

Memo

To: Cheryl Low, Environmental Manager, Matakanui Gold Ltd
From: Jens Rekker, Principal Hydrogeologist, Kōmanawa Solutions Ltd
CC: Emily Walker, Matakanui Gold Ltd
Date: 14 September 2026
Subject: Assessment of Groundwater User Drawdown Effects in Surrounding Bendigo Aquifer

1 Background

Kōmanawa Solutions had previously provided the document titled *Report on Compliant Aquifer Test at BOGP Water Supply Bore Field. (Z24002BOG-4)* on 14 August 2026. That report was a response to the Fast Track Panel's specific further information request (RFI 11-Q6, 25 June 2026) concerning water and groundwater users specifically:

6. In order to understand the potential effects on other users of the aquifers, please provide the results of a compliant bore pump test for the Bendigo aquifer.

This report outlines Kōmanawa's response to ORC's request (via MGL) for a second assessment of drawdown effects on surrounding groundwater users. Several new themes have emerged in groundwater management related to the MGL proposal for mine water supply:

- Barrier boundary and recharge boundary condition impacts on the response of the aquifer to groundwater pumping,
- Seasonal variability in groundwater levels and therefore live storage of the Bendigo Aquifer,
- Limits on the term and maximum take schedule of the MGL groundwater take, and
- The compliant aquifer test constant rate was maintained at 97 litres per second (8,380 m³/d) for 144 hours (6 days) in late July 2026.

The first two themes are proposed to be addressed in this assessment as relate to our area of expertise. The question of the term and consent scheduled reductions in maximum take are largely regulatory and operational matters and will not be covered in any detail herewith. As ORC generally require that a maximum rate of pumping is matched or exceeded by the rate of the constant rate test (CRT) used to initialise drawdown (and surface water depletion) assessments, the fact that MGL was unable to operate the recent constant rate test at 110 litres per second could affect the maximum rate of take granted under the FTAA. Changes have also been recently agreed to the conditions of consent to place the upper pumping limit at 97 L/s or 8,380 m³/d. Therefore this is the rate of continuous MGL bore field pumping to be used in this assessment. It is also understood that the most recent version of the consent conditions incorporate the aquifer test results and amends the maximum groundwater abstraction rate to 97 litres per second.

2 Summary of Findings

A summary of the findings of the drawdown effects and the approach taken to derive these is provided herewith.

The drawdown effects assessment used the same conservative values for transmissivity (T) of 4,100 m²/d and specific yield (Sy) of 0.10, derived in the recent July 2026 compliant aquifer test at the MGL test production bore field. Both the Theis Equation and MODFLOW methods were calibrated against two measured drawdown values from the recent 6-day pumping test and achieved reasonable correspondence with those values. The MODFLOW simulation was judged to have superior ability at drawdown prediction, especially when assessing drawdown effects on bores in closer proximity to the basement margins and river margins of the Bendigo Aquifer. The enhanced ability of MODFLOW simulation compared to the Theis method was considered to be due to capacity to integrate such boundary conditions within the numerical simulation.

While the Theis Equation is the approach outlined in the regional water plan for Otago, the strong influence of the Clutha River / Mata Au, Bendigo Creek soakage, and lesser effect of the rocky edges of the Bendigo Aquifer recommended the use of a numerical model of the central and southern portions of said aquifer. The numerical model of the aquifer, within which the MGL bore field is simulated as operating, found that the four surrounding groundwater users' bores would be affected by at least 1.4 m of drawdown effect at near the one year mark of pumping. The closest (220 m distant) neighbouring bore to the MGL bore field would experience approximately 1.7 m of net drawdown effect from bore field operation.

Further from the bore field the drawdown effect would be muted, within 1.4 m to 0.3 m, and not extending beyond the west side of State Highway 8. To the east of the State Highway 8, the net effect of pumping as drawdown would lie between 0 m and 0.3 m, with proximity to the Clutha River / Mata Au being positively correlated to very low induced drawdown. The modelling of drawdown found the Bendigo Aquifer to be resilient to the effects of pumping groundwater at high rate approaching 100 L/s for extended periods of operation. This resilience is attributable to the elevated horizontal hydraulic conductivity confirmed in recent aquifer testing, and the presence of the major river, Clutha / Mata Au, along the northern and western flank of the aquifer. These characteristics provide some certainty that existing large-scale groundwater users will be able to share the waters of the Bendigo Aquifer

3 Methods of Drawdown Assessment

Several methods of assessing drawdown effects are available, two are outlined below:

- Theis Equation calculation.
- Modelled transient groundwater level differences between pumped and non-pumped simulations (drawdown).

The Theis Equation (Theis, 1935) is to some extent mandated in Schedule 5B of the Regional Plan: Water. However, explanatory notes to this Schedule notes¹ that more complicated methodologies may be used to estimate bore to bore interference (i.e., drawdown) effects.

The United States Geological Survey's MODFLOW numerical model code has been validated against the Theis Equation but includes the ability to do more than calculate drawdown in homogeneous, isotropic aquifers. This includes the ability to synthesise more complicated contrasts in transmissivity-based hydraulic conductivity and includes the ability to incorporate numerical boundary conditions to emulate additional hydrological factors such as soil-drainage replenishment (recharge), basement rocks, rivers, lakes, wetlands or the coastline.

3.1 Theis Equation Drawdown Calculations

The Theis Equation parameters were selected as follow:

- Transmissivity = 4,100 metres per day (i.e., saturated thickness, $b = 20$ metres, horizontal hydraulic conductivity, $K_h = 205$ metres per day)
- Unconfined Storage Coefficient, $S_y = 0.10$ (or 10%)
- MGL Bore Field Pumping Rate = 97 L/s or 8,380 m³/d
- Radius between Pumped and Affected Bores, r is the variable specific to each potentially affected bore.

The Theis Equation has the following notation -

$$s = \frac{Q}{4\pi T} W(u)$$

Where:

s = Drawdown (change in hydraulic head).

Q = Well pumping discharge rate.

T = Aquifer transmissivity.

$W(u)$ = The Theis well function (an exponential integral) -

$$u = \frac{r^2 S}{4Tt}$$

r = Distance from the pumping well.

S = Storativity (storage coefficient).

t = Time since pumping started.

¹ "The use of numerical groundwater flow models will be accepted over the equations given above, when an applicant can clearly demonstrate:

- 1) That the numerical method is validated or potentially validated at a generic level against either the **Theis Equation** or the Jenkins Equation; and
- 2) That the model is in common use for the purpose and shares a degree of acceptance in such use among groundwater professionals." Schedule 5, Regional Plan: Water

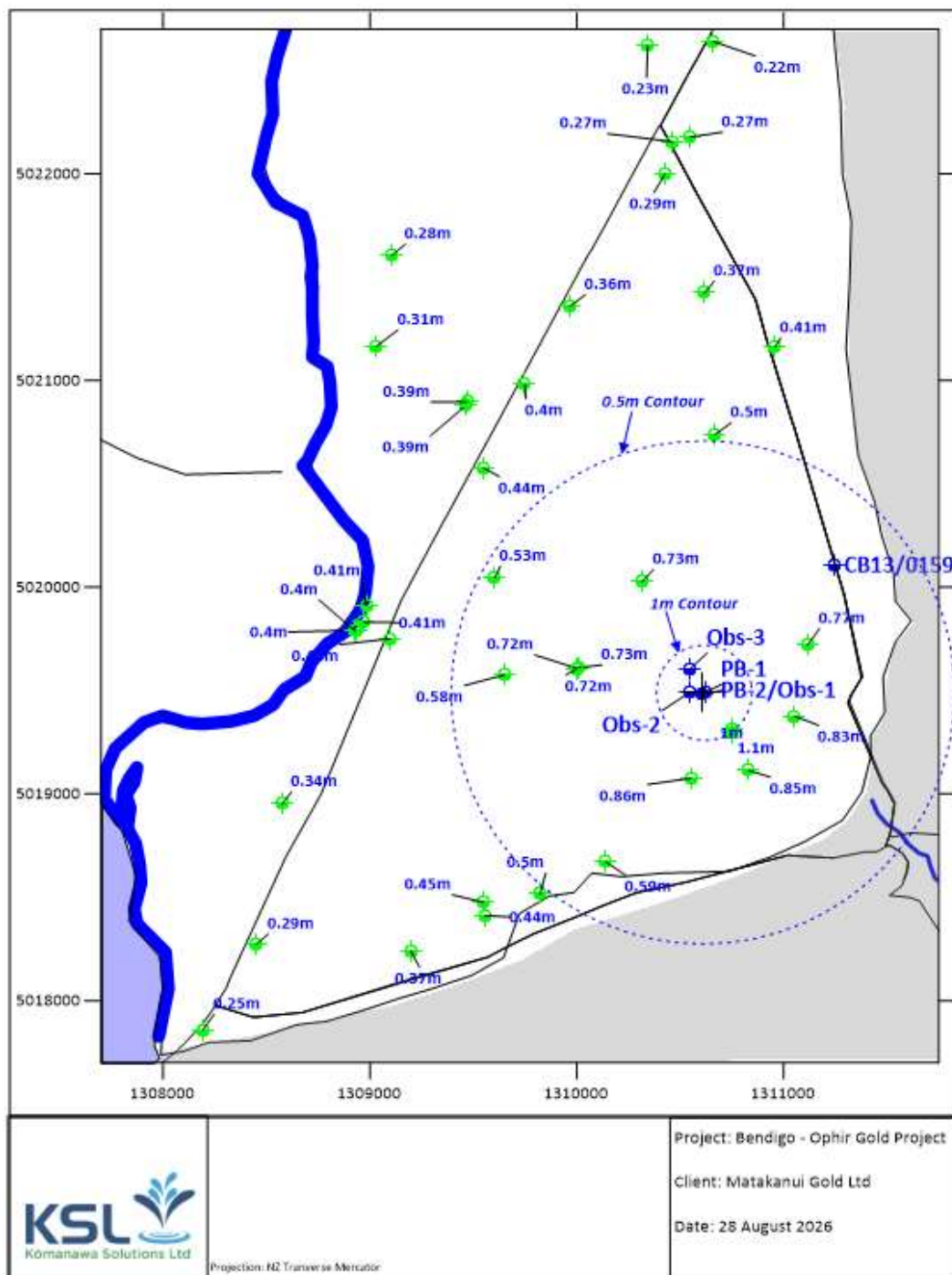


Figure 2: Calculated drawdown intensities for the 45 surrounding bores of groundwater users at 365 days

It is worth noting that 0.5 m drawdown intensity contour crossed the basement rock margin and revealed no sign of being warped by proximity to the Clutha River / Mata Au.

Table 1: Summary of Theis Calculated Drawdown at Surrounding Bores

Well Number	Radius (m)	6-day Drawdown (m)	90-day Drawdown (m)	365-day Drawdown (m)	Measured 6-day Drawdown (m)
MGL CB13/0262	75	0.747	<i>Aquifer test Obs-2 bore</i>		0.70
ORC CB13/0159	875	0.053	<i>SOE level monitoring bore</i>		0.06
G41/0263	220	0.403	0.836	1.064	–
CB13/0156	236	0.383	0.815	1.042	–
G41/0262	418	0.215	0.629	0.856	–
G41/0206	430	0.207	0.620	0.847	–
G41/0225	447	0.197	0.608	0.834	–
G41/0332	548	0.145	0.543	0.768	–
G41/0270	617	0.118	0.505	0.730	–
G41/0373	624	0.115	0.502	0.726	–
CB13/0221	628	0.114	0.500	0.724	–
G41/0372	629	0.114	0.499	0.724	–
G41/0181	947	0.041	0.371	0.592	–
G41/0230	972	0.038	0.364	0.584	–
G41/0402/1	1157	0.020	0.311	0.528	–
G41/0282	1251	0.014	0.288	0.503	–
G41/0097	1258	0.014	0.286	0.501	–
G41/0203	1473	0.006	0.241	0.452	–
G41/0203	1514	0.005	0.233	0.443	–
G41/0271	1525	0.005	0.231	0.441	–
G41/0435	1542	0.005	0.228	0.437	–
G41/0440	1683	0.002	0.204	0.410	–
G41/0600	1690	0.002	0.203	0.409	–
G41/0283	1709	0.002	0.200	0.405	–
G41/0441	1713	0.002	0.200	0.404	–
G41/0435	1716	0.002	0.199	0.404	–
G41/0269	1727	0.002	0.197	0.402	–
G41/0387	1808	0.001	0.185	0.388	–
F41/0410	1819	0.001	0.184	0.386	–
G41/0214	1892	0.001	0.174	0.374	–
CB13/0151	1935	0.001	0.168	0.367	–
G41/0315	1981	0.001	0.162	0.360	–
G41/0198	2114	0.000	0.146	0.340	–
G41/1811	2310	0.000	0.126	0.314	–
G41/0228	2485	0.000	0.109	0.292	–
G41/0189	2517	0.000	0.107	0.288	–
G41/0191	2602	0.000	0.100	0.279	–
G41/0229	2671	0.000	0.094	0.271	–
G41/0283	2690	0.000	0.093	0.269	–
G41/0123	2924	0.000	0.077	0.245	–
G41/0405	3142	0.000	0.065	0.225	–
G41/0402	3151	0.000	0.064	0.224	–

A comparison of Theis calculated drawdown at 6-days and the measured Day-6 aquifer test corrected drawdowns from the MGL observation and ORC monitoring bores indicates reasonable correspondence.

Table 2: Comparison of Theis Calculated and Measured (Corrected) Drawdown

Well Number & Description	Radius (m)	Calculated Drawdown (m)	Measured Drawdown (m)	Error (m)
CB13/0262 MGL Aquifer Test Observation Bore, July 2026	75	0.747	0.70	+0.047
CB13/0159 ORC State of Environment (SOE) level monitoring bore, long-term.	875	0.053	0.06	-0.007

The match between the Theis calculated drawdown and measured drawdown points to the representativeness of near-field drawdown estimation. However, further than 800 metres from the MGL bore field, the Theis equation calculated drawdown estimates will tend to increasingly diverge from real values. This divergence is considered to be due to the separate influences of barrier basement and recharge surface water boundary conditions to the Bendigo Aquifer.

3.3 Implementation & Results of MODFLOW Drawdown Estimation

A simplified MODFLOW Drawdown model was developed for the central and southern Bendigo Aquifer. The aquifer structure was also simple, being a single unconfined model layer with its base at 180 metres AMSL and the aquifer top at the water table.

3.3.1 Aquifer Properties / Parameters Assigned

Uniform aquifer parameters as listed below were applied to the MODFLOW simulation of the aquifer.

Table 3: Summary of MODFLOW applied Hydraulic Properties

Property (and Unit)	Value	Remarks
Horizontal Hydraulic Conductivity (m/d)	205	Based on a transmissivity of 4,100 m ² /d, and saturated thickness of 20 m.
Storativity (dimensionless)	1 x 10 ⁻²	Insensitive, specific yield would be the more sensitive storage coefficient.
Specific Yield (ratio, decimal or %)	0.10 (10%)	Based on the 0.12 – 0.14 derived in 6-day aquifer test interpretation.
Uniform Recharge (mm/year)	150	Nominal annual recharge value for rainfall and irrigation-driven soil drainage.

3.3.2 Boundary Conditions

The most important boundary conditions to the simplified model were for as follow:

- Clutha River / Mata Au and the head of Lake Dunstan
- The basement and glacial till edges of the Bendigo Aquifer

These boundary conditions were simulated within MODFLOW as fixed river head boundaries and head no-flow boundaries, respectively. Heads for the river boundary were taken from surveyed water level elevations with extrapolation between points of measurement.

Table 4: Comparison of MODFLOW Calculated and Measured (Corrected) Drawdown

Well Number & Description	Radius (m)	Calculated Drawdown (m)	Measured Drawdown (m)	Error (m)	Error (%)
CB13/0262 MGL Aquifer Test Observation Bore, July 2026	75	0.662	0.70	-0.038	37.6%
CB13/0159 ORC State of Environment (SOE) level monitoring bore, long-term.	875	0.085	0.06	+0.025	34.4%

The next interval in the one year simulation was the 90 day interval. This interval as drawdown in the surrounding aquifer is mapped in Figure 4. At 90 days (3 months), the 0.2 metre drawdown contour extends outwards and northwest to State Highway 8 in Figure 4. The accentuation of drawdown between the MGL bore field and the edge of the aquifer is more pronounced. Maximum drawdown in the bore field localised drawdown zone reached 2.1 m at 90 days.

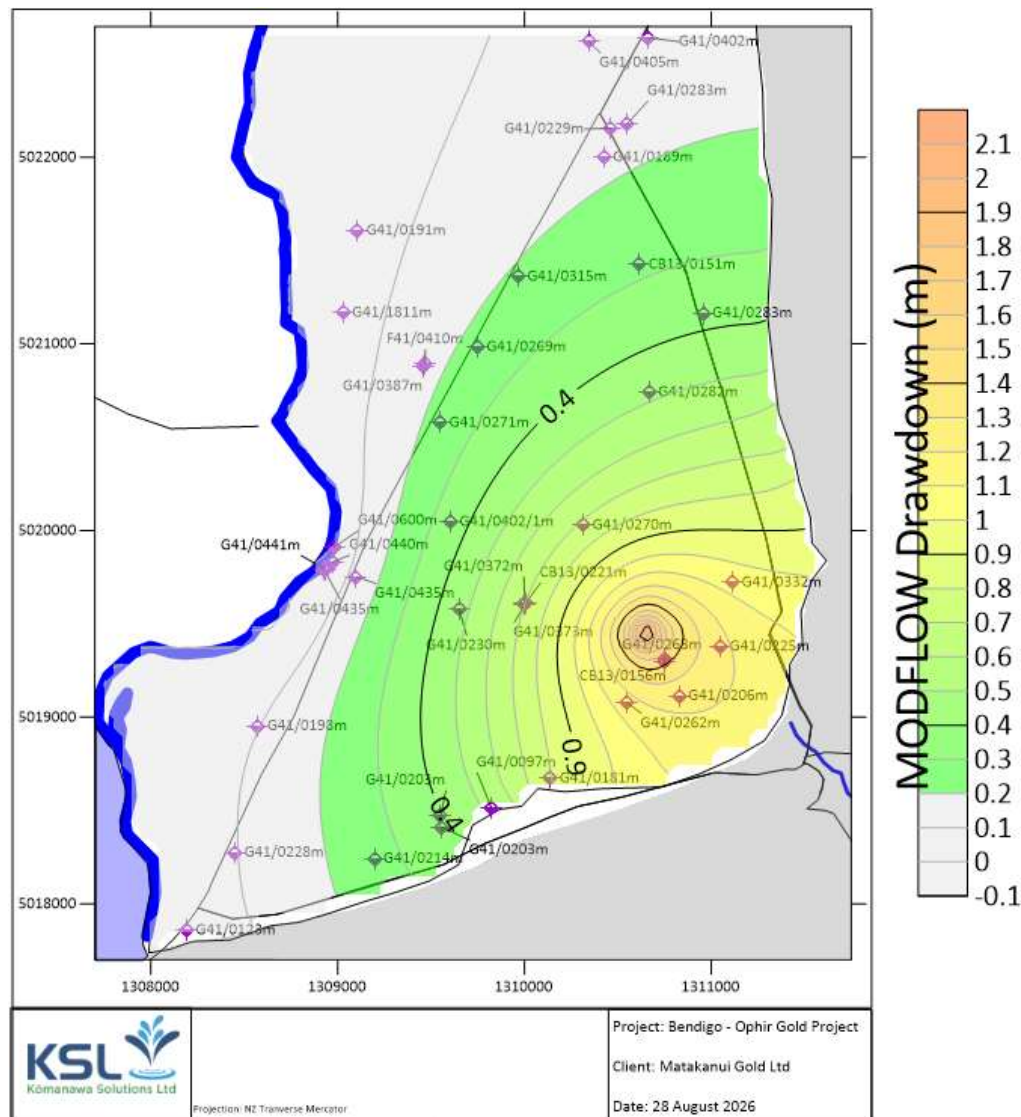


Figure 4: MODFLOW modelled 90-day drawdown, including colour-flooded contours

Towards the conclusion of the first year of MGL bore field pumping at the 335 day mark, quasi-stable drawdown intensities have become established in the MODFLOW transient simulation. Figure 5 shows that all of the central and southern Bendigo Aquifer is enveloped with discernible drawdown. Drawdown of 0.2 m intensity extends across the entirety of the Alberttown glacial outwash and is absent only from the environs of the Clutha River / Mata Au.

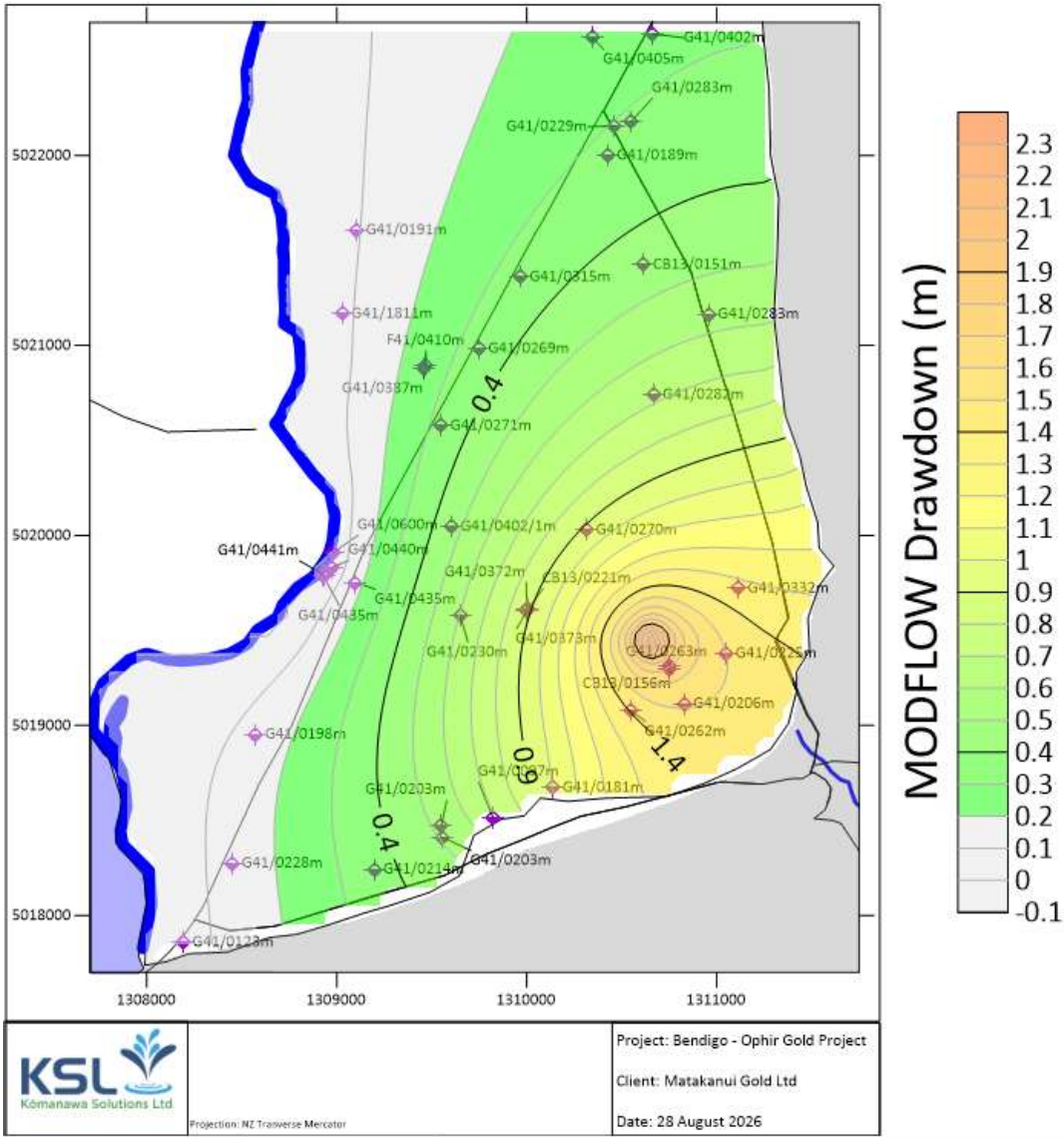


Figure 5: MODFLOW modelled 335-day drawdown, including colour-flooded contours

Once again, drawdown intensity is lop-sided between the MGL bore field and the schist basement or till edge of the aquifer. This is interpreted to be the result of barrier boundary reverberation. Maximum drawdown in the bore field localised drawdown zone reaches 2.3 m at 335 days.

Individualised drawdown effects on identified groundwater users’ bores, both large, consented takes and small, non-consented groundwater takes, are listed in Table 5. This table is columnized into 6-day, 90-day and 335-day drawdown results from the MODFLOW model.

Table 5: Summary of MODFLOW Calculated Drawdown at Surrounding Bores

Well Number	Radius (m)	6-day Drawdown (m)	90-day Drawdown (m)	365-day Drawdown (m)	Measured 6-day Drawdown (m)
MGL CB13/0262	75	0.662	<i>Aquifer test Obs-2 bore -></i>		0.70
ORC CB13/0159	875	0.085	<i>SOE monitoring bore -></i>		0.06
G41/0263	220	0.511	1.445	1.710	–
CB13/0156	236	0.484	1.420	1.685	–
G41/0262	418	0.272	1.159	1.408	–
G41/0206	430	0.284	1.243	1.511	–
G41/0225	447	0.266	1.224	1.499	–
G41/0332	548	0.184	1.062	1.330	–
G41/0270	617	0.111	0.717	0.920	–
G41/0373	624	0.115	0.702	0.884	–
CB13/0221	628	0.113	0.699	0.881	–
G41/0372	629	0.113	0.699	0.880	–
G41/0181	947	0.091	0.797	1.004	–
G41/0230	972	0.045	0.468	0.605	–
G41/0402/1	1157	0.025	0.348	0.464	–
G41/0282	1251	0.023	0.480	0.680	–
G41/0097	1258	0.035	0.530	0.689	–
G41/0203	1473	0.016	0.393	0.523	–
G41/0203	1514	0.014	0.380	0.508	–
G41/0271	1525	0.009	0.233	0.330	–
G41/0435	1542	0.007	0.128	0.170	–
G41/0440	1683	0.001	0.024	0.032	–
G41/0600	1690	0.001	0.020	0.027	–
G41/0283	1709	0.008	0.372	0.564	–
G41/0441	1713	0.001	0.020	0.026	–
G41/0435	1716	0.001	0.020	0.027	–
G41/0269	1727	0.005	0.227	0.340	–
G41/0387	1808	0.004	0.169	0.251	–
F41/0410	1819	0.004	0.169	0.251	–
G41/0214	1892	0.005	0.262	0.359	–
CB13/0151	1935	0.004	0.283	0.450	–
G41/0315	1981	0.003	0.212	0.337	–
G41/0198	2114	0.002	0.098	0.135	–
G41/1811	2310	0.001	0.052	0.081	–
G41/0228	2485	0.001	0.097	0.137	–
G41/0189	2517	0.001	0.183	0.319	–
G41/0191	2602	0.000	0.057	0.095	–
G41/0229	2671	0.001	0.170	0.304	–
G41/0283	2690	0.001	0.173	0.310	–
G41/0123	2924	0.000	0.044	0.064	–
G41/0405	3142	0.000	0.135	0.249	–
G41/0402	3151	0.000	0.149	0.274	–

3.3.4 Uncertainty, Accuracy and Precision of Results

The simplified MODFLOW mode of the central and southern Bendigo Aquifer is not a calibrated, optimised and validated groundwater model. In terms of predictive power, it is merely one step above that of analytical equations such as the Theis Equation.

Measured water table elevations from 15 bores in December 2009 were recorded in the ORC Bendigo – Tarras groundwater study (Houlbrooke, 2010). These water table elevations were compared with the non-pumped simulation of the Bendigo Aquifer using MODFLOW ('scenario 0'). This comparison confirmed the overall shape of the model water table to resemble that of actual measurements. The match between the 15 measured head elevations and the MODFLOW simulation without pumping is listed in Table 6.

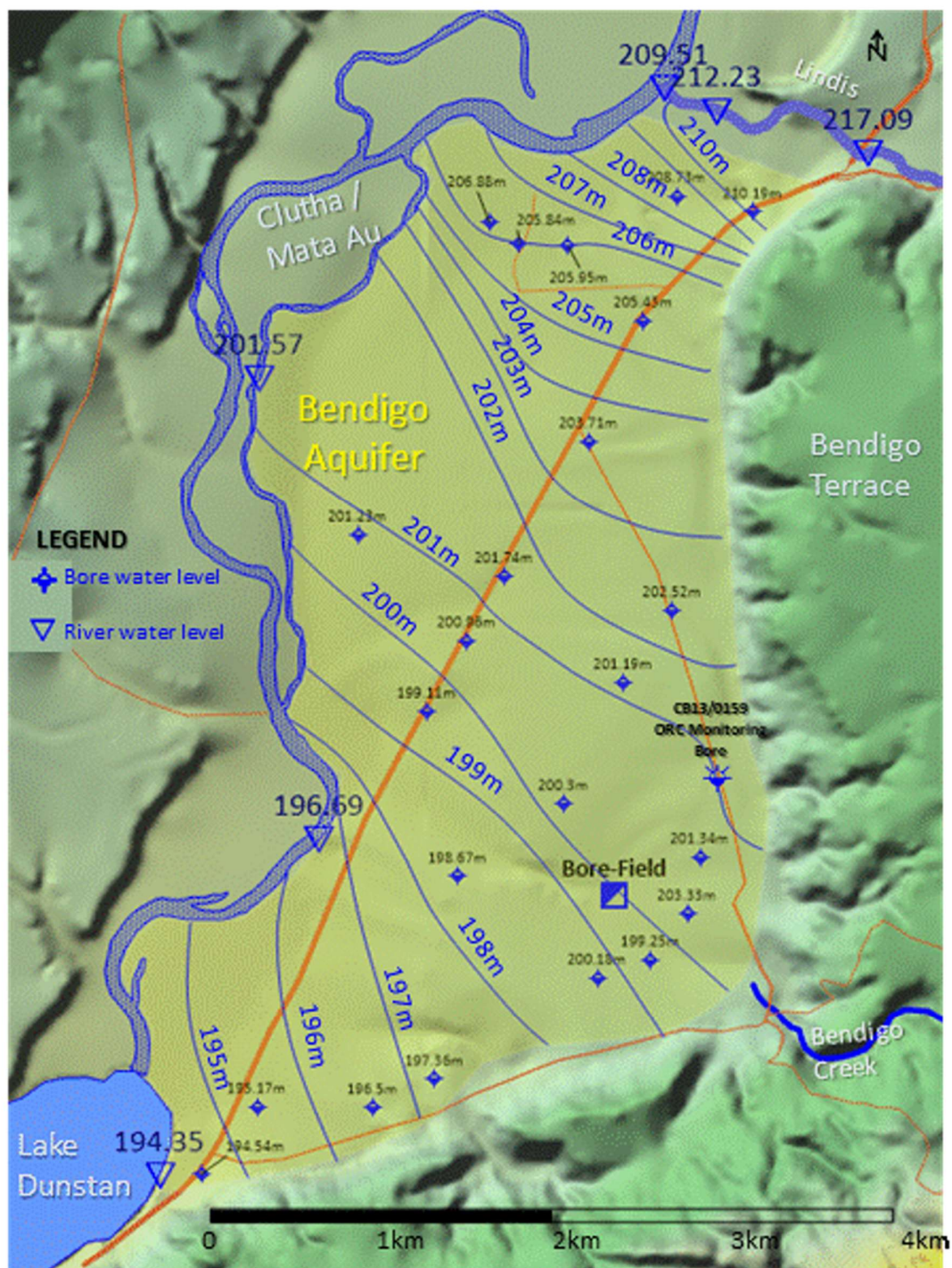
Table 6: Summary Statistics of 15 Water Table Elevations used in MODFLOW head Comparison

Class of Statistic	Statistic Value (mostly metres of head)
Residual mean	0.4
Residual Standard Deviation	0.72
Residual Sum of Squares	10
Absolute Residual Mean	0.7
Minimum Residual	0.9
Maximum Residual	1.6
Observed Range in Head	8.54
Residual Standard Deviation / Range	0.084 (or 8.4%)

Comparisons of measured versus modelled head expressed in the Residual Standard Deviation / Range statistic that achieve a value less than 10% are generally considered valid (Rumbaugh, & Rumbaugh, 2017). Therefore, the Residual Standard Deviation / Range derived value of 8.4% is indicative of a degree of validity. This should be tempered by the observation that the measurements were taken from a small number of observation points scattered across an extensive, high transmissivity aquifer. Furthermore, the Bendigo Aquifer is significantly influenced by the gradient and water level elevations of the Clutha River / Mata, as shown in Figure 6. As the river fixed head boundary in the MODFLOW simulation was based in the river level elevations mapped in Figure 6, it is reasonable to find that the groundwater levels and gradients follow the same patterns. The comparison of groundwater heads could not include a time series for transient calibration therefore certainty around storage coefficients, which require transient calibration data points, is particularly weak.

Comparison of measured versus modelled values also utilised two measurements of corrected drawdown taken at the conclusion of the July 2026 constant rate test at a rate of 97 litres per second. Table 4 and the top of Table 5 reveal the match between measurement and modelled as close, approaching $\pm 17\%$ error.

On balance, we consider the MODFLOW model is reasonable in its management of uncertainty, accuracy and validity to actual groundwater conditions. However, there are significant caveats; namely highly simplified model framework and homogeneity, matching to snapshot heads and limited transient matching with only two 6-day drawdown values measured at observation bores.



4 Sensitivity of the Bendigo Aquifer and Bores

4.1 Groundwater Resources Setting

The Bendigo Aquifer has been progressively developed for groundwater extraction since 1994. The primary utilisation of Bendigo Aquifer groundwater is and has been irrigation of pasture, grapevines and horticulture blocks. Secondary water uses include, domestic, stock and frost fighting water supplies.

The ORC allocation issued in consents totals precisely 16,153,039 cubic metres per annum from 37 separate bores. The total sum of instantaneous groundwater take to these 37 bores is 1,623 litres per second, thus averaging 44 litres per second each bore. The Bendigo Aquifer has delivered substantial quantities of groundwater since the beginning of its development more than thirty years ago.

4.2 Groundwater Connections to the Wider Clutha Catchment

The Bendigo Aquifer is also hydrologically balanced by the hydraulic connection with the Clutha River / Mata Au, plus still significant inflows from the Lindis River, Bendigo Creek and Land Surface Recharge. The seminal groundwater science publication on the Bendigo Aquifer (Houlbrooke, 2010) estimates that the river recharge boundary supplies 74% of the aquifer water balance. Furthermore, when stressed by groundwater pumping additional groundwater is induced to enter the aquifer from the Clutha River / Mata Au (Houlbrooke, 2010).

4.3 Special Characteristics of the Bendigo Aquifer

The aquifer is known to have high transmissivity. The closest accurate aquifer test of the Bendigo Pivot Bore (G41/0263) recorded a transmissivity of 8,000 m²/d, although the accuracy of this determination has been questioned. Pumping tests in bores adjacent to the Clutha River have recorded the combined effects of high transmissivity and the fixed head of the nearby river. Areas with more sensitivity to drawdown as self-induced drawdown due to well screen losses, or aquifer drawdown, tend to be around the aquifer basement or till margins. This may also be due to barrier boundary reverberation, higher fines content in the outwash gravels, or smaller available depth in places that the basement sediment elevation is rising towards the margin.

4.4 Seasonal Groundwater Level Variation

ORC has undertaken monitoring the aquifer since August 2021, as plotted in Figure 7.

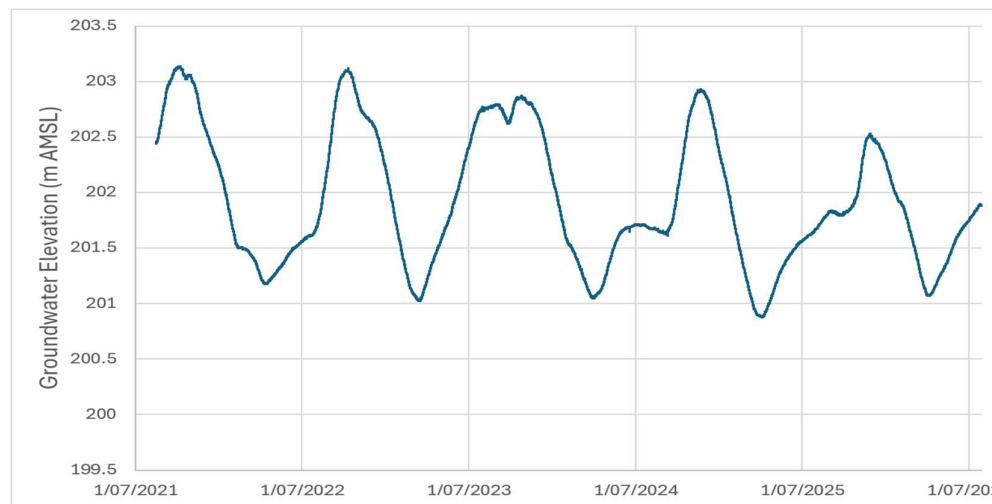


Figure 7: Measured groundwater level as elevation at ORC State of Environment monitoring bore CB13/0159

The annual water level variation is of the order of 2 metres and seasonally manifests a high water level in late winter, followed by a steady depletion of aquifer storage over summer and autumn. This may be a result of seasonal climatic or seasonal irrigation abstraction, or a combination of both sources of effect.

8. Drawdown was modelled to be accentuated in the areas of basement margin proximity and de-accentuated in proximity to the Clutha recharge margin, in addition to the more conventional deeper drawdown with proximity to the MGL bore field.
9. The highest modelled drawdown at a neighbouring bore on an annual basis was 1.71 metres at bore G41/0263, which lies 220 metres laterally from the MGL borefield.
10. The MODFLOW model has reasonable levels of uncertainty, accuracy and validity compared to actual groundwater conditions.
11. However, there are significant caveats to the question of uncertainty; namely highly simplified model framework and homogeneity, matching to snapshot heads, and limited transient matching to two drawdown values only.
12. Despite these caveats, this assessment provides reasonable grounds for comparing predictions of drawdown effect against further conditions of location and seasonal groundwater level variation.
13. It is considered that the Bendigo Aquifer is among the least vulnerable to the accumulation of drawdown effects in view of the generally high transmissivity and balancing effects of the Clutha River / Mata Au.
14. Seasonal groundwater level variation is narrow, approximating 2 metres annually, although this variability exceeds the highest estimate of affected bore drawdown due to MGL bore field pumping.

6 References Cited

- Houlbrooke, C. (2010). *Bendigo and Tarras Groundwater Allocation Study* (Otago Regional Council RSU Technical Report ISBN 978-0-478-37601-2; p. 69). Otago Regional Council.
- Rumbaugh, J. O., & Rumbaugh, D. B. (2017). *Guides to using Groundwater Vistas: Environmental Simulations, Inc., Reinholds, Penn., 497 p.*
- Theis, C. (1935). The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage. *American Geophysical Union Transactions*, 16, 519–524.

Appendix

Appendix 1. Identification of Groundwater Take Consents, Permitted Activity Groundwater Users, and associated Well Records

Consent Number	Max Flow Rate (L/s)	Max Daily Volume (m³)	Max Monthly Volume (m³)	Surface Water Allocation (L/s)	Groundwater Allocation (10 ⁻⁶ m³)	SDF	No. Of Wells	Well Number	Radius, r (m)
MGL Aquifer Test Pumped Bore	97	8,380	–	–	–	–	1	CB13/0215	0.2
MGL Aquifer Test Observation Bore	0	0	–	–	–	–		CB13/0262	75
RM18.215.01	15	1296	39000	0	273,000	–	2	G41/0263	220
N/A	1.5	25	750	–	9000	–	1	CB13/0156	236
2002.318.V1	36	3110	96410	0	674,870	–	1	G41/0262	418
RM20.016.01	15	1296	23581	0	57,000	–	1	G41/0206	430
RM21.209.01	6	490	11740	0	46,274	–	1	G41/0225	447
RM17.156.01	25	296	8881	0	34,198	–	1	G41/0332	548
N/A	1.5	25	750	–	9000	–	1	G41/0270	617
N/A	1.5	25	750	–	9000	–	1	G41/0373	624
N/A	1.5	25	750	–	9000	–	1	CB13/0221	628
RM10.340.02.V2	110	9504	283500	0	1,254,300	–	2	G41/0372	629
RM23.636.01	–	–	–	0	125,843	–	1	G41/0181	947
2001.A30	76.31	6593	138453	0	1,107,624	–	1	G41/0230	972
RM13.088.01	90	7780	289223	80	1,261,290	0.89	1	G41/0402/1	1157
RM12.323.01	35	3024	67760	0	167,338	–	1	G41/0282	1251
2010.242.V2	8.65	528	6300	0	24,620	–	1	G41/0097	1258
2002.277	5.5	396	16459	0	35,640	–	1	G41/0203	1473
RM24.291.01	–	–	–	0	12,091	–	1	G41/0203	1514
2003.058	56.5	4880	–	0	680,000	–	1	G41/0271	1525
RM14.128.01	108	7700	231000	86	1,020,000	0.80	1	G41/0435	1542
N/A	1.5	25	750	–	9000	–	1	G41/0440	1683
N/A	1.5	25	750	–	9000	–	1	G41/0600	1690
2002.613.V2	35	2916	–	0	530,712	–	3	G41/0283	1709
N/A	1.5	25	750	–	9000	–	1	G41/0441	1713
RM17.194.01	260	–	696384	0	2,553,789	–	2	G41/0435	1716
RM17.208.01	–	–	–	0	111,000	–	–	G41/0269	1727
RM11.180.01.V1	85	7344	227664	81	1,212,750	0.95	2	G41/0387	1808
N/A	1.5	25	750	–	9000	–	1	F41/0410	1819
RM20.180.01	10	864	13026	0	30,878	–	1	G41/0214	1892
RM24.008.01	–	–	–	0	100,980	–	1	CB13/0151	1935
RM25.607.01	–	–	–	0	220,000	–	1	G41/0315	1981
RM18.209.01	25	–	64800	0	324,000	–	1	G41/0198	2114
N/A	1.5	25	750	–	9000	–	1	G41/1811	2310
2001.928	32	2735	82050	0	246,150	–	1	G41/0228	2485
N/A	1.5	25	750	–	9000	–	1	G41/0189	2517
N/A	1.5	25	750	–	9000	–	1	G41/0191	2602

Consent Number	Max Flow Rate (L/s)	Max Daily Volume (m³)	Max Monthly Volume (m³)	Surface Water Allocation (L/s)	Groundwater Allocation (10 ⁻⁶ m³)	SDF	No. Of Wells	Well Number	Radius, r (m)
N/A	1.5	25	750	–	9000	–	1	G41/0229	2671
2002.615.V1	35	2916	–	0	530,712	–	3	G41/0283	2690
N/A	1.5	25	750	–	9000	–	1	G41/0123	2924
RM13.091.01.V1	110	9504	251760	0	1,095,339	–	1	G41/0405	3142
RM14.118.01	100		267840	75	1,401,434	0.75	1	G41/0402	3151
N/A	1.5	25	750	–	9000	–	1	CB13/0189	3384
RM10.340.01.V2	110	9504	283500	0	1,215,000	–	2	G41/0488	3392
N/A	1.5	25	750	–	9000	–	1	CB13/0190	3494
N/A	1.5	25	750	–	9000	–	1	G41/0345	3826
2004.508.V1	2.22	50	1575	0	9,073	–	1	G41/0308	3833
N/A	1.5	25	750	–	9000	–	1	CB13/0125	3867
N/A	1.5	25	750	–	9000	–	1	G41/0347	3956
2004.509.V1	2.3	129	3986	0	17,134	–	1	G41/0308	3966
N/A	1.5	25	750	–	9000	–	1	G41/0190	4016
N/A	1.5	25	750	–	9000	–	1	G41/0236	4120
N/A	1.5	25	750	–	9000	–	1	G41/0388	4204
N/A	1.5	25	750	1.5	9000	–	1	G41/2059	4240
RM14.172.01	90	7776	233280	90	0	1.00	1	G41/0434	4464
N/A	1.5	25	750	–	9000	–	1	G41/0452	4528
N/A	1.5	25	750	–	9000	–	1	G41/0461	4546
N/A	1.5	25	750	–	9000	–	1	G41/0462	4579
N/A	1.5	25	750	–	9000	–	1	G41/0463	4597

Note:

SDF means the Stream Depletion Factor, i.e., the ratio of surface water depletion to total pumped groundwater.

N/A means Not Applicable, i.e., a water bore that is operated without water take consent, presumably authorised by a permitted activity such domestic and/or stock water requirements or as per rule 12.1.2.1, or rule 12.1.2.2 (i.e., where the bore is within 100 metres of the Clutha River / Mata Au or Lake Dunstan).

Max. Flow / Daily or Monthly or Annual Volume relates to the limits on taking water set in the associated groundwater take consent. Where the water bore is not authorised for water take consent, the maximum daily rate under the rule 12.1.2.1 permitted activity of 25 m³/d is specified, along with 1.5 L/s, 750 m³/month and 9,000 m³/year.

No. Of Wells relates to the number of bores attached to large groundwater take consents, which may number up to 3.