

A LAND CAPABILITY STUDY OF THE CITY OF GREATER BENDIGO, STRATHFIELDSAYE DISTRICT

October 1995

Technical Report No. 20

M.R. Bluml, G. Boyle and E. Jones



National Landcare Program
Department of Conservation & Natural Resources

A LAND CAPABILITY STUDY OF THE CITY OF GREATER BENDIGO, STRATHFIELDSAYE DISTRICT

October 1995

CENTRE FOR LAND PROTECTION RESEARCH

Technical Report No. 20

M.R. Bluml, G. Boyle and E. Jones

**ISBN No. 0 7306 4017 5
ISSN No. 1038 216X**

**Centre for Land Protection Research Land Protection Branch Department of Conservation
and Natural Resources**

Further Information

This report has been prepared to assist broad scale planning in the Strathfieldsaye District. The information in the report has been derived from air photo interpretation and a limited number of representative field sites. The scale of mapping adopted has necessitated some generalisations from the site information collected. While the ratings indicate the likely performance of the various types of land for a specific use, site specific information may be required for on-site planning. The precision of mapped boundaries is affected by the scale of the map. Any enlargement of the map will distort information and is unlikely to improve its accuracy.

Bluml, Martin. A land capability study of the City of Greater Bendigo, Strathfieldsaye District. Bibliography. ISBN 0 7306 4017 5.
I. Land Use - Victoria - Strathfieldsaye Region.
1. Landscape assessment - Victoria - Strathfieldsaye Region.
2. Regional planning - Victoria - Strathfieldsaye Region

I. Boyle, G. (Grant). II. Jones, E (Evan).
III. Centre for Land Protection Research. IV. Title. (Series: Technical Report (Centre for Land Protection Research (Vic.)); no. 20).
333.73099454

CONTENTS

USER GUIDE	vi
SUMMARY	vii
PREFACE	ix
1. INTRODUCTION.....	1
1.1 Introduction	1
1.2 Location.....	1
1.3 Purpose of study	2
2. LAND CAPABILITY ASSESSMENT	3
2.2 Land resource mapping - methodology and constraints	3
2.3 Assessment procedure	4
2.4 Land capability rating tables	4
3. LAND MANAGEMENT GUIDELINES	12
3.1 Management of land characteristics that influence land use.....	12
3.1.1 Soil texture	12
3.1.2 Boulders and rock outcrop	12
3.1.3 Depth to hard rock.....	12
3.1.4 Depth of topsoil.....	12
3.1.5 Depth to seasonal, perched or permanent watertable.....	12
3.1.6 Dispersible clays	12
3.1.7 Flooding	13
3.1.8 Organic matter.....	13
3.1.9 Permeability	13
3.1.10 Plasticity index	13
3.1.11 Linear shrinkage (shrink-swell potential)	13
3.1.12 Site drainage	13
3.1.13 Slope.....	13
3.1.14 Soil reaction	14
3.1.15 Stones and gravel	14
4. DETAILED MAP UNIT DESCRIPTIONS AND CAPABILITY RATINGS	15
4.1 Quaternary alluvial map units	15
4.2 Quaternary volcanic map units.....	23
4.3 Tertiary alluvial sedimentary map units.....	41
4.4 Devonian granitic map units	47
4.5 Ordovician sedimentary map units.....	66
5. ACKNOWLEDGEMENTS	84
6. REFERENCES	85
APPENDIX A. NOTES TO ACCOMPANY LAND CAPABILITY RATING TABLES	86
A.1 Total amount of water available to plants	86
A.2 Bearing capacity	86
A.3 Coarse fragment sizes.....	86
A.4 Linear shrinkage	86
A.5 Condition of the topsoil	86
A.6 Depth to hard rock or impermeable layer.....	87
A.7 Depth to seasonal watertable.....	87
A.8 Depth of topsoil	88
A.9 Dispersibility	88
A.10 Drainage	88
A.11 Electrical conductivity	88
A.12 Flooding risk	88
A.13 Length of the growing season	89
A.14 Number of months per year when average daily rainfall > K _{sat}	89
A.15 Permeability of a soil profile (K _{sat})	89

A.16 Index for permeability/rainfall	90
A.17 Rock outcrop	90
A.18 Slope	90
A.19 Susceptibility to gully erosion	90
A.20 Susceptibility to slope failure	92
A.21 Suitability of subsoil for earthen dams	92
A.22 Susceptibility of soil to sheet and rill erosion by water	92
A.23 Susceptibility of soil to erosion by wind	94
A.24 Susceptibility to acidification	94
APPENDIX B. WORKING TABLES FOR LAND CAPABILITY CLASSES	96
B1 Agriculture	96
B2 Effluent Disposal	98
B3 Farm dams	100
B4 Secondary Roads	102
B5 Building foundations	104
APPENDIX C. SPECIFIC METHODOLOGY	106
C.1 Map unit determination	106
C.2 Field observations	106
C.3 Field tests	106
C.3.1 Saturated hydraulic conductivity	106
C.4 Laboratory analysis	106
C.4.1 Physical properties	106
C.4.2 Chemical properties	107
APPENDIX D. PHYSICAL LABORATORY RESULTS	109
APPENDIX E. CRITERIA USED FOR ESTABLISHING RECHARGE VALUES	112
APPENDIX F. LAND SYSTEMS HIERARCHY	113
F.1 Land systems	113
GLOSSARY	114