A REPORT
ON THE SOUTH GIPPSLAND
WATER SUPPLY CATCHMENTS

A PROPOSAL FOR PROCLAMATION

OCTOBER 1987

LAND PROTECTION DIVISION

A REPORT ON THE
SOUTH GIPPSLAND WATER
SUPLLY CATCHMENTS

PROPOSAL FOR PROCLAMATION

PREPARED FOR CONSIDERATION BY THE

LAND CONSERVATION COUNCIL

PREPARED BY

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OCTOBER, 1987

LAND PROTECTION DIVISION

DEPARTMENT OF SONCERVATION, FORESTS AND LANDS

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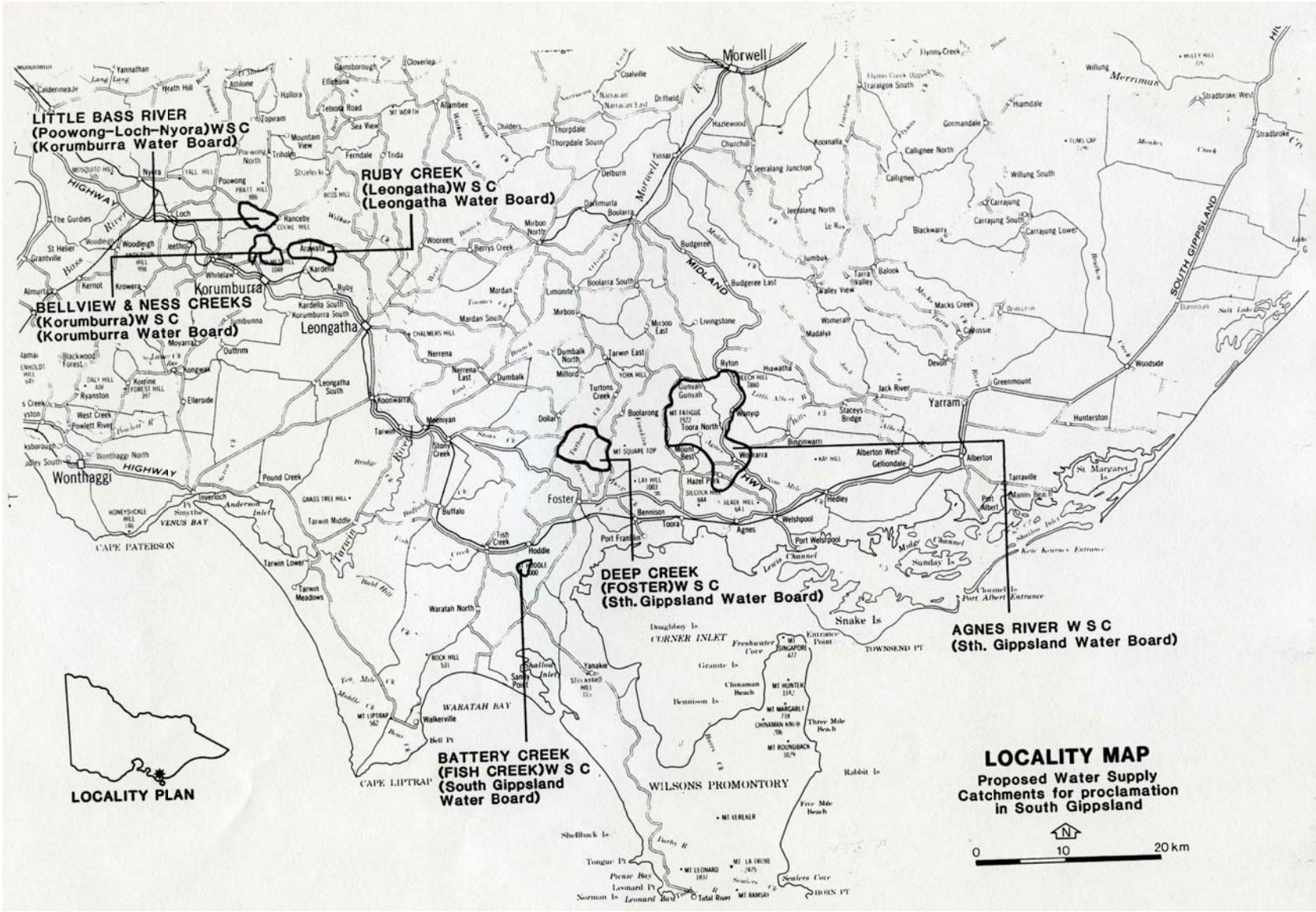

Figure 1 – Locality Plan

1. INTRODUCTION

This report summarise the results of preliminary investigations into seven water supply catchments located in South Gippsland refer Fig 1 Locality Plan). Details of the catchments are presented together with individual plans of each at the end of the report. Parishes and countries that fall within the catchment areas together with the municipalities involved are summarized in Appendix I.

Except where description of the subject mater has been necessary most of the information is presented in tabular form.

This is a new format for proclamation reports with the objective of increasing the output of proclamation.

Proclamation will emphasise the importance of the catchments for water supply purposes, enable a consistent approach to the planning and management of the catchments to protect water supply values and bring to the attention of planning and management bodies and private landholders the need for careful management of land.

Proclamation will also require that, during the process of considering applications for subdivision, extractive industry leases and licences, and some mining tenements, the proposals be given preliminary assessment relevant to water catchment interests.

Under the provisions of the *Soil conservation and Land Utilization Act* 1958, proclamations the first step of a three stage procedure involving the planning and implementation of land use/land management controls for the protection of water catchment areas.

Table 1 – Catchments Proposed for Proclamation

Water Supply Catchment	Water Supply Authority	Urban & Other Localities Supplied	Population Supplied
Agnes River	South Gippsland Water Board	Toora, Welshpool, Hedley, Agnes, Bennison, Port Franklin and surrounding rural areas, Esso at Barry Beach and the Butter Factory at Toora.	2200
Deep Creek	South Gippsland Water Board	Foster and surrounding rural areas	1300
Battery Creek	South Gippsland Water Board	Fish and Creek and surrounding rural areas	300
Ruby Creek	Leongatha Water Board	Leongatha	4000
Bellview and Ness Creeks	Korumburra Water Board	Korumburra	3000
Little Bass River	Korumburra Water Board	Poowong, Loch & Nyora	800

2. ENVIRONMENTAL FEATURES OF THE CATCHMENTS

Geology, Topography, and Soils

Table 2 - Summary of Main Physical Characteristics

Catchments (s)	Geology, topography and elevation	Soils
Agnes River	Lower Cretaceous sandstone, siltstone and mudstone with minor Pliocene sedimentary deposits. Undulating to hilly Elevation 130-500 m.	Porous earths, some acidic mottled duplex soils.
Deep Creek	Lower Cretaceous sandstone, siltstone and mudstone with minor Lower Devonian sandstone, mudstone and shale deposits. Hilly Elevation 100-300 m	Porous earths
Battery Creek	Ordovician and Lower Devonian sandstone, mudstone, breccia and shale, Hilly Elevation 120-300 m	Shallow, stony soils or acidic mottled duplex soils
Ruby Creek	Tertiary older volcanics and Lower Cretaceous sandstone, siltstone and mudstone Hilly Elevation 150-360 m	Red and brown porous earths
Bellview and Ness Creeks and Little Bass River	Lower Cretaceous sandstone, siltstone and mudstone. Rolling – hilly, Elevation 180-360 m.	Brown porous earths

Rainfall

There a no meteorological data available from within these catchments. However, the data from nearby meteorological stations were used to interpolate the average rainfall in the catchments. The average annual rainfall shows little regional variability as shown in the following table. The lowest annual rainfall occurs in the Battery Creek Catchment and the highest in the Agnes River Catchment.

Table 3 - Estimate Average annual Rainfall and Evaporation in The South Gippsland Catchments.

Location of meteorological stations	Catchment	Average annual rainfall (mm)	Average annual evaporation (mm)
Toora, Agnes, Mt Best	Agnes River	1150	1100
Foster	Deep Creek	1140	1100
Fish Creek, Hoddle Range	Battery Creek	1040	1100
Korumburra, Leongatha	Bellview and Ness Creeks	1100	1100
Korumburra	Ruby Creek	1125	1100
Korumburra	Little Bass River	1100	1100

Vegetation

Before European settlement, all of the catchments discussed in this report were covered with similar tall tree vegetation associations. However, the early settler almost totally cleared the area of this vegetation for pasture and grazing management. Farming could not be sustained in many situations and regrowth of native species was allowed to occur, much of it sine the 1930's and as recently as the 1950's. Much of the regrowth comprises scrub species and these are gradually being restored to the original vegetation composition.

Currently, approximately 50% of the Agnes river Catchment and 30% of the Deep Creek Catchment supports indigenous vegetation.

Those areas of complete regrowth that do exist in these catchments are dominated by mountain ash, usually in pure stands. Associated species are messmate, manna gum, blue gum and mountain grey gum, occurring mainly in the Agnes River Catchment.

3. LAND USE, TENURE AND MANAGEMENT

Land tenure, responsible land management authorities and uses of land within the catchments are presented in Table 4. Land Conservation Council recommendations for public land in the catchments are shown on Fig 2.

Table 4 - Land Tenure, Use and Management

Catchment	Land Tenure (ha)		Management Authority	Major Land Use
Agnes River	Freehold	3470		Grazing
	Public	3160		(diary cattle and
		10	C. F. & L.*	beef)
	Total	6640	Water Board	Timber Production
				Water Production
Deep Creek	Freehold	1670		Grazing
	Public	20		(diary cattle and
		60	C. F. & L.*	beef)
	Total	1750	Water Board	Timber Production
				Water Production
Battery Creek	Freehold	205		Grazing
	Public	15		(diary cattle and
	Total	220	Water Board	beef)
				Water Production
Ruby Creek	Freehold	805		Grazing
	Public	120		(diary cattle and
	Total	925	Water Board	beef)
				Water Production
Bellview and Ness Creeks	Freehold	565		Grazing
				(diary cattle and
	Public	40	Water Board	beef)
	Total	605		Water Production
Little Bass River	Freehold	715		Grazing
	Public	15		(diary cattle and
	Total	730	Water Board	beef)
				Water Production

* Department of Conservation, forests and Lands.

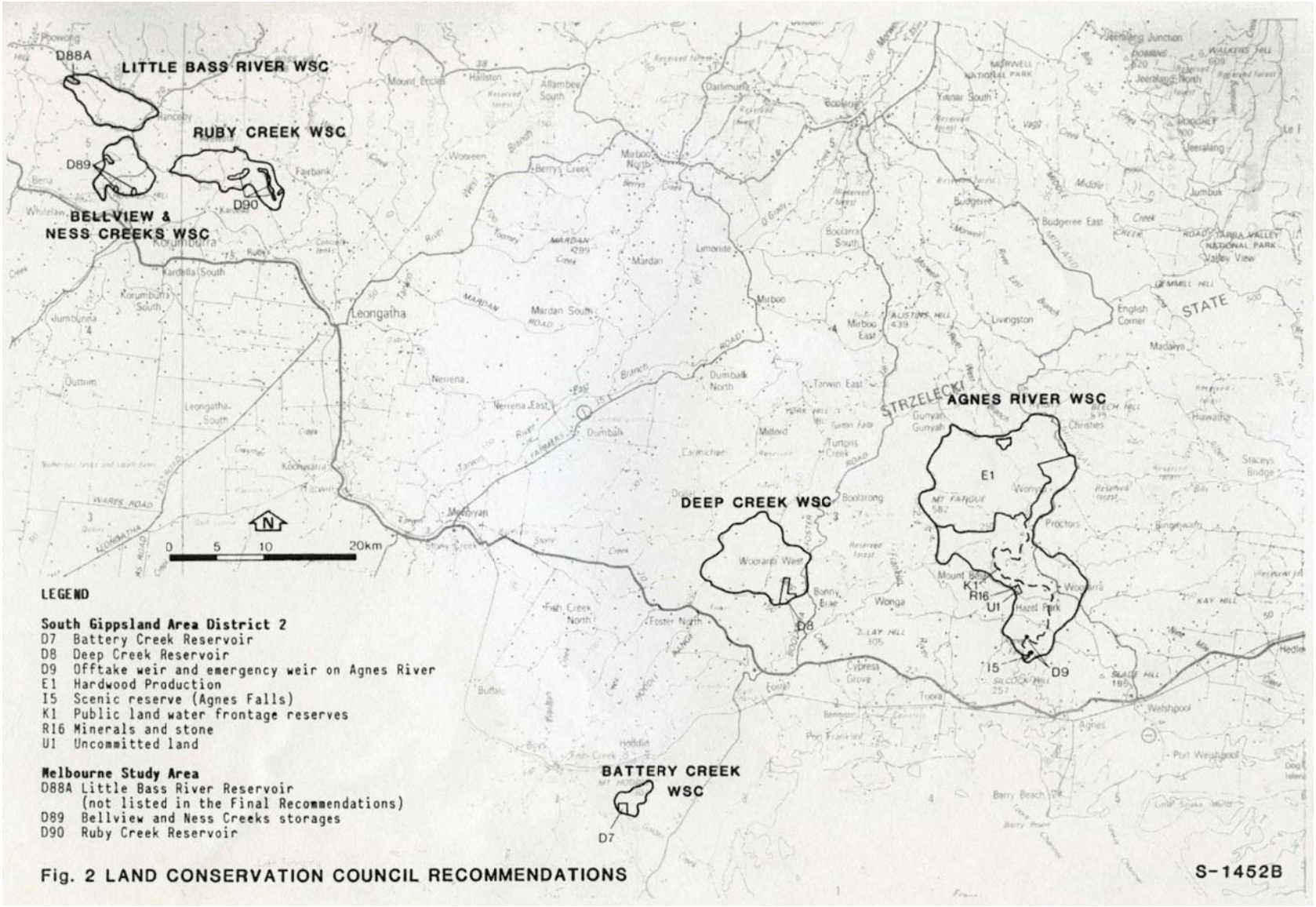

Figure 2 – Land Conservation Council Recommendations

4. THE SUPPLY SYSTEMS

Table 5 - Water Supply Systems

Catchment	Mode of Supply	Water Storage and Capacity	Average annual Consumption (ML)	Water Treatment
Agnes River	Gravity	Storage and weir (60 ML) (15 ML)	1315	Sedimentation and Chlorination
Deep Creek	Gravity	Storage (50 ML)	430	Sedimentation filtration and Chlorination
Battery Creek	Gravity	Storage (30 ML)	435	Aeration Chlorination
Ruby Creek	Gravity	4 Storages (2158 ML)	1425	Sedimentation Filtration and Chlorination
Bellview and Ness Creeks	Pumping to filtration plant	3 Storages (640 ML)	550	Sedimentation Filtration and Chlorination
Little Bass River	Pumping to service basin	Storage (270 ML)	55	Aeration and Chlorination

5. WATER QUALITY

The water quality indicators of al the catchments under investigation do not vary greatly.

The following comments are based on water quality data from the years 1985/86, Table 6.

The level of colour is high in all supplies, sometimes exceeding the recommend standards for drinking water.

The level of turbidity occasionally exceeds recommended guidelines in Deep Creek (Foster Water Supply), Battery Creek (Fish Creek Water Supply), and Little Bass River (Poowong, Loch and Nyora Water Supply). The remaining catchments produce a moderate level of turbidity.

Coliform and *E. coli* are high in all supplies and from time to time do not conform to recommended guidelines of the National Health and Medical Research Council of Australia. However pH and chemical parameters of supplies from all the above catchments are within recommended guidelines.

6. HAZARDS TO WATER SUPPLY

The following activities or factors are though to be the main contributors to water quality degradation in these catchments:

1) Stock access to streams.
2) Cultivation.
3) Road construction and maintenance.
4) Forestry operations
5) Daisy shed effluent.
6) Gravel extraction.
7) Use of pesticides, particularly ragwort and blackberry sprays.
8) Permanent clearing of vegetation, i.e. on public land for recreational or public utility development or on private land for agricultural development.

To minimise hazards on public land activities such as road construction and timber harvesting are controlled by provisions of plans and prescriptions developed and implemented by the Department of Conservation, Forests & Lands. For example, the prescriptions provide for streamside vegetative buffers and for the suspension of forest operations during wet weather, when the risk of increased turbidity and sedimentation is highest.

Table 6 - Summary of water quality data for the South Gippsland Water Supply Catchments (Raw Water and Reticulation) for 1986-87. Range of values in mg/1 unless otherwise stated.

PARAMETER	SAMPLE													
	Agnes River raw Water	Reticulation	Deep Creek Raw water	Reticulation	Battery Creek Raw water	Reticulation	Ruby Creek Raw water	Reticulation	Bellview and Ness Creek Raw water	Reticulation	Little Bass River Raw water	Reticulation	NH & **MRC Current	Long term
(a) Physical														
Colour (Pt-Co Units)	50-60	5-10	50-80	2.5-20	100-120	70-140	20-60	5-20	2.5-80	2.5	20-50	20-60	50	5
Turbidity (NTU)	3-9	0.5-1.6	2.8-2.2	0.5	3.6-4.9	3.3-8.3	0.5-1.9	0.5	0.8-0.70	0.5	2.2-10	3.4-12	25	5
pH	7.0-7.6	7.1-7.4	6.9-7.6	7.0-7.5	7.3-7.9	6.5-7.8	7.2	7.2-7.6	7.2-8.0	7.1-7.4	7.3-7.7	6.8-7.4	6.5-8.2	7.0-8.5
(b) Chemical														
Hardness as CaCO3 (Calc)	31-38	29-34	29-32	29-41	36-43	37-45	47-62	65-77	33-52	50-79	47-56	54-61	600	100
Total alkalinity as CaCO3	21	18-31	19-28	16-28	19-24	13-24	32-45	33-42	32-51.4	35-44	22.51	30-52	200	75
Chloride as Cl	50	35-40	33-36	39	60-69	66-71	37-48	39-53	22-39	32-39	43-44	46-49	600	200
(c) Bacterial														
Coliforms per 100 ml	*	0-5000	*	0-1300	*	0-14	*	0-1	0.5-5	0.5	*	0-5200	Nil in 90% of all samples	Nil in 95% of all samples
E. Coli per 100 ml	6-2000	0-88	10-1800	0-58	0-140	0	0-140	0	0.5-20	0.5-11	6-980	0-112	<2/100 ml in 90% all samples	Nil in 100 ml of all samples

* measurement not taken

** NH & MRC – National Health and Medical Research Council

7. RECOMMENDATION

That the Land Conservation council, under section 5(1) (b) of the *Land conservation Act* 1970, recommend to the Governor-in-Council that the following catchments to be proclaimed under section 22 (1) of the *Soil Conservation and Land Utilization Act* 1958.

- Agnes River Water Supply Catchment, Plan No. S-1452C (Fig 3)
- Deep Creek (Foster) Water Supply Catchment, Plan No. S-1452D
- Battery Creek (Fish Creek) Water Supply Catchment, Plan No. S-1452F (Fig 6)
- Ruby Creek (Leongatha) Water Supply Catchment, Plan No. S1452F (Fig 6)
- Bellview and Ness Creeks (Korumburra) Water Supply Catchment, Plan No. S-1452G (fig 7)
- Little Bass River (Poowong-Lock-Nyora) Water Supply Catchment, Plan No. S-1452H (Fig 8).

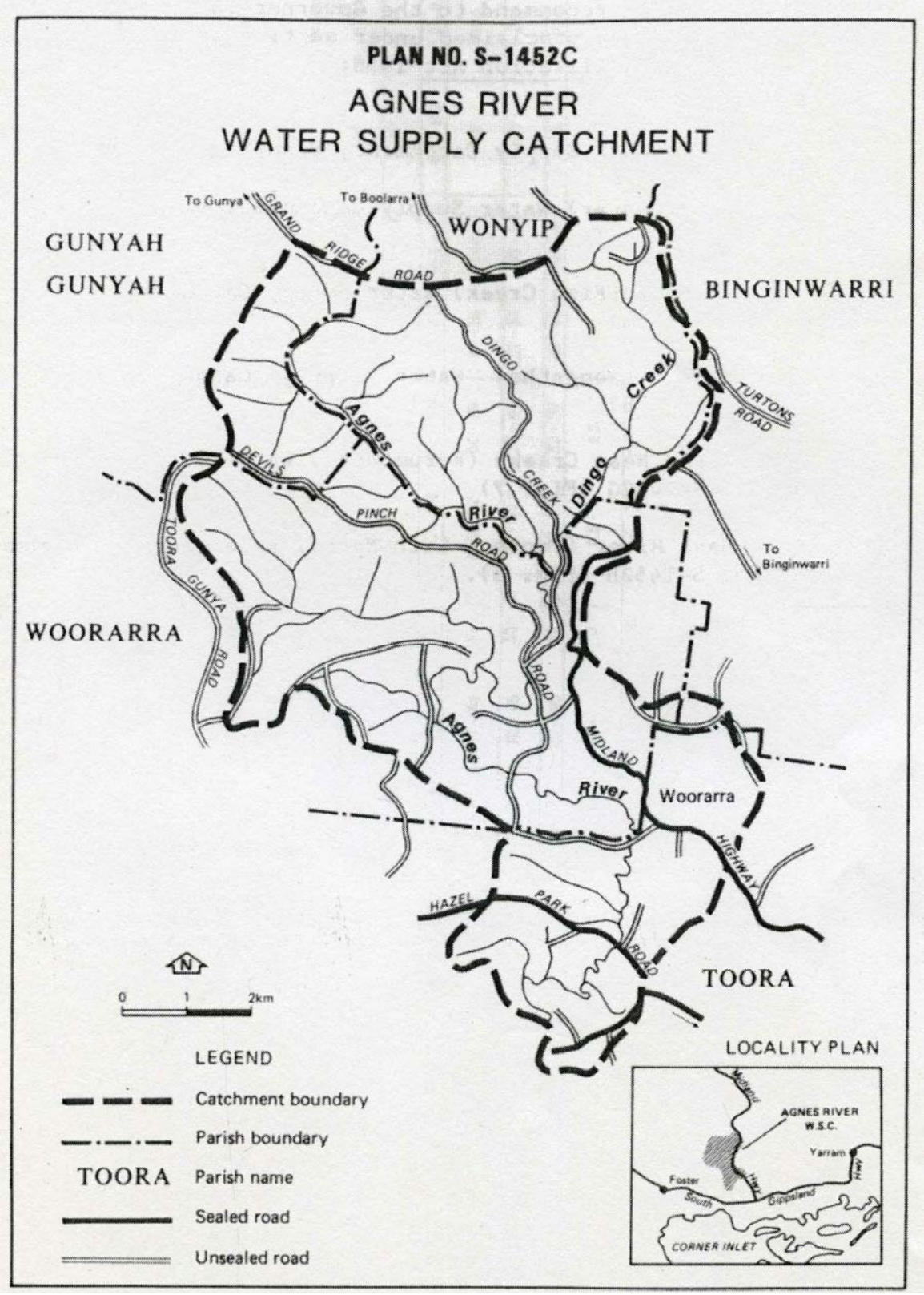

Figure 3 – Agnes River Water Supply Catchment

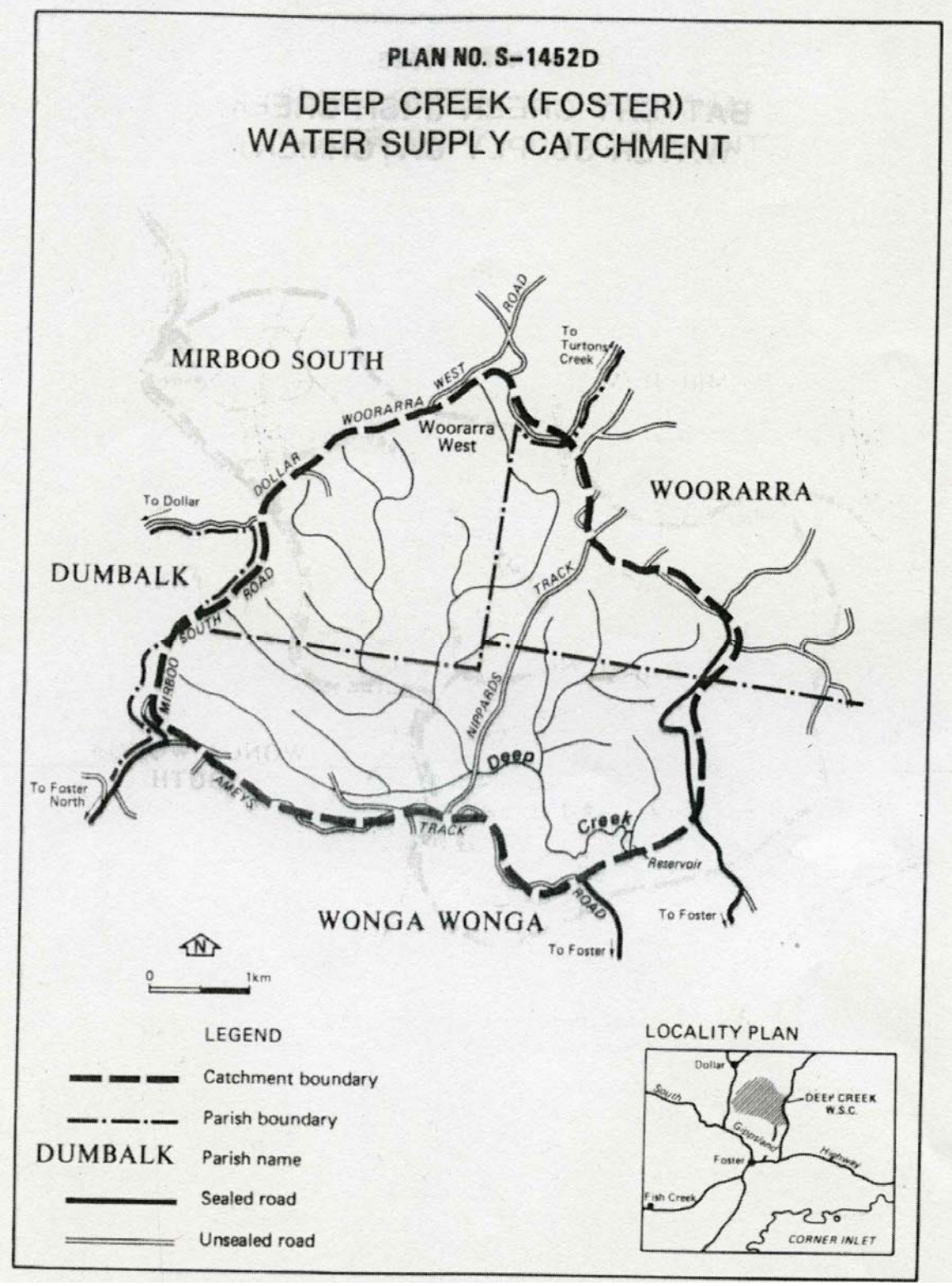

Figure 4 – Deep Creek Water Supply Catchment

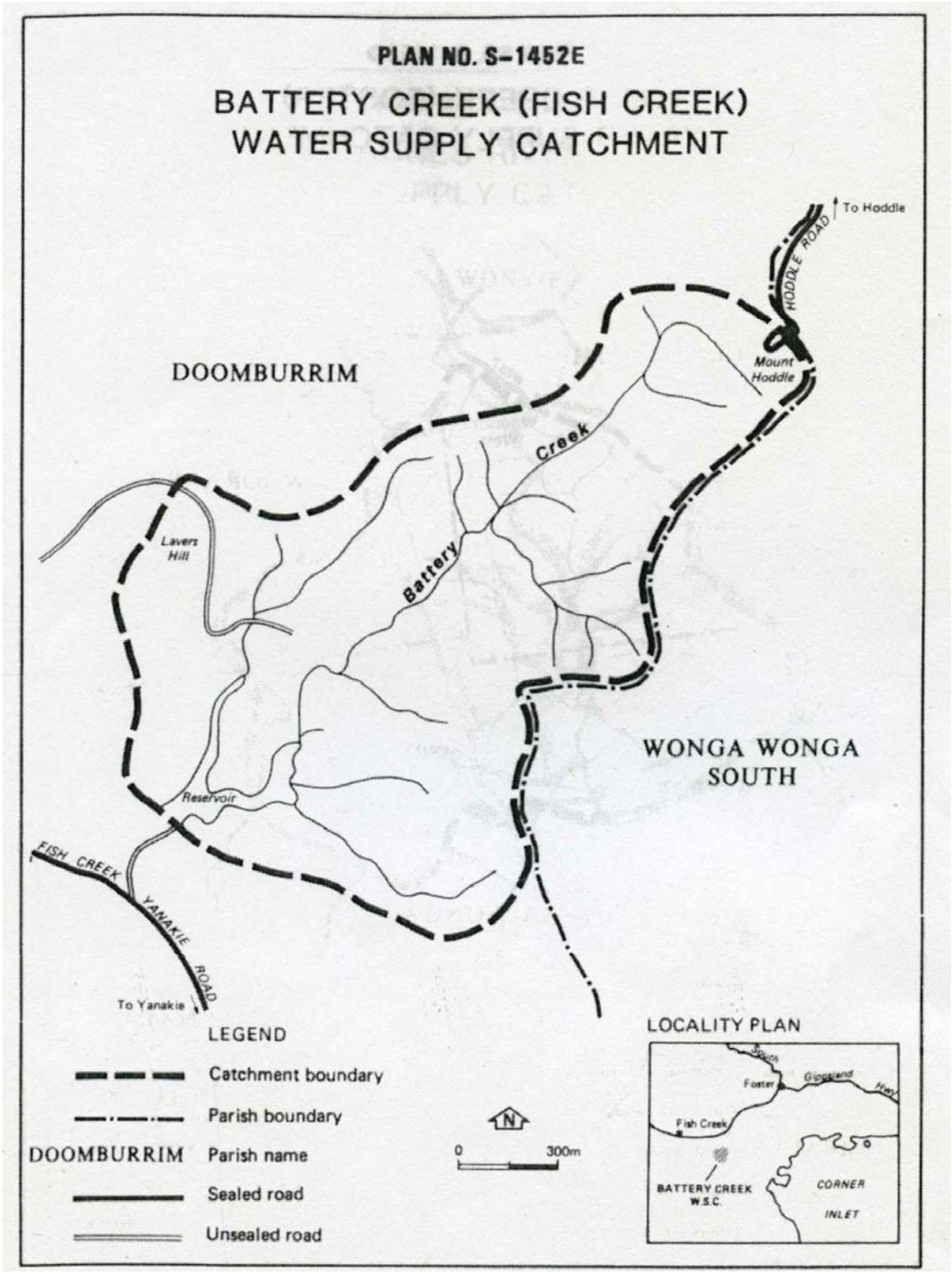

Figure 5 – Battery Creek (Fish Creek) Water Supply Catchment

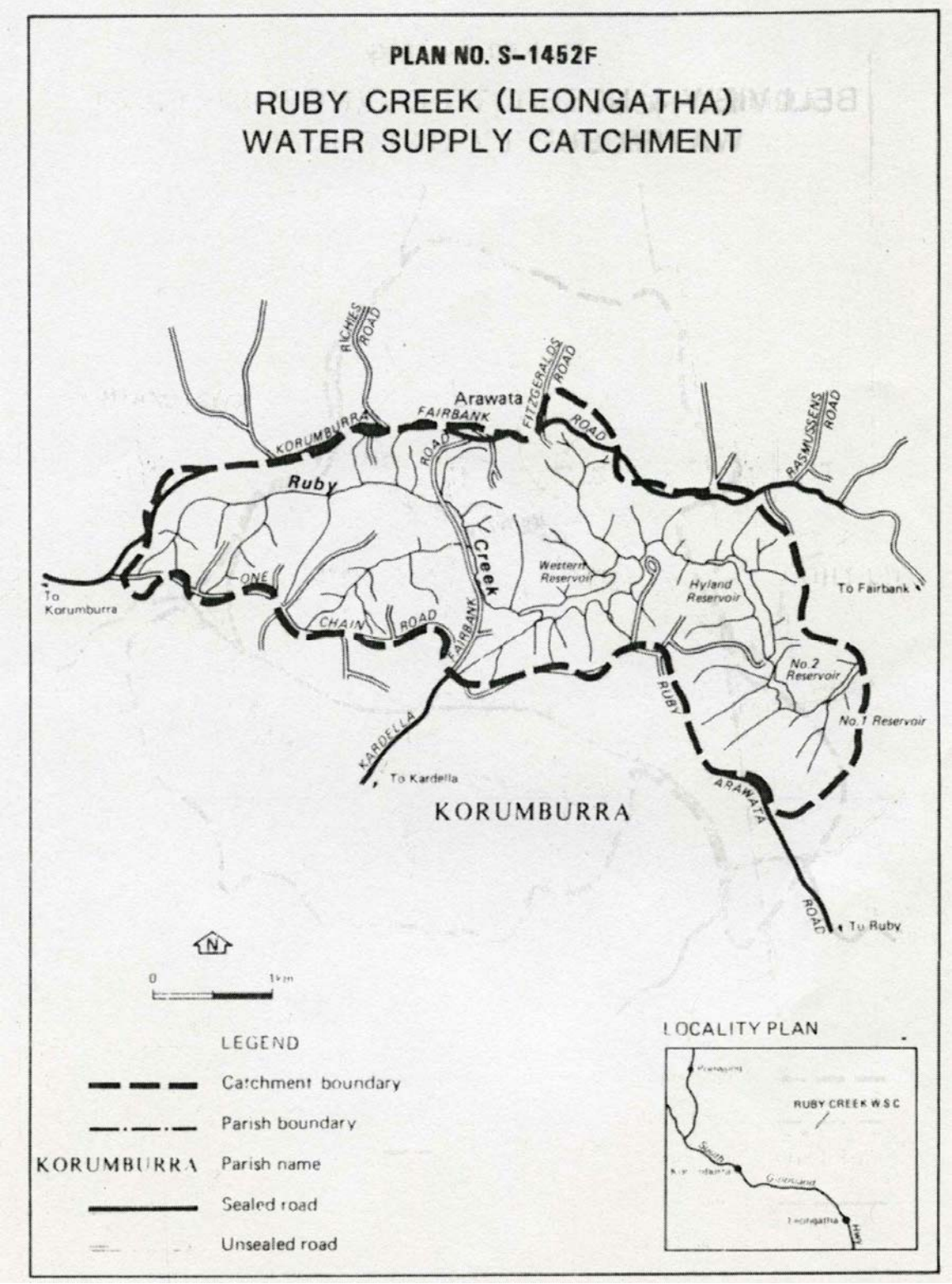

Figure 6 – Ruby Creek (Leongatha) Water Supply Catchment

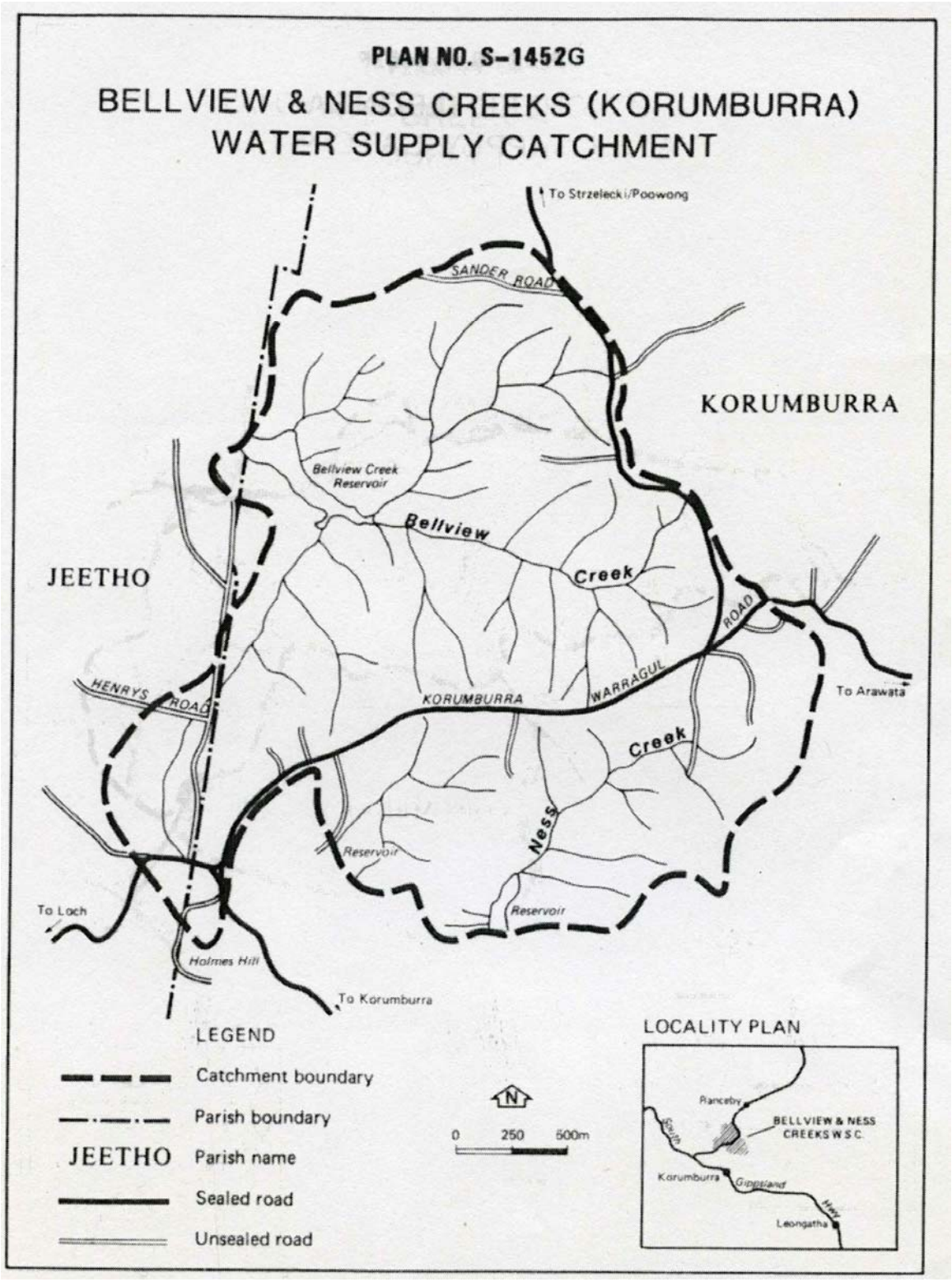

Figure 7 – Bellview & Ness Creeks (Korumburra) Water Supply Catchment

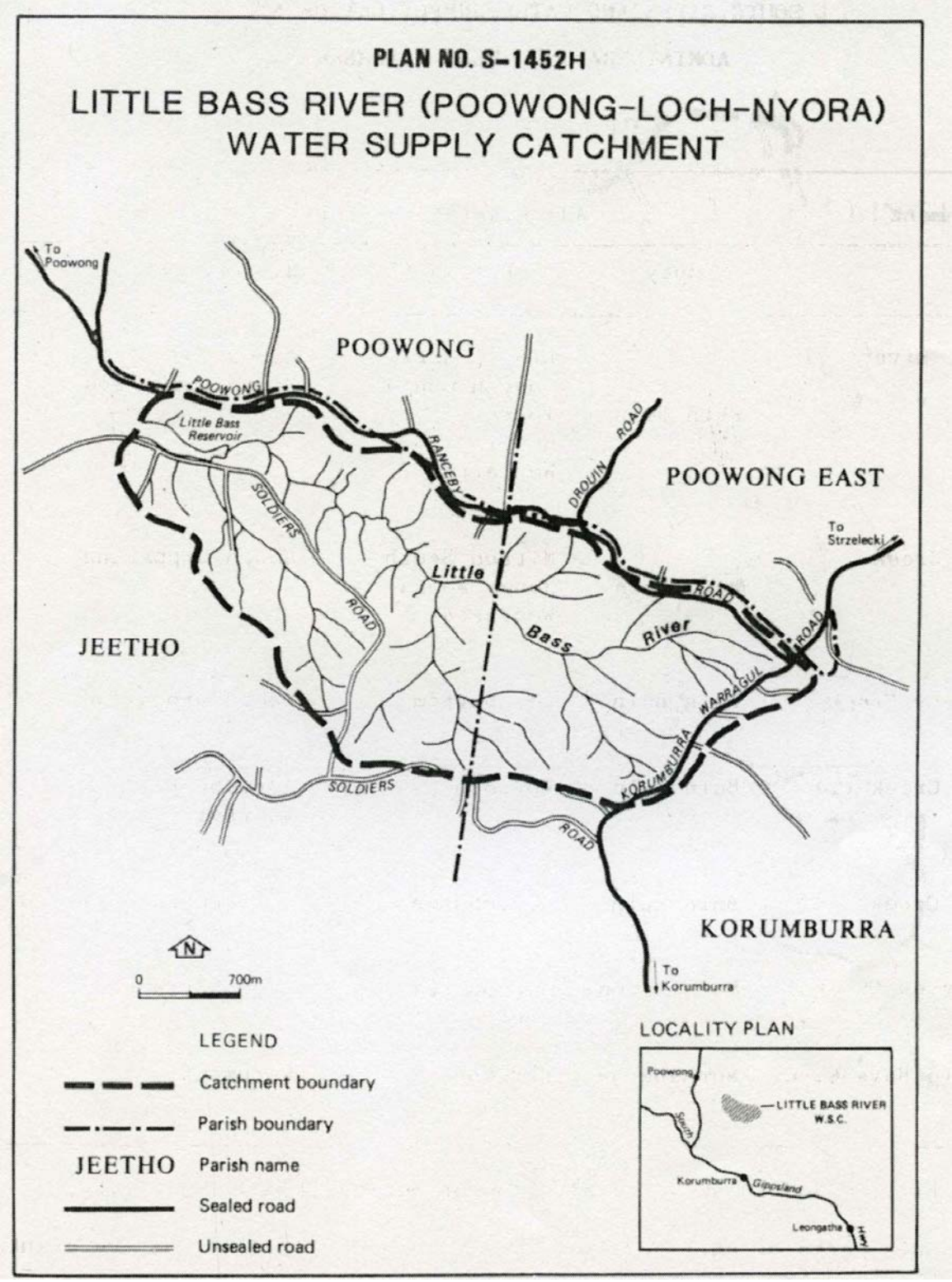

Figure 8 – Little Bass River (Poowong – Loch – Nyora) Water Supply Catchment

APPENDIX I - SOUTH GIPPSLAND WATER SUPPLY CATCHMENTS ADMINISTRATIVE AREAS – SUMMARY

Catchment	Administrative area		
Name	County	Parish (2)	Municipality (Shire)
Agnes River (1)	Buln Buln	Binginwarri Gunyah Gunyah Toora Wonyip Woorarra	Alberton South Gippsland
Deep Creek	Buln Buln	Mirboo South Wonga Wonga Woorarra	South Gippsland
Battery Creek	Buln Buln	Doomburrim	South Gippsland
Ruby Creek (1)	Buln Buln	Korumburra	Korumburra Woorayl
Ness Creek	Buln Buln	Korumburra	Korumburra
Bellview Creek	Mornington	Korumburra Jeetho	Korumburra
Little Bass River	Mornington	Korumburra Jeetho	Korumburra

(1) Figs. 9 and 10 show the division of municipal responsibility

(2) Only parts of parishes are involved as indicated on the relevant proclamation plan.

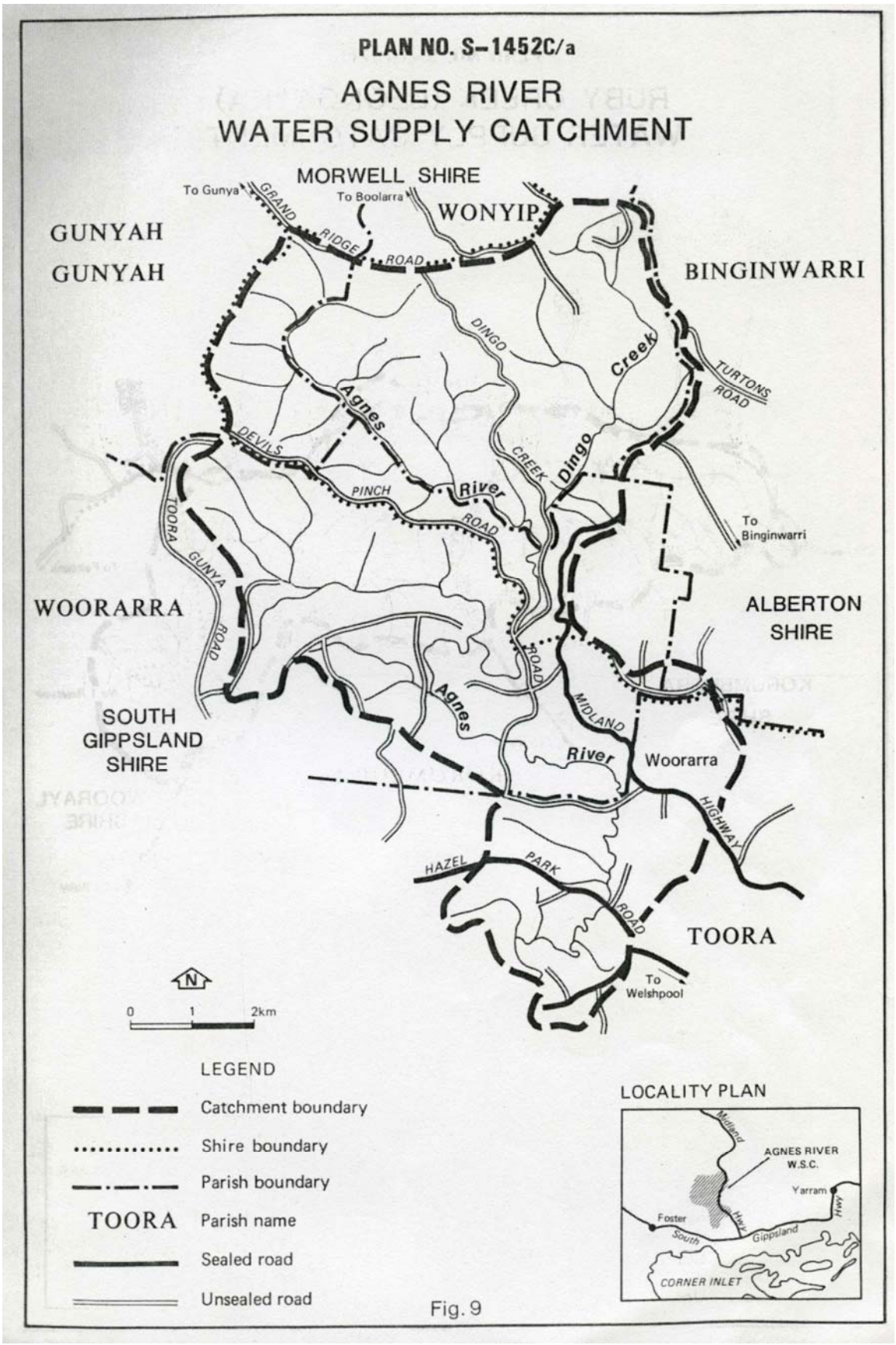

Figure 9 – Agnes River Water Supply Catchment

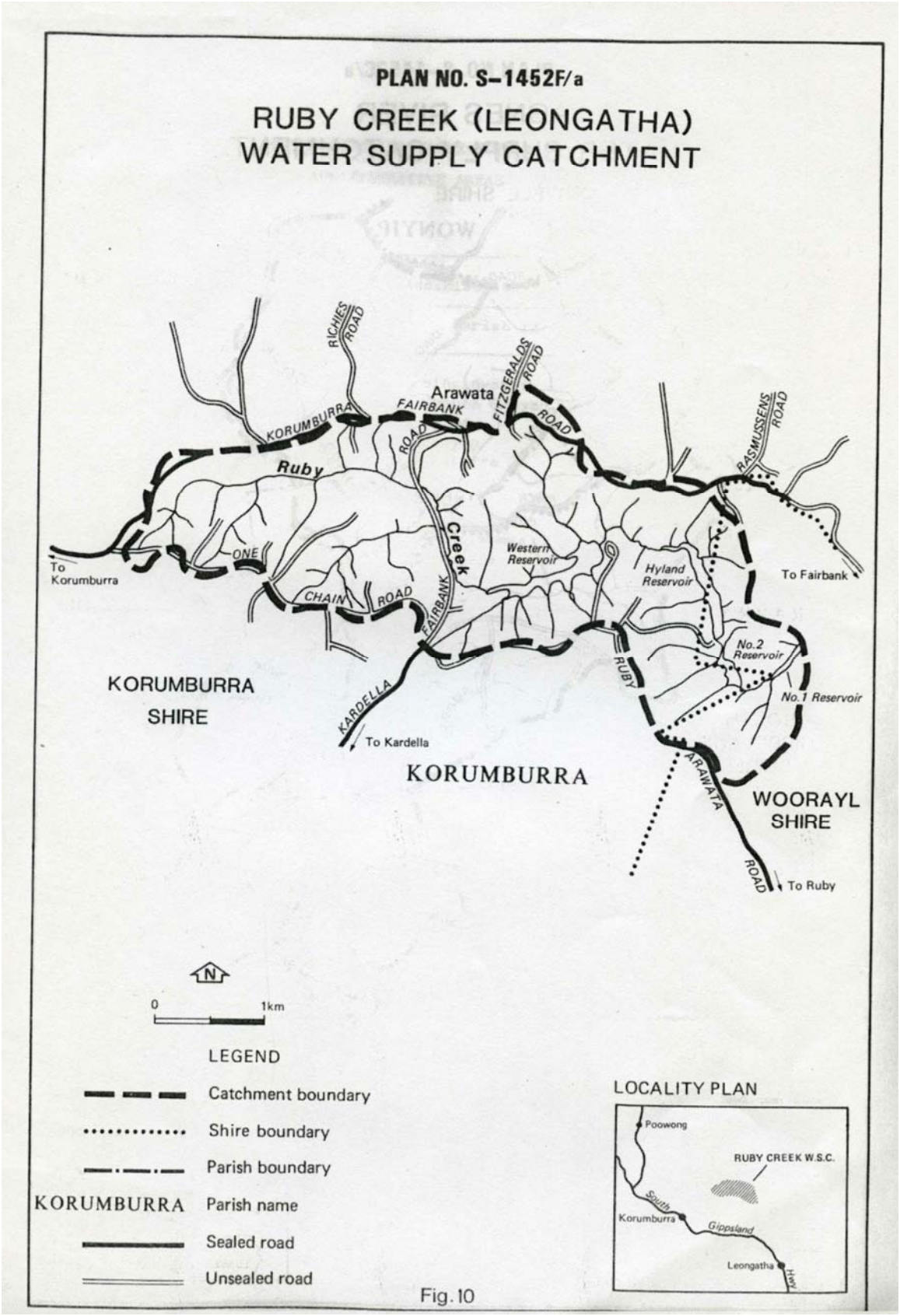

Figure 10 – Ruby Creek (Leongatha) Water Supply Catchment