

# **Goff Groundwater Science Ltd.**

Stuart Milsom  
Caland Holdings Limited

27 February 2026

## **Subject: Milbrow Estate, 66 McFetridge Road: Hydrogeologic Conditions Related to Increased Groundwater Take**

Dear Stuart,

The following technical brief is provided on behalf of Caland Holdings Ltd. (CHL) regarding Milbrow Estate at 66 McFetridge Road in Hamurana.

### **BACKGROUND**

In many cases an increase in rate of take for groundwater use requires an Assessment of Environmental Effects (AEE). Potential environmental effects may include drawdown effects at surface water features including streams or wetlands, saltwater intrusion and on neighboring bores. In the case of this proposed groundwater take, the effects on the environment, including other bore users, are expected to be less than minor.

CHL currently takes groundwater for stock and domestic purposes as a permitted take of 35 m<sup>3</sup>/day or less. CHL is interested in developing the site and requires a groundwater take of 3.3 liters per second (lps) and 43,800 m<sup>3</sup>/y. It is my view that pumping testing and a full assessment of effects are not necessary for this groundwater take. The following information is offered in support of this view.

The CHL production well (currently unregistered, bore log attached) is constructed to a total depth of 132 meters below ground level (mbgl) with casing set to 77 mbgl, static water level is 42 mbgl. A 12-hour pump test was conducted on the CHL production well producing 3.3 lps and less than 6 meters of drawdown. Drawdown is estimated based on the pump setting depth of 48 mbgl versus the static water level of 42 mbgl. Drawdown is greatest inside the production well and diminishes with distance away from the production well. The CHL production well is located in the Hamurana Groundwater Catchment.

### **POTENTIAL EFFECTS ON SURFACE WATER AND SALINE INTRUSION**

Potential effect on surface water is anticipated to be less than minor. The static water level in the production well is 42 mbgl, well below any surface water in the area. Taniwha Springs and Hamurana Springs are located in the area of the project. These springs hold important cultural value and serve as a source of drinking water to the local communities. Based on the hydrogeology and spatial relationships of the production well and the springs, it is my view that potential effect on these features is expected to be less than minor.

Taniwha Springs is located about 1.9 km south of the production well, in the Awahou Groundwater Catchment. Water level elevation in the production well is approximately 308 meters above sea level (masl). The elevation at Taniwha Springs is about 282 masl. The difference in water level elevation indicates that the two are not hydraulically connected. Furthermore, the low amount of drawdown in the production well is less than the difference in elevation indicating that the effect would not be measurable at Taniwha Springs. It is my view that the potential for drawdown effect as a result of the proposed take is less than minor due to the significant distance, the difference in water levels, the low amount of drawdown and the deep construction of the CHL production well.

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Similarly, the potential for effect on Hamurana Springs is anticipated to be less than minor. Hamurana Springs is located approximately 4.1 km east of the CHL production well, in the Hamurana Groundwater Catchment. The discharge elevation of Hamurana Springs is about 280 masl. The difference in water level elevation indicates that the two are not hydraulically connected. Furthermore, the low amount of drawdown in the production well is less than the difference in elevation indicating that the effect would not be measurable at Taniwha Springs. It is my view that the potential for drawdown effect as a result of the proposed take is less than minor due to the significant distance, the difference in water levels, the low amount of drawdown and the deep construction of the CHL production well.

Potential for effect on saltwater intrusion is also negligible. The bottom of the CHL production well is about 218 masl. The production well is located about 34 km inland from the coast. The risk of saltwater intrusion as a result of the proposed take is nil.

## **POTENTIAL EFFECTS ON GROUNDWATER QUALITY**

The development plan for the project includes on-site stormwater management. It is envisioned that street runoff will be naturally polished in swales and retention areas before being allowed to infiltrate the subsurface. It is my view that, considering the significant depth to water at the site, that a properly designed and maintained stormwater management system will result in less than minor effects on groundwater quality.

## **POTENTIAL EFFECTS ON GROUNDWATER AVAILABILITY**

The production well is located within the Hamurana - Awahou - Waiteti Groundwater Management Unit (GMU). This unit is one of 8 GMUs within the wider Rotorua Freshwater Management Unit (FMU). The allocation limit for the Hamurana - Awahou - Waiteti GMU is 22.6 Mm<sup>3</sup>/yr (PDP 2025). According to the BOPRC allocation tracking webtool, the entire Rotorua Groundwater Management Zone (all 8 GMUs) has a current allocated use of 1.1 Mm<sup>3</sup>/yr. Significant allocation is available to support the small groundwater take proposed and potential effect on groundwater availability is expected to be less than minor.

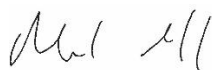
## **POTENTIAL DRAWDOWN EFFECT ON NEIGHBORING BORES**

The closest bore to the CHL production well is BN-3469 which is 790 m away and of similar construction with about 75 m of available drawdown. Drawdown effect, as a result of the proposed groundwater take at the nearest bore will be negligible based on the small amount of drawdown in the production well, the distance to the nearest bore and the significant amount of available drawdown in the neighboring bore.

## **CONCLUSION**

In summary, it is my view that the proposed groundwater take is expected to have a less than minor effect on other groundwater users, the environment and groundwater availability. Please contact me with any questions regarding this input.

Best Regards,



Michael D. Goff, PG  
Goff Groundwater Science Ltd.



## Drillers Log Form

**Name:** Milsom  
Stuart

**Address:**  
Jackson Road  
Rotorua

**Location of Bore:** Jackson Road  
Rotorua

**Grid Ref:** **Horizontal:** 0 **Verticle:** 0

**GPS Co-ordinates:**

**Drilling Firm:** Carlyle Drilling

**Driller:**  
☐ Murray Carlyle ☒ Mark Carlyle ☐ Driller

**Drilling Method:** Foam/Rotary

**D.O.C.:** 26/09/2008

**Purpose of Bore:** stock & domestic

### Well Construction

Depth of Bore (m): 132  
Depth of Casing (m): 77  
Diameter of Casing (mm): 100

### Screens

Diameter(s) (mm): n/a  
Setting = from: (m) to (m)  
Slot Size(mm):  
Type of Screen:

### Pump Test

Static Water Level\* before  
Pumping (m): 42  
Method of Test Pumping: Submersible  
Depth of Pump (m): 48  
Test Discharge (lph): 12000  
Duration of Pumping at that  
discharge (hrs): 12  
Drawdown level at that discharge

### Water Quality

Observation on Site: Potable  
Temperature {deg Celcius}:  
Remarks: GPS S 38-03-158  
E 176-20-788

#### Depth of Strata from Surface

| Top (m) | Bottom (m) | Description of Ground Passed Through |
|---------|------------|--------------------------------------|
| 0       | 3          | brown pumice                         |
| 4       | 6          | light brown soft rhyolite            |
| 7       | 12         | firm brown rhyolite                  |
| 13      | 29         | hard fractured rhyolite              |
| 30      | 41         | purple rhyolite                      |
| 42      | 113        | various coloured rhyolite            |
| 114     | 125        | soft brown ignimbrites pumice silica |
| 126     | 132        | fractured hard rhyolite              |