Government of South Australia
South East Natural Resources Management Board

Amended South East Natural Resources Management Plan

Part Four: NRM Policy

FEBRUARY 2010

Updated 22 June 2017 consistent with *Natural Resources Management Act 2004* section 89 (2) for consistency with the Basin Plan.

I, Hon. Ian Hunter MLC, Minister for Sustainability, Environment and Conservation, after taking into account and in accordance with the requirements of section 89 of the *Natural Resources Management Act 2004* hereby adopt these amendments to the South East Natural Resources Management Plan.

IAN HUNTER MLC
MINISTER FOR SUSTAINABILITY, ENVIRONMENT AND CONSERVATION
Date: 22 / June / 2017

FOREWORD

As a long-term resident of the South East, I am proud to represent the people of this region and to be able to say that "we love where we live". The area has a vast number of unique landscapes, with which residents and visitors alike can identify. The majestic Red Gum country, the long, sandy beaches, the productive cropping country to the north, the rich volcanic soils of the south - our natural resources provide the basis for a stable regional economy, a diversity of native plants and animals and a rarely found quality of life.

The SE NRM Board's vision for the region is "*Healthy landscapes for better living*." This demonstrates the strong connection between the health of these unique natural resources and the well-being of the region's people and future generations.

One of the greatest challenges to be addressed through this plan is to increase the motivation and ability of our community to manage our natural resources sustainably. Collectively, we must place a higher value on the soils, water, biodiversity, coast and marine assets of our region and recognise the social, environmental and economic contribution that they make.

The region is facing increasing pressure on water resources, population predictions and rapid development. As the State looks for a future food bowl and carbon sequestration capital, there has never been a better time to set a strategic direction for the integrated and landscape scale management of the natural resources in the South East.

Our plan has an underlying theme of working together; working with primary producers to sustainably manage private lands; working with Local, State and Commonwealth Governments to increase on-ground NRM results for greater community benefit; working with urban and peri-urban residents to improve their understanding of the difference that people can make. We all have a role to play in natural resources management and through this plan, the SE NRM Board aims to build commitment, skills and knowledge in NRM for the future of the South East.

On behalf of the SE NRM Board, I would like to thank the many organisations and individuals who have given their time and knowledge to completing this important plan for the region and their commitment to ongoing action. I encourage all members of our community to participate in the implementation of this strategic document that will ensure a prosperous future for our region both in the long-term and the nearer future so we can indeed achieve "*Healthy landscapes for better living*".

James Osborne
Presiding Member

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1. INTRODUCTION

The South East Natural Resources Management Plan (Regional NRM Plan) is a requirement of the *Natural Resources Management Act 2004* (NRM Act).

Developed by the South East Natural Resources Management (SE NRM) Board with the help of the regional community, the Regional NRM Plan sets the direction for natural resources management in the SE NRM Region over the next 10 years.

Sustainable management of the SE NRM Region's natural resources is an interest shared by Commonwealth, State and Local Governments, industry groups, rural and urban communities, Aboriginal communities, community groups, landholders and individuals. This Regional NRM Plan aims to inform and guide the NRM activities of the region's communities.

1.1 Acknowledgment of Country

The SE NRM Board acknowledges and respects the traditional owners of the SE NRM Region's ancestral lands. The SE NRM Board acknowledges the elders past and present and the Board respects the deep feelings of attachment and relationship of Aboriginal peoples to Country.

1.2 What is NRM?

Natural resources are defined as soil, water resources, geological features and landscapes, native vegetation, native animals and other native organisms, and ecosystems. They include terrestrial, aquatic and marine environments.

Natural Resources Management (NRM) describes how we as a community look after and value these natural resources and the environment that we rely on for our prosperity, productivity and enjoyment. While it is often easy to take for granted the environment that we live within and depend on, this attitude can lead to misuse and overuse of our natural resources, that is our biodiversity, coast and marine environments, soil and landscapes, and water. NRM is about managing our use of natural resources, protecting them and investing in them so that current and future generations can benefit from them in a sustainable way. For Aboriginal people NRM is viewed and practiced quite differently. Natural resources are essential to their health and spiritual wellbeing. They provide Aboriginal people with a sense of identity and caring for Country is part of their cultural responsibility and is part of family obligations.

Natural Resources Management requires active management and our region's people are central to achieving a balance between the social and economic needs of the community and the needs of our environment.

1.3 The South East NRM Region

The SE NRM Region supports a population of over 64,000 people and extends over an area of approximately 28,000 square kilometres. As the name implies, the region is in the south-east of South Australia and is bounded by the Victorian border to the east, the Southern Ocean to the south and west, and extends north to the Coorong and Tatiara District Councils (See Appendix 1 Map – SE NRM Region).

1.3.1 Landscapes

The SE NRM Region has many unique landforms and distinctive natural characteristics that have originated from a long, complex geological history. The region is characterised by a series of stranded dune ranges that rise between 20-50 metres above interdunal plains. These plains can be inundated over winter and host a variety of internationally recognised wetland systems including the Ramsar listed Bool and Hacks Lagoons and part of the Coorong and Lower Lakes Wetlands. The region also hosts an extensive network of limestone sinkholes and caves, which include the World Heritage listed Naracoorte Caves.

The region contains very few surface water streams or rivers and water for industry, irrigation, livestock and domestic use is primarily sourced from the groundwater system which consists of extensive unconfined and confined aquifers.

Although only 13% native vegetation cover remains, the region has diverse flora and fauna and diverse habitats that includes heathy woodlands and forests, grassy woodlands, dry heathlands and mallee, scattered trees, open water swamps and wetlands and rising springs. The coastline is largely undeveloped and has distinctive features which include coastal lakes and limestone cliffs. Significant areas of the coastline are protected areas under the *National Parks and Wildlife Act 1972*, with the scenery and beaches a major attraction of the region.

The marine environment is mostly high energy and is significant for its high biodiversity and high productivity.

1.3.2 Climate and Rainfall

The climate of the SE NRM Region is considered to be Mediterranean, with cool wet winters and mild to hot, dry summers.

The highest annual rainfalls occur in the southern areas where the average precipitation is approximately 850 mm per annum. A steady decrease northward in precipitation results in a mean annual rainfall of approximately 450 mm at the northern edge of the region. The majority of rain falls during the winter months particularly in the coastal zones, which generally receive less summer rainfall than those areas further inland (SENRCC 2003). Conversely, annual pan evaporation is lowest in the south and greatest in the north.

1.3.3 Towns and People

Mount Gambier is the second largest urban centre in South Australia and is the most populous area in the SE NRM Region with a population over 27,000 people. Other significant towns in the Region are Naracoorte, Millicent, Bordertown, Kingston and Keith. Robe, Beachport, Port MacDonnell and Penola are popular holiday destinations and the population of these towns increases dramatically in summer months.

The region has a relatively young population compared to the State as a whole and the region's population is stable at present, a trend that is expected to continue.

1.3.4 Industry and employment

Agriculture, forestry and the fishing industry are significant industries for the SE NRM Region, accounting for 20% of all direct employment compared with a figure of 5% for South Australia. Value adding industries such as timber, wine and potato processing as well as manufacturing and associated services provide considerable economic value to the South East. The region is also a popular area for tourism with over 600,000 visitors a year.

1.4 Natural Resources Management in South Australia

In 2004, the South Australian Government enacted the *Natural Resources Management Act 2004* (NRM Act), introducing a new framework for the integrated use and sustainable management of the State's natural resources. The NRM Act provides for the creation of eight NRM regions within South Australia and the establishment of a regionally based, community driven board for each region.

1.5 The South East Natural Resources Management Plan

The Regional NRM Plan guides the operation of the SE NRM Board and all strategic NRM activities in the region. It does this by providing information about the current state and condition of the region's natural resources, setting long-term 20-year targets for the desired future condition of the natural resources and describes the strategies required to achieve those targets.

The Regional NRM Plan also provides the basis for determining the NRM Levy and provides a basis for investment in NRM in the SE NRM Region. Importantly, the Regional NRM Plan guides the approach to NRM of all the Region's stakeholders including:

- Landowners and managers
- Community groups
- Australian Government
- State Government
- Local Government
- Research institutions
- Rural communities
- SE NRM Board
- State Government agencies
- Industry
- Non-government organisations
- Urban communities
- Natural resource users
- Aboriginal communities and organisations

The Regional NRM Plan is prepared by the SE NRM Board in consultation with the community, and is a statutory document under the *Natural Resources Management*

Act 2004. Importantly, the Regional NRM Plan is consistent with and helps to achieve the objectives of the *State NRM Plan* and *South Australia's Strategic Plan*.

1.6 The Structure of the Plan

The Regional NRM Plan consists of four major parts:

Part One: Regional Description: Provides the most up-to-date information about the region's natural resources. It describes each natural resource asset, reports on current condition and trends, identifies threats, outlines current management by all natural resource managers and describes information gaps.

The Regional Description is reviewed every five (5) years.

Part Two: Strategic Plan (10 year): Includes the vision and goals for the region's natural resources. It also sets long-term 20-year targets, medium-term five (5) year targets and describes indicative actions required to achieve the targets. This section provides strategic direction for all natural resource managers.

The Strategic Plan is reviewed every five (5) years.

Part Three: Business Plan (3 year): Outlines the actions to be undertaken by the SE NRM Board to implement the Strategic Plan and meet the requirements of the Plan's NRM Policy section.

The Business Plan is reviewed annually.

Part Four - NRM Policy: Presents the regulations and policies that underpin the implementation of the Regional NRM Plan including the statutory requirements for water affecting activities, pest plant and animal control and land management. It also aims to achieve alignment with local government development plans.

The NRM Policy is reviewed and updated as necessary.

1.7 The South East Natural Resources Management Board

The SE NRM Board was established in May 2005. Members of the SE NRM Board are both community and government representatives with knowledge, skills and experience across many areas of NRM including water, soil, biodiversity or pest plant and animal management, primary production, business, local government, community and Aboriginal interests.

The SE NRM Board plays an active role in the management of the region's soil, water, ecosystems, coast and marine environments. The NRM Act describes the Board's functions to include:

- The preparation and implementation of a Regional NRM Plan for the South East
- The promotion of public awareness and understanding of integrated and sustainable NRM
- Undertaking or supporting educational initiatives to assist people to improve the management of natural resources
- Providing advice with respect to the assessment of various activities or proposal referred to the Board under the NRM Act or any other Act
- Resolving any issue that may arise between any NRM groups that are relevant to the management of natural resources within the region
- Providing advice on any matter relevant to the condition of natural resources within the South East, or on the management of those resources

The NRM Act provides for the establishment of sub-regional bodies, of which the Board has developed three: the Northern, Central and Southern NRM Groups. The role of these groups is to promote local integration of natural resources management, providing important links to local communities and local NRM issues.

1.8 NRM neighbours

The SE NRM Region borders the South Australian Murray-Darling Basin Natural Resources Management Board to the west and north, while on the eastern edge of the region in Victoria there are three adjoining Catchment Management Authorities (Mallee, Wimmera and Glenelg Hopkins).

Natural resources, ecosystems and pest plant and animal populations do not recognise boundaries such as those between States or NRM Boards. Effective management of natural resources and threats requires understanding, cooperation and coordinated effort within and beyond the SE NRM region. Examples include the Border Groundwaters Agreement, a Memorandum of Understanding (MOU) for surface water catchment values, and collaborative pest plant and animal control programs. Further information about NRM neighbours can be found in Part Two: *Strategic Plan*, Section 2: Partnerships.

1.9 NRM in a changing climate

Our knowledge and understanding of climate change, along with our ability to deal with the changes, is developing rapidly. The fact that we are now experiencing warmer global average air temperatures is unchallenged. Evidence supported by the international scientific community tells us that global average air and ocean temperatures are rising.

For the South East NRM Region, predicted changes include higher temperatures and less rainfall. Adapting to these changes is vital to the short and long term sustainability of the region's environmental, social and economic values.

Adaptation is vital across all levels, from the individual and the household, to national and international governments and organisations. Mitigation, which describes actions to reduce climate change such as reducing greenhouse gas emissions, is also significant at all levels. Not only are these management tools important, we need to remember that they are also possible.

Climate change will be a key consideration in the management of the natural resources of the South East. Investment in the natural resources of the region must consider vulnerability and resilience of these resources to a warmer and drier regional climate.

The SE NRM Board will take a flexible and adaptive management approach, enabling for new information to guide activities and priorities. The Board and its partners will work in a proactive manner to minimise the impacts of climate change on our natural resources.

2. MANAGEMENT AND PROTECTION OF LAND

2.1 Introduction

The South East NRM Region is well-known and valued for its significant contribution to the State's primary production and for its natural landscape features. Agricultural enterprise and primary production dominate much of the landscape of the region. Many land managers within the region have long recognised that the management of land is not just about soils alone but encompasses consideration of land forms, land capability, soil composition and condition, presence and condition of native vegetation, presence, distribution and abundance of pest plants and animals, water, wetlands and watercourses in the landscape and biological diversity.

It is recognised that all land managers need to be encouraged and supported in taking an integrated approach to land management incorporating protection of the natural resources of the region while delivering on their own production objectives.

To support and encourage land managers in making a positive contribution to land and landscape management a range of objectives and principles for the management and protection of land and its dependent natural resources have been defined in this Plan.

How are the Objectives and Principles intended to be used?

1. *To provide direction for the Board, land managers, agencies and land use planners in land management*

   These principles will provide direction and a broad framework for the manner in which the SE NRM Board will implement its land management initiatives. It is intended that the Board will promote these Objectives and Principles to the land managers and land-use planners of the region with a view to having them underpin the manner in which land is managed within the region in the long term.

2. *To provide direction for the Board in addressing land degradation issues*

   In specific incidences where it is identified that land management is not being undertaken consistent with the Objectives and Principles outlined below the Board will:

   a) in every case, first take a partnership approach to support land managers to manage land within the directions outlined in this plan; and

   b) as a last resort the Board may use its statutory powers under Chapter 6 section 122 of the NRM Act to address cases where a land manager(s) is considered to be in breach of their general duty of care (as defined by the NRM Act) as a result of the land management practices they are undertaking. In addressing these cases the Board

will consider both the actual land degradation evident and the *risk* of degradation that the land management practices pose.

2.2 Land Management Objectives and Principles

Objective 1

Advocate and encourage a stewardship role for land managers in managing land and associated natural resources of the region for the benefit of present and future generations.

Principles

Land managers and land use planning should:

a) recognise and protect the environmental, economic, cultural and social values of the landscape for the benefit of future generations;

b) promote the sustainable use of the natural resources of the region for productive purposes; and

c) actively expand knowledge and understanding of sustainable land management practices.

Objective 2

Prevent and minimise land degradation (to prevent the associated harmful changes to the physical, biological and chemical condition of the soil and its dependent ecosystems)

The NRM Act describes degradation of land as (section 121):

Degradation of land means any change in the quality of land, or any loss of soil, that has an adverse effect on water, native vegetation or other natural resources associated with, or reliant on, land, any other aspect of the environment, or biological diversity.

Principles

Land managers and land use planning should:

a) implement best practice land management;

b) recognise and protect land of high agricultural productive potential;

c) protect land from degradation by protecting and enhancing the condition of native vegetation;

d) act to prevent, minimise and control threats to the quality of the land posed by pest plants and pest animals; and

e) manage surface water to prevent soil erosion or degradation.

Objective 3

Manage land to its capability and where ever possible improve productive capacity and enhance beneficial natural resources outcomes.

Principles

Land managers should:

a) recognise and manage for seasonal constraints to sustain or improve land condition;

b) assess, minimise and manage risks to the condition of the landscape including cumulative impacts to prevent irreversible damage to the landscape; and

c) adapt land management practices where necessary to address changing land capability that may result from the impacts of climate change.

Objective 4

Landscape management includes the protection and rehabilitation of land and its endemic biodiversity.

Principles

Land managers and land use planning should:

a) recognise and protect high value biodiversity in the landscape;

b) address the causes of land degradation rather than addressing symptoms alone;

c) rehabilitate degraded land and associated natural resources where it can be justified on environmental, social and economic grounds and is technically feasible;

d) maintain rehabilitation works undertaken so as to retain the benefits of the activities/works undertaken for the landscape; and

e) promote the minimisation and actively seek to minimise the regional production of greenhouse gasses and promote carbon sequestration.

2.3 Policy guidelines for the protection and management of land

In defining whether a landowner may be in breach of their duty of care under section 122 of the NRM Act the following procedural matters are required to be addressed.

The Board will seek to work cooperatively with a landowner to identify, consider and seek to address the issues that have caused the degradation or the risk of degradation, including to:

1. determine whether the land degradation or high risk of degradation is an isolated event or more widespread in the surrounding district;

2. determine whether the land degradation or high risk of degradation is due to management practices or activities for which the landowner is responsible and if the management was inappropriate and consider any remedial action already taken to address the issue;

3. consider the issues that may be contributing to the land degradation problem; and

4. define any voluntary measures that the landowner should undertake to address the causes of the degradation or the risk of degradation – this will include appropriate agreed actions required to rehabilitate the degraded land - recognising that voluntary behavioural change usually results in better, longer-term outcomes for land management than forced behaviour change.

As a last resort the Board may use its powers under the NRM Act to impose the requirement of the landholder to prepare an action plan if the land degradation issue cannot be resolved through the landowner taking voluntary action.

The detailed process the Board will follow prior to it exercising its powers to issue a requirement for the preparation of an Action Plan under Chapter 6 of the NRM Act is outlined in Appendix 5.

2.4 Definitions

Biodiversity: The variety of life forms represented by plants, animals and other organisms and micro-organisms, the genes that they contain, and the ecosystems and ecosystem processes of which they form a part.

Biosecurity: The protection of the economy, environment and public health from negative impacts associated with pest animals, plants and diseases (*State NRM Plan*).

Carbon bio –sequestration: The absorption of carbon dioxide from the atmosphere by living trees and vegetation.

Climate change: A change in climate, which is attributed directly or indirectly to human activity, which alters the composition of the global atmosphere, and is in addition to natural climate variability observed over comparable time periods (*State NRM Plan*).

Land capability: This describes the ability of land to accept a type and intensity of use with minimum risk of permanent damage to the soil resource (land natural resources) (*State NRM Plan*).

Land Stewardship - The practice of carefully managing land usage to ensure natural systems are maintained or enhanced for future generations. **Sustainable (Sustainability):** Comprises the use, conservation, development and enhancement or natural resources in a way, and at a rate that will enable people and communities to provide for their economic social and physical well-being while: sustaining the potential of natural resources to meet the reasonably foreseeable needs of future generations and safeguarding the life-supporting capacities of natural resources and avoiding, remedying or mitigating any adverse effects of activities on natural resources (*State NRM Plan*).

3. CONTROL OF PEST PLANTS AND PEST ANIMALS

3.1 Introduction

The effective control of pest plants and pest animals is a key activity that is required to underpin the protection of the social, environmental and economic values of the landscape of the South East, now and into the future. The control of pest plants and animals is everyone's responsibility; this includes the SE NRM Board, industries, residents, landholders/managers, State Government agencies, Local Government and visitors to the region.

The goals and principles outlined in this section provide a strategic framework for the Board and the community in implementing a regional approach to effective and ongoing pest plant and animal control.

3.2 Responsibilities for Pest Plants and Pest Animals

The NRM Act specifies a range of roles for the SE NRM Board in relation to pest plant and pest animal management, including the implementation of its pest plant and pest animal control provisions. The Board has key statutory roles which include:

a) Enforcing control or destruction of declared[1] pest plants and animals via action plans or protection orders;

b) Controlling declared pest plants and pest animals on road reserves; and

c) Notifying the Chief Officer of the presence of notifiable pest plants and animals.

Further to these requirements the State Natural Resources Management Plan 2006 identifies key responsibilities for regional NRM Boards in relation to pest plants and pest animals including:

- The strategic management of pest species within the NRM Region in line with the State NRM Plan and the Regional NRM Plan.
- Cooperation with the State Government in implementing the South Australian Biosecurity Strategy.
- Ensuring landholders comply with requirements to control new incursions and existing pests in accordance with the NRM Act (DWLBC 2006).

[1] **Declared plants / animals** - A class of pest animals or pest plants declared under section 174 of the NRM Act for control purposes *(State NRM Plan).*

NRM Groups provide an important connection for the Board to the local community and are charged with a key pest animal and plant control related responsibility of bringing local issues to the Board's attention. The Board utilises the three NRM Groups of the SE NRM Region to provide strategic advice and input to the regional pest plant and animal control program. NRM Groups also have a specified role for the control of declared pests on roadsides described in section 182 (7) of the NRM Act.

3.2.1 Landowner/landholder responsibilities

The NRM Act also articulates the roles and responsibilities for landholders.

1) Landholders are required to effectively control all declared pests present on their property in accordance with the Minister's Declarations SE NRM Board's regional pest policies. Expenditure related to these control activities on their own properties is the responsibility of the landowner.

2) Landholders must take care with produce, livestock and machinery to prevent the spread of declared pests. Declared pests cannot be introduced, moved or sold in the region.

To assist landholders effectively and efficiently meet their responsibilities under the Act the Board has adopted a regional Pest Management Strategy. This strategy describes priorities for pest management for the region and is referenced in more detail below.

3.3 Control of Pest Plants and Pest Animals on Road Reserves

Roads are recognised as a pathway for the spread of weeds in the region. As such, control of roadside infestations is a high priority in an effort to protect unaffected areas from the invasion of declared plants.

The Board has responsibility under section 182 of the NRM Act to control declared weeds and animals on road reserves and has the ability to recover costs of this work from the adjoining landowners as described in section 185 of the NRM Act. Section 182 (7) of the NRM Act details a role for NRM Groups who are responsible for ensuring adequate control of declared pests on road reserves, groups provide strategic direction to the control program which is implemented by Board staff.

In order to meet these responsibilities, the Board provides notification to all landholders regarding the pending roadside weed control program(s) seasonally. To ensure pest infestations are treated in a timely manner following notification to landholders, the Board implements control measures on untreated infestations and recovers costs of this work from the adjoining landowners under section 185 of the NRM Act.

Landholders are to be able to undertake their own pest plant or animal control programs on roadsides. Should a landholder wish to undertake their own control programs, they need to comply with other legal requirements for working on a roadside and best practice guidelines so that the liability risk is appropriately managed and that the native vegetation is preserved in line with Council guidelines.

Should a landholder intend to undertake their own control of declared pests on road reserves they must obtain authority from the local Council and must comply with any conditions imposed as part of that authorisation. (Note that under section 221 of the Local Government Act it is illegal for landholders to interfere with or remove vegetation or do any other works without such authorisation.)

3.4 The Board's approach to pest plant and pest animal management

The Board's pest plant and animal control program has a significant focus on education and raising awareness of the community and landholders in recognition that all landowners need to be encouraged and supported in taking an integrated approach to land management and pest plant and pest animal control.

To support this approach and the strategic management of pests in the SE NRM Region, the Board has developed the *South East Pest Management Strategy* (2009). The strategy will guide the Boards' work program relating to pest plant and animal control and presents a coordinated approach to strategic pest management through identifying and prioritising threats, educating the community, and implementing best practice control techniques.

The Strategy applies biosecurity concepts to the strategic control of pest species across the South East. Biosecurity in this pest management context is a term used to describe a spectrum of activities designed to protect the environment, the economy and the community from the adverse impacts of pest plants and pest animals. The key activities in a biosecurity approach are preparedness, prevention, response and management.

The South East Pest Management Strategy:

- Outlines regional strategic directions for pest plant and animal control;
- Identifies key land-use types threatened by the impacts of pest species and those species relevant to that land use;
- Identifies and prioritises relevant pest plants and animals for control and other actions (including declared and non-declared species);
- Outlines key NRM Board work program initiatives; and
- Is consistent with the NRM Act and does not address disease, insects, genetically modified organisms or aquatic vertebrate and marine pests.

The following Mission, Goals and Principles are drawn from the Strategy and provide the regional strategic framework for pest plant and animal management.

Mission

To protect primary production, environment and public safety from the adverse impacts of pest plants and animals.

South East Pest Management Strategy Goals

1. An informed community proactively undertaking pest management
2. No new pests become established in the South East
3. Effective management of established pest species

Principles of strategic pest management for the SE NRM region

1 Pest plants and pest animals are a recognised threat to the environment, the economy and social well-being of the South East region

2 Pest management is a high priority natural resource issue for the South East region

3 Everyone has a responsibility and duty of care for pest management which is best met through partnerships

4 The pest risk assessment system is the recognised method for prioritising management goals and actions of pest species

5 Early detection and rapid response is the most cost-effective way to manage pest species

6 Community awareness of, and engagement with, pest issues is vital for effective pest management

7 Integrated and coordinated pest management that establishes and utilises best practice methods at a landscape scale is the desired approach

8 An approach which considers the costs compared to the benefits should be applied to pest management

9 Effective pest management requires a long-term strategy involving ongoing commitment and effort

10 Recognise effort and celebrate success in pest management

11 Commitment to continuous improvement through regular evaluation and review

3.5 Risk Assessment Approach

A risk based approach to pest plant and pest animal assessment and management has been undertaken through the Pest Management Strategy using the methodology outlined by the SA Pest Risk Management System (DWLBC 2008).

The use of this methodology is the first step in tackling the threat of new pest incursions. The detailed results of the prioritisation are detailed in the *South East Pest Management Strategy (*2009) and are summarised in Table 1. Species assessed include those declared under the NRM Act and those that are identified as existing, threatening or emerging pest species that are not currently declared.

The pest species assessment for the region has been utilised to categorise pest plant and pest animals into the following hierarchy of management principles and actions based on the SA Pest Risk Management System (DWLBC 2008).

ALERT
Aims to prevent the species arriving and establishing in the region (e.g. Serrated Tussock).

ERADICATE FROM REGION
Aims to remove the pest species from the region (e.g. Golden Dodder, Feral Goats).

DESTROY INFESTATIONS
Aims to significantly reduce the extent of the pest species in the region (e.g. Innocent Weed, Red Deer).

CONTAIN SPREAD
Aims to prevent the ongoing spread of the pest species in the region (e.g. Variegated Thistle, Rabbits).

PROTECT SITES
Aims to prevent spread of the pest species (e.g. African Lovegrass, Horehound) to key sites/assets of high economic, environmental and/or social value.

MANAGE PEST POPULATION
Aims to reduce the overall economic, environmental and/or social impacts of the pest species (e.g. Bridal Creeper, Foxes) with targeted management.

MANAGE SITES
Aims to maintain the overall economic, environmental and/or social value of key sites/assets through improved general pest management (e.g. Skeleton Weed)

MONITOR
Aims to detect any significant changes in the species pest risk including increases or decreases in pest density and subsequent impacts on biodiversity assets, agricultural productivity and public safety (e.g. Wild Artichoke) by monitoring the spread of the species and reviewing any perceived changes in invasiveness**.**

LIMITED ACTION
The weed species is perceived to be of insufficient risk to warrant any investment in regional strategic management actions (e.g. Blackberry, Nightshade).

Table1: South East Pest Risk Assessment Result Summary 2009

Management Action	Declared Species		Non declared species
	Pest plants	**Pest animals**	
Alert List *Species that are not known to be present in the region and which represent a significant threat. Aims to prevent the species arriving and establishing in the management area*	Alisma Alligator weed Arrowhead Azzarola Broadkernel espartillo Broomrape Cabomba Calomba daisy Cane needlegrass Chilean needlegrass Coolatai grass Elodea Eurasian watermilfoil Horsetail Hydrocotyle Lagarosiphon Leafy elodea Mexican feathergrass Nightstock Pheasant's eye Plumerillo Poison buttercup Primrose willow Ragwort Rhus tree Sagittaria Salvinia Senegal tea plant Serrated tussock Texas needlegrass Water caltrop Water dropwort Water hyacinth Water soldier	Cane toad Common myna Feral pig House crow Indian ringneck Laughing dove Red-eared slider Red-whiskered bulbul Song thrush Tree sparrow Water buffalo	Blue mustard Parrot's feather Water primrose
	Bridal veil Golden dodder	Dingo/ Wild dog Goat	
Destroy Infestations *Aims to significantly reduce the extent of the pest species in*	Blackberry Western Cape bridal creeper Innocent weed Pampas grass	Chitial, Rusa & Sambar deer Mallard Red, Wapiti deer	Asparagus fern Tree of heaven White weeping broom

Management Action	Declared Species		Non declared species
	Pest plants	Pest animals	
the management area	Silverleaf nightshade		
Contain Spread *Aims to prevent the ongoing spread of the pest species in the management area*	African feathergrass Aleppo pine Bathurst burr Boneseed Caltrop Cape tulip (1&2) Creeping knapweed Gorse Hoary cress Salvation Jane Three-corner jack Three-horned bedstraw Variegated thistle Yellow burrweed	Brown rat Fallow deer Hog deer Rabbit	Bluebell creeper Dolichos pea Erica Radiata pine Sallow wattle
Protect Sites *Aims to prevent spread of the pest species to key sites/assets of high economic, environmental and/or social value*	African boxthorn African lovegrass Bladder campion Cape broom Cutleaf mignonette English broom False caper Field bindweed Horehound Lincoln weed Noogoora burr Olive Slender thistle Solider thistle Spear thistle Wild carrot Willow spp.	Black rat	Apple of Sodom Bedstraw Buckthorn Coastal tea tree Couch Gazania Kikuyu Muskweed Polygala Shiny leaf coprosma Spiny rush Swamp oak Pepper tree
Manage Pest *Aims to reduce the overall economic, environmental and/or social impacts of the pest species through targeted management*	Bridal creeper	Feral cat Fox House mouse Starling Eurasian blackbird Domestic pigeon	Acacia *cyclops* Annual rye grass Bracken fern Capeweed Coastal wattle Desert ash Fat hen Golden wreath wattle Phalaris Pin cushion daisy Poa grass Poplars Pyp grass Tall wheatgrass Veldt grass Wild oats Wild radish

Management Action	Declared Species		Non declared species
	Pest plants	Pest animals	
Manage Sites *Aims to maintain the overall economic, environmental and/or social value of key sites/assets through improved general pest management*	Buchan weed Dog rose Onion grass Onion weed Perennial thistle Skeleton weed Soursob Sweet briar	Hare	Blue periwinkle Cotoneaster Dock Fleabane Freesia Marram grass Silver grass South African weed orchid Sweet pittosporum Tagasaste Williams grass Wireweed
Monitor *Aims to detect any significant changes in the species 'pest risk*	Athel pine Chilean dodder Red dodder Hawthorn/ May Prickly pear Wild artichoke		Agave Marguerite daisy Ox tongue
Limited Action *The pest species would only be targeted for coordinated control in the management area if its local presence makes it likely to spread to land uses where it ranks as a higher priority.*			Bamboo Blackberry nightshade Bulbil watsonia Sorrell White arctotis

This assessment will be reviewed and amended periodically and the priorities for management will be reflected in specified pest management plans developed and updated by the Board. This list is current as at time of printing.

3.6 Declared Species

Chapter 8 of the NRM Act details the requirements for pest plant and pest animal control. The SE NRM Board interprets these requirements at the regional level through species level management plans that are consistent with principles and goals of the Board's Pest Management Strategy. Detailed pest plant and pest animal management plans are available from the Board's website.

Declared Species - A range of plant and animal species are currently declared through the NRM Act. Species that have been declared are those that have been identified as posing a serious and/or acute threat to agriculture, the environment and or public safety.

"Declaration" of a species under the NRM Act relates to an identified plant or animal species to which a selected range of NRM Act provisions can be enforced to support the control and management of the pest species. Declaration of a pest plant or pest animal species may be specified on a State-wide, regional, or sub regional basis.

The process for the declaration of a pest plant or pest animal species involves:

- Assessing the risk of the pest species under consideration;
- Documenting the actions required to effectively manage that pest in a policy document; and
- Identifying the specific provisions (e.g. keeping, movement, possession and sale, etc) of the NRM Act which shall be applied in relation to that species.

This information is circulated for consultation among other NRM Boards, State agencies and the community. Should the proposed declaration be accepted through this consultation process, it is then detailed in a notice in the government gazette by the relevant Minister.

The risk assessment criteria used in the development of the *South East Pest Management Strategy 2009* will be used to advise the Minister on which provisions (and therefore the nature of restrictions) that will apply to individual species based on their identified current or future threat to agriculture, environment or public safety. The sections of the NRM Act under which species can be declared are summarised in Appendix 6 Table 5. This listing is not intended to be a substitute for the Act. A list of species declared at the date of publication of this Plan and the full detail of the provisions of the NRM Act under which they are declared for the South East NRM Region at the date of Plan adoption are outlined in Appendix 6 Table 6.

3.7 Other Pest Plants and Pest Animals

There are a range of pest plants and pest animals that are not addressed by the NRM Act 2004, however activities related to control are supported by other legislation. As such, these issues do not form part of the SE NRM Board's pest plant and pest animal control program. These include animals and plants such as: genetically modified organisms (GMOs), invertebrates (European wasps, locusts and grasshoppers), over abundant native species, marine and freshwater invertebrate pests, cat and dog management. All exotic vertebrate animals are declared under the NRM Act, but not all require landholders to take action to control.

These animals and plants are highlighted with details of the responsible agencies in Appendix 6.

3.8 The Approach to ensure compliance with the NRM Act

The NRM Act provides a range of options available to assist in securing compliance with Chapter 8 of the NRM Act. Within these options, the Board is able to be responsive to the individual circumstances relating to the particular pest, landowner and situation and is committed to applying the most appropriate option. The compliance action chosen should be commensurate with the nature of the breach and the associated timeframe.

Natural justice and the principles of the NRM Act indicate that seeking voluntary compliance is the first and primary priority in managing pest plants and pest animals. The majority of the Board's activity occurs in this area and is generally successful, avoiding the need to deploy formal enforcement action. The bulk of ordinary animal and plant control issues are not of a significant impact or short timeframe to require "heavy" compliance action. In these instances, formal enforcement action will only be implemented when all voluntary measures have been exhausted. However, there are some instances where the severity and timeframe of the animal and plant control matter warrants strong and immediate enforcement action and the Board will take such action as is required.

Encouraging voluntary participation in pest plant and animal control is the primary priority for Authorised Officers. When a declared species is identified on a property, an Authorised Officer may first make informal contact with the relevant landholder to alert the landholder to their responsibilities. A further step may include the issue of a written advice notice, which encourages voluntary participation and is aimed at alerting a landholder to the presence of a declared species, points out the responsibility of the landholder and seeks voluntary initiation of control measures.

There are however, instances where it is necessary to utilise provisions of the NRM Act to support effective management of pest plants and pest animals. Some of the key actions that an Authorised Officer of the Board or the State are able to implement to enforce landholder cooperation are broadly summarised below, the summary is not intended to be a substitute for the NRM Act.

- Provision of **written approval** (which may include conditions) for the movement or sale of a declared plant or animal – under section 175 or 177 of the NRM Act.

- **Require an action plan under section 183 of the NRM Act** in instances where a landholder is required to take action to destroy or control declared animals or plants. The requirement for the implementation of an action plan may be sought in instances where the control of a pest plant or animal may be required to be undertaken over a number of seasons or the pest can be afforded more time for control (e.g. the allowance of at least six weeks).

- **Issue a protection order under section 193 of the NRM Act** where a shorter period is stipulated for declared species control in instances where the threat of the pest plant or animal is significant, and / or, it is considered that a breach of landholder requirements is likely and a deterrent is needed, and / or, instances where the nature of the action required to secure compliance will require ongoing or a higher level of supervision and review, and or, the conduct of the landholder in breach of the Act suggests that voluntary compliance is unlikely.

- **Part 6 of the NRM Act provides a range of powers which can be used by Authorised Officers** in taking action to support the enforcement of the NRM Act – this includes power to undertake activities such as the ability to enter and inspect any place or vehicle, collect evidence, give directions and use reasonable force to access places or vehicles with the authority of a warrant issued by a magistrate.

Failure to prepare and / or act upon an action plan or comply with a protection order has consequences for the landowner detailed in the NRM Act sections 183(9) (c) and 193(9).

4. WATER AFFECTING ACTIVITIES

4.1 Introduction

A range of activities that are undertaken within the SE NRM Region have the potential to affect the quantity, timing of availability and condition of the water resources of the region. Some of the tools used to influence the manner in which landholders and land managers go about their everyday activities include building awareness of the impacts of activities on our water and other natural resources, providing opportunities for investment in water and natural resource protection and the use of policy to provide protection to the natural resources of the region. One of the policy tools available to assist in preventing impacts to the water resources of the region is the requirement for a water-affecting activity permit. The issue of a permit to undertake a water-affecting activity provides a permission to undertake a specified activity under specific conditions, which may include construction and ongoing maintenance requirements for the particular activity. The policies outlined in this section are intended to provide direction to the community, local and State governments and their agencies in relation to the factors that they will need to address when they apply for a permit to undertake a water-affecting activity.

Chapter 7 of the NRM Act provides the mechanism for the issue of permits for water-affecting activities, and under section 127(5), provides the ability for a Regional NRM Plan to identify specific types of activities for which a permit is required. This section of the Plan outlines the objectives and principles which guide a relevant authority in its decision to grant or refuse a water affecting activity permit. The provisions outlined in this section provide some consistency with permit policy provisions identified in other NRM Board regions of South Australia, with adaptations for regional circumstances.

What is a Relevant Authority?

Permits are granted by an organisation or person appointed as the relevant authority by the NRM Act. The relevant authority for the issue of permits and the nature of the permits required for the purposes of this Plan are highlighted in Table 2.

4.2 Permit application and assessment process

NRM Act requirements

Section 75(3) (k) of the NRM Act requires the Board to set out matters it will consider when exercising its power to grant or refuse permits for water affecting activities.

Interface with Water Allocation Plans

The policies for the protection of groundwater resources and related groundwater dependent ecosystems of the SE NRM Region are managed through water allocation plans for the Tintinara Coonalpyn, Tatiara, Padthaway, and the Lower Limestone Coast Prescribed Wells Areas. One surface water allocation plan exists for the Morambro Creek and Nyroca Channel Prescribed Watercourses including Cockatoo

Lake and the Prescribed Surface Water Area. These water allocation plans outline requirements for the permitting of water affecting activities.

The objectives and principles outlined in this Plan do not apply to the Morambro Creek and Nyroca Channel Prescribed Watercourses including Cockatoo Lake and the Prescribed Surface Water Area to the extent that the water allocation plan for that area sets out the matters the Board will consider when exercising its powers to grant or refuse permits under Chapter 7 Division 2 of the NRM Act.

The exceptions to this are the application of sub section 4.3 principles (1) and (2), and sub section 4.4 principles (3) and (4) of this Plan which require application to override principles 6.2 and 6.3 within section 8.2.2 of the Water Allocation Plan for the *Morambro Creek and Nyroca Channel Prescribed Watercourses including Cockatoo Lake and the Prescribed Surface Water Area* (January 2006). Other objectives and principles highlighted in this section apply to the entire SE NRM Region, except where specifically indicated. Provisions defined under section 127 (5) (ja) relate to the Prescribed Wells Areas of the Tatiara, Padthaway, and those parts of the Tintinara Coonalpyn and the Mallee Prescribed Wells Areas within the SE NRM Region unless otherwise indicated.

Exemptions from the requirement for a permit

Best Practice Operating Procedures

During the life of this Plan, the Board will define Best Practice Operating Procedures for specific types of activities. An agreement between the Board and another party to adhere to Best Practice Operating Procedures relating to one or more water affecting activities may result in a permit not being required. Agreement on Best Practice Operating Procedures must be signed off in writing by the Board and obtained prior to the commencement of the activity. The approval from the Board is valid for a period that will be agreed between the Board and the applicant from the date of issue of the approval or for a shorter period to be specified by the Board. An agreement on Best Practice Operating Procedures may be cancelled by the Board where, in the Board's opinion the person to whom the approval was issued no longer complies with Best Practice Operating Procedures that have been endorsed by the Board in relation to the activity, or in any other circumstances as the Board thinks fit. The Board may refuse to issue an agreement to a person who, in the Board's opinion, has contravened or failed to comply with Best Practice Operating Procedures that have been endorsed by the Board or in any other circumstances as the Board thinks fit. In the absence of Best Practice Operating Procedures, a permit is required for water-affecting activities outlined in this Plan.

Provision of financial or other assistance by the Board

If an activity is undertaken in relation to an activity which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act, a permit will not be required.

Exemption provided by the NRM Act

Sections 127 (7) and 129 of the NRM Act outline a series of activities for which a permit is not required. For the SE NRM Region, activities not requiring a permit include those where an authorisation has been obtained, or activity is required, under the *Development Act 1993*, *Native Vegetation Act 1991, Environment Protection Act 1993*, the *South Eastern Water Conservation and Drainage Act 1992* or the *Upper South East Dryland Salinity and Flood Management Act 2002.* For example drains constructed under the *Upper South East Dryland Salinity and Flood Management Act 2002* or constructed under a licence for private water management works issued under the South *Eastern Water Conservation and Drainage Act 1992* do not require a permit to undertake a water-affecting activity under the NRM Act 2004.

Public Notification

Public notification is not required for any application for a permit specified under this Plan.

Water Affecting Activities

Table 2: Water affecting activities and requirements for accessing a Permit

Water affecting activities (WAA) (Column a)	**Example activities (Column b)**	**WAA for which a permit is not required (Column c)**	**Relevant Authority (Column d)**
127 (3) (a) drilling, plugging, backfilling or sealing of a well	Groundwater access trenches Drainage bores	No exemption	Minister
127 (3) (b) repairing, replacing or altering the casing, lining or screen of a well	Drainage bores	No exemption	Minister
127 (3) (c) draining or discharging water directly or indirectly into a well	Drainage bores	No exemption	Minister
127 (3) (d) the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts-(i) water flowing in a prescribed water course; …(iii) surface water flowing over land in a surface water prescribed area	Dams in the Morambro Water Allocation Planning area	No exemption	Board
127(5)(a) The erection, construction, or enlargement of a dam, wall or other structure that will collect or divert water flowing in a watercourse that is not in the Mount Lofty Ranges watershed	Dam, wall or other structure Weir, diversion channel Channelling a watercourse	An activity in relation to which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	Board

Water affecting activities (WAA) (Column a)	**Example activities (Column b)**	**WAA for which a permit is not required (Column c)**	**Relevant Authority (Column d)**
and that is not prescribed, or flowing over any other land that is not in a surface water prescribed area or in the Mount Lofty Ranges watershed	Piping from a watercourse Dam construction		
127(5)(b) The erection, construction or placement of any building or other structure in a watercourse or lake or on the floodplain of a watercourse	Wetland management works Bridge construction	In accordance with Best Practice Operating Procedures (BPOP) An activity in relation to which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	Board
127(5) (c) draining or discharging water directly or indirectly into a watercourse or lake	Stormwater discharge Pipes Culverts	In accordance with BPOP. An activity in relation to which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	Board
127(5) (d) depositing or placing on object or solid material in watercourse or lake	Construction of a crossing through a creek	In accordance with BPOP. An activity in relation to which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	Board
127(5) (e) obstructing a watercourse or lake in any other manner	Erosion control works	In accordance with BPOP An activity in relation to which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	Board
127 (5) (f) depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake	Levees	In accordance with BPOP	Board
127 (5) (g) destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse	Removal or destruction of trees, shrubs, grasses, reeds	Destruction or control of proclaimed plants or other vegetation that does not involve the physical removal of the plants An activity in relation to which	Board

Water affecting activities (WAA) (Column a)	Example activities (Column b)	WAA for which a permit is not required (Column c)	Relevant Authority (Column d)
		the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	
127 (5) (h) excavating or removing rock, sand or soil from – a watercourse or lake or the floodplain of a watercourse; or an area near the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake	Excavation of a drain Desilting a dam	Clay pits unless subject to provision 9.1.6 & 9.1.7 An activity in relation to which the Board has provided financial or any other form of assistance pursuant to section 42 of the NRM Act	Board
127(5)(j) using effluent in the course of carrying on a business (which includes intensive animal keeping) at a rate that exceeds 100 kg of nitrogen /hectare per year	Effluent spreading	Where a person or business under taking the WAA is legally obligated to comply with a mandatory code of practice for the use of effluent (for example, but not limited to the EPA Code of Practice for Milking Shed Effluent 2003)	Minister
127 (5) (ja) undertaking commercial forestry	Planting a forest for commercial purposes Farm forestry	No exemption	Minister

The process followed for the assessment of applications for a water-affecting activity permit is outlined in Appendix 7.

4.3 General objectives and principles

General

The objectives and principles in the whole of Board area provisions apply throughout the SE NRM Region. They provide guidance as to the basic requirements that must be met for a permit to be granted. They apply in addition to those applicable under specified water-affecting activities.

4.3.1 Whole of NRM Board Area Water Affecting Activity Policies

Objectives

1. To sustainably manage the quantity of the surface and groundwater of the region to optimise productive use, while providing for the needs of ecosystems.
2. To protect and enhance the quality of surface and groundwaters.
3. To protect and sustain the operation of water-dependent ecological functions and associated biodiversity.
4. To protect and enhance the region's landscape, landforms and the ecological and natural features of a lake, wetland, watercourse or the floodplain of a watercourse.
5. To protect against the risk of harm to public and private assets including harm from flooding.

Principles

1. Activities should be undertaken in such a way that protects the needs of water-dependent ecosystems and ensures equitable sharing of the water available for social, domestic and economic uses.
2. Activities should not compromise the quality of water resources or the capacity for natural systems such as a watercourse, a wetland or an area subject to inundation to restore or maintain water quality.
3. Activities must occur in a manner that protects the ecological values of ecosystems, regional landscape, landforms and the natural features of a lake, a wetland, a watercourse or the floodplain of a watercourse.
4. Activities should not be located in ecologically sensitive areas in which the activity will or is likely to have a significant detrimental impact.
5. Activities should not adversely affect the capacity for the migration of native aquatic biota or the frequency, duration, timing and quality of their environmental water requirements.
6. Activities should not cause or increase the flood risk to public and private assets, communities or individuals.
7. Activities should not adversely affect regional groundwater recharge and discharge processes.
8. Activities should not cause or contribute to dryland salinity, rising watertables or localised groundwater mounding.
9. Activities should be undertaken in a manner that takes account of the erosion potential of the soil at the location of the activity to provide for protection

against degradation of watercourses or drainage infrastructure from wind or water erosion arising from the activity.

10. Activities must not impact on authorised devices for scientific purposes.

4.4 Activity specific objectives and principles

4.4.1 Management of Groundwater Access Trenches (wedge holes)

NRM Act section 127(3) (a) and (b) Well construction and repair

The operation of principles under this section are subject to a regulation being made to ensure wells of this class require a permit.

Objective

1. To protect the surface water, groundwater resources and water dependent ecosystems from pollution, deterioration and undue depletion.

Principles

1. The maximum depth of a groundwater access trench shall be 2.5 m otherwise the principles relating to well construction outlined in relevant water allocation plans operating in the SE NRM Board region apply.
2. The maximum surface area of a groundwater access trench shall not exceed the area recommended by the relevant authority, for that area where the groundwater access trench is to be constructed.
3. Stock access shall be negated by the construction and maintenance of a fence around the groundwater access trench.
4. Ingress of surface water flow into a groundwater access trench shall be negated by the building of a bund wall/earthen levee of at least 500mm high around the groundwater access trench.
5. All new groundwater access trenches installed following the date of adoption shall be maintained in a manner that prevents contamination of the water resources by, but not limited to, the removal of debris and minimising pollution to the groundwater table.
6. Completion of a groundwater access trench must be reported to the relevant authority for inspection.
7. A groundwater access trench must not be located on a watercourse, wetland or the flood plain of a watercourse.

4.4.2 Management of Drainage Bores and the discharge of water to drainage bores

NRM Act sections 127(3) (a) (b) and (c) Drainage bores (In addition to authorisations required by SE Water Allocation Plans)

Objective

1. To protect surface water environmental flows from adverse impacts for discharge to drainage wells.

Principles

1. Drainage wells shall not be constructed within the bed and banks of a watercourse, or within wetlands listed in the SA Wetlands Inventory Database as amended from time to time.
2. Construction and siting of wells for the draining and discharging of surface water should be undertaken in a manner that does not capture surface water that supports surface water dependent ecosystems.
3. Construction and siting of wells for the disposal of surface water should be undertaken in such a manner as to prevent groundwater contamination.

4.4.3 Managing the impacts of commercial forestry on groundwater resources

NRM Act section 127 (5) (ja) undertaking commercial forestry.

Section 127(5)(ja) of the NRM Act provides that a person must not undertake commercial forestry contrary to the provisions of an NRM plan applying in the region in which that activity is undertaken. Section 127(5)(ja) was inserted into the NRM Act in 2011 and came into operation on 1 July 2014.

The NRM Act defines 'commercial forest' to mean: "a forest plantation where the forest vegetation is grown or maintained so that it can be harvested or used for commercial purposes (including through the commercial exploitation of the carbon absorption capacity of the forest vegetation)".

The NRM Act defines 'forest vegetation' to mean: "trees and other forms of forest vegetation including – (a) roots or other parts of the trees or other forest vegetation that lie beneath the soil; and (b) leaves, branches or other parts or products of trees or other forest vegetation".

The DWLBC report 2007/11 *A New Understanding on the Level of Development of the Unconfined Tertiary Limestone Aquifer in the South East of South Australia* provides an evaluation on the impact of plantation forest interception and direct groundwater extraction (section 6 and Tables 1 and 2 in the Appendices). The impact is significant, particularly in the Lower Limestone Coast PWA.

Forest vegetation established solely for the purposes of amenity or biodiversity conservation is not considered to be commercial forest.

The requirements to hold a permit as set out in this plan apply to all new and existing commercial forestry in any or all of the following areas:

a) The whole of the Padthaway PWA;

b) The whole of the Tatiara PWA; and

c) That part of the Tintinara Coonalpyn PWA and Mallee PWA located within the South East Natural Resources Management Region, as shown in Map 19 (the hatched area)

For the Padthaway, Tatiara, Tintinara Coonalpyn and Mallee PWAs, the most likely future commercial forests are those planted for carbon sequestration purposes. As a precautionary measure, given that the forest rotation length for commercial forests established for the purpose of carbon sequestration is uncertain, but almost certain to be longer than those for current commercial forests, 100% recharge interception is assumed, i.e. it is assumed that there is no recharge under these forests. As a further precautionary measure, where the proposed commercial forest overlies the median 6 metres and less depth to the groundwater table as shown in Map 18, for the purposes of accounting for direct extraction from the groundwater table, the commercial forest shall be assumed to extract 1.82 ML/ha/year. This is the deemed annualised extraction rate assumed for short rotation hardwood plantations in the Lower Limestone Coast PWA. For simplicity, these rates shall apply in the Padthaway, Tatiara and Tintinara Coonalpyn PWAs regardless of the forest type (hardwood or softwood) or the commercial purpose for which the forest is ultimately used.

This plan has mandatory commercial forestry and farm forestry set-back requirements for wetlands which have high or very high conservation value and meet a number of criteria. However, it is recommended that forest growers comply with the *Guidelines for Plantation Forestry in South Australia 2009*, which recommends a setback distance of 20 metres for all 3rd or 4th order watercourses, lakes, reservoirs, wetlands or sinkholes (sinkholes to have a direct connection to the aquifer), and a 10 metre set-back distance for all 1st or 2nd order watercourses or sinkholes (sinkholes without a direct connection to the aquifer), regardless of condition or ecological significance of the watercourse, wetland, lake, reservoir or sinkhole.

The following permit policies for the establishment or expansion of commercial forestry apply within all prescribed wells areas within the South East Natural Resources Management Board Region, with the exception of the Lower Limestone Coast Prescribed Wells Area.

Objectives

1 To minimise the impacts of commercial forestry on groundwater-dependent ecosystems, and on groundwater quantity.

2 To promote equity of access to water.

3 To manage the groundwater resource of the unconfined aquifer so that it may continue to be used for the social, economic and environmental needs of current and future generations.

Principles

For the purposes of this section, the "**quarantining**" of a water allocation means that a person undertaking commercial forestry must hold a water allocation that offsets the hydrological impacts of the forest on the water resource for such period as commercial forestry is being undertaken on the land referred to in the permit and the land retains a land use planning zoning for forestry.

All applications for a permit to continue forest estate activities may be granted, subject to provision by the relevant applicant of true and correct information as required in accordance with the NRM Act and this Plan, including as to the type, location and area of the forest estate.

New commercial forest activity

No expansion in the area of existing forest estate or establishment of any new commercial forest may occur without authorisation by permit, the grant of which will be subject to the following principles (1-19) in this section.

Effect of permit

Note: A permit will continue to operate for the benefit of, and its conditions will be enforceable against the holder of the permit and the owner and occupier of the relevant land, and all future owners and occupiers of the land. A permit will be subject to the condition that the relevant authority must be notified in writing of any change in ownership or occupation of the relevant land, and upon notification the permit will be updated to reflect that change.

Order of processing permit applications

1) Applications for a permit pursuant this section shall be processed in order of receipt. For the purposes of this principle, the expansion of a commercial forest will be taken to include:

   a) For commercial forests or farm forestry in existence at the date of commencement of section 127(5)(ja) of the NRM Act ('commencement date'), an increase in the net planted area as at commencement date; or

   b) For commercial forests or farm forestry wholly or partially under clearfell at the commencement date, an increase in the net planted area immediately prior to the final clearfell harvest; or

   c) For commercial forests or farm forestry established after commencement date, an increase in the net planted area as approved through this permit.

Quarantining of water allocations

2) Where a groundwater resource is prescribed, with the exception of the Boothby management area in the Tintinara Coonalpyn Prescribed Wells Area which has significant volumes of unallocated water, a permit for the establishment or expansion of a commercial forest may be approved where a water allocation is quarantined for the life of the commercial forest land use, according to principles 3)-6).

3) The volume of water allocation required to be quarantined in each management area for each hectare of commercial forest expansion to account for recharge interception is shown in Table 3 column A, for the relevant forest type and Prescribed Wells Area. Where the proposed commercial forest overlies the median 6 metres and less depth to the groundwater table as shown in Map 18 (for that part of the policy area not yet classified on the basis of median 6 metres and less depth to the groundwater the DWLBC June 2004 observation wells monitoring data is the reference data for the assessment), an additional volume of water allocation is required to be quarantined in each management area for each hectare of commercial forest as shown in Table 3, column B and C, for the relevant forest type and Prescribed Wells Area. Where the water allocation is volumetric, only the tradeable component, or base allocation in the case of the Tintinara Coonalpyn PWA under the 2012 Water Allocation Plan, may be quarantined for this purpose.

4) A water allocation may be quarantined in accordance with principle 3), except that any water-taking allocation on a licence that is subject to a condition or conditions requiring the expeditious use of water (including a requirement that the equipment, or land by which or on which the water is used be developed in a certain time), shall not be quarantined for commercial forestry development, if the condition has, or conditions have, not been satisfied.

5) In the Boothby management area, rather than requiring a water allocation, unallocated water may be set aside for the purpose of commercial forests, and may not be allocated for any other purpose for the life of the commercial forest land use. A permit shall not be approved where the issuing of the permit would cause the total quantity of water either allocated under the Tintinara Coonalpyn Water Allocation Plan, or set aside in accordance with this principle, to exceed the allocation limit (currently termed the Target Management Level) for the Boothby management area as defined in the 2012 Tintinara Coonalpyn Water Allocation Plan. The volume of unallocated water to be set aside for a commercial forest shall be determined in accordance with principle 3). Where a commercial forest is harvested and no further forest rotation is to be planted or re-established by coppice regrowth or other means, the unallocated water set aside for the forest shall be returned to the pool of unallocated water.

6) Where a water allocation is to be reduced in a management area, either in accordance with the relevant water allocation plan, or by the Minister in accordance with section 155 of the NRM Act, and that allocation has been quarantined for the purposes of commercial forestry, the licensee shall be required to meet the reduction target within the required timeframe. This can be achieved by either acquiring water allocations (either already owned by the

licensee, and not being used, or acquired through transfer) or reducing the area of commercial forest owned by the licensee in a management area, such that the volume of allocation quarantined for the purpose of commercial forestry is equivalent to the amount required for that area of commercial forest, as described in principle 3.

Set-back distance from wetlands

7) Prior to the Minister developing a method of hydrogeological assessment for commercial forests, any new commercial forest or farm forestry shall be situated:

   a minimum of 20 metres from any wetland of high or very high conservation value as listed and mapped in SAWID that is considered by the Minister at the time of application for a permit to:

   i. demonstrate a level of dependence on groundwater; and

   ii. be under significant or actual threat of degradation identified by, but not limited to, a mean (arithmetic) decrease in groundwater levels of greater than 0.05 metres/year (measured over the preceding 5 years) in the nearest representative well or wells as determined by the Minister.

   This principle does not apply in the Tintinara Coonalpyn PWA. The majority of wetlands have not been assessed in the Tintinara Coonalpyn PWA and are likely to be saline.

8) Notwithstanding principle 7) above, following the development by the Minister of a method of assessment of the hydrogeological impact of commercial forests, the setback distance for new commercial forests or farm forestry from any wetland as mapped in SAWID that meets the criteria set out in principle 7)(i) and 7)(ii) at the time of application, shall be that determined by the method of assessment to not result in a significant adverse effect on the ecosystem including but not limited to a decrease in groundwater levels of greater than 0.05 metres per year, or the set-back distance shall be 20 metres, whichever is the greater distance. This principle does not apply in the Tintinara Coonalpyn PWA.

9) Commercial forests or farm forestry established prior to the date of adoption of this Plan and located in the vicinity of any wetland as mapped in the SAWID that meets the criteria set out in principle 7)(i) and 7)(ii) at the time of application for a permit, may be clearfelled and replanted, but shall be replanted no closer to the wetland as mapped in the SAWID than the existing stumpline, or the set-back distance of 20 metres, whichever is the greater distance.

10) Any natural regeneration of commercial forest species shall be removed from the set back distance determined in accordance with principles 7)-9).

Hydrogeological assessment

11) For the purposes of this section, "**hydrogeological assessment"** means the assessment of additive and cumulative demands on the water resources and an assessment of whether the proposed extra activity will cause water resources within the assessment area (e.g. 16 km^2 circle) to be over-allocated or resource condition triggers to be exceeded. Subject to the other principles in this section, a permit may be approved for any application for an additional area of commercial forest from that established prior to the date of adoption of this Plan unless it fails the hydrogeological assessment described in principle 12).

12) Prior to the development by the Minister of a method of assessment of the hydrogeological impact of commercial forests, in the Padthaway and Tatiara PWAs, commercial forests shall comply with the 4 kilometre square test or the 16 km^2 circle test (whichever applies at the time of application) as described in the relevant water allocation plan. The 4 kilometre square or 16 km^2 circle shall be centred on the geometric centre of the proposed commercial forest.

    Following the development by the Minister of a method of assessment of the hydrogeological impact of commercial forests, in all PWAs (with the exception of the Lower Limestone Coast PWA and the Boothby management area in the Tintinara Coonalpyn PWA), the application for a permit for any new commercial forests shall be subject to this assessment.

Second or a subsequent forest rotation

13) Subject to principles 2)-16) inclusive, a permit will continue to authorise commercial forestry (including farm forestry) activity, including clearfelling and re-planting for subsequent rotations, in the manner and in the area specified in the permit.

14) The holder of a permit must at all times ensure that:

    a) The relevant forestry activity is the subject of any necessary approval for use of the relevant land for commercial forestry under the *Development Act 1993*; and

    b) The relevant forestry activity is offset by a quarantining allocation or allocations as required by this section.

15) Where the next rotation is to be established by coppice regrowth from the existing stumps following clearfell, an additional 0.68 ML/ha/year for the net area of the plantation which overlies the 6 metres and less depth to the water table as shown in Map 18 (for that part of the policy area not yet classified on the basis of median 6 metres and less depth to the groundwater the DWLBC June 2004 observation wells monitoring data is the reference data for the assessment) is required to be quarantined by 31 December of the year of the commencement of the clearfell of the prior forest rotation.

16) Any proposed increase in net planted area in the second or a subsequent forest rotation of commercial forest shall be considered to be a new commercial forest and therefore the area of forest in excess of the previous rotation shall be subject to principles 1-12).

Farm forestry

17) Principles 2-6), 11), 12), and 15) do not apply where –

a) the commercial forest is situated, or is to be situated on a farm; and

b) the net planted area of the commercial forest does not exceed, or will not exceed, 10% of the total area of the land described in a Certificate of Title or Crown Lease, or 20 hectares per Certificate of Title or Crown Lease, whichever is greater. Such forests shall be called *farm forestry*.

The net planted area means the area of the commercial forest measured from stump to stump, less any unplanted areas, areas under clearfell slash or areas consisting of dead plantation trees, greater than 0.1 hectare. Access tracks less than seven metres wide are part of the net planted area.

18) Farm forestry is subject to principles 1 (Order of processing permit applications), 7)-10) (Set-back distance from wetlands) and 13) and 14) (Second or a subsequent forest rotation).

19) Where the area of farm forestry is increased such that it exceeds or will exceed 10 per cent of the total area of the land described in a Certificate of Title or Crown Lease, or 20 hectares per Certificate of Title or Crown Lease, whichever is greater, principles 1-16) relating to commercial forests apply, for the entire area of forest.

Table 3: Volume of allocation required to be quarantined for commercial forests in the Mallee, Padthaway, Tatiara and Tintinara Coonalpyn PWAs

Prescribed Wells Area and Unconfined Aquifer Management Areas	Recharge Interception	Direct Extraction from Groundwater	
	Allocation ML/hectare forest/yr	Allocation ML/hectare forest/yr	Allocation ML/hectare/yr forest (coppiced)
	A	B	C
MALLEE PWA			
ZONE 9A	0.001	1.82	2.50
PADTHAWAY PWA			
PADTHAWAY FLATS	0.75	1.82	2.50
PADTHAWAY RANGE	0.25	1.82	2.50
TATIARA PWA			
CANNAWIGARA	0.15	1.82	2.50
NORTH PENDLETON	0.30	1.82	2.50
SHAUGH	0.15	1.82	2.50
STIRLING	0.50	1.82	2.50
TATIARA	0.15	1.82	2.50
WILLALOOKA	0.40	1.82	2.50
WIRREGA	0.30	1.82	2.50
ZONE 8A	0.15	1.82	2.50
TINTINARA COONALPYN PWA			
BOOTHBY	0.50	1.82	2.50
COONALPYN	0.10	1.82	2.50
SHERWOOD	0.10	1.82	2.50
TINTINARA	0.50	1.82	2.50

Subject to sections 127(3)(d) and (5)(a) of the NRM Act a person must not undertake any of the following activities contrary to an NRM plan applying in the region in which the activity is undertaken.

4.4.4 Management of Dams

The objectives and principles that follow apply to an activity under section 127 (3)(d) *"the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts-(i) water flowing in a prescribed watercourse; …(iii) surface water flowing over land in a surface water prescribed area and 127 (5) (a) of the NRM Act, relating to the "erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse and that is not prescribed or flowing over any other land that is not in a surface water prescribed area.*

Surface Water Policy areas

The objectives and principles in section 4.4.4 apply to the Murray Darling Basin Surface Water Policy Area, Tatiara/Nalang Surface Water Policy Area, Morambro Surface Water Policy Area (existing adjacent to the Morambro Creek and Nyroca Channel Prescribed Watercourses including Cockatoo Lake Prescribed Surface Water Area), Naracoorte Surface Water Policy Area, and Mosquito Surface Water Policy Areas and Regional Zone Surface Water Policy Areas A-F as shown on maps 1-12 located in Appendix 8. The principles that apply to the policy areas are in addition to those expressed in section 4.3.1 for the whole of NRM Board area water affecting activity policies.

Objectives

1. Ensure that a dam, wall or any other water collection or diversion mechanism constructed in or adjacent to a watercourse, floodplain or drainage path is sited, constructed and operated in a manner which protects the access of downstream water users to surface water resources.

2. To protect environmental flows and ecological processes within the surface water policy areas from adverse impacts of water storage.

3. To protect surface water quality.

Principles

4.4.4.1 Siting of a dam

1. On-stream dams **must not** be located on the priority watercourses specified in maps 1A-12.

2. On-stream dams must not be located on drains administered by or through the South Eastern Water Conservation and Drainage Board or Upper South East Dryland Salinity and Flood Management Program.

3. On-stream dams must not be located on private drains constructed under a licence for private water management works issued by the South Eastern Water Conservation and Drainage Board.

4. For all other watercourses not specified as priority watercourses in maps 1A-12 water should be diverted to an off-stream dam wherever possible for any other watercourses and flow paths.

4.4.4.2 Surface water policy area limits

1. The total of all dams within a surface water policy area shall not exceed the limit specified in Table 4 column G adjusted overtime to exclude surface water storages in existence at the date of adoption and additional surface water storages approved after the date of adoption.

2. The total volume of all dams within a surface water policy area (policy areas are defined in Map 1) shall not exceed the limit defined by calculating:

surface water policy area allowable total dam volume *(column G Table 4)* =
Area of the Surface water policy area (ha) *(Column B Table 4)* X allowable volume (ML/ha) *(column F of Table 4)* X 100) (adjustment factor).

3. When the limit for a surface water policy area has been reached or exceeded, no further authorisations shall be issued for the diversion, capture or extraction of surface water.

4. For areas with an allowable dam volume of zero dams for stock and domestic purposes may only be constructed if there is insufficient or inadequate water available on the property such that:

    a) There is no capacity to connect to SA Water supply; and

    b) The flow rate of water from wells is less than 0.1 L/sec; or

    c) The salinity of the water from the wells is greater than: 1500 mg/L for general domestic purposes; or 3000 mg/L for stock purposes.

5. The maximum size allowable for a stock and domestic dam proposal that meets the requirements of sub section 4.2 principle (4) is 2 ML.

6. Principles 4 and 5 do not apply to the Murray Darling Basin Surface Water Policy Area. If the allowable dam volume in Table 4 column G for this area is zero no new surface water dams may be constructed for any purpose.

7. Principle 2 does not apply to the Murray Darling Basin Surface Water Policy Area. The allowable dam volume for this area shall be determined under the principles of a joint Memorandum of Understanding between the South Australian Murray Darling Basin NRM Board, the South Australian Arid Lands NRM Board and the South East NRM Board, established to meet the sustainable diversion limits for South Australian Non-prescribed Areas (SS10) as outlined in the Commonwealth *Water Act 2007* - Basin Plan, Schedule 2.

Table 4: Surface water policy capacity and allowable dam volume data

A	B	C	E	F	G	H	J
Surface water policy area	**Policy area (km2)**	**Average annual rainfall (mm)**	**Rainfall -Runoff factor**	**Allowable volume ML/ha**	**Total Policy Area Dam Capacity ML**	**Relevant gauging station**	**75% of median annual flow ML**
Murray Darling Basin	1658	447	NA	0.008	1351	NA	NA
Tatiara/Nalang	3926	470	0.001	0.0012	461	A2390534 Bordertown	309
Morambro policy area	930	530	0.007	0.0053	863	A2390531 Morambro	1671
Morambro Prescribed Management Area-Herald	180	530	0.007	0.0053	101	A2390531 Morambro	1671
Morambro Prescribed Management Area-Gap	43	530	0.007	0.0053	40	A2390531 Morambro	1671
Naracoorte	465	580	0.002	0.0029	135	A2390542 Naracoorte	787
Mosquito	192	559	0.028	0	no further dam development		
Regional Zone a	1720	774	0.040	0.0774	13311	A2390513 Reedy Creek/ Mount Hope	12908
Regional Zone b	1337	724	0.040	0.0724	9683	A2390519 Reedy Creek/ Mount Hope	12908
Regional Zone c	2492	673	0.040	0.0673	16768	A2390510 Drain L upstream of Princess	7046
Regional Zone d	2000	635	0.040	0.0635	12698	A2390510 Drain L upstream of Princess	7046
Regional Zone e	2810	576	0.040	0.0576	16185	A2390506 Blackford Drain at Williams Road	10875
Regional Zone f	4554	525	0.040	0.0542	24682	A2390506 Blackford Drain at Williams Road	10875
Glenelg	1012	740	0.040	0.0740	7489	A2390510 Drain L upstream of Princess	10875

n/a = not applicable

Note for completeness, total dam capacity has been calculated for each of the policy areas specified, this does not in any way infer that the quality or quantity of the water in each of the policy areas is suitable for social, domestic or economic uses.

4.4.4.3 Allowable Dam Volumes

For the purposes of sub section 5.3 the term allotment has the following meaning

Allotment – has the same meaning as in the Real Property Act 1886 *and also includes two or more contiguous allotments owned or occupied by the same person and operated as a single unit.*

In addition to the application to surface water policy areas outlined in this Plan, subsection 5.3, principles (1) and (2), subsection 5.4 principles, (3) and (4) also apply to the Water Allocation Plan for the Morambro Creek and Nyroca Channel Prescribed Watercourses including Cockatoo Lake and the Prescribed Surface Water Area (January 2006). This policy over-rides principles 6.2 and 6.3 of the Morambro Prescribed Water Resource Provisions under section 8.2.2 of that Water Allocation Plan.

1. The total dam volume allowed on an allotment will be calculated as outlined below:

   Calculating allotment runoff

   Subject to subsection 4.2, principle (1) the capacity of all dams within an allotment of a surface water policy area shown in Table 4 shall not exceed a volume (ML) calculated by:

   Area of the allotment (ha) x allowable volume (ML/Ha) (*column F of Table 4*)

2. Where a dam (the new dam) is to be constructed on an allotment created by a land division or series of divisions of a larger allotment (the original allotment) the combined capacity of the new dam (or dams) and the old dam (or dams) shall not exceed the volume of the original allotment defined using the method defined in principle (1) of this subsection.

4.4.4.4 Flow regime

1. Any on-stream dam must be sited or constructed to enable low flows to by-pass the dam.

2. Any overflow from a dam, or flows that by-pass a dam must not be recaptured or diverted.

3. Structures designed to capture water to fill an off stream dam must be constructed and managed to ensure that the timing of the taking of water can be managed consistent with principle (4) of this sub section.

4. Structures designed to capture and deliver water to an off stream dam must be designed, installed and operated to facilitate the capture of water to commence when 75% of the median annual flow record is reached at the specified gauging station see table 4 column (H).

5. Principles 3 and 4 do not apply to the Murray Darling Basin Surface Water Policy Area.

4.4.4.5 Dam design and construction

1. Structures should be designed, sited, constructed and maintained in a manner that minimises:

    a) The removal or destruction of riparian vegetation and minimises soil erosion and siltation.

    b) The risk of structure failure by using appropriately qualified people in the design and construction.

    c) The risk of unacceptable groundwater mounding or cause adverse impacts to neighbouring properties through groundwater level changes.

    d) The risk of seepage resulting in groundwater mounding in the vicinity of the dam.

2. Dams shall not be located in ecologically sensitive areas or in areas prone to erosion.

4.4.5 Management of a building or structure in a watercourse, lake or floodplain

NRM Act section 127 (5) (b) the erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse;

Objectives

1. To protect the ecology of a watercourse, or lake, or the floodplain of a watercourse.

2. To prevent adverse changes to the condition of surface water and adverse impacts to surface water flow from the construction of structures.

Principles

1. Construction and placement of structures (including roads) and fixed sill levels created as a result of these structures in a watercourse, a floodplain of a water course, a lake, a wetland or an area subject to inundation:

    a) Shall not adversely affect the provision of environmental water requirements including the timing, duration and frequency of inundation (e.g. by impeding flows) of those areas.

b) Must have regard for the requirement for regional or localised landscape drainage;

c) Must not exacerbate the risk of flooding either upstream or downstream.

2. Design and installation of structures constructed that may obstruct surface water flow should take account of historical information in relation to surface water flow.

4.4.6 Management of the draining or discharging of water into a watercourse or lake

NRM Act section127 (5) (c) draining or discharging water directly or indirectly into a watercourse or lake.

In addition to the objectives and principles outlined in this section, the requirements of the Environmental Protection (Water Quality) Policy 2003 should be considered:

Objectives

1) To manage the draining or discharging of water from regional townships so that:

a) Any contaminants in the water that is drained or discharged are contained and managed on site to minimise the conveyance of contaminants into watercourses, lakes or groundwater resources;

b) The quality of water drained or discharged into a watercourse or lake is of a quality similar to or better than that of the receiving water: and

c) Stormwater collected and conveyed from a catchment to its receiving waters with minimal adverse impact on the watercourse and ecosystems.

2) To ensure that water that is drained or discharged is of a suitable quality to:

a) Sustain the existing uses of the water; and

b) Protect ecosystems dependent on these resources.

Principles

1) The draining and discharge of water into a watercourse must not:

a) Adversely affect the natural character of the watercourse.

b) Increase the risk of flooding downstream of the point where the water is drained or discharged.

2) Water may only be drained or discharged into a watercourse or lake where protective measures have been provided to minimise erosion or degradation in the quality of the receiving water.

3) For the purpose of principle 2, protective measures include, but are not limited to the following;

a) Detention basins to regulate the rate, volume and quality of water discharged;

b) Reuse of drainage or discharge water under conditions that would not present a risk to public or environmental health;

c) Litter traps;

d) Treating the water to be drained or discharged into the watercourse or lake;

e) Draining or discharging water into a watercourse at times of naturally high flow.

4) Any structures or measures to minimise erosion or degradation in the quality of the receiving water for the purposes of principle 3 must be managed to ensure they continue to function according to their design.

5) Detention basins shall be designed and constructed to allow sediments to settle before water in the basin is drained or discharged into a watercourse or lake.

6) Draining or discharge of water into a watercourse or lake shall not adversely affect the migration of aquatic biota.

7) Watercourses shall be retained in the natural state to promote natural filtering and pollutant removal processes.

8) Impacts of stormwater pollutants shall be minimised by planting indigenous plant species along watercourses.

9) A permit is not required under this subsection where it involves draining or discharging water of better quality than the receiving waters and the volume of the water drained or discharged does not exceed a volume of 0.5 ML.

4.4.7 Management of Obstructions

NRM Act sections:
127 5 (d) depositing or placing an object or solid material in a watercourse or lake;
127 5 (e) obstructing a watercourse, or lake, in any other manner
127 5 (f) depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake;

The objectives and principles in this section relate to the NRM Act Provisions outlined above.

Objective

1. Ensure that watercourses, floodplains and lakes are free of obstructions that may impede natural stream flow or cause or exacerbate flooding.

Principles

1) Depositing or placing an object or solid material in a watercourse or lake that may obstruct surface water flow should take account of historical information in relation to surface water flow.

2) Depositing or placing an object or solid material in a watercourse or lake may only occur where the activity relates to installation of:

   a) An authorised activity for scientific purposes for example, but not limited to, flow measuring devices; or

   b) The construction of an erosion control structure, or erosion prevention structure; or

   c) A device or structure used to regulate water flowing in a watercourse (such as the installation of a weir for water conservation measures/a regulator installed for the integrated management of regional flows as part of the Upper South East Dryland Salinity and Flood Management Program or a weir or structure installed for the preservation of aquatic ecology).

3) Objects or solid materials that impede the flow of water may be required to be designed and installed to provide for a low flow by- pass mechanism.

4.4.8 Management of Vegetation

NRM Act section 127 (5) (g) destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse;

Note the destruction, damage to or removal of native vegetation require approval under the *South Australian Native Vegetation Act 1991*.

Objective

1) To protect vegetation in a watercourse, lake or floodplain of a watercourse to maintain bed and bank stability, protect biodiversity and maintain water quality.

Principles

1) Vegetation shall only be destroyed in such a manner that would not cause or increase erosion or sedimentation.

2) Vegetation should not be destroyed if it:

   a) Has significance as a habitat for wildlife; or

   b) Is native, has a high level of diversity of plant species or has rare or endangered plant species or plant association(s).

3) Vegetation should not be destroyed if the destruction is likely to lead to the deterioration in the quality of groundwater or water in watercourses or surface water run-off.

4) A permit is not required under this subsection where it involves either proclaimed plants or other vegetation that does not involve the physical removal of the plants.

5) A permit is not required under this sub section for the control of natural regeneration of commercial forest species within the set back area from wetlands required of commercial forestry that are specified by this Plan.

4.4.9 Managing the removal of rock, sand or soil

NRM Act section 127 (5) (h) excavating or removing rock, sand or soil from—

(i) a watercourse or lake or the floodplain of a watercourse; or

(ii) an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake;

Objectives

1. Protection of watercourses, lake floodplains, wetlands and areas subject to inundation from adverse impacts from the excavation and removal of rock, sand and soil.
2. Protection of the environmental water requirements for watercourses and wetlands and areas subject to inundation.
3. To provide for the drainage of land subject to inundation for flood management, agricultural productivity and salinity mitigation while balancing the water needs of water dependent ecosystems.
4. To protect the natural state of runaway holes in the region.
5. To protect surface water flows from capture in excavations resulting from sourcing clay for clay spreading.
6. To protect surface water quantity from enlargement of on stream dams due to desilting activities.

Principles

1) Alteration to the alignment of a watercourse may only occur where it is for the protection of existing development and infrastructure, the rehabilitation of a watercourse, or for wetland management purposes, and the realignment/ alteration does not result in any of the following:
    a) Increased erosion;
    b) Increased risk of localised flooding;
    c) Bed and bank instability;
    d) Downstream sedimentation;
    e) Loss of riparian vegetation;
    f) Reduction in water quality; or
    g) Alteration to the natural flow regime of a watercourse.

2) Drains should be designed and constructed to enable the preservation and enhancement of ecological functions of ecosystems reliant on ground and surface waters.

3) Construction of water management works may be required to incorporate provision for the use of weirs to maintain beneficial soil profile moisture levels.

4) Diversions from or modifications to natural runaway holes shall not be permitted.

5) Maintenance work may occur, including the removal of silt and debris blocking the free flow of water down the runaway holes.

6) A permit is not required under this sub section where activities that involve the excavation of rock, sand or soil for the purpose of sourcing clay for clay spreading is undertaken except within the Tatiara/Nalang surface water policy area.

7) In the Tatiara/Nalang surface water policy area a permit is not required if the excavation is undertaken no less than a setback of 100m from the centre point of identified priority watercourses. If the excavation is planned to be undertaken within the setback area, that excavation will be subject to the requirements of the permit policy for the construction of a dam.

Note that the provisions of the Water Allocation Plan for the Morambro Creek apply in relation to clay pits for that prescribed watercourse and prescribed area.

8) Any desilting activity undertaken in relation to on-stream dam requires a water affecting activity permit, in other cases de-silting of a dam does not require a water affecting activity permit provided desilting only involves the removal of unconsolidated material deposited since construction of the dam or material deposited since the dam was previously desilted.

9) Desilting may be undertaken provided:

   a) It does not enlarge the dam capacity; or

   b) Increase the dam wall height; or

   c) The excavated material is not placed in or near a watercourse, floodplain or lake.

4.4.10 Managing the use of effluent

NRM Act section 127 (5) (j) using effluent in the course of carrying on a business in an NRM region at a rate that exceeds a rate prescribed by an NRM plan;

The objectives and principles that follow apply to: Blue Lake Water Protection Policy Area, Bordertown Water Protection Policy Area, Nangwarry Water Protection Policy Area, Padthaway Water Protection Policy Area and Penola Water Protection Policy Area shown on Maps 13 to 17 and are in addition to those expressed in the Region-wide provisions.

Objectives

1) To protect water resources and public health in the water policy protection area from adverse impacts arising from the use of effluent generated through intensive animal keeping.

2) To protect the groundwater of the water protection policy area from effluent and associated contamination.

Principles

1) The use of effluent generated from intensive animal keeping should not cause a rise in groundwater level.

2) The spreading of effluent shall not be undertaken in such a way as to cause contamination of the unconfined aquifer resulting from the infiltration of contaminants from that effluent.

3) Effluent should not be used on land where there is no growing vegetation.

4) Effluent should not be used on land where its use results in surface ponding such that permeation into the soil will take one (1) hour or more.

5) Effluent shall not be discharged into watercourses, wetlands and lakes.

6) Dams to store effluent shall be constructed:

    a) To prevent leakage of the effluent downward through the soil profile through use of impervious dam lining;

    b) To prevent overflows from the dam to the surface of the land surrounding the dam;

    c) To prevent overflow from the dam to surface waters.

4.5 Definitions

Clay Pit: A hole in the ground which has resulted from the sourcing of clay.

Clearfell or Clearfelling: Means the cutting or harvesting of all of the remaining crop trees in a given area. The clearfelling of a compartment shall be deemed to have been completed when all of the remaining crop trees within the boundary of the compartment have been harvested or felled.

Commercial forest: Has the same meaning as in section 3(1) of the NRM Act and means a forest plantation where the forest vegetation is grown or maintained so that it can be harvested or used for commercial purposes (including through the commercial exploitation of the carbon absorption capacity of the forest vegetation).

Compartment: Means a defined area of crop trees of commercial forest, usually of the same species and age, surrounded on all sides by a firebreak.

Coppice regrowth: Means for hardwood plantations, trees that have been regenerated from shoots formed from the stumps of the previous crop of trees, root suckers, or both, i.e., by vegetative means.

Dam: Means an excavation, wall or other structure designed to hold diverted or pumped from a watercourse, a drainage path, an aquifer or from another source (from NRM Act) and includes clay pits within a 100 metre set back area from the priority watercourses in the Tatiara /Nalang surface water policy area.

Drainage well: Means a well with its own natural catchment that is primarily used for the purpose of draining or discharging surface water into the ground.

Environmental Flows: Environmental flows are periods or patterns of inundation, or drying, or river/or creek flows allocated or provided for the maintenance of water – dependent ecosystems.

Environmental Water Requirements: The water regimes needed to sustain the ecological values of water-dependent ecosystems, including their processes and biological diversity.

Farm: Means a place/property being used solely or predominantly for the business of agriculture, pasturage, horticulture, viticulture, animal farming or any other business consisting of the cultivation of soils, the gathering in of crops or the rearing of livestock, other than where the sole or predominant use is commercial forestry.

Forest fallow: Means the time period between clearfell of the previous commercial forest and the re-establishment of the commercial forest site by means other than through coppice regrowth.

Forest rotation: Means the length of time between establishment of the commercial forest by planting, coppice regrowth, or other means, and clearfelling.

Forest vegetation: Has the same meaning as in section 3(1) of the NRM Act and means trees and other forms of forest vegetation including –

a) roots or other parts of the trees or other forest vegetation that lie beneath the soil; and

b) leaves, branches or other parts or products of trees or other forest vegetation.

Karst: A type of topography that is formed over limestone, dolomite or gypsum by dissolving or solution, and that is characterised by closed depressions or sinkholes, caves and ground drainage (*Dictionary of Geological Terms. Rev. ed. 1976).*

Lake: *(from NRM Act 2004)* means a natural lake, pond, lagoon wetland or spring (whether modified or not) and includes –

a) part of a lake; or

b) a body of water designated as a lake-

(i) by an NRM Plan

(ii) by a development Plan under the *Development Act 1993*;

Land Division: A division of land requiring approval under the *Development Act 1993* and includes circumstances where a contiguous allotment ceases to be owned or occupied by the same person.

Net planted area: means the area of the commercial forest measured from stump to stump, less any unplanted areas, areas under clearfell slash or areas consisting of dead plantation trees, greater than 0.1 hectares. Access tracks less than 7 metres wide are part of the net planted area.

On-stream dam: A dam, wall or other structure placed on, or constructed across, a watercourse or drainage path, or constructed drain for the purpose of holding back and storing the natural flow of that watercourse, or the surface runoff flowing along that drainage path. Note the definition of an on-stream dam does not include instream/drain structures which regulate surface water flow in drains constructed under the Upper SE Dryland Salinity and Flood Management Program or drains under the management and control of the SE Water Conservation and Drainage Board.

Off-stream dam: A dam, wall or other structure that is not constructed across, a watercourse or drainage path (or constructed drain) and is designed to hold water diverted or pumped from a watercourse, drainage path or aquifer or from another source and includes turkey nest dams.

Runaway hole - A natural opening in the ground that allows for the free movement of water to the groundwater.

Set back: Within the Tatiara/Nalang surface water policy area within which a permit for the construction of a dam is required in the case of any excavation or rock, sand or soil undertaken for the purpose of locating clay for the purpose of clay spreading.

The setback for the Tatiara/Nalang surface water policy area extends 100 meters from the centre point of priority watercourses within the Tatiara/Nalang surface water policy area.

Turkey nest dam or holding dam: A dam, wall, structure or excavation that is not constructed across a watercourse or drainage path and is designed to hold water diverted or pumped from a watercourse, a drainage path, an aquifer or from another source. A holding dam has no natural catchment other than the surface area of the dam.

Water affecting activities (WAA): Activities defined in section 127 of the NRM Act that can have adverse impacts on the health and condition of water resources, on other water users and on the ecosystems that depend on water resources. These water resources include watercourses, lakes or dams, floodplains, groundwater, springs, wetlands, water holes and catchment landscapes among others.

Watercourse: *(from NRM Act 2004)* A river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time and includes-

a) A dam or reservoir that collects water flowing in a watercourse;

b) A lake through which water flows;

c) A channel (but not a channel declared by regulation to be excluded from the ambit of this definition) into which the water of a watercourse has been diverted;

d) Part of a watercourse;

e) An estuary through which water flows;

f) Any other natural resource, or class of natural resource, designated as a watercourse for the purposes of this Act by an NRM plan;

Water management works: As defined in *SE Water Conservation and Drainage Act 1992:*

a) Any drain, artificial drainage hole, dam, bank or other device or works constructed or used for the purposes of conserving, draining or altering the flow of surface water from or onto land or utilising any such water, including any ancillary access road, bridge or culvert or other ancillary works; and

b) Any works constructed for the purpose of lowering water table levels.

Wedgehole or Groundwater Access Trench (GAT): A shallow excavation in the ground to enable access to the aquifer located close to the ground surface. Wedgeholes or GATs are often used to provide stock access for drinking water. Note- this definition may be superseded by a definition outlined in a regulation.

Wetland: *(from NRM Act 2004)* An area that comprises land that is permanently or periodically inundated with water (whether through a natural or artificial process) where the water may be static or flowing and may range from fresh water to saline water and where the inundation with the water influences the biota or ecological

processes (whether permanently of from time to time) and includes any other area designated as a wetland-

a) By an NRM Plan

b) By a Development Plan under the *Development Act 1993*

but does not include-

c) A dam or reservoir that has been constructed by a person wholly or predominantly for the provision of water for primary production or human consumption; or

d) An area within an estuary or within any part of the sea; or

e) An area excluded from the ambit of this definition by regulations.

5. ALIGNMENT OF NRM PLANNING AND DEVELOPMENT PLANNING

5.1 Introduction

The NRM Act provides the ability for an NRM Board to identify policies reflected in Local Government Development Plans that require review. The aim of any review of Development Plan provisions is to promote the objects of the NRM Act, or to improve the relationship between policies in the development plans and those articulated in this Plan. Fundamental to the objects of the NRM Act and this NRM Plan is the need to seek a balance between environmental, economic and social outcomes for the State and the NRM Region.

5.2 Development Plan Review Process

To support identification of NRM related policy areas which could be integrated into Development Plans, a review of the development plans of the eight constituent councils of the SE NRM Board region was undertaken. The review focused on the Development Plans of:

- Kingston District Council
- Coorong District Council (part of)
- City of Mount Gambier
- District Council of Grant
- Naracoorte Lucindale District Council
- District Council of Robe
- Wattle Range Council
- Tatiara District Council

The review included:

- The identification of the coverage of NRM issues by current policies;
- Identification of where policies were considered to cover NRM issues adequately and should be retained or enhanced;
- Identification of “NRM model provisions“ or intents of provisions in use by one or more councils within the region. The concept focussed on facilitating the sharing of information by helping other Councils to readily reference established NRM provisions when undertaking amendments to Development Plans; and
- The identification of gaps in the Development Plans.

5.3 Alignment of NRM and Development Plan Policy

A range of Natural Resource Management provisions which support and reinforce the objectives of this NRM Plan are presently included in Local Government Development Plans, the coverage of issues varies. Common NRM themes evident across all of the development plans include:

- Protection of prime agricultural land - specifically the protection of soil from erosion and dryland salinity;
- Protection of native vegetation; and
- Protection of water resources.

Better Development Planning Modules

An outcome of the review of Development Plans included acknowledgement that the integration of the State Government's Better Development Plan NRM Module into Local Government Development Plans would support the broad coverage of NRM issues, bringing a closer relationship between the NRM Plan and Development Plans. The Better Development Planning (BDP) process is an initiative of the State Government, with the aim of improving South Australia's planning and development assessment system. The BDP process provides a library of policy provisions which can be adopted by Local Governments across the State when undertaking Development Plan amendment or full conversion to the Better Development Plan suite of policies. In addition and to ensure plans are appropriate for their area, local provisions can be included.

The review highlighted that development plans differ in their policy approach to NRM issues within their jurisdiction. In some cases, there is no policy that deals with specific, key NRM issues.

Key gap areas identified are summarised below, the full analysis is available in the Policy Review report:

1. Soil and land

- Only some Development Plans make reference to land management practices and subsequent impacts on soil.
- Enhancement of policies relating to dryland salinity.
- There is often an absence of policy/policies relating to objectives for sustainable agricultural practices, maintenance of soil productivity and nutrient levels, and addressing potential erosion issues.
- Land use planning (in particular for urban expansion) and the need to consider and plan for the protection of land that is highly valued for its productive potential to agricultural industries.
- Introduction of appropriate considerations of risks associated with changes of land use, in particular as they relate to pest plants and animals.

- Review the full impact of urban consolidation, increased housing densities and the creation of rural living areas-land use. Planning needs to take into consideration the impacts of these land uses, particularly in relation to reducing impacts on climate change (e.g. energy efficiency), water and soil quality. Potential impacts are not extensively or specifically addressed within some Development Plans.

2. Water Resources

- Minimal policy exists across all Development Plans in relation to sustainable water use and requirements for the recycling of water. There are often guides for water quality and quantity, but no provisions to support sustainable use and reuse – neither domestically nor in industry.

- Another area of improvement required is the identification and mapping of all areas of significant water resources. This is done quite effectively in some plans, but in other cases there are resources that have a high importance but are not mentioned in the relevant development plans.

- Review required of current established water protection zones, policies, and the establishment of appropriate water protection zones and policies to protect water resources from which township water supplies are drawn.

3. Geological features and landscapes

- Significant landscape features should be identified and policies included in order to support their protection. While all plans contain some provisions relating to significant landscape features, the approach by which they are identified and the supporting policy differ. In some instances, significant features are identified with maps, and are supported by stringent policy, zones and desired character statements. However, in other instances, significant landscapes are not readily identified.

- Incorporate and enhance tourism policies relating to areas of landscape importance to include requirement development that is sympathetic to the landscape feature.

4. Biodiversity

- All coastal councils have a similar approach regarding marine and onshore coastal environments, as this has been directed by previous State Government policy.

- Some plans are limited in their coverage of measures to ensure protection of native animal habitats and the prevention of the spread of pest plants and animals.

5. Ecosystems

- Significant ecosystems should be identified and policies included to support their protection. Development Plans across the region contain some policies

regarding ecosystem protection, as is the case with geological features and landscapes, but there is greater scope to better use available information on significant ecosystems in framing policies. Council Development Plans should better identify ecosystems at risk and structure policies to support their protection.

- Incorporate and enhance tourism policies relating to areas with significant ecosystems..

6. Indigenous

- The adoption of an indigenous heritage register would support the identification of land with indigenous significance.

7. Climate change

- A review of the anticipated extent of development adjacent the coast and the development of policies relating to the establishment of site and floor levels may be required (in response to climate change scenarios). These may be quite different from those in existing Development Plans.

- The need for inclusion of policies relating to energy consumption and greenhouse gas emissions to promote energy efficiency and the reduction of greenhouse gas emissions, for example, reducing the use of fossil fuel, promoting the use of materials which enable development to be climate responsive, development of land use patterns and urban design that promote energy efficiency.

Mapping

Linkages between Development Plans and the NRM Plan can be made through policy provisions supported by incorporating a range of natural resource management map coverages into Development Plans. The following are examples of the types of coverages which should be considered for inclusion:

- Updating and recognising boundaries of prescribed wells and prescribed water resource and surface water policy zones specified in the Regional NRM Plan including the addition of maps of high priority groundwater and surface water dependent ecosystems and specific provisions for their protection.

- Map coverages to support identification of significant ecosystems and natural features within Development Plan areas including (but not limited to the following):

    - Ramsar sites;

    - World Heritage listed sites;

    - SA Wetland Inventory Database mapping data of high conservation significance wetlands;

    - Native vegetation mapping;

- Watercourses;
- Land of high value for agricultural production;
- Further identification and mapping of areas of coastal or landscape significance, and ecosystems of importance/significance.

5.4 Stormwater Planning

In 2007, legislation was introduced to facilitate the creation of stormwater management plans across South Australian councils. This legislation, *Local Government (Stormwater Management) Amendment Act 2007,* now requires that councils undertake consultation with the relevant NRM Board during the creation of Stormwater Management Plans and requires the Board to provide written comment on any stormwater management plan considered (SE NRM Board 2008).

Further, the Act also gives the NRM Board the power to request the Stormwater Management Authority (established under the Local Government Act) to direct a Council/s to prepare a Stormwater Management Plan. The powers provide the NRM Board with the ability to ensure Stormwater Management Plans are created concurrently (if required) and consistently (SE NRM Board 2008). As this legislation is relatively new, most existing plans have not been prepared under it.

6. CONSISTENCY WITH RELEVANT LEGISLATION, PLANS AND POLICIES

6.1 Legislation and Policies considered

In the preparation of this Plan the following policies and legislation have been considered to ensure consistency between this plan and the following legislation, plans and policies consistent with the requirements of section 75 of the NRM Act.

a) Any relevant management plan under the *Coast Protection Act 1972*;and

b) Any relevant Development Plan under the *Development Act 1993;* and

c) Any relevant environmental protection policy under the *Environment Protection Act 1993*; and

d) Any relevant plan of management under the *National Parks and Wildlife Act 1972; and*

e) The principles of clearance of native vegetation under the *Native Vegetation Act 1991* and any guidelines relating to the management of native vegetation adopted by the Native Vegetation Council under that Act; and

f) Any relevant policy relating to the administration or operation of a Mining Act published for the purposes of this Chapter by notice in the Government Gazette by the Minister for the time being administering that Act after consultation with the Minister administering this act; and

g) Such other plans, policies strategies or guidelines as are prescribed by the regulations.

The principles and goals outlined by this Plan are consistent with a range of key national and state-wide planning and policy and legislative initiatives and agency objectives including:

Acts

- *Marine Parks Act 2007*
- *Environment Protection and Biodiversity Conservation Act 1999(Cmwth)*

Management Plans/ Strategies

- State NRM Plan
- National Park Management Plans
- No Species loss – a biodiversity Strategy for South Australia 2006-2016
- Draft State Biosecurity Plan 2008
- Australian Weed Strategy
- Australian Invasive Animal Strategy

- The Weeds of National Significance Strategies and the National Weed Spread Prevention Action Plan
- Regional Biodiversity Plans
- South Australian Strategic Plan
- Marine Planning Framework
- Better Development Planning
- Draft Limestone Coast Regional Planning Framework (Regional Plan) 2009
- South East Coastal Strategy and Action Plan

6.2 Risk from Bushfire

The South East Natural Resources Management Board is committed to reducing the impact of bushfires on the community and the environment.

The relationship between fire and healthy native vegetation is complex. Fire occurs naturally in the Australian environment and may be used as a management tool in maintaining vegetation health and diversity. All vegetation, including non-native species, is to a greater or lesser degree flammable and in conjunction with leaf litter and bark, provides the fuel for fire. Selectively modifying the vegetation in an area to reduce fuel loads is one of a range of actions that will assist in minimising the impact of a bushfire on built assets. Fuel reduction may be achieved by various means including burning, mechanical removal, slashing and grazing.

An inquiry on Bushfire Mitigation and Management by the Council of Australian Governments recommended that a structured risk management process provided the best framework for making strategic and operational decisions about bushfire mitigation and management. The inquiry identified three main elements in relation to bushfire risk management which included:

- Planning processes that ensure built assets are not placed in areas of high bushfire risk and that elsewhere, built assets are constructed in accordance with Australian standards that reduce the vulnerability of those assets to bushfire attack;
- Reducing the frequency of ignitions that result from arson and carelessness; and
- Managing the landscape to minimise the risk of damage to life, property and environmental assets (including understorey species and fauna).

The South Australia Government has developed the *Code of Practice for the Management of Native Vegetation to Reduce the Impact of Bushfire* (the 'Code') to support land managers. The Code utilises the concept of fire management zones to distinguish between those areas where the core objective is protection of built assets, and those areas where fire management is directed towards biodiversity conservation. The code identifies three distinct zones including the Asset Protection

Zone, the Bushfire Buffer Zone and the Conservation-Land Management Zone. The objectives for the fire management zones concept include the following:

- To ensure that appropriate management actions are implemented to meet the requirements for asset protection and native vegetation management;
- To clarify, for landholders, the areas where different fuel management activities should be undertaken;
- To ensure a standard approach to the application of fuel management activities in native vegetation in South Australia to prevent/minimise impacts on native vegetation including listed threatened flora and ecological communities under the EPBC Act; and
- To assist in the development of bushfire prevention plans and programs.

The Code and the various supporting documents are available from the website: www.nvc.sa.gov.au.

The State Government is developing detailed guidelines on burning for ecological purposes. Further information on hazard reduction is available from the Code and Attachment 2 of the Code titled *Fire Management Zoning* and by contacting your local office of the South Australian Country Fire Service.

In addition to the development of the Code, legislative and regulatory reforms are currently being considered in order to bring greater inter-agency expertise to the fire planning process and to devolve authority for the necessary approvals to the regional level.

7. MONITORING, EVALUATION, REPORTING AND IMPROVEMENT

This section outlines a broad framework which will guide the development of a Monitoring, Evaluation, Reporting and Improvement (MERI) Plan for the South East.

7.1 The MERI Plan

MERI activities are fundamental to NRM and a Plan to guide the process of assessing the success of the Region in implementing the finalised NRM Plan will be developed while the planning process remains fresh. This MERI Plan will be vital in ensuring the targets in the Regional NRM Plan are achieved by the SE NRM Board and its partners in NRM. This new framework will be consistent with the State Monitoring Evaluation and Reporting Framework, the Australian Government NRM MERI Framework (2009), the NRM Act 2004, and the State NRM Plan 2006.

7.1.1 Links to State MERI Framework

The State NRM Plan provides the framework for monitoring and evaluation for all relevant agencies, regional NRM Boards and other bodies delivering NRM. The State framework describes three main policies and five principles for natural resource information. The policies state that:

- All NRM plans, programs and projects are to include monitoring and reporting on the state and condition of natural resources over appropriate scales and timeframes.
- Evaluations are to be conducted at designated stages of delivery that are identified in the planning process.
- Costs of NRM monitoring will be shared amongst beneficiaries.

Natural resource information should be:

- Obtained to meet the strategic needs of the government, industry and the community.
- Readily available to government, industry and the community.
- Captured on an agreed priority basis.
- Collected using a coordinated approach with uniform measurement standards, data management protocols, storage and retrieval.
- Consistent with national and international standards and protocols.

It is proposed that the South East MERI Plan will reflect these policies and objectives and contribute to the overall vision for monitoring and evaluation across the state.

7.1.2 Key Guiding Principles

Key guiding principles for the MERI Plan are:

- Monitoring in partnership

As with investment to deliver on regional targets, the SE NRM Board will adopt a partnerships approach to monitor, evaluate and report on regional NRM activities, outcomes and resource condition. This approach recognises that the SE NRM Board is the principal body for developing NRM policies and plans for the region, with a leading role in coordinating the outcomes of agencies and groups towards the region's goals and targets.

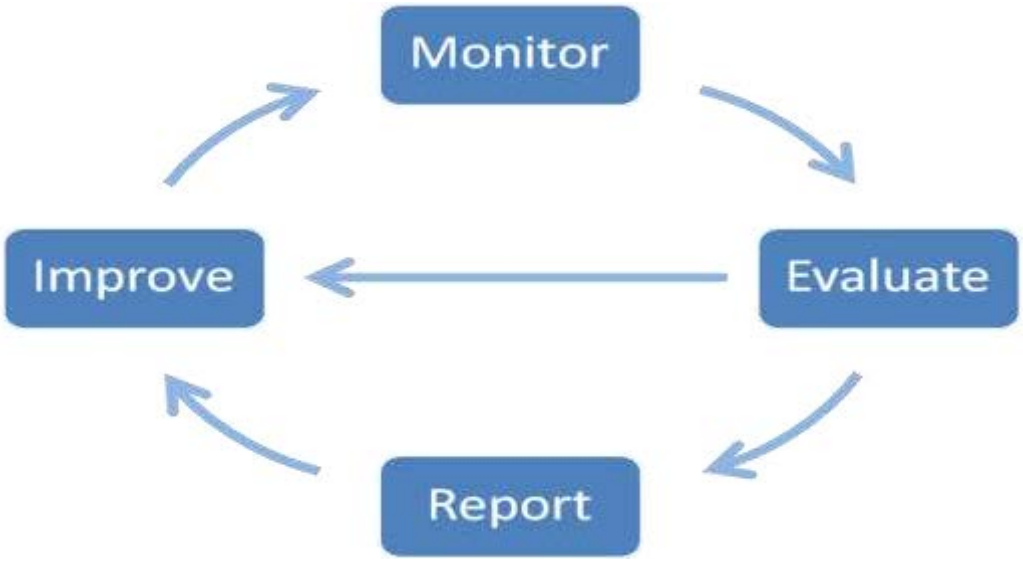
- Data is a community asset

With few exceptions, natural resources monitoring data should be publicly accessible. In collaboration with the South East Resource Information Centre, the SE NRM Board has invested in the development of nrmSPACE; an interactive internet site which provides free access to the range of publicly available NRM data, information and knowledge for the South East of South Australia. nrmSPACE will provide the foundation for future community access to NRM data, information and knowledge sources of relevance to the South East NRM region.

- Evaluation to inform management

Well-timed, resourced and focused evaluations are critical for the SE NRM Board to implement an adaptive management approach to NRM. Adaptive management is a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs.

Figure1: The MERI Cycle



7.1.3 The Components of MERI

Monitoring, Evaluation, Reporting and Improvement each play a key role in reaching the RCTs and MATs outlined in this Draft NRM Plan. A description of each component is provided below.

Monitoring

Monitoring describes the collection of evidence: Elements to be monitored include the condition of the resources to assess the achievements of RCTs, the effect of programs and projects outlined in the Business Plan on people and landscapes to assess the achievements of MATs as well as business and financial monitoring to assess delivery performance. The information collected should relate to a specific goal, target or outcome that has been identified and will be used to evaluate a project or management activity over time.

Evaluation

Evaluation involves assessing the effectiveness, efficiency or appropriateness of a project or program within the Draft NRM Plan against a specified goal, target or outcome. Evaluation may also lead to improved understanding of the cause and effect of outcomes, thereby challenging or supporting the concepts and assumptions that underpin the Draft NRM Plan. It is also possible to discover and examine long-term trends in natural resource condition through evaluation, enabling the recognition of external factors such as seasonal events, climate change and socio-economic changes.

Reporting

Reporting describes the documentation and communication of results, findings and learnings from monitoring and evaluation in a meaningful and timely manner. Reports may take a number of forms, according to their purpose, ranging from periodic formal reports created on an as-needs basis for funding bodies such as the South Australian and Commonwealth Government, through to summaries for regional NRM levy payers. Reporting will also occur regularly through publications such as fact sheets, newsletters, media releases and the Annual Report of the SE NRM Board.

Improvement

Improvement is a result of continuous review, learning and adaptation. Improvement will be achieved by using an adaptive management approach to ensure the information arising from the monitoring, evaluation and reporting efforts is used effectively.

7.2 Next steps

The SE NRM Board and its stakeholders are the process of developing a comprehensive MERI Plan which will provide further guidance on how monitoring, evaluation, reporting and improvement will occur. This plan will be based upon the Key Guiding Principles as described earlier, and will be implemented to ensure the most positive outcomes of the Regional NRM Plan are achieved.

In the spirit of continuous improvement, the MERI Plan will be based on the structure and learnings of other NRM Boards such as the Adelaide and Mount Lofty Ranges and SA Murray Darling Basin. Therefore it is likely to consist of:

- Background and Direction
    - Explanation of terminology and timeframes
    - Major drivers and purposes for MERI
    - Strategic direction for regional MERI
    - Key guiding principles for MERI
- MERI Implementation
    - MERI project plan
    - Partner engagement and communication strategy
    - Risk assessment for MERI
    - Evaluating MERI

It is anticipated that details of the monitoring that the Board will undertake will be included in the implementation section of the MERI Plan, including internal, organisation monitoring, as well as evaluation of resource condition. The Board is keen to include monitoring data from a wide range of reliable sources and has already developed several projects to work with community groups who gather NRM related data.

In keeping with the Board's commitment to effective engagement with the community and the State M&E Framework principles of accessibility, the Board will make every effort to make MERI data available to government, industries and the community in a variety of ways. This will include use of the innovative web portal, NRMSpace and its various modules, as well as through regular updates, reporting and media.

Two existing documents, *Natural Resources Monitoring, Evaluation and Reporting Frameworks in the South East of South Australia* (Hele 2005), and the *Strategy for Natural Resource Monitoring, Evaluation and Reporting in the South East* (SENRCC 2005) will be superseded by the MERI Plan. Rather than providing a strategic framework, these documents detailed the range of monitoring being undertaken across the region in 2005 and were at an operational level. It is not proposed to replicate this level of detail in the MERI Plan.

APPENDIX 1 MAP OF SOUTH EAST NRM REGION

APPENDIX 2: ABBREVIATIONS USED

ABS	Australian Bureau of Statistics
AG	Australian Government
APC	Animal and Plant Control
BLMC	Blue Lake Management Committee
CAMBA	China-Australia Migratory Bird Agreement
CCSA	Conservation Council of South Australia
CEM	Coastal, Estuarine and Marine
CFS	Country Fire Service
CMA	Catchment Management Authority (Victoria)
CPI	Consumer Price Index
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DC	District Council
DEH	Department for Environment and Heritage (SA)
DENR	Department of Environment and Natural Resources
DFW	Department for Water
DIWA	Directory of Important Wetlands in Australia
DPC	Department for Premier and Cabinet
DWLBC	Department of Water Land and Biodiversity Conservation
EBIT	Earnings Before Interest and Tax
EM	Electromagnetic
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EWR	Environmental Water Requirement
FTE	Full Time Equivalent
GDE	Ground water-dependent Ecosystem
GIS	Geographical Information System
GRP	Gross Regional Profit
ILUA	Indigenous Land Use Agreement
IUCN	International Union for Conservation of Nature
JAMBA	Japan-Australia Migratory Bird Agreement
LG	Local Government
LCCCMG	Limestone Coast and Coorong Coastal Management Group
LCDB	Limestone Coast Development Board
LSE	Lower South East
MAT	Management Action Target

MEC	Minister for Environment and Conservation
MBI	Market Based Instruments
MERI	Monitoring, Evaluation, Reporting and Improvement
MOU	Memorandum of Understanding
NGO	Non-Government Organisation
NLWRA	National Land and Water Resource Audit
NPW Act	*National Parks and Wildlife Act 1972* (SA)
NRM Act	*Natural Resources Management Act 2004* (SA)
NRM	Natural Resources Management
NRSMPA	National Representative System of Marine Protected Areas
PIRSA	Primary Industries and Resources South Australia
PWA	Prescribed Wells Area
R&D	Research and Development
RCT	Resource Condition Target
SA	South Australia
SAFF	South Australian Farmers' Federation
SAR	Sodium Absorption Rate
SARDI	South Australian Research and Development Institute
SASP	South Australian Strategic Plan
SE NRM Board	South East Natural Resources Management Board
SE NRM Region	South East Natural Resources Management Region
SEAFG	South East Aboriginal Focus Group
SEEEWG	South East Environmental Education Working Group
SELGA	South East Local Government Association
SEWCDB	South Eastern Water Conservation and Drainage Board
TCSA	Tertiary Confined Sand Aquifer
TDS	Total Dissolved Solids
TLA	Tertiary Limestone Aquifer
USE	Upper South East
WAP	Water Allocation Plan
WDE	Water-Dependent Ecosystem
WUE	Water Use Efficiency

APPENDIX 3: GLOSSARY

Adaptive management: A management approach, often used in NRM, that involves learning from management actions, and using that learning to improve the next stage of management.

Allotment: Has the same meaning as in the *Real Property Act 1886* and also includes two or more contiguous allotments owned or occupied by the same person and operated as a single unit.

Aquatic ecosystems: An ecosystem located in a water body. The two main types are marine and freshwater ecosystems.

Aquifer: An underground layer of rock or sediment, which holds water and allows water to percolate through.

Aquitard: A layer in the geological profile that separates two aquifers and restricts the flow between them.

Area based allocation: An allocation of water that entitles the licensee to irrigate a specified area of land for a specified time, usually described as per water use year.

Artificial recharge: The process of artificially diverting water from the surface to an aquifer. Artificial recharge can reduce evaporation losses and increase aquifer yield.

Artesian: Artesian water is water confined underground with enough pressure to cause it to rise above the level where it is encountered when wells penetrate the aquifer; the water will rise to the ground surface without the need for pumping.

Biodiversity: The variety of life forms represented by plants, animals and other organisms and micro-organisms, the genes that they contain, and the ecosystems and ecosystem processes of which they form a part.

Bioregion: A territory defined by a combination of biological, social and geographic criteria rather than by geopolitical considerations. Generally refers to a system of related, interconnected ecosystems.

Biosecurity: The protection of the economy, environment and public health from negative impacts associated with pest animals, plants and diseases (*State NRM Plan*).

Biota: All living organisms in a given area, including fungi, bacteria and algae.

Carbon bio–sequestration: The absorption of carbon dioxide from the atmosphere by living trees and vegetation.

Catchment area: The land area that contributes surface water to the flow in a watercourse at a specific location.

Clay pit: A hole in the ground which has resulted from the sourcing of clay.

Climate change: A change in climate, which is attributed directly or indirectly to human activity, which alters the composition of the global atmosphere, and is in

addition to natural climate variability observed over comparable time periods (*State NRM Plan*).

Clearfell or Clearfelling: The cutting or harvesting of all of the remaining crop trees in a given area. The clearfelling of a compartment shall be deemed to have been completed when all of the remaining crop trees within the boundary of the compartment have been harvested or felled.

Commercial forest: Has the same meaning as in section 3(1) of the NRM Act and means a forest plantation where the forest vegetation is grown or maintained so that it can be harvested or used for commercial purposes (including through the commercial exploitation of the carbon absorption capacity of the forest vegetation)..

Community: Landholders, residents, industries, agencies, Local Governments and visitors to our region.

Compartment: A defined area of crop trees of commercial forest, usually of the same species and age, surrounded on all sides by a firebreak.

Cone of Depression: An inverted cone shaped space within an aquifer caused by a rate of ground water extraction that exceeds the rate of recharge. Continuing extraction of water can extend the area and may affect the viability of adjacent wells, due to declining water levels or water quality.

Confined Aquifer: An aquifer in which the upper surface is impervious and the water is held at greater than atmospheric pressure. Water in a penetrating well will rise above the surface of the aquifer.

Connectivity: The extent to which patches of similar or complementary ecosystems are connected for the purpose of animal movement, for plant and animal reproduction, and for supporting ecosystem resilience.

Conservation status: The listing of a taxon on state, national or international conservation lists according to the threat to its viability.

Coppice regrowth: Trees in a hardwood plantation that have regenerated from shoots formed from the stumps of the previous crop of trees, root suckers, or both, i.e., by vegetative means.

Dam: An excavation, wall or other structure designed to hold diverted or pumped from a watercourse, a drainage path, an aquifer or from another source (from NRM Act) and includes clay pits within a 100 m set back area from the priority watercourses in the Tatiara /Nalang surface water policy area.

Declared plants / animals: A class of pest animals or plants declared under section 174 of the NRM Act for control purposes *(State NRM Plan).*

Diffuse source pollution: Pollution from sources such as an eroding paddock, urban or suburban land and forests; it is generally spread out and its source is often not easily identified nor managed.

Domestic wastewater: Water used in the disposal of human waste, for personal washing clothes or dishes and swimming pools.

Drawdown: The occasional, seasonal or permanent lowering of the water table or reduction of pressure (head) of an aquifer resulting from the extraction of ground water.

Drainage well: A well with its own natural catchment that is primarily used for the purpose of draining or discharging surface water into the ground.

Dryland salinity: The process whereby salts stored below the surface of the ground are brought close to the surface by the rising watertable. The accumulation of salt degrades the upper soil profile, with impacts on agriculture, infrastructure and the environment.

Ecological community: Unique and naturally occurring groups of plants and animals.

Ecologically sustainable development: Using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Endemic: A species that is native to, and restricted to, a particular geographic region.

Environmental flows: Periods or patterns of inundation, or drying, or river/or creek flows allocated or provided for the maintenance of water –dependent ecosystems.

Environmental water requirements: The water regimes needed to sustain the ecological values of water-dependent ecosystems, including their processes and biological diversity.

Estuary: A partially enclosed coastal body of water that is permanently, periodically, intermittently or occasionally open to the sea within which there is a measurable variation in salinity due to the mixture of sea water with water derived from or under the land.

Farm: A place/property being used solely or predominantly for the business of agriculture, pasturage, horticulture, viticulture, animal farming or any other business consisting of the cultivation of soils, the gathering in of crops or the rearing of livestock, other than where the sole or predominant use is commercial forestry.

Flood irrigation: Irrigation where ground water is pumped or directed onto an irrigation bay or levelled land and flows uniformly across the soil surface of the bay or the land without the aid of sprinklers, drippers or other infrastructure.

Forest fallow: The time period between clearfell of the previous commercial forest and the re-establishment of the commercial forest site by means other than through coppice regrowth.

Forest rotation: Means the length of time between establishment of the commercial forest by planting, coppice regrowth, or other means, and clearfelling.

Forest vegetation: Has the same meaning as in section 3 of the NRM Act and means trees and other forms of forest vegetation including – (a) roots or other parts

of the trees or other forest vegetation that lie beneath the soil; and (b) leaves, branches or other parts or products of trees or other forest vegetation.

Groundwater: Water occurring naturally below ground level or water pumped, diverted or released into a well for storage underground.

Habitat: The natural place or type of site in which an animal or plant or communities of animals and plants live.

HaIE: The Irrigation Equivalent (IE) allocation shown in hectares. It is the quantity of irrigation water (in addition to rainfall) required to equal the water use for one hectare of a reference crop grown in a region. The use of ground water for irrigation purposes is restricted to the Irrigation Equivalent area stated on a water licence.

High value agricultural land: Land with a high productive potential for agricultural activities.

Irrigation: The watering of land by any means for the purpose of growing plants.

Karst: A type of topography that is formed over limestone, dolomite or gypsum by dissolving or solution, and that is characterised by closed depressions or sinkholes, caves and ground drainage. *Dictionary of Geological Terms. Rev. ed. 1976*

Lake: A natural lake, pond, lagoon, wetland or spring (whether modified or not) and includes part of a lake, or a body of water designated as a lake by an NRM plan; or by a development plan under the *Development Act 1993.*

Land capability: The ability of land to accept a type and intensity of use with minimum risk of permanent damage to the soil resource (land natural resources) (*State NRM Plan*).

Land division: A division of land requiring approval under the *Development Act 1993* and includes circumstances where a contiguous allotment ceases to be owned or occupied by the same person.

Land stewardship: The practice of carefully managing land usage to ensure natural systems are maintained or enhanced for future generations.

Licensee: A person who holds a water licence.

Management Action Target: The desired result of a collection of projects and activities over a five to seven year timeframe.

Market Based Instrument: Schemes that use market-like approaches to encourage 'good behaviour', changing management actions to improve natural resource management outcomes. They have potential to provide incentives to improve the condition of the land and waterways at a lower cost than many traditional policies and laws.

Native animal: A protected animal within the meaning of the *National Parks and Wildlife Act 1972* and any species included in Schedule 10 of that Act, but does not include a dingo or any other animal of a class excluded from the ambit of this definition by the regulations.

Natural resources: Soil, water resources, geological features and landscapes, native vegetation, native animals and other native organisms, and ecosystems.

Natural Resources Management: Achieving a sustainable balance in the sharing of our region's finite natural resources between both economic and environmental needs, to ensure that current and future generations can benefit from them.

Net planted area: Means the area of the commercial forest measured from stump to stump, less any unplanted areas, areas under clearfell slash or areas consisting of dead plantation trees, greater than 0.1 ha. Access tracks less than 7 m wide are part of the net planted area.

On-stream dam: A dam, wall or other structure placed on, or constructed across, a watercourse or drainage path, or constructed drain for the purpose of holding back and storing the natural flow of that watercourse, or the surface runoff flowing along that drainage path. Note the definition of an on-stream dam does not include in stream/drain structures that regulate surface water flow in drains constructed under the Upper SE Dryland Salinity and Flood Management Program or drains under the management and control of the SE Water Conservation and Drainage Board.

Off-stream dam: A dam, wall or other structure that is not constructed across, a watercourse or drainage path (or constructed drain) and is designed to hold water diverted or pumped from a watercourse, drainage path or aquifer or from another source and includes turkey nest dams.

Pest: A plant or animal species declared under the NRM Act.

Prescribed water resource: Includes underground water to which access is obtained by prescribed wells.

Prescribed well: A well declared to be a prescribed well under section 125 of the *Natural Resources Management Act 2004.*

Resource Condition Target: The desired state and condition of a natural resource asset (including people) over a 20-year timeframe.

Runaway hole: A natural opening in the ground that allows for the free movement of water to the underground water.

Set back: Within the Tatiara/Nalang surface water policy area within which a permit for the construction of a dam is required in the case of any excavation or rock, sand or soil undertaken for the purpose of locating clay for the purpose of clay spreading.

The set back for the Tatiara/Nalang surface water policy area extends 100 m from the centre point of priority watercourses within the Tatiara/Nalang surface water policy area.

Surface water: Water flowing over land (except in a watercourse), after falling as rain or hail or having precipitated in any other manner, or rising to the surface naturally from underground. Also, water of either kind that has been collected in a dam or reservoir or contained in any stormwater infrastructure.

Sustainable (Sustainability): Comprises the use, conservation, development and enhancement or natural resources in a way, and at a rate that will enable people and communities to provide for their economic social and physical well-being while: sustaining the potential of natural resources to meet the reasonably foreseeable needs of future generations and safeguarding the life-supporting capacities of natural resources and avoiding, remedying or mitigating any adverse effects of activities on natural resources (*State NRM Plan*).

Threatened species: Plant or animal species that are listed as rare, vulnerable, endangered or critically endangered or extinct in the wild as per the *National Parks and Wildlife Act 1972* (SA) or *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth.).

Total dissolved solids: Measure of the dissolved salts in water and an alternative salinity measurement to EC unit.

Turkey nest dam or holding dam: A dam, wall, structure or excavation that is not constructed across a watercourse or drainage path and is designed to hold water diverted or pumped from a watercourse, a drainage path, an aquifer or from another source. A holding dam has no natural catchment other than the surface area of the dam (e.g. a turkey nest dam).

Unconfined Aquifer: Aquifer in which the upper surface has free connection to the ground surface and water surface is at atmospheric pressure.

Volumetric allocation: An allocation of water expressed on a water licence as a volume (e.g. kilolitres) to be used over a specified period of time, usually per water-use year (as distinct from any other sort of allocation).

Water affecting activities (WAA): Activities defined in section 127 of the NRM Act that can adverse impacts on the health and condition of water resources, on other water users and on the ecosystems that depend on water resources. These water resources include watercourses, lakes or dams, floodplains, groundwater, springs, wetlands, water holes and catchment landscapes among others.

Watercourse: *(from NRM Act 2004)* A river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time and includes-a dam or reservoir tat collect water flowing in a watercourse; a lake through which water flows; a channel (but not a channel declared by regulation to be excluded from the ambit of this definition) into which the water of a watercourse has been diverted; part of a watercourse; an estuary through which water flows; any other natural resource, or class of natural resource, designated as a watercourse for the purposes of the NRM Act by an NRM plan.

Water-dependent ecosystems: Those parts of the environment, the species composition and natural ecological processes that are determined by the permanent or temporary presence of flowing or standing water, above or below ground. The in-stream areas of rivers, riparian vegetation, springs, wetlands, floodplains, estuaries and lakes are all water-dependent ecosystems.

Water Allocation Plan: A water allocation plan prepared by a regional NRM board under Chapter 4 Part 2 of the *Natural Resources Management Act 2004.*

Water licence: A licence granted by the Minister under Section 146 of the *Natural Resources Management Act 2004* authorising the holder (subject to the requirements of the Act) to take (or to hold) water from a watercourse, lake or well or to take (or to hold) surface water from a surface water prescribed area and includes a licence granted with a water (holding) allocation.

Watertable: Upper surface of saturation in the unconfined aquifer.

Water Holding Allocation: The quantity of water that a water licence holder is entitled to request to be converted to a water taking allocation.

Water Taking Allocation: The quantity of water that a water licence holder is entitled to take and use pursuant to the licence.

Water use efficiency: A simple measure of crop production per unit of water applied.

Watercourse: A river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time.

Wetland: An area that comprises land that is permanently or periodically inundated with water (whether through natural or artificial processes) where the water may be static or flowing or may range from fresh water to saline water and where the inundation with water influences the biota or ecological processes (whether permanently or from time to time) and includes any other area designated as a wetland by:

a) an NRM plan, or

b) a development plan under the *Development Act 1993*

but does not include:

c) a dam or reservoir that has been constructed by a person wholly or predominantly for the provision of water for primary production or human consumption, or

d) an area within an estuary or within any part of the sea, or

e) an area excluded from the ambit of this definition by the regulations (NRM Act 2004).

APPENDIX 4 REFERENCES

DWLBC 2009, Code of Practice for the Management of Native Vegetation to Reduce the Impact of Bushfire. (Version 7-09 11 February 2009). Department of Water, Land and Biodiversity Conservation, South Australia.

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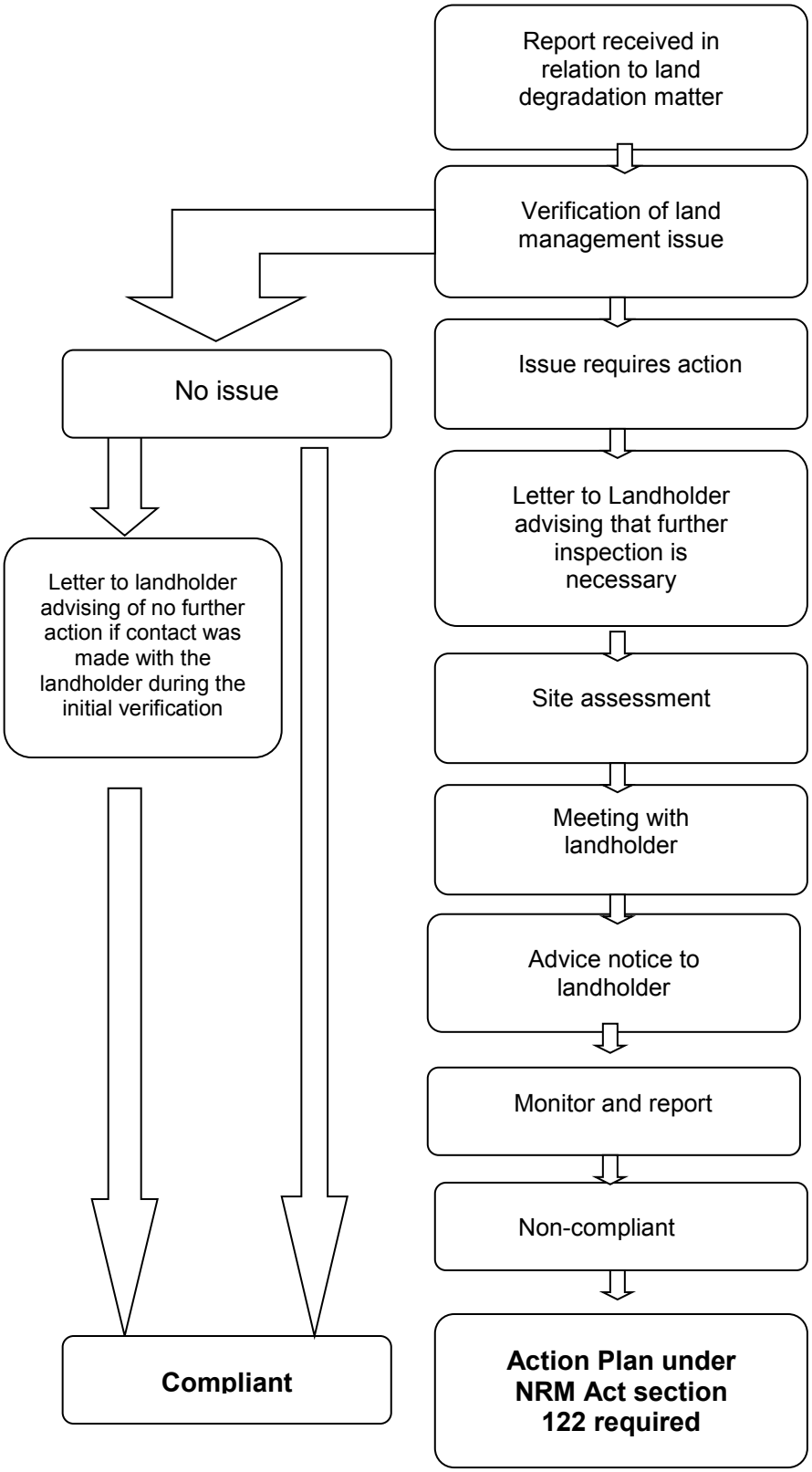
APPENDIX 5 LAND MANAGEMENT PRE-COMPLIANCE PROCESS



APPENDIX 6 PROVISIONS RELATED TO THE CONTROL OF PEST ANIMALS AND PEST PLANTS

Table 5: Summary of NRM Act Provisions and their intent for the Control of Animals and Plants

Section of NRM Act	Summary of intent of section
175	Cannot introduce/transport/spread the plant/animal into the region
176	Must not keep a plant/animal in your possession in the region
177	Cannot sell the plant/animal Cannot sell any produce or goods carrying the plant
178	Sale of contaminated items
179	Must not release plant/animal in the region
180	Notification required for the presence of plant/animal on properties or in region
181	Must comply with instructions to keep plant/animal confined
182	Land owner must destroy/control the plant/animal on their land NRM authority must control or destroy plants on roadsides
183	Requirement to implement an action plan
184	Native animals
185	NRM authority may recover costs for control of weeds on roadsides from adjoining land owners
186	Destruction or control of animals outside of the dog fence by poison and traps
187	Ability of Minister to control or quarantine any animal or plant

Table 6: Weeds declared for the South East NRM Region

(as at September 2009)

	Not declared for any part of the South East
	Declared for some parts of the South East
	Declared for all parts of the South East

CLASS	PEST PLANT	LOCAL GOVERNMENT AREA								SECTIONS OF THE NRM ACT THAT APPLY
		GRANT	CITY OF MT GAMBIER	WATTLE RANGE	ROBE	NARACOORTE LUCINDALE	KINGSTON	TATIARA	COORONG	
1A	Alkali sida	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1)(2)(3), 182(1)(3), 185(1)
	Alligator weed	✓	✓	✓	✓	✓	✓	✓	✓	
	Khaki weed	✓	✓	✓	✓	✓	✓	✓	✓	
	Arrowhead	✓	✓	✓	✓	✓	✓	✓	✓	
	Broad-kernel espartillo	✓	✓	✓	✓	✓	✓	✓	✓	
	Broomrapes	✓	✓	✓	✓	✓	✓	✓	✓	
	Cane needlegrass	✓	✓	✓	✓	✓	✓	✓	✓	
	Elodea	✓	✓	✓	✓	✓	✓	✓	✓	
	Eurasian water-milfoil	✓	✓	✓	✓	✓	✓	✓	✓	
	Horsetail	✓	✓	✓	✓	✓	✓	✓	✓	
	Hydrocotyle	✓	✓	✓	✓	✓	✓	✓	✓	
	Lagarosiphon	✓	✓	✓	✓	✓	✓	✓	✓	
	Leafy elodea	✓	✓	✓	✓	✓	✓	✓	✓	
	Mexican feathergrass	✓	✓	✓	✓	✓	✓	✓	✓	
	Parthenium weed	✓	✓	✓	✓	✓	✓	✓	✓	
	Perennial thistle	✓	✓	✓	✓	✓	✓	✓	✓	
	Pink pampas grass	✓	✓	✓	✓	✓	✓	✓	✓	
	Poison buttercup	✓	✓	✓	✓	✓	✓	✓	✓	
	Primrose willow	✓	✓	✓	✓	✓	✓	✓	✓	
	Salvinia	✓	✓	✓	✓	✓	✓	✓	✓	
	Ragwort	✓	✓	✓	✓	✓	✓	✓	✓	
	Senegal tea plant	✓	✓	✓	✓	✓	✓	✓	✓	
	Serrated tussock	✓	✓	✓	✓	✓	✓	✓	✓	

CLASS	PEST PLANT	LOCAL GOVERNMENT AREA								SECTIONS OF THE NRM ACT THAT APPLY
		GRANT	CITY OF MT GAMBIER	WATTLE RANGE	ROBE	NARACOORTE LUCINDALE	KINGSTON	TATIARA	COORONG	
	Toe toe	✓	✓	✓	✓	✓	✓	✓	✓	
	Water caltrop	✓	✓	✓	✓	✓	✓	✓	✓	
	Water hyacinth	✓	✓	✓	✓	✓	✓	✓	✓	
	Water soldier	✓	✓	✓	✓	✓	✓	✓	✓	
1B	Sagittaria	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 185(1), 180(1)(2)(3), 182(1)(3)
1C(i)	Mesquite, Parkinsonia	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1), 182(1)(3), 185(1)
1C(ii)	Prickly pear	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 182(2)(3), 185(1)
1C(iii)	Rampion mignonette	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1)(2)(3), 182(1)(3) 185(1)
1D(i)	Golden dodder	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1)(2)(3) 182(1)(3), 185(1)
1D(ii)	Chilean dodder, Red dodder	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1)(2)(3), 182(2)(3), 185(1)
1D(iii)	Large-seeded dodder	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1)(2)(3), 182(1)(3), 185(1)
1D(iv)	Dodders (all others)	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2)
1E	Poison ivy Rhus tree	✓	✓	✓	✓	✓	✓	✓	✓	177(1)(2), 182(1)(3)
1F	Water-dropwort	✓	✓	✓	✓	✓	✓	✓	✓	177(1)(2), 175(2), 182(2)(3), 180(1)(2)(3)
2A	Creeping knapweed, Hoary cress, Silverleaf nightshade	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 180(1) 182(2)(3), 185(1)
2B	Noogoora burr complex	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1), 182(1)(3) 185(1)

CLASS	PEST PLANT	LOCAL GOVERNMENT AREA								SECTIONS OF THE NRM ACT THAT APPLY
		GRANT	CITY OF MT GAMBIER	WATTLE RANGE	ROBE	NARACOORTE LUCINDALE	KINGSTON	TATIARA	COORONG	
2C	African boxthorn, African lovegrass, Bathurst burr, Bridal creeper, Bridal veil, Field garlic, Gorse, Three-corner jack,	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
2D	Bladder campion, Calomba daisy, One-leaf Cape tulip, Two-leaf Cape tulip	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
2E	Caltrop	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
2F	Cutleaf mignonette	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
2G	Innocent weed	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
		✓		✓	✓	✓	✓	✓	✓	180(1)
2H	Skeleton weed	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
		✓		✓		✓				180(1)
2I	Coolatai grass	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
2J	Perennial ragweed	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 180(1)(2)(3), 182(2)(3), 185(1)
2K	False caper	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
2L	Chilean needlegrass, Plumerillo, Texas needlegrass	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2), 180(1)(2)(3), 182(2)(3), 185(1)
3A	African feathergrass	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
3B	African rue	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
									✓	180(1)

CLASS	PEST PLANT	LOCAL GOVERNMENT AREA								SECTIONS OF THE NRM ACT THAT APPLY
		GRANT	CITY OF MT GAMBIER	WATTLE RANGE	ROBE	NARACOORTE LUCINDALE	KINGSTON	TATIARA	COORONG	
3C	Blackberry	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2)
		✓	✓	✓	✓	✓	✓	✓		182(2)(3), 185(1)
3D(i)	Dog rose	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2),
		✓	✓	✓						182(2)(3), 185(1)
3D(ii)	Sweet briar	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
		✓	✓							182(2)(3), 185(1)
3E	Horehound	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2) 182(2)(3), 185(1)
3F	Lincoln weed	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
3G	Pheasant's eye	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
					✓	✓	✓	✓	✓	182(2)(3), 185(1)
3H	Salvation Jane	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
		✓								180(1)
3I	Soldier thistle	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
					✓	✓	✓	✓	✓	182(2)(3), 185(1)
3J	Soursob	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
		✓			✓	✓	✓	✓		182(2)(3), 185(1)
3K	Variegated thistle	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
3L	Wild artichoke	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
				✓	✓	✓	✓	✓	✓	182(2)(3), 185(1)
3M	Yellow burrweed	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 180(1)182(2)(3), 185(1)
4	Boneseed	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2), 182(2)(3), 185(1)
5A	Azzarola, May	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
				✓						182(2)(3)
5B(i)	Cape or Montpellier broom	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
		✓	✓							182(2)(3)

CLASS	PEST PLANT	LOCAL GOVERNMENT AREA								SECTIONS OF THE NRM ACT THAT APPLY
		GRANT	CITY OF MT GAMBIER	WATTLE RANGE	ROBE	NARACOORTE LUCINDALE	KINGSTON	TATIARA	COORONG	
5B(ii)	English or Scotch broom	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
			✓	✓						182(2)(3)
5C	Bulbil watsonia	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2)
				✓						182(2)(3)
5D	Olive	✓	✓	✓	✓	✓	✓	✓	✓	182(2)(3), 185(1)
5E	**Aleppo pine**									
6	Field bindweed, Nutgrass	✓	✓	✓	✓	✓	✓	✓	✓	175(2), 177(1)(2) 182(1)(3), 185(1)
7A	Onion weed				✓		✓	✓	✓	182(2)(3), 185(1)
7B	Slender thistle	✓	✓							182(2)(3), 185(1)
7C	Buchan weed	✓	✓							182(2)(3), 185(1)
7D	**Three-horned bedstraw**									
7E	Carrot	✓	✓	✓	✓	✓	✓	✓		182(2)(3), 185(1)
7F	**Spear thistle, Three-cornered garlic**									
8	Galvanised burr	✓	✓	✓	✓	✓	✓	✓	✓	180(1)(2)(3)
9A	Bifora	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2)
9B	Kochia, Distichlis	✓	✓	✓	✓	✓	✓	✓	✓	175(1)(2), 177(1)(2)
10	Muskweed, Nightstock	✓	✓	✓	✓	✓	✓	✓	✓	177(1)(2)
11	Athel pine, Cabomba, Common lantana, Hymenachne, Mimosa, Pond apple, Prickly acacia, Rubber vine, Willows	✓	✓	✓	✓	✓	✓	✓	✓	177(1)(2)

APPENDIX 6 CONTINUED

Roles and Responsibilities for pest plants and animals not within the direct jurisdiction of the SE NRM Board (from the Draft SE Regional Pest Management Plan 2009)

Cat and dog management

The SE NRM Board has no direct responsibility for the control and management of domestic cats and dogs. Management of the day-to-day enforcement and administration of the legislative provisions for the management of dogs and cats in the community is undertaken by local government through the administration of the *Dog and Cat Management Act 1995*. The SE NRM Board does provide advice and assistance to landowners to aid in the preservation of biodiversity and reduction of agricultural impact from the presence of feral cats and dogs in the rural environment.

Marine and freshwater vertebrate pests

PIRSA Fisheries is responsible for the management of freshwater and marine vertebrate pest incursions. This responsibility is outlined in the *Fisheries Management Act 2007* and its associated regulations.

Over-abundant native species

The Department of Environment and Natural Resources (DENR) has responsibility for the management of over-abundant native species through the implementation of the *National Parks and Wildlife Act 1972*.

Invertebrates (European wasps, locusts and grasshoppers)

Invertebrates are presently excluded from the NRM Act. The legislated responsibility for the management of invertebrate pests currently lies with local government via the *Noxious Insects Act 1934*. This Act is about to be superseded by the *Plant Health Act 2009* (not yet enacted) which will devolve the responsibility to PIRSA. PIRSA already undertake the management of fruit flies and the protection of major agricultural areas in SA from the impact of locusts and small plague grasshoppers. Many local councils still employ and are likely to continue active management programs for European Wasp.

Snails

The SE NRM Board is unaware of any legislation surrounding the enforced management of snails. SARDI Entomology Unit in conjunction with GRDC (Grains Research Development Council) and SAGIT (South Australia Grains Industry Trust) has been conducting extensive research into field management, snail ecology, pollution dynamics and biological control, the results have contributed to the development of management control options for snails in pastures, crop, horticulture and viticulture. The *Bash' Em, Burn' Em Bait' Em* - snail management guide is available for purchase or alternatively visit,
http://www.sardi.sa.gov.au/pestsdiseases/pests/crop_pasture_pests/snail_management

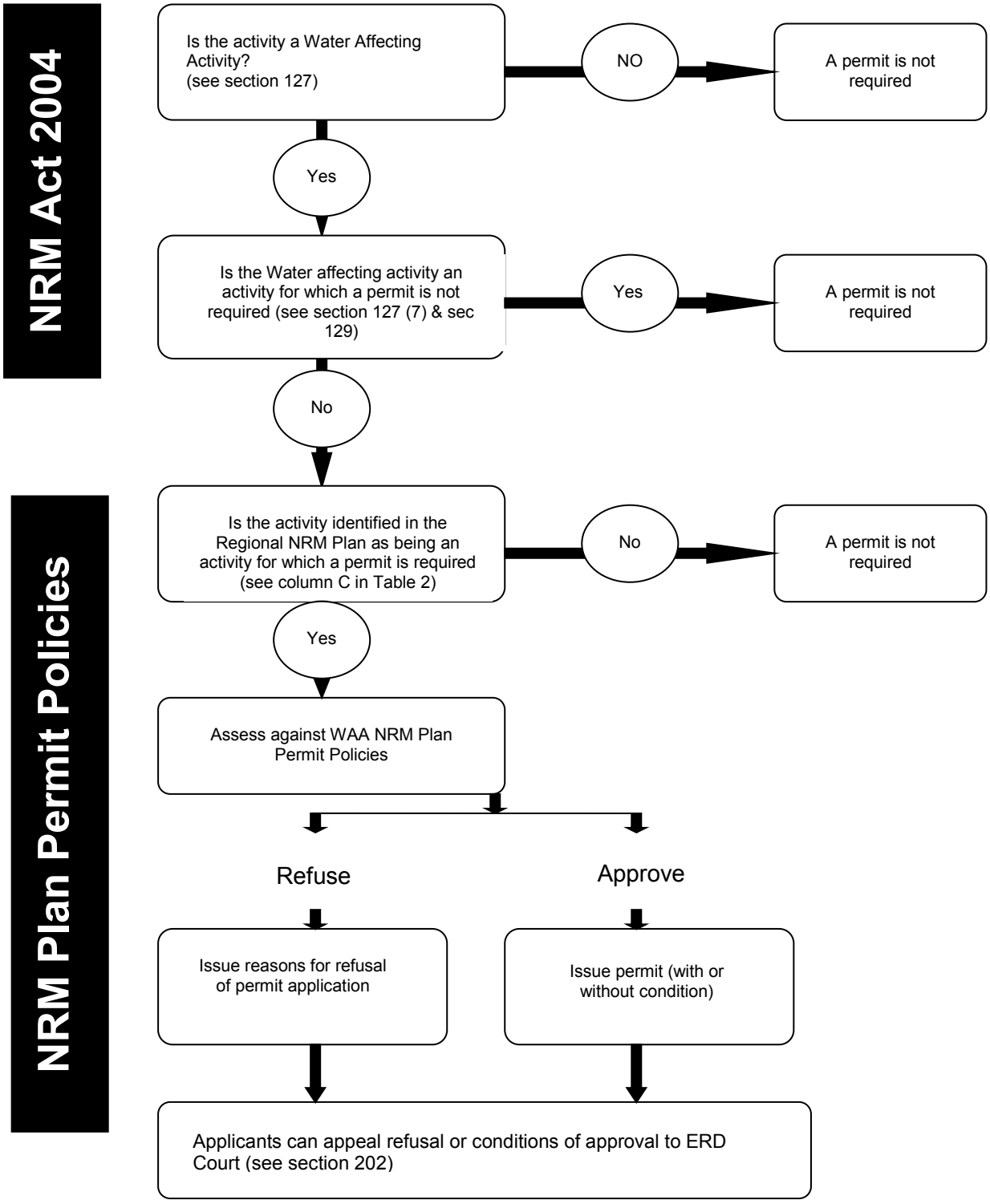
Genetically Modified Organisms (GMOs)

Legislation, *Genetically Modified Crops Management Act 2004*, is in place to ensure that any potential hazards from the use of genetically modified organisms and the risks they present to human health or the environment are assessed. It is only after scientific evaluation and a judgement as to whether any risk can be eliminated, minimised or managed to an acceptable level that cultivation of a particular crop might be permitted.

Presently GM food crops cannot be cultivated anywhere in South Australia, by virtue of the Genetically Modified Crops Management (Designation of Areas) Regulations 2004. South Australia (as with other States and Territories) allows the conduct of approved experimental trials of GM crops, providing certain requirements are satisfied. These Exemption Notices will have conditions attached for the thorough containment of the cultivated GM crop to ensure that local production and supply chains are unaffected. The Act also provides for authorised officers from the Department of Primary Industries and Resources SA to monitor compliance with these conditions of operation.

More Information is available at http://www.pir.sa.gov.au/gmc/home.

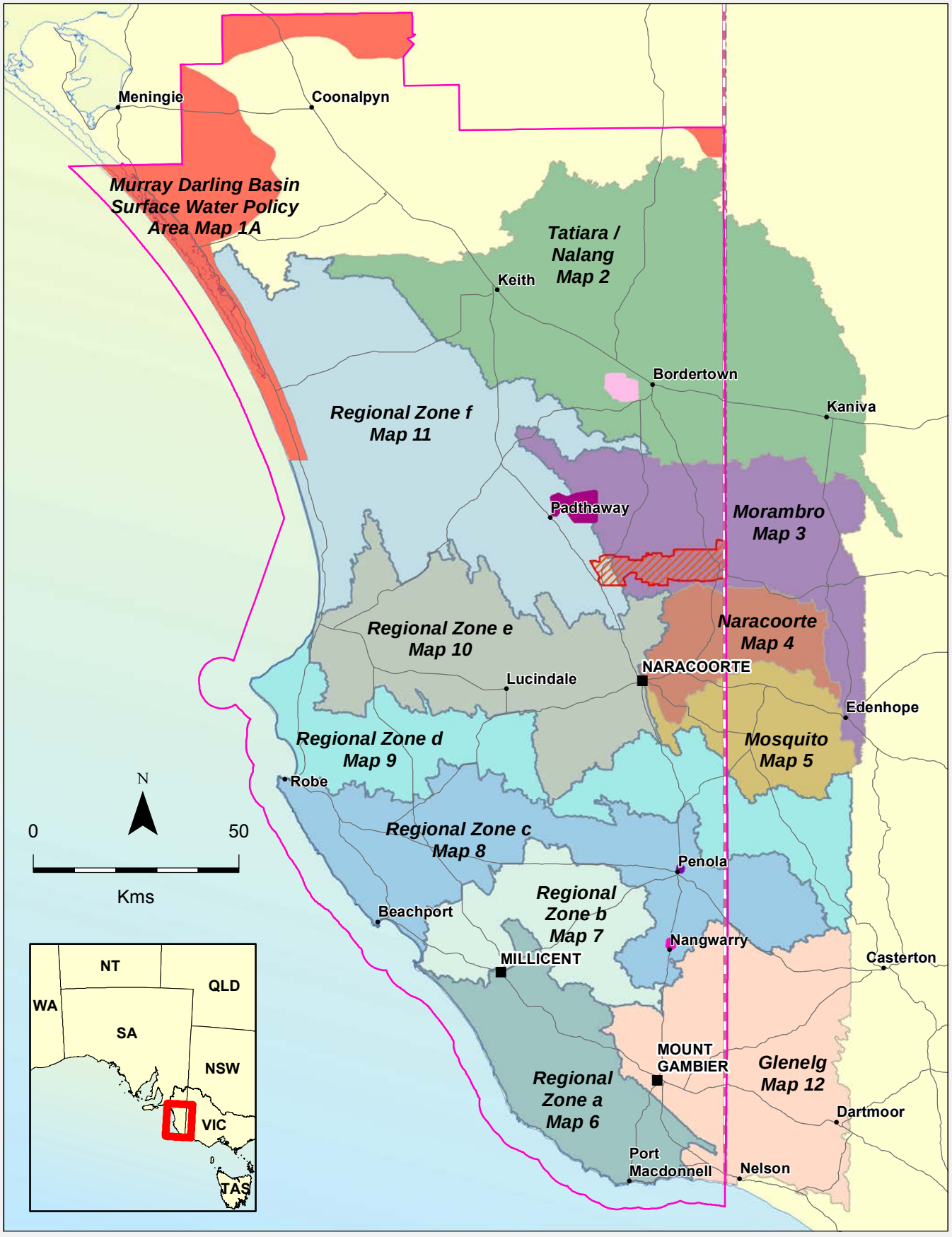
APPENDIX 7: WATER AFFECTING ACTIVITY PERMIT DECISION MAKING PROCESS



APPENDIX 8: NRM POLICY MAPS

Map 1

Regional NRM Water Affecting Activity Permit Policy Area



Surface Water Policy

- Glenelg
- Morambro
- Mosquito
- Murray Darling Basin Surface Water Policy Area
- Naracoorte

- Regional Zone a
- Regional Zone b
- Regional Zone c
- Regional Zone d
- Regional Zone e
- Regional Zone f
- Tatiara / Nalang

Water Protection Policy Area

- Bordertown
- Nangwarry
- Padthaway
- Penola
- Blue Lake Capture zone

Morambro Prescribed Surface Water Area

SE NRM Region

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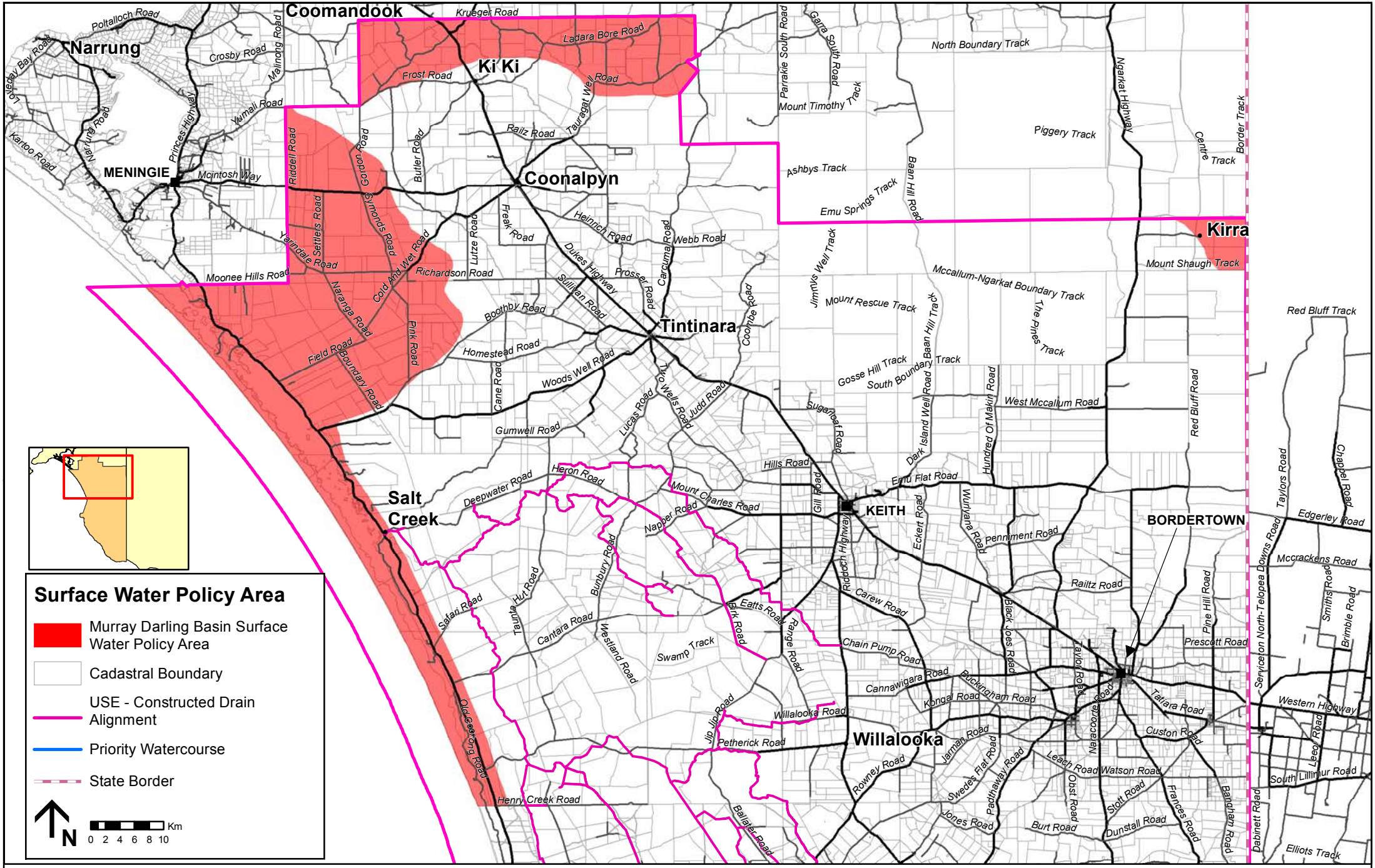
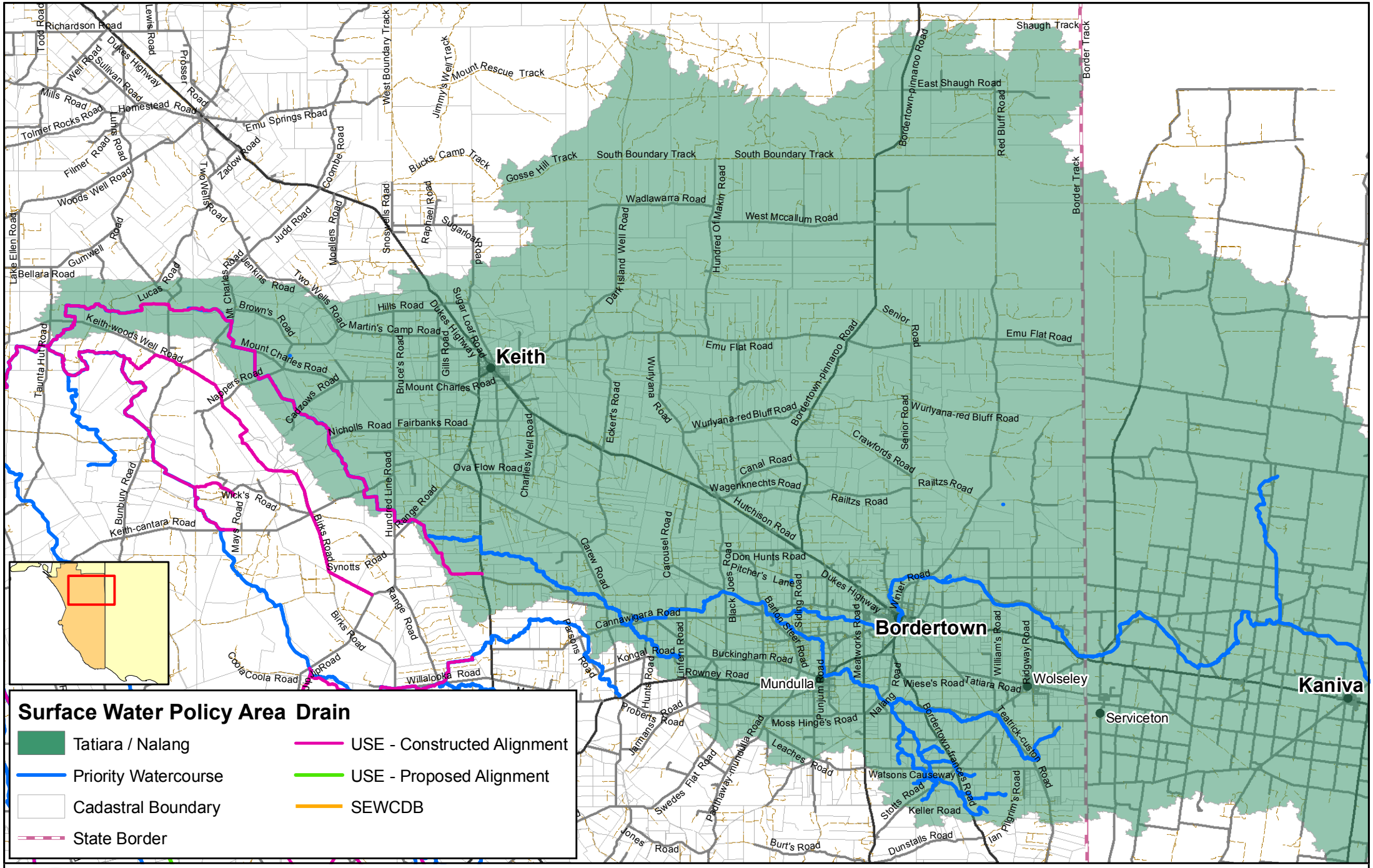
Data Source	DEWNR spatial warehouse and ex SERIC
Compiled	20 October, 2016
Projection	Transverse Mercator
Datum	Geocentric Datum of Australia, 1994



Produced by SMK, Knowledge Management Unit
Department for Environment, Water and Natural Resources
11 Helen Street, Mt Gambier, SA, 5290
www.environment.sa.gov.au

Data Source DEWNR spatial warehouse and ex SERIC
Compiled 13 September, 2016
Projection Transverse Mercator
Datum Geocentric Datum of Australia, 1994

Map 1A
Murray Darling Basin Surface Water Policy Area



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Datum: Geocentric Datum of Australia, 1994
Projection: Universal Transverse Mercator

Hydrological Data supplied by DWLBC

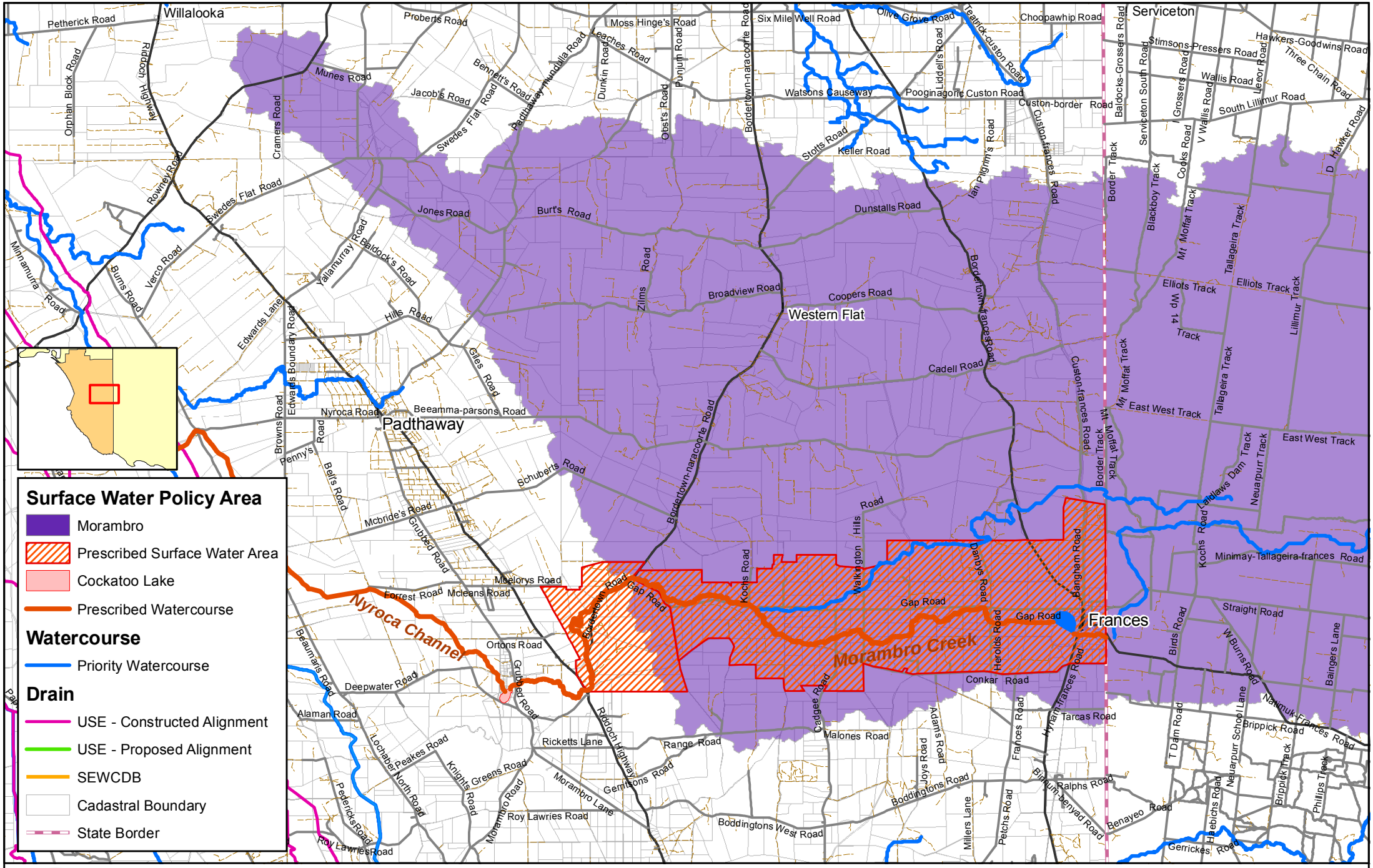
Map 2
Tatiara / Nalang
Surface Water Policy Area

N

0 2 4 6 8 10 Km

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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Projection: Universal Transverse Mercator

Hydrological Data supplied by D.W.L.B.C.

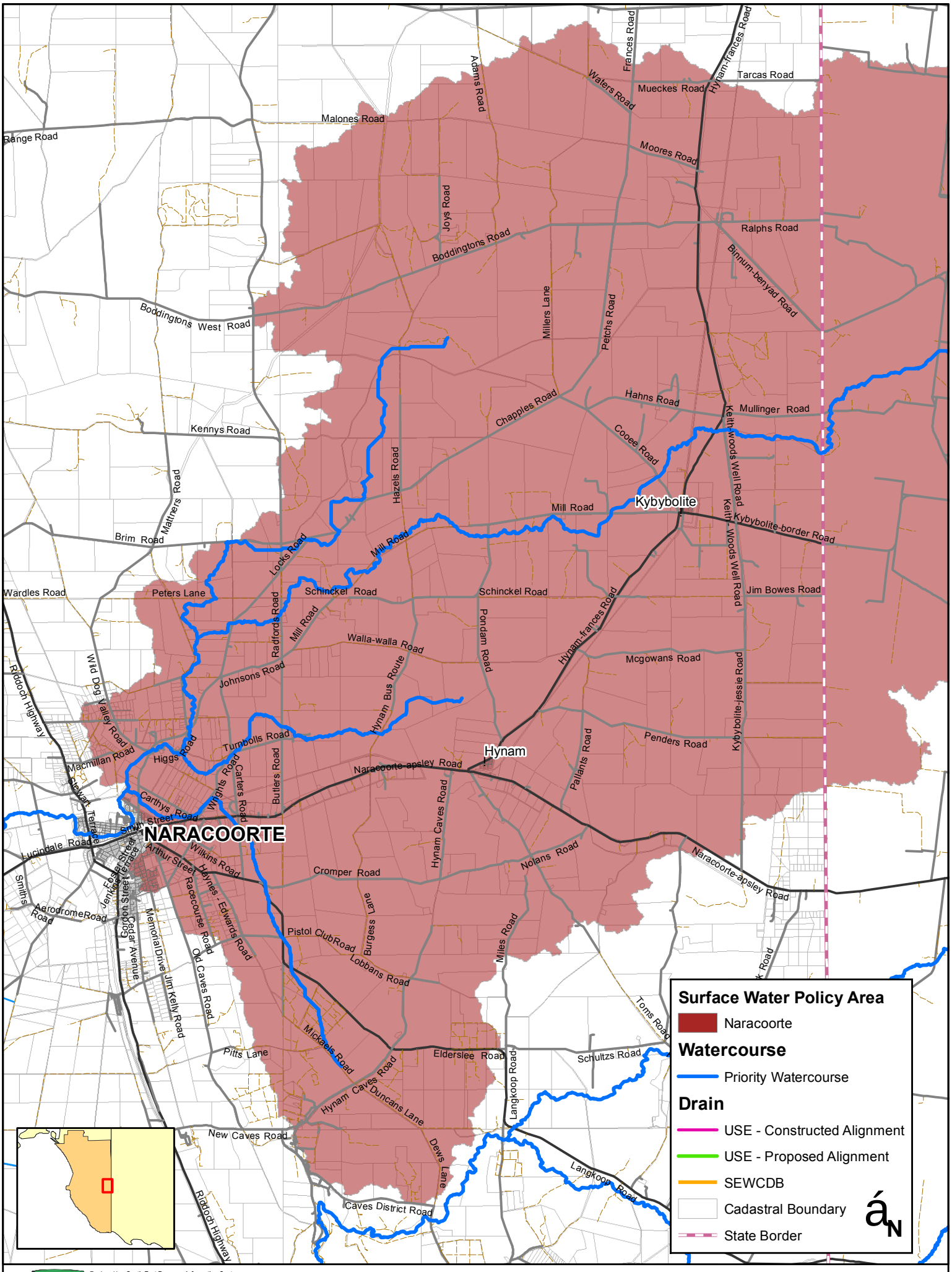
Map 3
Morambro
Surface Water Policy Area

N

0 1 2 4 6 8 Km

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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Reference: 9149_SENRMpolicyNaracoorte_5
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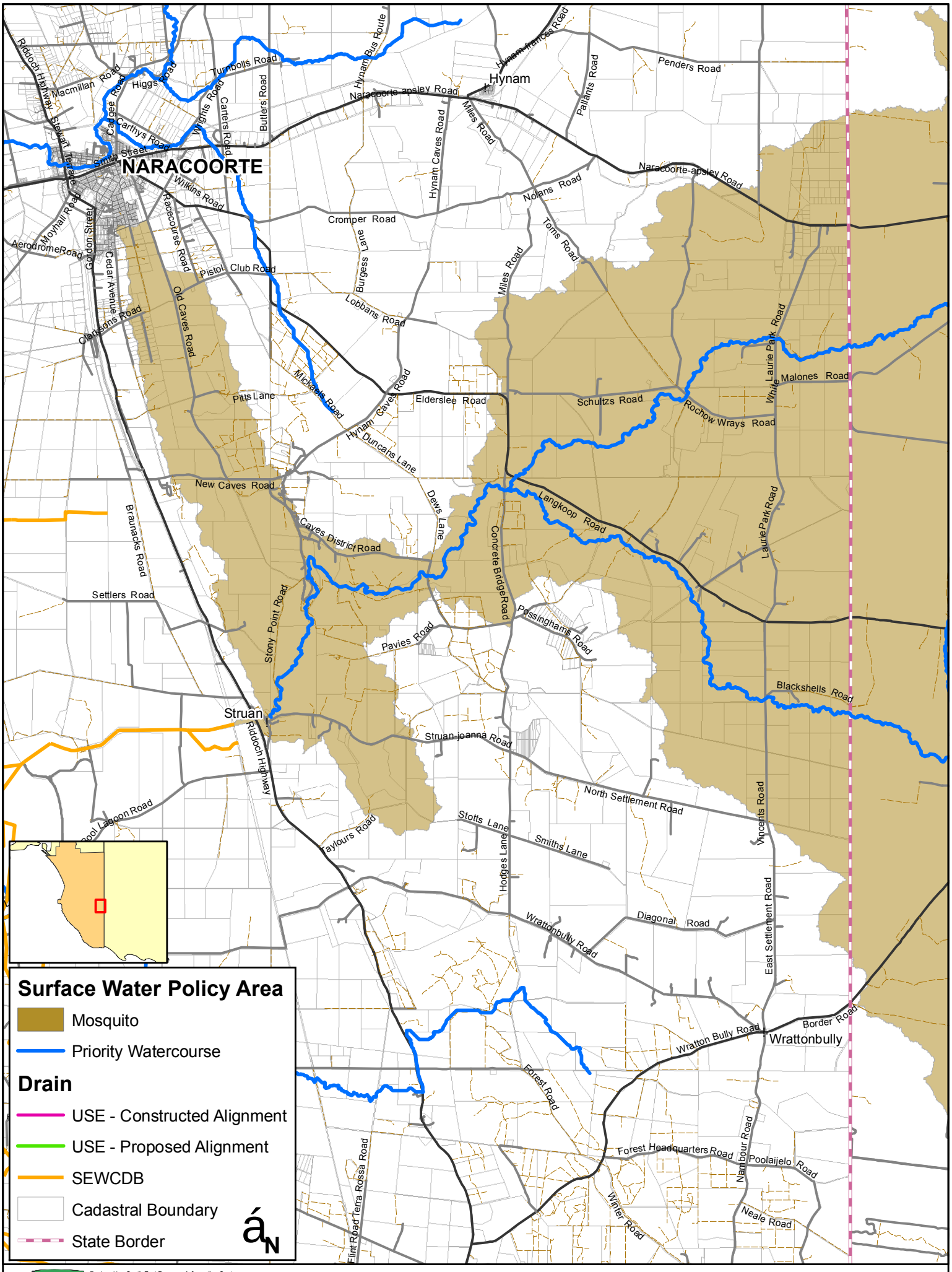
Datum: Geocentric Datum of Australia, 1994
Projection: Universal Transverse Mercator

Map 4
Naracoorte
Surface Water Policy Area

Government of South Australia
Department of Water, Land and Biodiversity Conservation

Km
0 1 2 3 4

ESRI Australia



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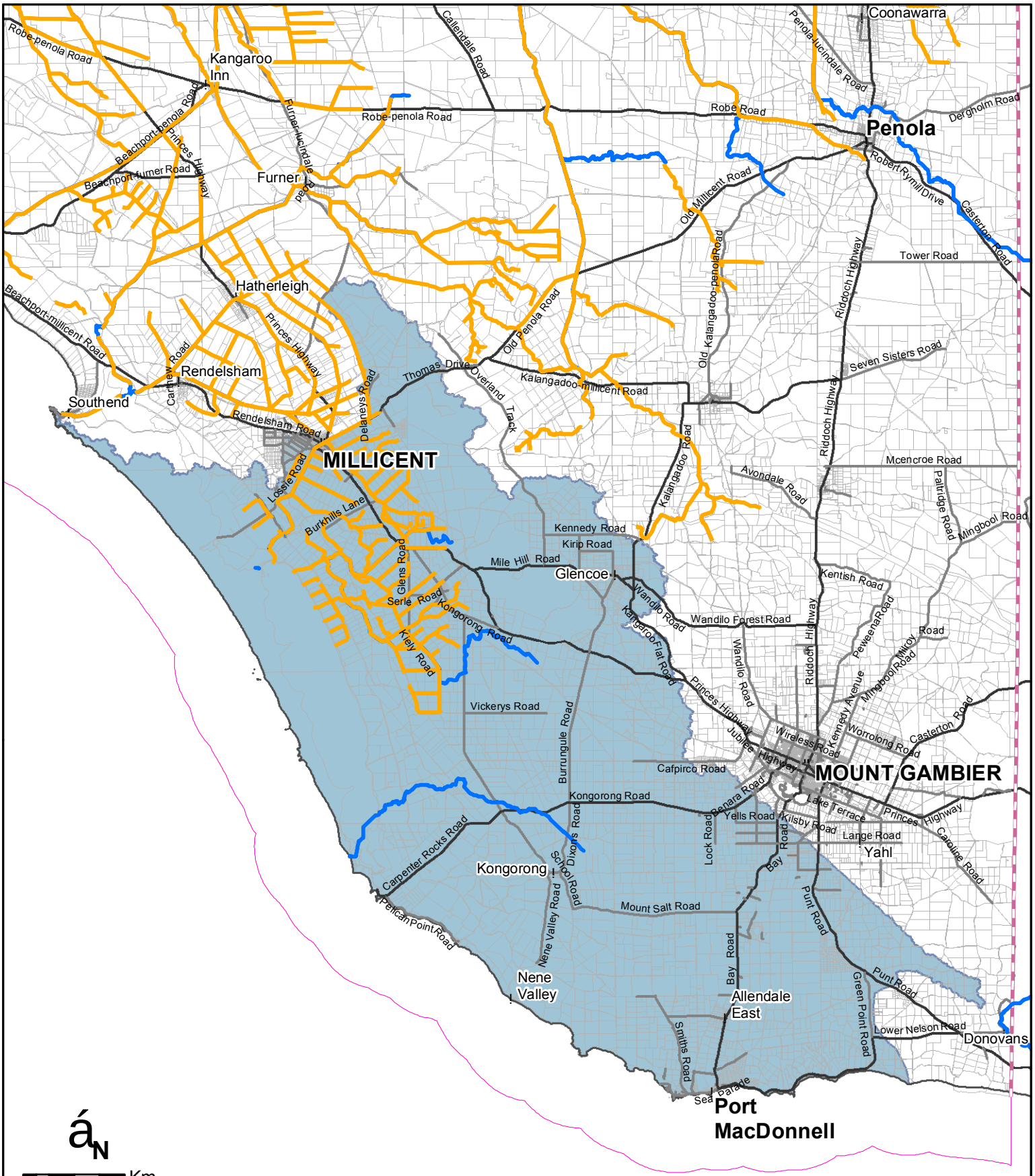
Projection: Universal Transverse Mercator

Map 5
Mosquito
Surface Water Policy Area

Government of South Australia
Department of Water, Land and Biodiversity Conservation

0 1 2 3 4 Km

ESRI Australia



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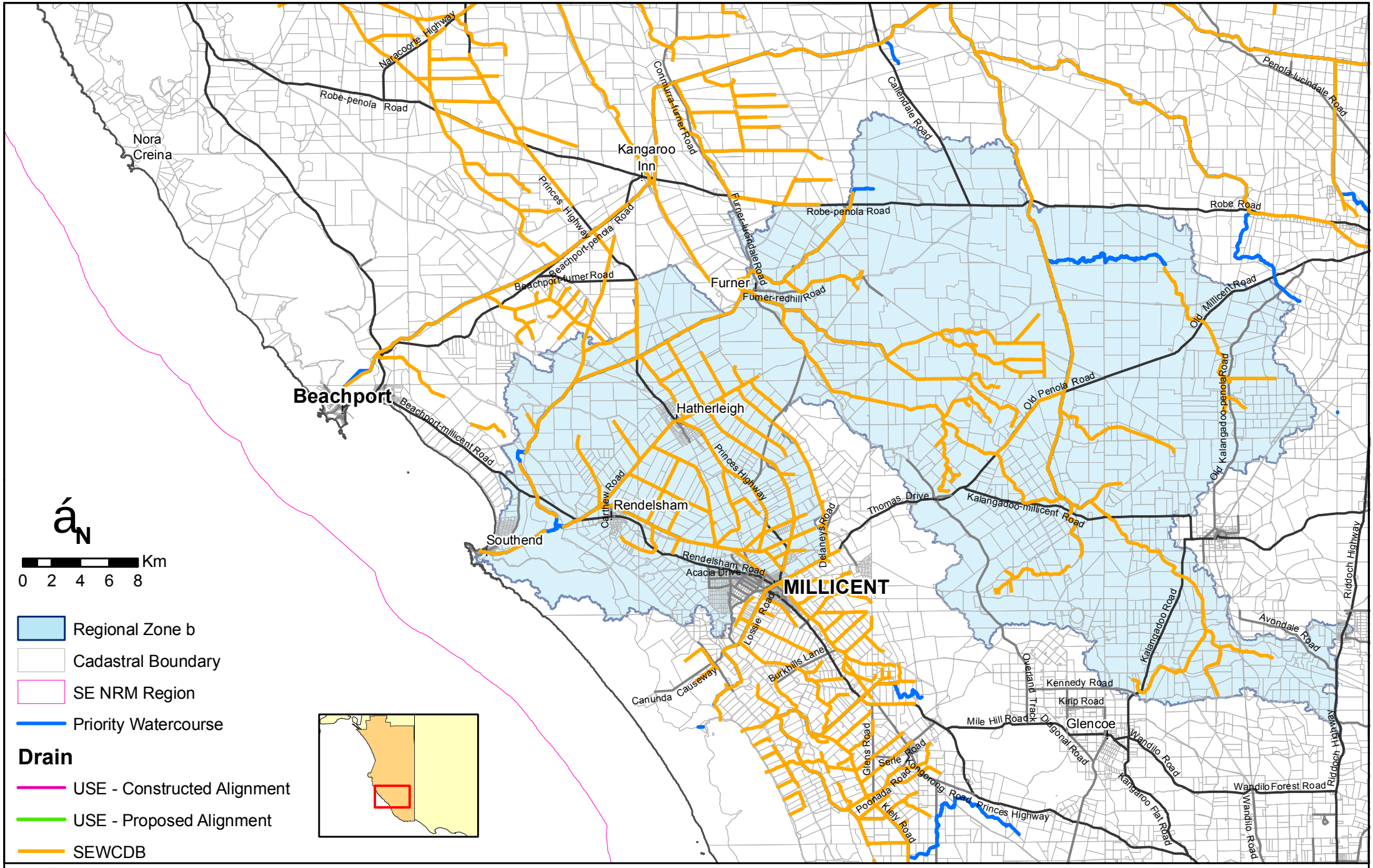
Projection: Universal Transverse Mercator

Map 6
Regional Zone a
Surface Water Policy Area

Government of South Australia
Department of Water, Land and Biodiversity Conservation
ESRI Australia



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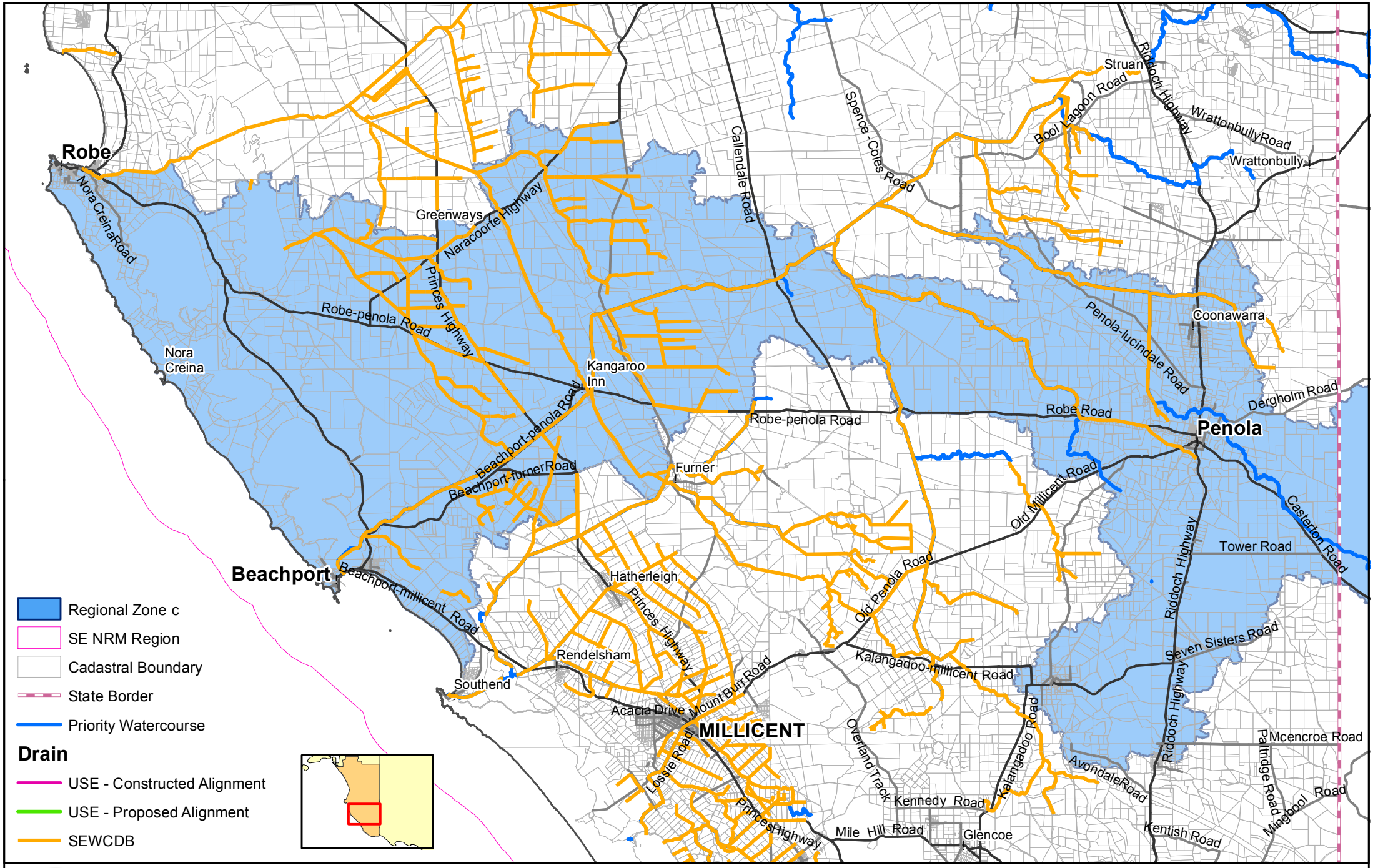
Map 7
Regional Zone b
Surface Water Policy Area

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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Reference: 9149_SENRMpolicyZones_5
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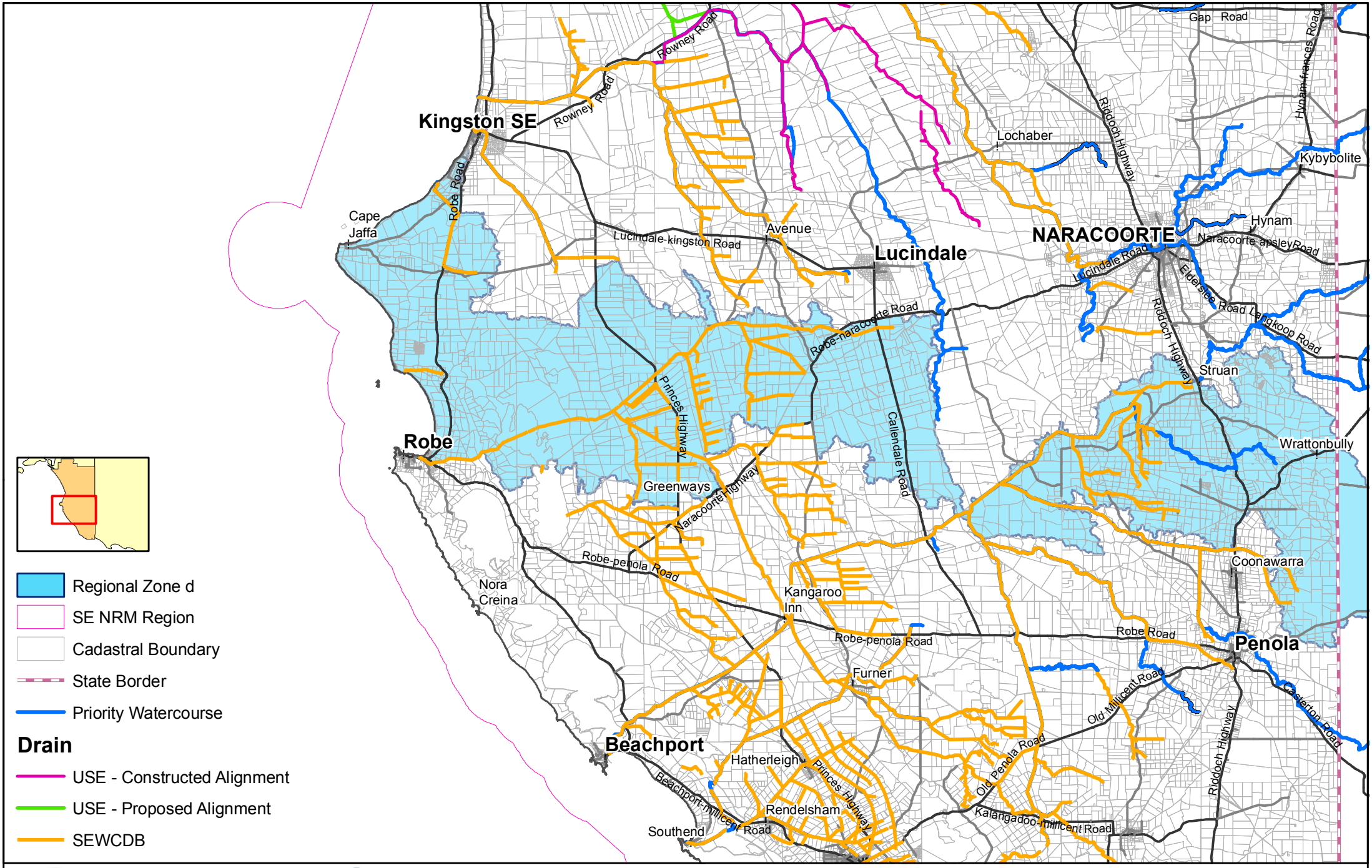
Map 8
Regional Zone c
Surface Water Policy Area

N

0 2 4 6 8 Km

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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Projection: Universal Transverse Mercator

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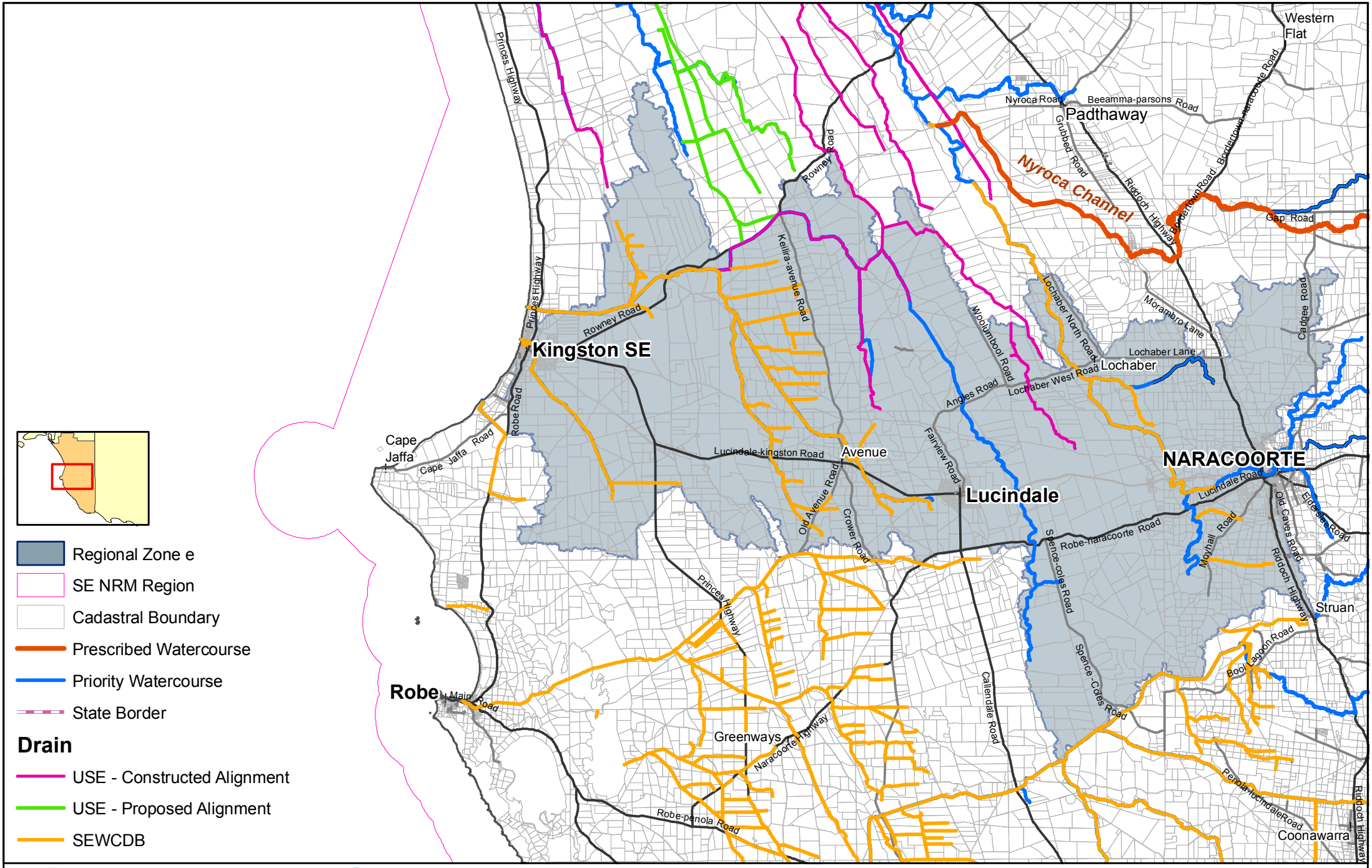
Department of Water, Land and Biodiversity Conservation

Map 9
Regional Zone d
Surface Water Policy Area

N

0 5 10 15 20 25 Km

ESRI Australia



Regional Zone e
SE NRM Region
Cadastral Boundary
Prescribed Watercourse
Priority Watercourse
State Border

Drain

USE - Constructed Alignment
USE - Proposed Alignment
SEWCDB

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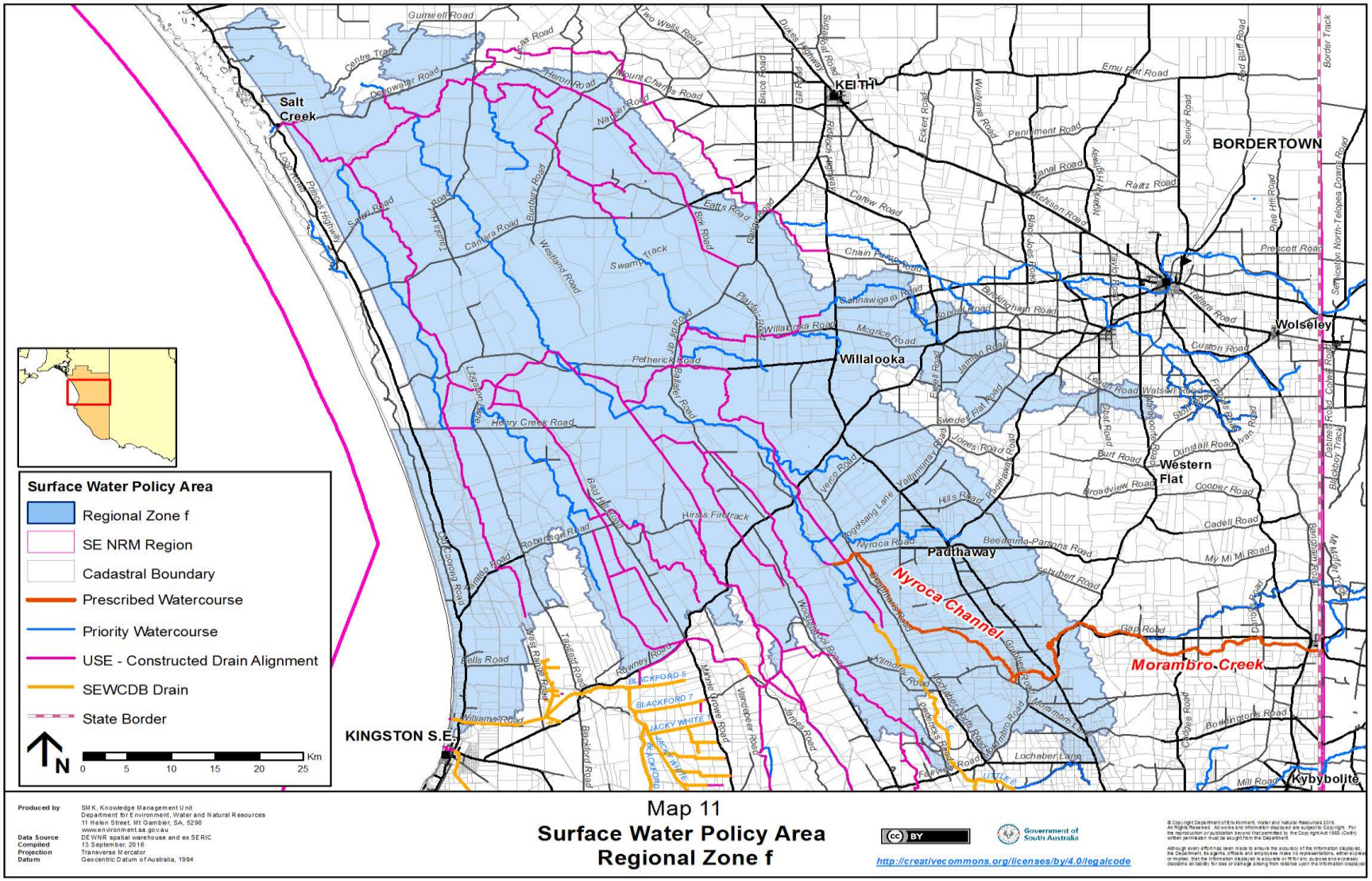
Department of Water, Land and Biodiversity Conservation

Map 10
Regional Zone e
Surface Water Policy Area

N

0 5 10 15 20 25 Km

ESRI Australia



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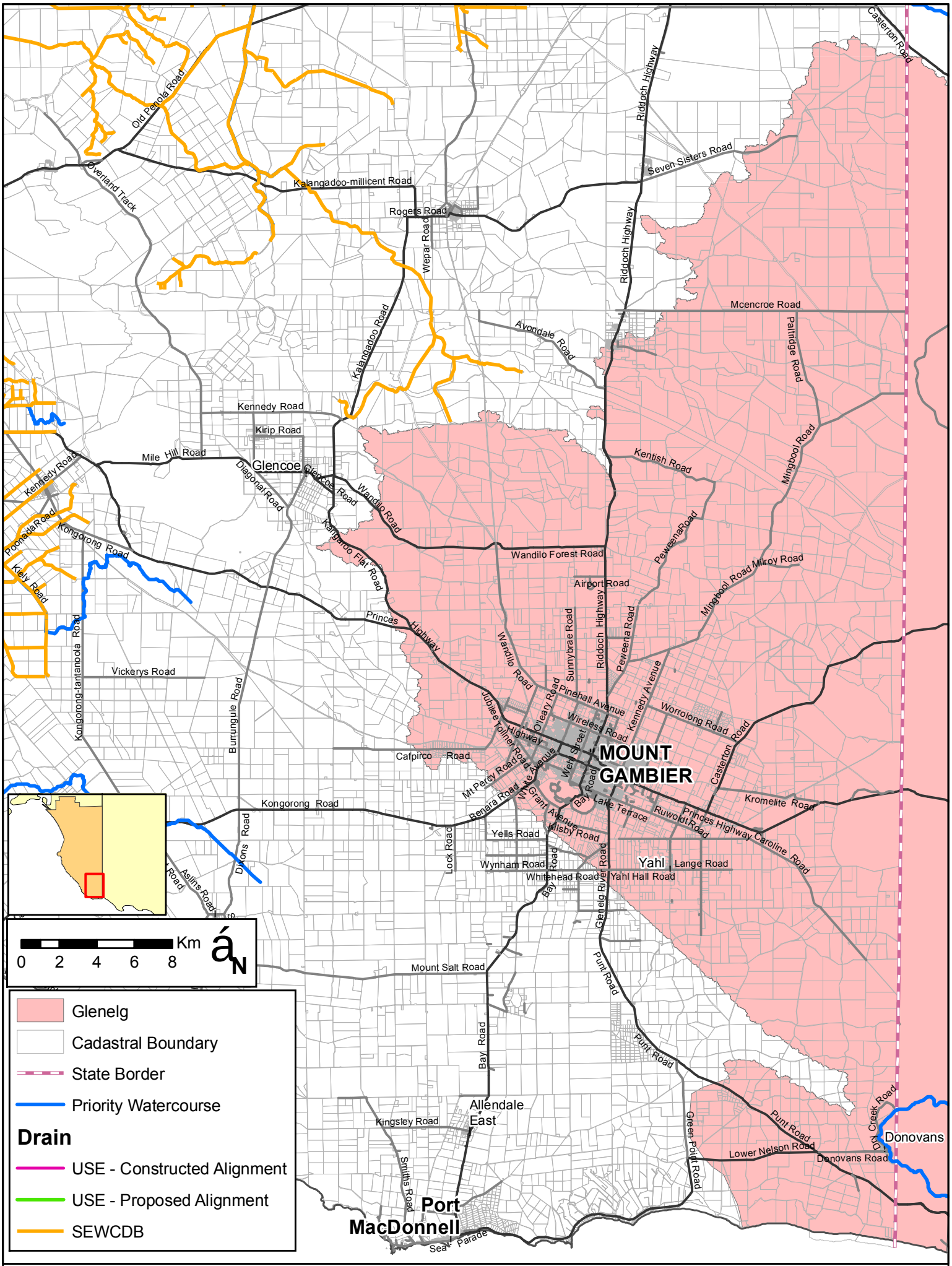
Datum: Geocentric Datum of Australia, 1994

Map 11
Surface Water Policy Area
Regional Zone f



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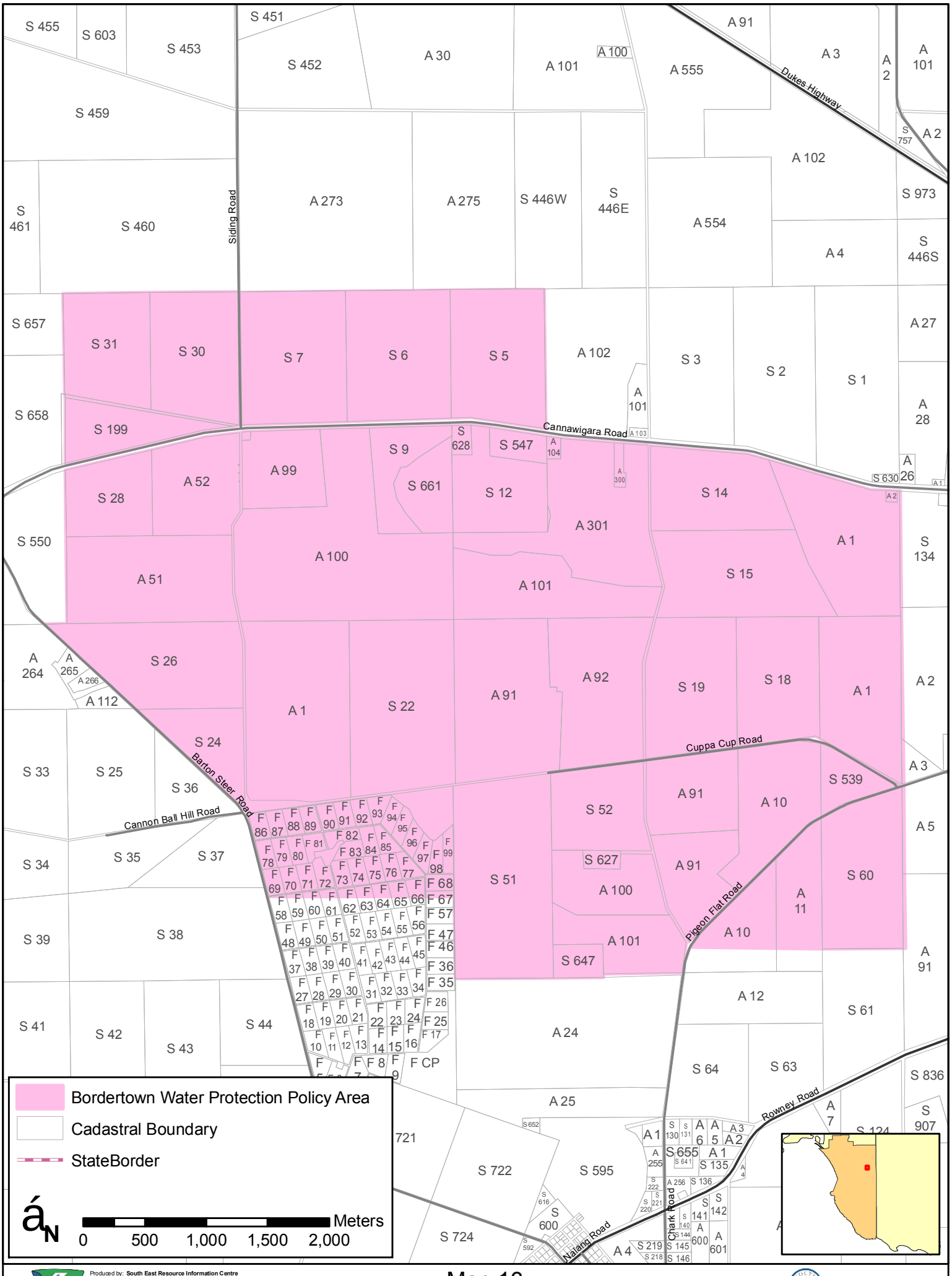
Map 12
Surface Water Policy Area
Glenelg

Government of South Australia
Department of Water, Land and Biodiversity Conservation
ESRI Australia



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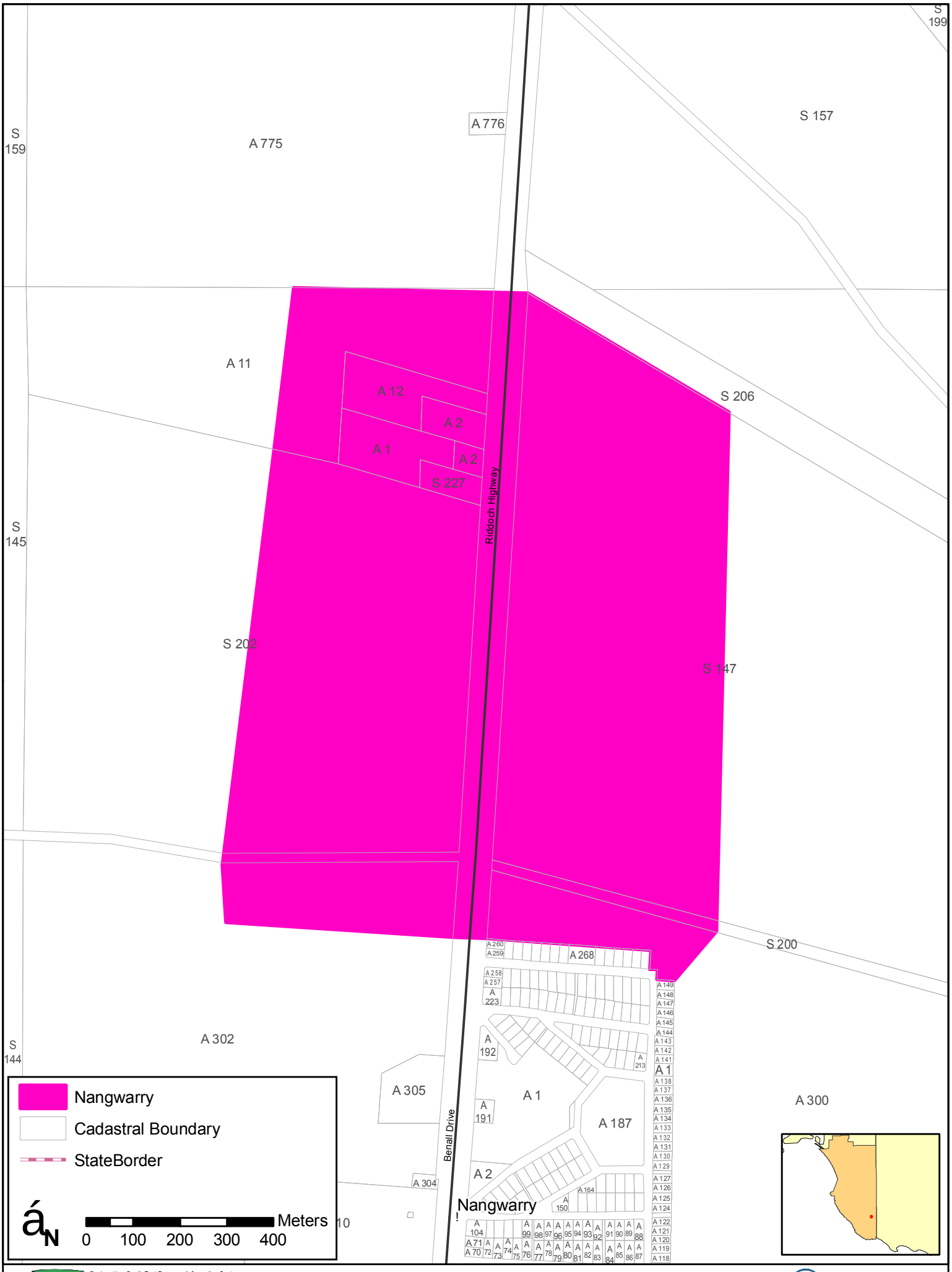
Projection: Universal Transverse Mercator

Map 13
Water Protection Policy Area Bordertown

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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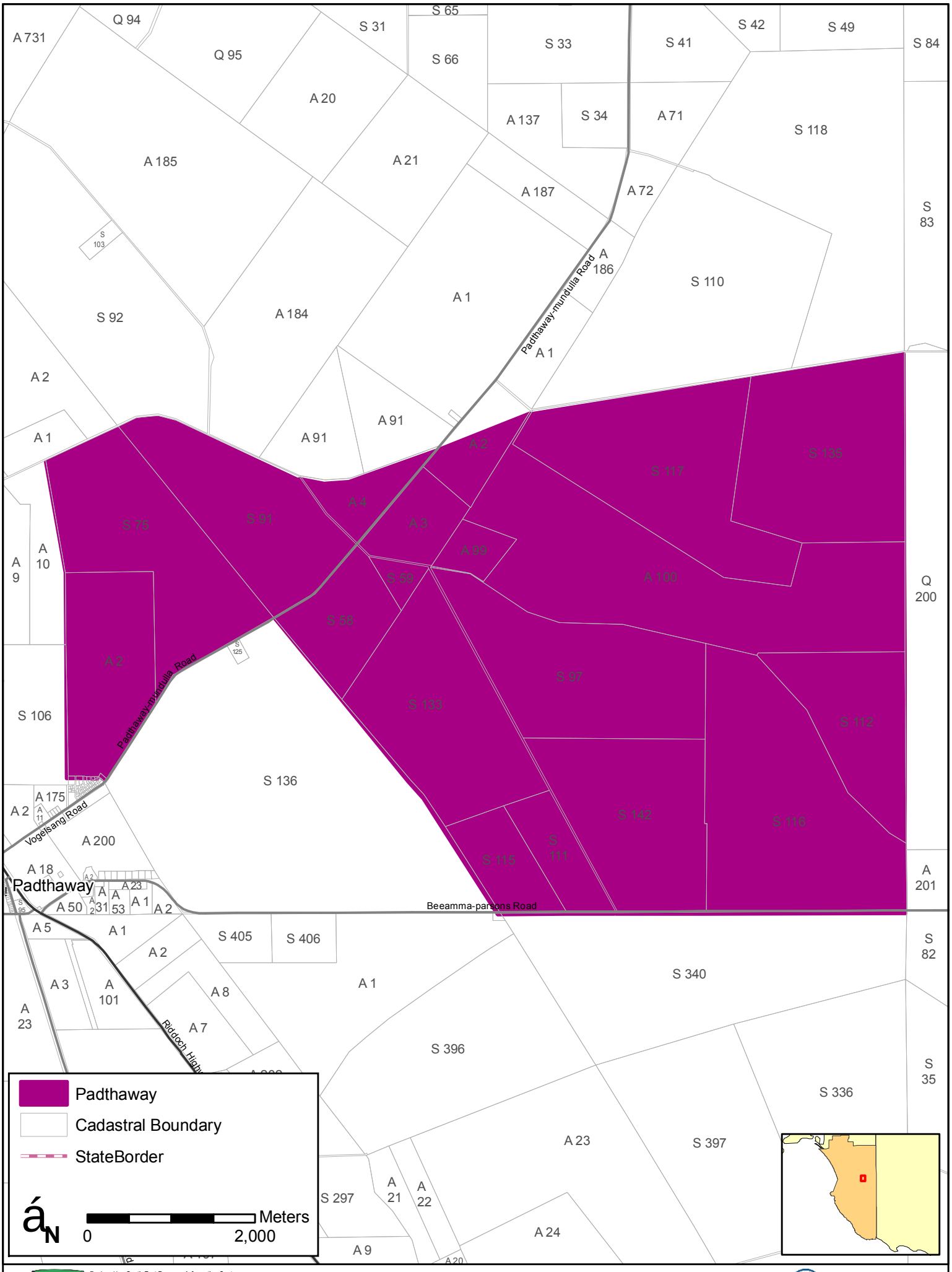
Map 14
Water Protection Policy Area
Nangwarry

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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Map 15
Water Protection Policy Area
Padthaway

Government of South Australia
Department of Water, Land and Biodiversity Conservation

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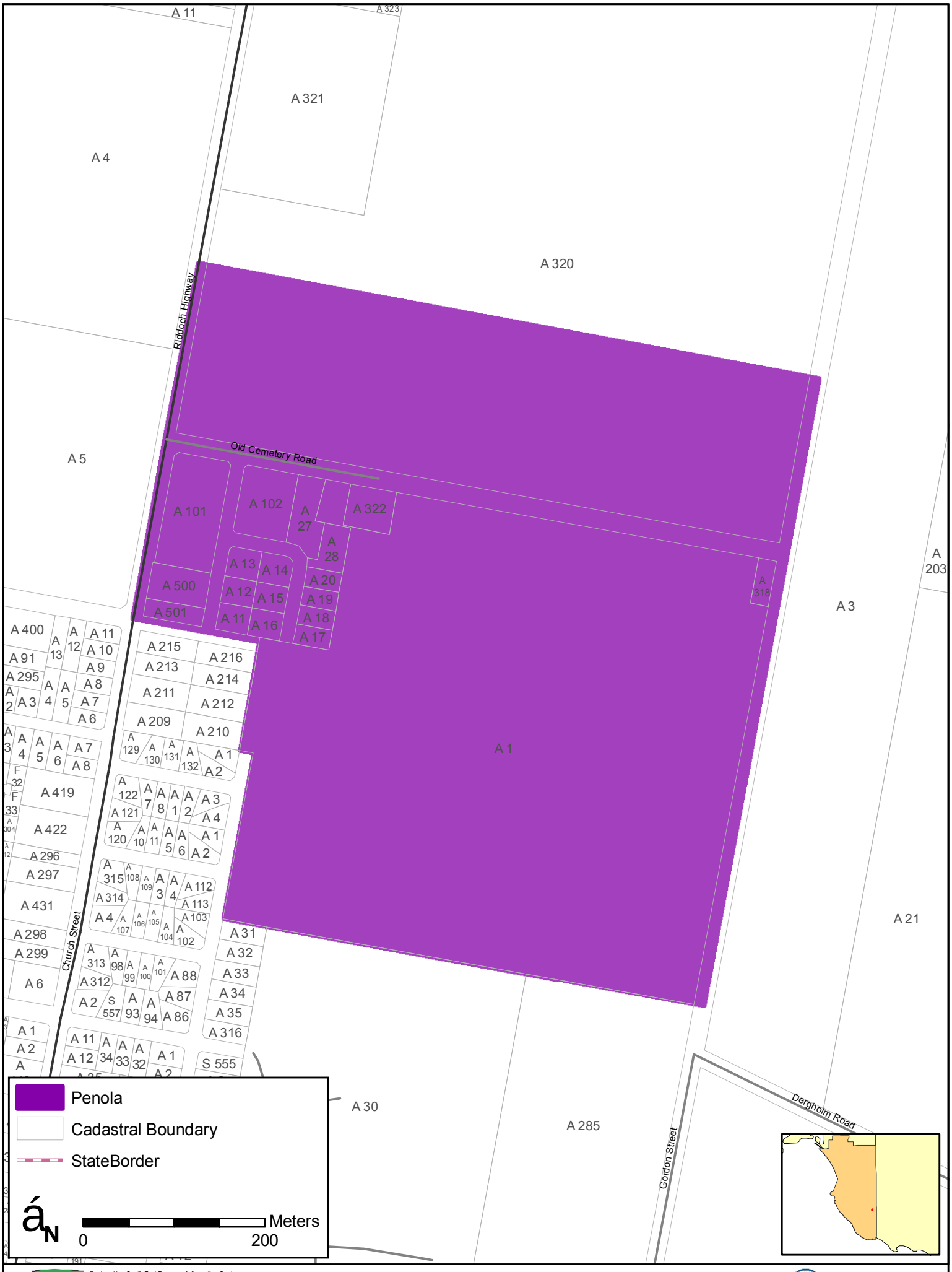

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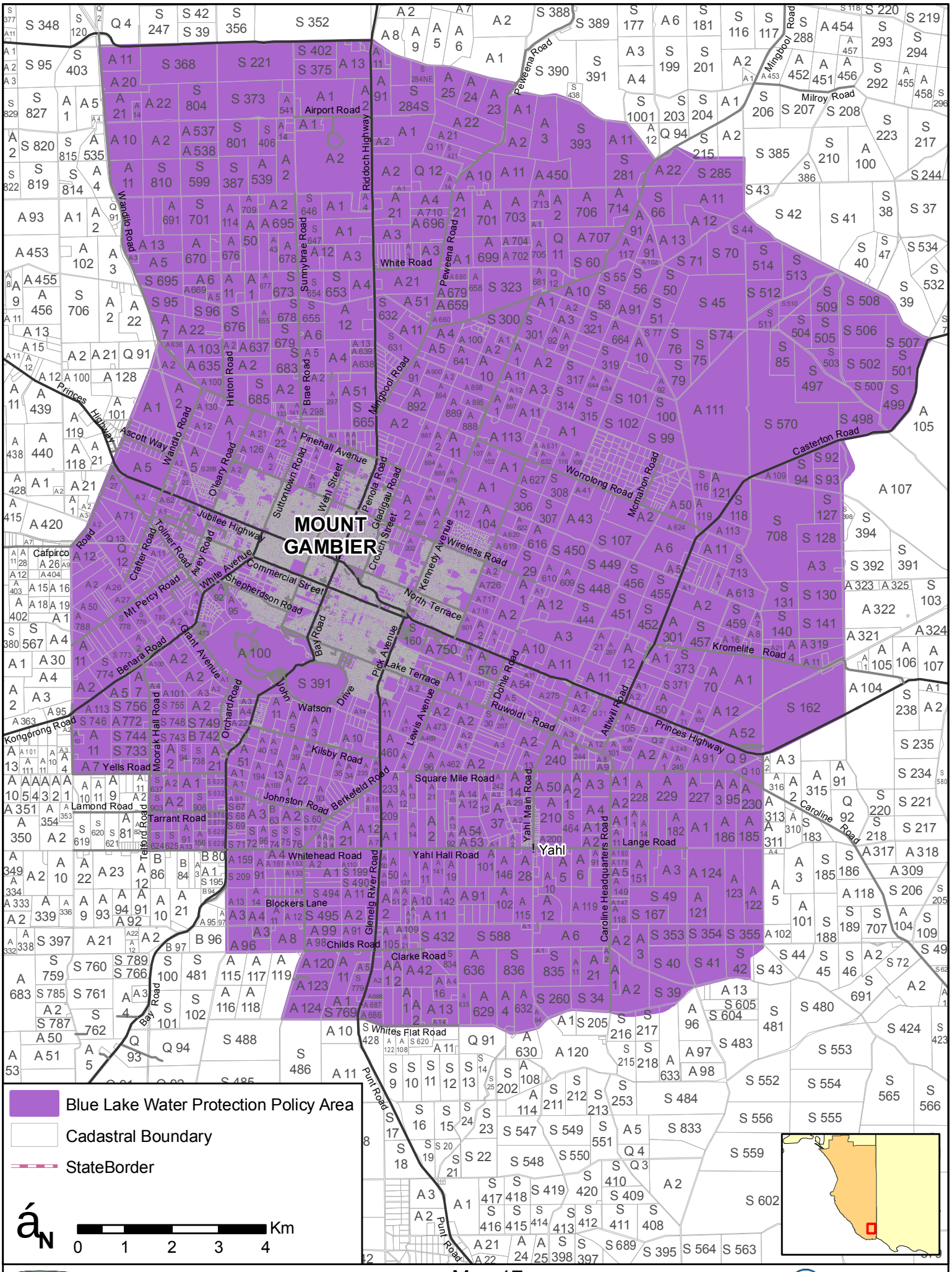
Map 16
Water Protection Policy Area
Penola

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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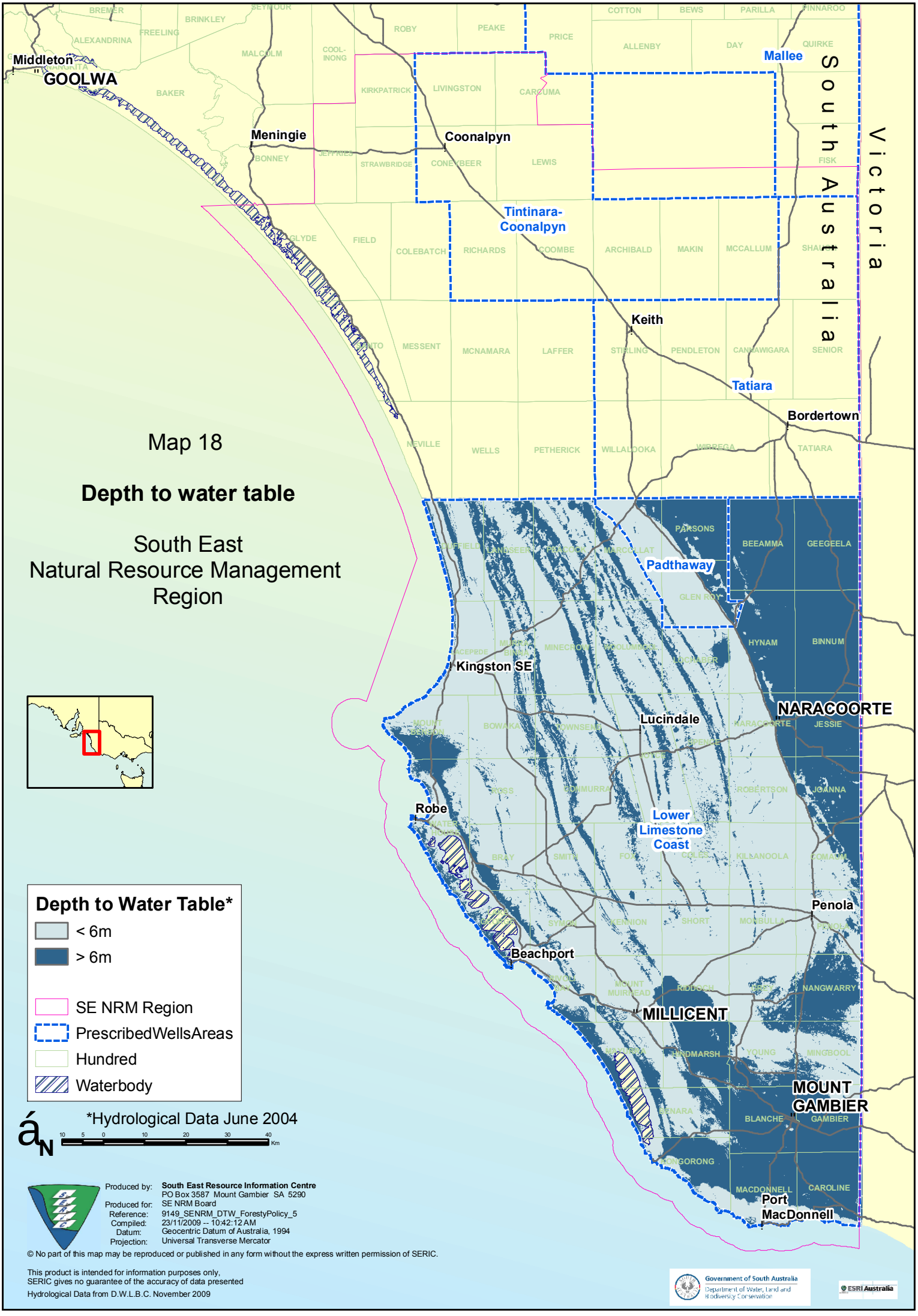
Projection: Universal Transverse Mercator

Map 17
Water Protection Policy Area - Blue Lake
(The Blue Lake Capture and Buffer Zone)

Government of South Australia
Department of Water, Land and Biodiversity Conservation

ESRI Australia



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Hydrological Data from D.W.L.B.C. November 2009

Government of South Australia
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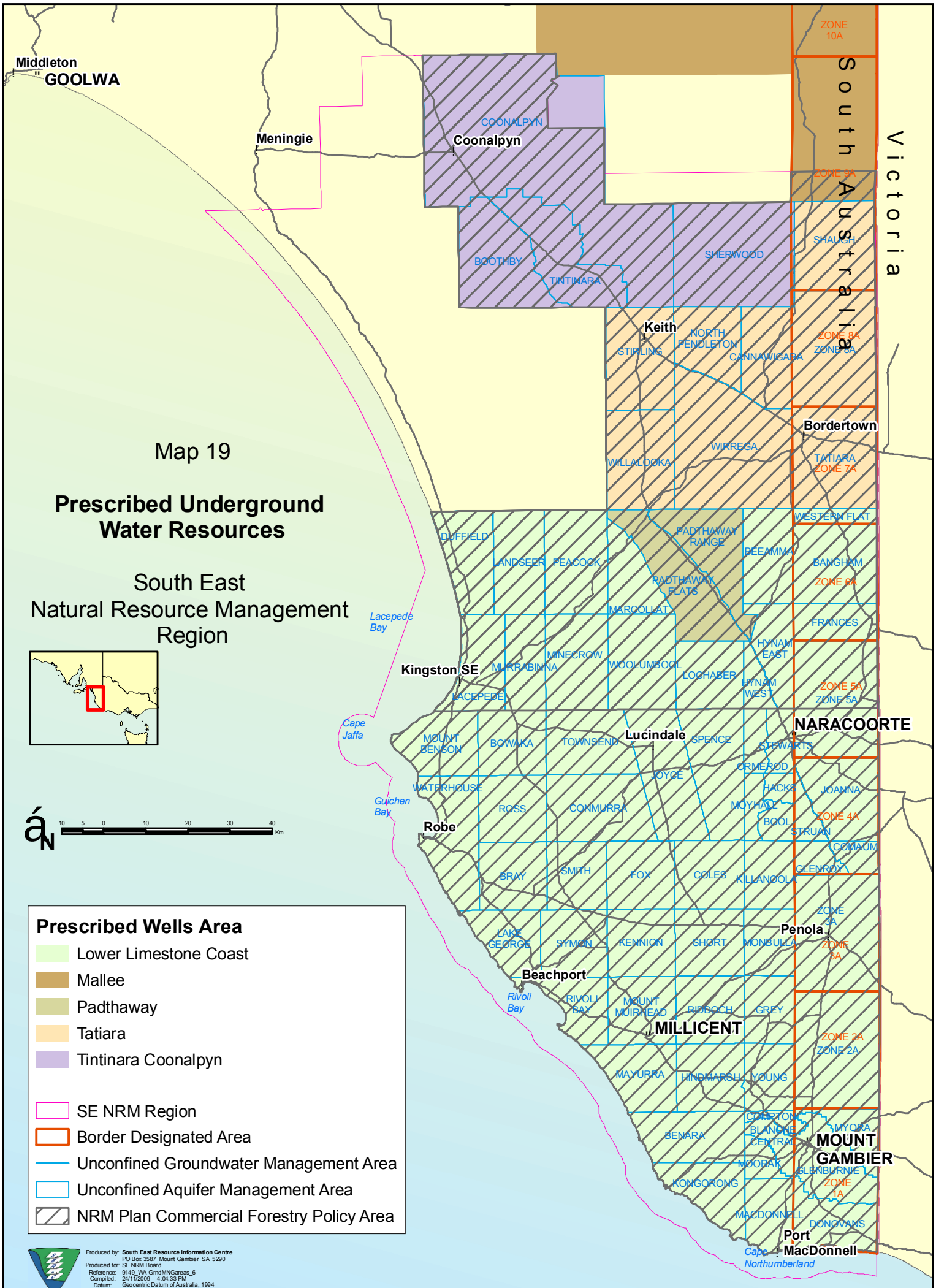
ESRI Australia



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Department of Water, Land and Biodiversity Conservation
ESRI Australia