

**A REPORT ON THE CATCHMENT TO  
BOOLARRA  
WATERWORKS OFF-TAKE ON WALKLEY  
CREEK**

**A PROPOSAL FOR PROCLAMATION**

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## **1. INTRODUCTION**

Boolarra Waterworks Trust was constituted in 1955. Its source of supply is Walkley Creek, a tributary to the Morwell River.

Boolarra Waterworks Trust requested the Soil Conservation Authority to investigate its water supply catchment for proclamation under the *Soil Conservation and Land Utilization Act* and the *Land Conservation Act*. In this report the natural features of the catchment are briefly described and its proclamation recommended.

## **2. THE CATCHMENT**

### **2.1 General**

Boolarra Waterworks Trust derives its water from Walkley Creek, an eastern branch of O'Grady Creek, at a small offtake weir. The catchment is located in the Parish of Mirboo, Shire of Morwell, about 5 km south of Boolarra. It covers an area of about 787 ha, being about 4.5 km long north to south and about 2.5 km wide. The catchment is about 178 km east of Melbourne, within the South Gippsland Study Area (District 2) of the Land Conservation Council, for which the Proposed Recommendations are still pending.

### **2.2 Land Tenure and Land Use**

Almost all of the catchment has been cleared of its original vegetation and is in private ownership for primary production.

The only public land is a small block of 2428 m<sup>2</sup> in CA 17, Parish of Mirboo, Shire of Morwell, owned by the Boolarra Waterworks Trust, on which the offtake weir is located. Grazing is the major land use and it occupies about 80% of the catchment area. The remaining 20% of the catchment land is used for cropping of potatoes and some cereals and fodder crops. A small sloping area in the southern part of the catchment has been used for pine plantation during the last five years. There are a few farm houses in the catchment with septic tank systems. The roads are only minor roads and tracks to farm houses and mostly have unsealed surfaces.

### **2.3 Geology and Topography**

The base rock of the catchment is part of the Strzelecki group of the Lower Cretaceous, overlain by older basalt of Lower Tertiary origin. The older basalt overlay, also known as Thorpdale volcanics, covers about 98% of the catchment area.

The Lower Cretaceous sediments (Strzelecki) outcrop only in a very small area in the north-west corner of the catchment. This formation covers about 1% of the catchment. A further 1% of the catchment is covered by Quaternary sediments containing sand, silt and gravel. These occur mainly in the south-east sector.

The catchment has a continuous hilly to undulating topography, reaching an elevation of 360 m near the headwaters and dropping to 160 m above sea level at the offtake. Maximum slopes within the catchment vary from 10-40%. The streams emerge from the south with a dendritic pattern and flow northwards.

### **2.4 Soils**

Most of the soils have developed from the Thorpdale volcanics. These are brown gradational soils with a depth of over 1.5 m. The A-horizon texture is loamy with a strong sub-angular blocky structure. It is friable when slightly moist, contains a moderate amount of organic matter and has a pH of about 6. In the B1-horizon, the texture becomes clay loam with a pH of 5 and a moderate level of organic matter. The B2-horizon has a clay texture, a pH of 6 and a low organic matter content. The boundaries between the horizons are distinct. There is an inclusion of basaltic gravel in the B1 horizon of about 20%, and in the B2 of about 5%. The permeability of these soils is moderately low.

About 1% of the catchment soils are on Cretaceous parent material. These soils are duplex, shallow, mottled, yellow soils with a clay loam surface texture and moderate permeability.

Soils in the remaining 1% of the catchment area are red brown gradational soils with a sandy loam surface texture, a moderate permeability, and a depth usually greater than 2 m.

## 2.5 Climate

There are no climatic data available from within or close to the catchment area. The nearest weather recording station is at Hazelwood, about 20 km north-east of the catchment. The data from this station are used here to indicate the climatic conditions of the catchment area.

The average yearly rainfall is 710 mm. The wettest month is August with an average rainfall of 75 mm, and the driest month is January with 41 mm.

The mean monthly relative humidity increases from 64% in January to a maximum of 88% in July. Temperatures are moderate with a daily mean maximum of 24.5°C occurring in January. The coldest month is July with an average minimum of 3.7°C. Frosts are likely to occur mainly during June and July.

The growing season is very long as indicated by the temperature and rainfall characteristics summarised above. Plant growth may be retarded by low temperatures during June-July, but not by high temperatures and low rainfall in summer. As a result, the growing season can on average be as long as 9 to 10 months.

## 2.6 Vegetation

As mentioned earlier, most of the catchment area has been cleared of its native forest vegetation. However, there are some native trees growing along the creek lines, and in isolated clusters and individually, which indicate the type of forest cover before the land was cleared.

Most of the catchment must originally have had a tall open forest cover. The dominating species here were : Messmate (*E. obliqua*), mountain grey gum (*E. cupellocarpa*), Victorian blue gum (*E. st. johnii*) and Manna gum (*E. viminalis*). Remnants of red gum (*E. camaldulensis*) on some terraces and flood plains indicate the past existence of a woodland forest/red gum association.

The cleared land in the catchment has now been sown with perennial rye grass, white clover and subterranean clover and cultivars. There is also a small area planted with pine for softwood production during the last 5 years.

## 3. WATER SUPPLY AND QUALITY

As previously mentioned, Boolarra Waterworks Trust derives its water from an offtake weir on the Walkley Creek. The water flows by gravity to the storage reservoir and service basin to the south of the town and is then pumped into the reticulation system.

The storage reservoir has a capacity of 2.25 ML with a retention time of 2 days under maximum demand for water during summer.

Water is currently supplied to 200 houses and supply facilities are provided to 100 vacant blocks. The Boolarra Waterworks Trust expects the population of Boolarra to increase to 7,000 by the year 2000 and hence the necessity for augmenting the supply. It is envisaged that the supply will be augmented by withdrawal of water from the Morwell River at a location near the township. However, the augmentation plans are in their embryonic stage and if realised would not affect the present status of the catchment.

Water quality tests for bacteriological parameters are carried out by the State Rivers and Water Supply Commission on a monthly basis, and for physical and chemical parameters by the LaTrobe Valley Water and Sewerage Board on a non-routine basis.

The water is chlorinated before entering the reticulation system. Appendix A shows water quality data from the Boolarra Storage Basin and from the reticulation system. The measured values are in accordance with the current desirable criteria of the National Health and Medical Research Council.

## 4. POTENTIAL HAZARDS TO THE WATER SUPPLY

The following are possible hazards to the water supply:

- (a) Access of cattle to streams
- (b) Cropping activities
- (c) Future pressure for subdivisions in the catchment as a result of its location in the LaTrobe Valley, and
- (d) Run-off from unsealed roads and tracks.

## 5. RECOMMENDATIONS

That the Land Conservation Council recommends to the Governor-in-Council that the catchment to Walkley Creek to the off-take in CA 17, Parish of Mirboo, as shown on Catchment Plan No. S.1152 be proclaimed under the provisions of Section 22(1) of the *Soil Conservation and Land Utilization Act 1958*.




### APPENDIX A

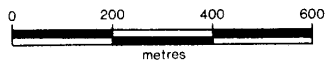
Summary of water quality data for Boolarra Storage Basin Outlet and reticulation for 1981-1982. (Range of values in mg/l unless otherwise stated.)

Parameter	Storage Outlet	Reticulation	NH and MRC Desirable Current Criteria (1980)
<b>Physical</b>			
Colour units			
Pt-Co units	40	N/A*	50
Turbidity (NTU)	3.0	N/A	25
pH	8.1	N/A	6.5-9.2
<b>Chemical</b>			
Total solids	N/A	N/A	1500
Total alkalinity as CaCO <sub>3</sub>	43		200
Chloride as Cl	51	N/A	600
Fluoride	0.02	N/A	1.5
Total hardness as CaCO <sub>3</sub>	51	N/A	600
Microbiological			
Coliforms/100 ml	N/A	2-220	90% of all yearly samples should contain less than 20/100 ml.
<i>E. coli</i> /100 ml		0-6	90% of all yearly samples should contain less than 2/100 ml.

\* Not available

# WALKLEY CREEK (BOOLARRA) WATER SUPPLY CATCHMENT

- LEGEND**
-  Catchment boundary
  -  Watercourses
  -  Roads



S-1152

