore (28.8 metres deep) and add replacement deeper pumping bore 55 metres deep		No	C	17/07/2007
CRC040653.1	Mr Gingerbread Limited (Timaru)	Increase rate of take from pumping bores with no increase to combined maximum rate	Annual volume on existing consent	No	C	05/07/2007
CRC000371.1	Mr & Mrs C W & N J Davison			No		26/06/2007
CRC020469.1	Mr & Mrs C W & N J Davison			No		26/06/2007
CRC040124.1	Sikorsky Trust	Deepen existing bore from 85 to 100 metres deep		No	C	13/06/2007
CRC040358.2	Moonshine Farms Limited	Add additional bore Increase irrigation area	Annual volume on existing consent	No	C	29/05/2007
CRC040705.3	Mr C A & Mrs E M Hill and Myers & Co Trustees Limited	Change pumping bore		No	C	29/05/2007

CRC952156.2	Messrs D J & M J Stoddart	Add additional bore to allow consented rate to be abstracted		No	C	10/05/2007
CRC952159.2	Messrs D J & M J Stoddart	Add two additional bores to allow consented rate to be abstracted		No	C	10/05/2007
CRC000107.1	Mr & Mrs B P & R M Austin	Remove two pumping bores Increase combined rate from 80 to 120 L/sec Increase return period volume from 101,376 cubic metres per 16 days to 95,0410 per 10 days	Annual volume proposed	No	C	26/04/2007
CRC072505	Westerschool Farm Limited	Rate and volume transferred from CRC972349.2 for dairy shed use	Annual volume proposed with sum of annual volumes for CRC972349.3 and CRC072505 not in excess of allocation to CRC972349.2	No	T	26/04/2007
CRC972349.3	Ma Taua Dairies Limited	Reduce rate from 32 to 30 L/sec Reduce daily volume from 2765 cubic metres to 2592 cubic metres The reduction on this consent was processed as a transfer site to site to CRC072505	Annual volume proposed with sum of annual volumes for CRC972349.3 and CRC072505 not in excess of allocation to CRC972349.2	No	T	26/04/2007
CRC941856.1	Mr M J Blair	Change pumping bore to abstract from deeper bore		No	C	19/03/2007
CRC980659.1	Mr & Mrs A M & A L Schmack	Deepen existing pumping bore		No	C	14/03/2007
CRC031009.1	Cloverdale Holdings Limited	Change depth of existing pumping bores Correct consented location of pumping bores		No	C	9/02/2007
CRC011321.1	Lacmor Dairies Limited	Corrected consented location of pumping bores Corrected irrigation plan due to error in earlier transfer Redistributed rates over existing pumping bores with no change to combined maximum rate		No	C	26/01/2007

CRC030896.1	Mr & Mrs K B & R A Townshend	Limited duration site to site partial transfer until July 2009	Annual volume imposed on both transferred portion and portion to be retained for duration of transfer	No	C	17/01/2007
CRC971312.3	Mr & Mrs K B & R A Townshend	Limited duration site to site transfer until July 2009	Annual volume on existing consent, annual volume proposed for each portion of transfer for duration and not in excess of existing annual volume	No	C	17/01/2007
CRC021756.3	Decade Dairies Limited	Change pumping bore		No	C	10/01/2007
CRC961027.4	Mr D A J Geddes	Correct consented location of bore Add additional bore		No	C	1/12/2006
CRC940835.2	Mr D E P Harden	Limited duration site to site transfer to Molloy Molloy to exercise full use of consent until April 2007	Annual volume imposed for duration of transfer	No	T	30/11/2006
CRC041008.1	Mr & Mrs S W & P M Waddell	Increase rate from 113 to 182 L/sec Additional rate to be taken from additional pumping bore Increase return period volume from 84,208 cubic metres per 9 days to 135,627 per 9 days	Annual volume imposed	No	T	16/11/2006
CRC022107.1	Messrs R M & B R Smith	Change in land parcels to be irrigated, maintaining 150 hectares of irrigate land Change use to include irrigation of dairy pasture	Annual volume proposed based on intensive pasture previous database allocation based on arable pasture. Due to inability to meet peak demand a reduced annual volume of 621,00 cubic metres was proposed. Intensive WQN9 = 702,600	No	C	9/11/2006

CRC000702.1	Mr & Mrs P W & J M George	Change pumping bore Increase irrigation area from 40 to 121 hectares	Annual volume proposed based on 40 hectares	No	C	30/10/2006
CRC030420.3	Waioito Farm Limited	Correct consented locations of existing bores Deepen existing bore		No	C	18/10/2006
CRC050495	Mr & Mrs N R & A J Chalmers		Declined at hearing	Yes	N	18/10/2006
CRC951567.1	Mr & Mrs N R & A J Chalmers		Granted at hearing, conditions appealed by applicant and later amended	No	C	18/10/2006
CRC960294.2	Winsby Holdings Limited	Remove two existing consented bores Include additional deeper bore No change in rates or volumes abstracted Consented area 62 hectares but property only 55.73 hectares – annual volume based on lesser	Annual volume proposed	No	C	18/10/2006
CRC971312.1	Mr & Mrs K B & R A Townshend	Add additional bore Irrigate additional 19 hectares	Annual volume proposed based on original irrigation area	No	C	18/10/2006
CRC950054.3	Mr P G Lowe	Increase rate on bore from 12 to 56 L/sec	Annual volume on existing consent	No	C	5/10/2006
CRC960014.1	Mr B J & Mrs R A Keen	Add additional bore		No	C	21/09/2006
CRC001377.3	RG Young & Hubbard Churcher Trust Management Ltd	Remove pumping bore Add additional deeper bore		No	C	31/08/2006
CRC960963.4	Messrs A G Yeoman & P S Quaid	Add additional bore		No	C	31/08/2006
CRC991027.1	Mr & Mrs A & B M Morrison	Add additional bore		No	C	24/08/2006
CRC040871.1	Mr & Mrs M A & C D Scott	Remove pumping bore Add additional bore		No	C	11/08/2006

CRC042634.1	Ross Tait Limited	Correct consented location and depth of bore		No	C	11/08/2006
CRC041991.1	Waioto Farm Limited	Correct consented bore location		No	C	6/07/2006
CRC040399.1	Mr & Mrs A H & J A Walls	Change use to include irrigation of dairy pasture	Annual volume imposed based on intensive pasture, database allocation for previous consent based on arable pasture	No	C	30/05/2006
CRC000926.2	Mr & Mrs I R & R D Moore	Increase rate from 27 to 39 L/sec Increase return period volume from 2333 cubic metres per day to 3326 cubic metres per day	Annual volume imposed	No	C	24/02/2006
CRC950054.2	Mr P G Lowe	Increase combined rate of take from 27 to 39 L/sec Increase return period volume from 2,333 cubic metres per day to 3,326 cubic metres per day	Annual volume imposed	No	C	22/02/2006
CRC001018.3	Mr J C Low	Increase rate from 40 to 57 L/sec Increase return period volume from 46,080 cubic metres per 16 days to 75,513 cubic metres per 16 days Change use to include irrigation of dairy pasture	Annual volume imposed	No	C	13/02/2006
CRC972529.1	Mr & Mrs W R & D R Lovett	Change point of take from three drains to single shallow bore – hydraulically connected	Annual volume proposed by applicant	No	C	13/02/2006
CRC990276.3	Grantham Farming Limited	Add additional bore		No	C	3/01/2006
CRC042709.1	Mr & Mrs C E & M E Ross	Partial transfer site to site limited duration to CRC062075 Rate and volume reduced for duration of transfer Transfer now expired		No	T	20/12/2005
CRC062075	Mr & Mrs P F & J A Stoddart	Limited duration transfer from CRC042709 until May 2007	Annual volume imposed on transferred portion	No	T	20/12/2005

CRC041812.1	Mr & Mrs N R & W L Neill	Change use to include irrigation of dairy pasture	Annual volume imposed based on intensive pasture, database allocation for previous consent also based on intensive pasture	No		21/11/2005
CRC980391.3	Messrs A G Yeoman & P S Quaid	Change use to include irrigation of dairy pasture	Annual volume imposed based on intensive pasture, database allocation for previous consent based on arable pasture	No	C	15/11/2005
CRC950967.2	Mr & Mrs P F & J A Stoddart	Add additional bore		No	C	26/10/2005
CRC040653	Mr Gingerbread Limited (Rakaia)	New take	Annual volume imposed	Yes	N	30/09/2005
CRC001345.2	Messrs D A & A B & Ms J R Geddes	Remove pumping bore Add additional bore		No	C	15/08/2005
CRC041812	Mr & Mrs N R & W L Neill	New	Granted at hearing	Yes	N	18/05/2005
CRC041848	Mr & Mrs A & B M Morrison	New	Granted at hearing	Yes	N	18/05/2005
CRC042235	J D & C M McKenzie Limited	New	Granted at hearing	Yes	N	18/05/2005
CRC042291	Mr N B I Ormrod	New	Granted at hearing	Yes	N	18/05/2005
CRC042585	Eiffelton Community Irrigation Scheme Inc	New	Granted at hearing	Yes	N	18/05/2005
CRC042634	Mr M J Blair	New	Granted at hearing	Yes	N	18/05/2005
CRC042709	Mr & Mrs C E & M E Ross	New	Granted at hearing	Yes	N	18/05/2005
CRC030420.2	Waioto Farm Limited	Change use to include dairy	Database allocation for previous consent based on arable volume, allocation corrected to intensive	No	C	21/04/2005
CRC001345.1	Messrs D A & A B & Ms J R Geddes	Remove minimum flow condition on Flemington Drain		No	C	29/03/2005

CRC041201.1	Grantham Farming Limited	Change pumping bore on consent as consented bore drilled in incorrect location and new bore permit issued Change in name		No	C	23/03/2005
CRC980391.1	Mr A G Yeoman	Add additional bore		No	C	16/03/2005