

SOIL CONSERVATION AUTHORITY

REPORT ON MIRBOO NORTH  
WATER SUPPLY CATCHMENT

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**A. INTRODUCTION**

On 3<sup>rd</sup> October 1963, the Mirboo North Waterworks Trust made a request for proclamation of their catchment as a Water Supply Catchment under section 22 of the *Soil Conservation and Land Utilization Act*. The request was forwarded to the Authority through the Trust's Consulting Engineers in Melbourne, Messrs. B.A. & D.B. Smith.

This report aims to provide relevant information for consideration of this request by the Land Utilization Advisory Council. SCA Plan No. 1446 shows some relevant catchment information and accompanies this report.

**B. GENERAL DESCRIPTION OF THE CATCHMENT**

*(i) Locality, Area and Land Tenure*

The Mirboo North Water Supply is pumped direct from the northern arm of the Little Morwell River. The pumping station is situated immediately upstream from the junction of the northern and southern arms of the river, on a block of land fronting on to the Thorpdale-Mirboo North road. The catchment is therefore the land draining to the northern arm only. It covers approximately 1,960 acres, of which approximately 860 acres or 44% is under State Forest managed by the Forests Commission. The remaining 1,100 acres is freehold land.

*(ii) Environment*

**a. Climate:** The mean annual rainfall readings for Mirboo North and Thorpdale are 44" and 43" respectively. The rainfall for the catchment can therefore be considered as close to 44", the area being situated approximately 4 miles from Thorpdale, and 3 miles from Mirboo North.

The climate pattern shows no marked fluctuations. The area has a growing season close to ten months.

**b. Geology and Soils:** The northern part of the catchment, covering approximately one-third of the land, is developed on Older Basalt. It has deeply weathered krasnozemic soil profiles with friable red-brown clay loam down to between 18" and 24" where the clay horizon starts. The land on these soils is almost wholly cleared and developed for grazing and potato growing.

The southern part is developed on Tertiary sediments ..... from massive gravelly strata and coarse sandy strata to isolated sandy deposits, probably wind-blown in origin. The soil on these sandy pockets is a podzol with varying depths of pale grey sand and coffee rock overlying the clayey material. This has been exposed in several sand-pits which have now been closed, but which are rilling badly. The soils on the other Tertiary deposits are podsollic, being yellowish to greyish-brown loams to clay loams on clay, with A horizons 12" to 15" deep. Almost all the land on Tertiary deposits is still under forest. All the soils in the catchment are acid with lowest pH readings on the sandy podzols (4.5 - 5.0).

**c. Topography:** The catchment can be described generally as rolling to hilly. The land on basalt slopes evenly down to well-formed entrenched drainage lines. Slopes vary from 15% to 30%, the highest slopes being found in the depressions at the head of drainage lines where generally a spring emerges to provide permanent flows.

The various drainage lines join to form the main stream which flows at a regular gradient to the sedimentary land where it is joined by other arms. The land in the south-western part of the catchment has several short steep parts with slopes between 30% and 40%, and is generally more dissected.

**d. Vegetative Cover** The forested areas contain a mixed cover of Messmate (*E. obliqua*) and Narrow-Leaf Peppermint (*E. radiata*), with a low undercover of Acacia species, hop bush and bracken. The quality of the forest cover varies; medium quality fencing timber exists on the south-eastern slopes, but in the western part of the catchment, some better quality poles and milling timber is found.

In the cleared areas, the land has mostly been improved to carry high quality perennial pastures alternative with crops of potatoes. Crown allotment 98 in the parish of Allambee East, is cleared land under a light cover of scrub which has been purchased by A.P.M. Forests Limited, and has been planted to pines.

### **iii) *Erosion Incidence and Present Condition of Stream and Drainage Lines***

Generally the land in this catchment has a low erosion hazard. However, the sandy podzols are easily eroded following extraction or stripping activities but these areas are limited in extent. No significant erosion has been apparent on the krasnozemic soils even where cropping is carried out on sloping land adjacent to streams. There is the usual discolouration of water from tracks and crossings during and after heavy rainfall. The main contribution of discolouration and silt load in this arm of the Little Morwell River comes from roadside runoff, new roadworks and fill batters, and the runoff from the sand extraction pits which are now all closed but which are still rilling actively. No reclamation works have yet been carried out to control runoff on these surfaces. The recent installation of a new pipe culvert and realignment of the Mirboo North road across the river has loosened considerable amounts of soil from the fresh surfaces and batters which are present unstabilised. All this material now enters the stream bed. Another instance is the western end of Trembath's Road on the basalt country, where coarse gravel sheeting on the road has been washed into the otherwise stable stream in considerable quantity.

The condition of the stream beds and banks is generally good and provides no cause for concern, provided activities involving bulldozers or other heavy equipment are controlled in their activities, particularly near streams.

## **C. LAND-USE AND WATER QUALITY**

The Trust's aim in requesting proclamation of the catchment is to assure continuity of safe management practices and to prevent exploitation of the land to the detriment of the water supply. However, the Trust is not unduly concerned at present, as the quality of water is generally unsatisfactory. This was stated by the Trust Engineer and Secretary at the time of the first inspection in November, 1963.

The area has been inspected in greater detail since then, and reference has been made to water quality tests made by the State rivers and Water Supply Commission. Turbidity readings on the silica scale have been taken from the water supply at the offtake twice yearly since 1953. Readings on the silica scale have ranged from 7 to 16 ppm for the past 4 years, but the most recent reading in April 1964 registered 34 ppm. The acceptable maximum for town water supply is stated to be 12 ppm. Bacteriological sampling has been started also in April, and is to be continued on a quarterly basis. The first reading was stated to be higher than the desirable maximum but cannot be used until more samples have been taken.

The conclusion to be reached from the foregoing information is that the increased turbidity of the northern arm of the Little Morwell River is brought about mainly by turbid runoff from unstabilised new roadworks on the Thorpdale-Mirboo North road, and bared surfaces in abandoned sand pits. The

general condition of the catchment appears to be satisfactory under the present forms of land-use and is considered to constitute no significant hazard to the water supply interests.

**D. IMPLICATIONS OF PROCLAMATION AND LAND USE DETERMINATION**

It can therefore be expected that a proclamation of the area as a water supply catchment will have little effect on existing land-use practices, and a land-use determination would consist virtually of a confirmation of present land-use, with the probable specification of buffer strips along the permanent streams.

However, proclamation will lend weight to Authority liaison with the Country Roads Board, Forests Commission, and the Shire Council, for necessary advisory work regarding the stabilisation of the new road works and the abandoned sand pits.

(W. R. Rothols)  
INVESTIGATION OFFICER