

**A REPORT ON THE
CRESWICK WATER SUPPLY CATCHMENTS**

**A PROPOSAL FOR PROCLAMATION PREPARED FOR
CONSIDERATION BY THE LAND CONSERVATION COUNCIL**

By

B. J. OSBORN
District Conservation Officer

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SOIL CONSERVATION AUTHORITY
378 Cotham Road Kew Victoria 3101

INTRODUCTION

Cosgrave Reservoir, located in the Shire of Creswick, is nearing completion. This 680 ML reservoir will form the major source of domestic water for the township of Creswick.

The Soil Conservation Authority has been requested by the Shire of Creswick to investigate the township's water supply catchments, and prepare a report for the information and guidance of the Council in the preparation of the Shire Planning Scheme.

The township of Creswick has a present population of **2,100** people and this is expected to more than double by the turn of the century. Situated some 16 km north of Ballarat the town is developing as a dormitory town for Ballarat.

This report presents information obtained from a preliminary investigation of the catchment, and proposes that the Land Conservation Council recommend proclamation of the catchment under Section 5(1)(b) of the *Land Conservation Act 1970* and Section 22(1) of the *Soil Conservation and Land Utilization Act 1958*.

WATER SUPPLY SYSTEM

With the completion of Cosgrave Reservoir, Creswick township will be supplied from three reservoirs. Each has a separate catchment located as shown on Plan No. S-741 at the end of the report. Total storage capacity of the catchment headworks is estimated to be 915 ML made up as follows:

Cosgrave Reservoir	680 ML
Dean Reservoir	163 ML
Russells Reservoir	72 ML

Water from Dean and Russells Reservoirs (12 km and 7 km respectively from the town) is gravitated by pipeline to Lincoln service basin (2.6 ML) located 1 km east of the township. Water from Cosgrave Res. (5 km distance) will be pumped to Lincoln basin.

WATER QUALITY AND TREATMENT

Supply from Russells Reservoir deteriorates during certain periods of the year. Improvements to the system proposed over the next few years included the phasing out of "Russells" as a source of supply. Township water is chlorinated as the need arises.

CATCHMENT DESCRIPTION

(a) General

The three storages have their catchments located within the larger catchment of the Tullaroop Reservoir situated on Tullaroop Creek - a tributary of the Loddon River.

Cosgrave Reservoir is situated on Creswick Creek, Dean Reservoir on Birches Creek and Russells Reservoir on an unnamed stream joining Creswick Creek from the south, a short distance downstream from the Cosgrave storage.

The southerly extremities of these catchments lie on the Great Dividing Range. Their approximate areas are Cosgrave 3,150 ha, Dean 165 ha, Russells 32 ha. The catchment of Cosgrave Reservoir contains the township of Dean.

Several allotments in the south of Cosgrave and Dean catchments fall within the Shire of Bungaree. The remaining land is completely within the Shire of Creswick. The catchment covers part of the parishes of Bungaree, Creswick, Dean and Spring Hill, all within the County of Talbot.

(b) Geology

Newer Volcanics of the late Tertiary/early Quarternary age predominate in the section of catchment east of the line joining Dean with Springmount. Lava flows in this section originated from numerous eruption points now appearing as cones located about the catchment boundary.

The Tertiary sediments are associated with the gold bearing deep lead gravels. Although there is only a small exposure of Tertiary sediments in the western section they underlie the basalt flows throughout the eastern section.

(c) *Physiography*

Along the southern boundary of the catchment the Great Dividing Range reaches elevations of 730 -740 m at the peaks of the volcanic cones, Tipperary Hill and Clarkes Hill.

The undulating basalt plain stretches out to the north and east beyond the catchment boundary. The volcanic cones of Spring, Forest and Scrub Hills are prominent features on the periphery of the Cosgrave catchment.

Within the western section, where Ordovician sediments predominate, the landscape contains gentle to low hills. Here stream dissection is more pronounced than in the basalt plain to the east.

(d) *Climate*

The following climate averages have been obtained from observations at the Creswick Forestry school.

Annual average rainfall	-	787 mm
Annual average summer rainfall	-	154 mm
Annual average winter rainfall	-	236 mm
Annual average number of rain days		147

The average daily temperature is 18.3⁰C and the average daily minimum temperature is 6.4⁰C. As all land within the catchment is at a higher elevation than the recording station it can reasonably be assumed that rainfall in the catchment will be slightly higher and temperatures lightly lower than those observed.

The growing season is roughly 8½ to 9 months from mid March to mid December with a period of retarded growth due to cold conditions over the winter months.

(e) *Soils and Vegetation*

Red gradational soils derived from basalt parent material dominate the plain. Towards the crests of cones these soils tend to be shallow and stony but elsewhere are deep and finely structured. Little of the original vegetation remains on the basalt plain.

Soils derived from Ordovician sediments are principally duplex in character. Shallow stony gradational soils occur on the low ridges with the red duplex soils occupying the long gentle slopes. Much of the native hardwood forest remains on these soils. A small area has been converted to pines.

LAND USE

The basalt soils all lie in freehold land. Intensive cropping of potatoes is the main enterprise on these soils, and in the past this has extended from well up the slopes of the volcanic cones down to the lower valley sides. A change to mechanical harvesting and bulk handling equipment has led to a change in areas suitable for cropping; there is a tendency now to confine activities to the plains and gentler slopes.

Grazing and timber production are the principal uses of land on sedimentary soils; some cropping is carried out, but generally this is associated with pasture improvement.

Forested areas are managed by the water supply authority, the Forests Commission, and some private landowners. A holiday camp has been established for many years in forest on freehold land above Adekate Creek.

HAZARDS TO THE WATER SUPPLY

The following potential hazards to the water supply exist:

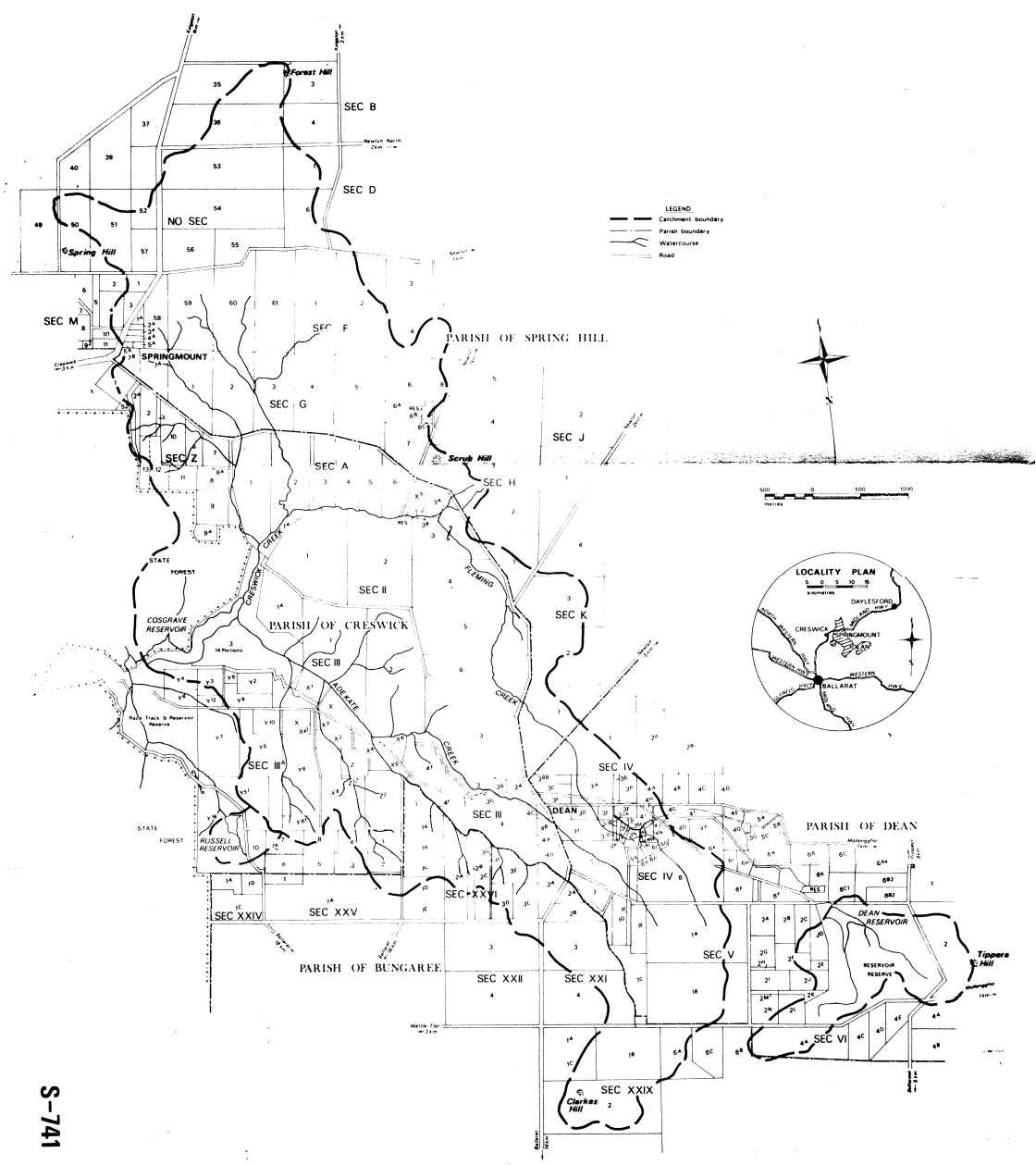
1. Future develop of the large number of freehold allotments in the vicinity of Cosgrave Reservoir for week-end or hobby farm activities. This would increase the potential sources of various pollutants.
2. Unregulated future clearing of the remaining timber in the catchment giving rise to additional overland flow, erosion and turbidity.
3. An existing problem associated with turbid runoff from cropping areas and roading.
4. The possibility of toxic chemicals used in crop management entering the watercourses and storages.
5. An increase in nutrient levels in the storages as a result of high levels of fertilizer use, this could lead to algal blooms and eutrophication of the storages.

LAND CONSERVATION COUNCIL

These Water Supply catchments fall within Ballarat study area, an area in which a study has commenced but a report has yet not been published.

RECOMMENDATIONS

1. That the Authority approves this report and forwards it to the Land Conservation Council for consideration;
2. That the Land Conservation Council recommends to the Governor-in-Council that the Creswick Water Supply Catchment, as shown on Plan S-741, be proclaimed under Section 5(1)(b) of the *Land Conservation Act 1970* and Section 22(1) of the *Soil Conservation and Land Utilization Act 1958*.



S-741