



## **Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2019**

under the

**Water Management Act 2000**

I, Melinda Pavey, the Minister for Water, Property and Housing, do by this Order, in pursuance of section 50 of the *Water Management Act 2000*, make the following Minister's Plan, being the *Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2019*.

Dated this 24 day of June 2019.

Melinda Pavey  
**Minister for Water**

### **Explanatory notes**

This Plan replaces the *Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2003*. This Order is made under section 50 of the *Water Management Act 2000*. The concurrence of the Minister for the Environment was obtained prior to the making of this Order.

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# Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2019

## Part 1 Introduction

### 1 Name of Plan

This Plan is the *Water Sharing Plan for the Upper and Lower Namoi Groundwater Sources 2019* (hereafter **this Plan**).

### 2 Nature and status of this Plan

- (1) This Plan is made under section 50 of the *Water Management Act 2000* as amended (hereafter **the Act**).
- (2) This Plan covers the core provisions of section 20 of the Act for water sharing, and additional provisions of section 21 of the Act, and other relevant matters.

### 3 Date of commencement

This Plan takes effect on 1 July 2019.

### 4 Area and waters to which this Plan applies

- (1) The area in respect of which this Plan is made is that area of land within the Namoi and Upper and Lower Namoi Water Management Areas known as the Upper and Lower Namoi Groundwater Sources (hereafter **these groundwater sources**) as shown in Schedule 2.

**Note.** The Namoi and Upper and Lower Namoi Water Management Areas, published in the NSW Government Gazette in November 2001, are shown on the map in Appendix 1.

- (2) The following groundwater sources referred to in this Plan are shown on the map in Schedule 2:
  - (a) Upper Namoi Zone 1, Borambil Creek Groundwater Source (hereafter **Zone 1**),
  - (b) Upper Namoi Zone 2, Cox's Creek (Mullaley to Boggabri) Groundwater Source (hereafter **Zone 2**),
  - (c) Upper Namoi Zone 3, Mooki Valley (Breeza to Gunnedah) Groundwater Source (hereafter **Zone 3**),

- (d) Upper Namoi Zone 4, Namoi Valley (Keepit Dam to Gin's Leap) Groundwater Source (hereafter ***Zone 4***),
- (e) Upper Namoi Zone 5, Namoi Valley (Gin's Leap to Narrabri) Groundwater Source (hereafter ***Zone 5***),
- (f) Upper Namoi Zone 6, Tributaries of the Liverpool Range (South to Pine Ridge Road) Groundwater Source (hereafter ***Zone 6***),
- (g) Upper Namoi Zone 7, Yarraman Creek, (East of Lake Goran to Mooki River) Groundwater Source (hereafter ***Zone 7***),
- (h) Upper Namoi Zone 8, Mooki Valley (Quirindi—Pine Ridge Road to Breeza) Groundwater Source (hereafter ***Zone 8***),
- (i) Upper Namoi Zone 9, Cox's Creek (up-stream Mullaley) Groundwater Source (hereafter ***Zone 9***),
- (j) Upper Namoi Zone 10, Warrah Creek Groundwater Source (hereafter ***Zone 10***),
- (k) Upper Namoi Zone 11, Maules Creek Groundwater Source (hereafter ***Zone 11***),
- (l) Upper Namoi Zone 12, Kelvin Valley Groundwater Source (hereafter ***Zone 12***),  
and
- (m) Lower Namoi Groundwater Source (hereafter ***the Lower Namoi***).

**Note.** This Plan does not recognise separate groundwater sources within the Lower Namoi valley.

- (3) The Upper and Lower Namoi Groundwater Sources include all water contained in the unconsolidated alluvial sediment aquifers associated with the Namoi River and its tributaries.

**Note.** Bores drilled through the unconsolidated alluvial sediments into the underlying Great Artesian Basin (GAB) are tapping a different groundwater source. On a map, they may appear to lie within the boundaries of the Lower Namoi, however they are within the deeper GAB groundwater source and are not included as a part of this Plan.

## **5 Interpretation**

- (1) Terms that are defined in the Act have the same meaning in this Plan and the effect of these terms may be explained in Notes.
- (2) Additional terms to those identified in subclause (1) are defined in Schedule 1.
- (3) Notes in the text of this Plan do not form part of this Plan.
- (4) Schedules to this Plan form part of this Plan.

(5) Appendices to this Plan do not form part of this Plan.

## **6 Inspection of detail maps**

Maps referred to in this Plan may be inspected at the locations listed in Appendix 2.

## **Part 2 Vision, objectives, strategies and performance indicators**

### **7 Vision, objectives, strategies and performance indicators**

This Part is made in accordance with section 35 (1) of the Act.

### **8 Vision**

The vision for this Plan is ecologically sustainable groundwater sources that provide an assured supply of quality groundwater for the social and economic benefit of the people in the Namoi Valley.

### **9 Objectives**

The objectives of this Plan are to:

- (a) protect, maintain and, where practicable, enhance ecosystems dependent on groundwater, and the cultural and spiritual values of groundwater, by minimising the impacts on these of groundwater extraction,
- (b) protect the structural integrity of the aquifers and groundwater quality, by ensuring groundwater extraction does not result in any aquifer compaction, aquitard compaction, land subsidence or change in the beneficial use of the aquifer,
- (c) manage access to the extraction limits to ensure there are no long-term declines in water levels,
- (d) preserve basic landholder rights access to these groundwater sources and ensure the fair, equitable and reliable access to groundwater through the management of local impacts or interference effects,
- (e) contribute to the protection, maintenance and enhancement of the economic viability of groundwater users and their communities in the Namoi Valley,
- (f) ensure opportunities for market based trading of groundwater access licence rights within sustainability and interference constraints, and
- (g) ensure sufficient flexibility in account management to encourage efficient use of these groundwater sources and to manage these groundwater sources to account for climatic variations.

## **10 Strategies**

The strategies of this Plan are to:

- (a) establish environmental water rules and manage access to groundwater consistent with those rules,
- (b) establish rules for the protection of basic landholder rights,
- (c) establish extraction limits for each groundwater source, taking into account the requirements of the environment,
- (d) reduce the total share component of access licences to the final extraction limit,
- (e) establish rules for granting of access licences,
- (f) establish rules for determining the groundwater available from time to time under access licences,
- (g) establish water allocation account management rules,
- (h) establish rules for minimising local impact of groundwater extraction on the environment, the aquifers themselves, and between users,
- (i) establish the access licence dealing rules, and
- (j) establish the conditions that will apply to all access licences and water supply work (bore) approvals.

## **11 Performance indicators**

For the purpose of section 35 (1) (b) of the Act, the following indicators are to be used to determine the performance of this Plan against its objectives:

- (a) change in groundwater extraction relative to the extraction limits,
- (b) change in climate adjusted groundwater levels,
- (c) change in water levels adjacent to identified groundwater dependent ecosystems,
- (d) change in groundwater quality,
- (e) change in economic benefits derived from groundwater extraction and use,
- (f) change in structural integrity of the aquifers,
- (g) extent to which domestic and stock rights requirements have been met,

- (h) extent to which local water utility requirements have been met,
- (i) extent to which native title rights requirements have been met, and
- (j) extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people.



## **Part 3 Basis for water sharing**

### **12 Basis for water sharing**

This Part is made in order to give effect to section 5 (3) of the Act, and in accordance with sections 20 (2) (c) and 21 (e) of the Act.

### **13 Climatic variability**

- (1) This Plan recognises climatic variability and therefore that the level of recharge to these groundwater sources will vary.
- (2) To give effect to subclause (1), this Plan has provisions that manage:
  - (a) the sharing of water in these groundwater sources within the limits of water availability on a long-term average basis, and
  - (b) water extraction to enable the protection of groundwater dependent ecosystems, aquifer integrity and water quality of these groundwater sources.

### **14 Recharge**

- (1) For the purposes of section 5 (3) of the Act, the overall basis for water sharing in this Plan is the estimated average annual recharge to each groundwater source as follows:
  - (a) 2,100 megalitres per year (hereafter *ML/yr*), plus the requirements for basic landholder rights at the commencement of this plan in Zone 1,
  - (b) 7,200 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 2,
  - (c) 17,300 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 3,
  - (d) 25,700 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 4,
  - (e) 16,000 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 5,
  - (f) 14,000 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 6,

- (g) 3,700 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 7,
  - (h) 16,000 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 8,
  - (i) 11,400 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 9,
  - (j) 4,500 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 10,
  - (k) 2,200 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 11,
  - (l) 2,000 ML/yr, plus the requirements for basic landholder rights at the commencement of this plan in Zone 12, and
  - (m) 86,000 ML/yr plus the requirements for basic landholder rights at the commencement of this plan in the Lower Namoi.
- (2) The Minister may, under section 45 (1) (b) of the Act, amend subclause (1) to vary the average annual recharge values established in subclause (1), following further recharge studies undertaken by the Minister.

**Note.** Priority will be given to recharge reviews for groundwater sources that do not currently have a numerical model. These are Zones 2, 4, 5, 11, and 12. A priority for review and update of existing models if new information becomes available should be given to Zones 3 and 8.

**Note.** The extent to which this change may impact on access licence holders is limited by clause 29.

## Part 4 Environmental water provisions

### 15 Environmental water provisions

This Part is made in accordance with sections 5 (3) and 8 (1), 8 (2) and 20 (1) (a) of the Act.

### 16 Planned environmental water

**Note.** It is anticipated that the planned environmental water provisions in this Part and management of local impact provisions in Part 10 of this Plan will also protect the cultural and spiritual values of groundwater (see subclause 9 (a)).

- (1) This Plan establishes the following planned environmental water rules:
  - (a) subject to Part 10 Division 2 of this Plan, the physical water contained in the storage component of Zones 1 to 12, will be reserved for the environment,
  - (b) subject to Part 10 Division 2 of this Plan, the long-term average storage component of the groundwater contained in the aquifers of the Lower Namoi Groundwater Source, will be reserved for the environment.

**Note.** The model calculation for the long-term average storage component and the recharge in clause 14 (1) (m) has accounted for a 7.1 gigalitres per year out flow from the Lower Namoi Groundwater Source.

- (2) The Minister may under section 45 (1) (b) of the Act amend subclause (1) to include a portion of the average annual recharge to this groundwater source as planned environmental water, based on further studies of groundwater ecosystem dependency undertaken by the Minister.

**Note.** The studies may recommend management options other than reservation of a portion of recharge to protect groundwater dependant ecosystems.

**Note.** The extent to which this change may impact on access licence holders is limited by clause 29.

### 17 Adaptive environmental water

- (1) Water may be committed in these water sources for environment purposes by an adaptive environmental water condition pursuant to section 8B of the Act.
- (2) The holder of an access licence may request that the Minister impose an adaptive environmental water condition in respect of the whole or a part of the share component of the access licence.
- (3) The condition imposed under subclause (2) will continue until the holder requests its removal.

- (4) An access licence may be held by the Minister, a catchment management authority or other public body to the extent that the whole or part of that access licence has been surrendered as a result of on farm water savings made by works or other improvements, subject to:
  - (a) the share component of the access licence held being equal to the value of the on-farm water savings made,
  - (b) the access licence held being the highest priority category in this water source, other than a specific purpose category, and
  - (c) an adaptive environmental water condition being imposed on the access licence and that condition not being removed.
- (5) The adaptive environmental water condition specified in subclause (1) and the plan for implementation of that condition, as required by section 8E (7) of the Act:
  - (a) are to be established by the Minister, and
  - (b) shall be such as to ensure that there will be a contribution to the objectives of this Plan.
- (6) The allocation of water for access licences with an adaptive environmental water condition will be in accordance with the available water determination for the relevant category of access licence under this plan.
- (7) If the adaptive environmental water condition on an access licence requires the water to be left in the water source for environmental purposes, then the water allocation account is to be debited when the water is available in accordance with the adaptive environmental water condition on the access licence.
- (8) If the adaptive environmental water condition requires the environmental water to be taken from the water source then the water allocation account is to be debited when it is taken.
- (9) For the purposes of auditing compliance with the long-term extraction limit under this plan, the delivery of water pursuant to an access licence that has been committed as adaptive environmental water shall be accounted for as extraction where it occurs pursuant to a licence under subclause (7) or subclause (8).
- (10) To the extent that the water allocation of an access licence which is subject to an adaptive environmental water condition is not required to meet the requirement of the

condition it may be the subject of an assignment dealing in accordance with the Dealings Rules in this plan.

- (11) Notwithstanding subclause (10) an access licence with an adaptive environmental water condition may be the subject of any other dealing permitted by the Dealing Rules in this plan, provided the benefit to the environment provided for in the adaptive environmental condition is not diminished.
- (12) At the commencement of this clause, there were no access licences with an adaptive environmental water condition in these groundwater sources.

## Part 5 Basic landholder rights

### 18 Basic landholder rights

- (1) This Part is made in accordance with sections 5 (3) and 20 (1) (b) of the Act.
- (2) If a landholder is unable to exercise their basic landholder rights due to interference of their supply by extraction authorised by access licences:
  - (a) the Minister may amend a water supply works approval to allow the landholder's affected bore to be replaced or deepened to ensure continuing access to water for basic landholder rights, or
  - (b) the Minister may amend another water supply works approval so that basic rights water may be supplied by an alternative water supply work means during critical times.
- (3) In accordance with the legislative requirements, the Minister may impose a charge on access licence holders in these groundwater sources under section 114 of the Act, as a contribution to the costs of activities or works associated with subclause (2).
- (4) Basic landholders rights exercised under section 52 of the Act must be exercised in accordance with any guidelines established by the Minister with respect to the reasonable use of water for domestic consumption and stock watering by landholders authorised to use water for either or both of those purposes.

**Note.** The Minister may, by order made under section 323 of the Act, impose temporary restrictions on basic landholder rights when it is necessary to do so in the public interest, such as to cope with a water shortage or threat to public health or safety.

**Note.** The Minister may enforce any reasonable use guidelines by serving orders on individual landholders under section 325 of the Act. The Minister may also order individual landholders accessing basic landholder rights to take specified measures to protect the environment, to preserve basic landholder rights or to overcome a threat to public health under section 328 of the Act.

### 19 Domestic and stock rights

**Note.** It is not recommended that the water from these groundwater sources be consumed without prior treatment. Land use activities may have polluted the groundwater in some areas.

- (1) At the commencement of this Plan the water requirements of holders of domestic and stock rights in these groundwater sources are estimated to be as follows:
  - (a) 2,255 ML/year in the Lower Namoi,
  - (b) 27 ML/year in Zone 1,
  - (c) 127 ML/year in Zone 2,

- (d) 199 ML/year Zone 3,
  - (e) 421 ML/year in Zone 4,
  - (f) 128 ML/year in Zone 5,
  - (g) 96 ML/year in Zone 6,
  - (h) 21 ML/year in Zone 7,
  - (i) 114 ML/year in Zone 8,
  - (j) 41 ML/year in Zone 9,
  - (k) 18 ML/year in Zone 10,
  - (l) 69 ML/year in Zone 11, and
  - (m) 42 ML/year in Zone 12.
- (2) This Plan recognises that the exercise of domestic and stock rights may increase during the term of this Plan.

**Note.** Increase in use of domestic and stock rights may occur as a result of an increase in the number of landholdings overlying these groundwater sources, or as a result of the increase in the exercise of basic landholder rights by existing landholders.

## 20 Native title rights

The requirement for water to satisfy native title rights is the water that may be taken in the exercise of native title rights in accordance with the *Native Title Act 1993* of the Commonwealth, including any determination of native title.

**Notes.**

- 1 This Plan may be amended if there is a native title determination in accordance with the *Native Title Act 1993* of the Commonwealth by which water is required.
- 2 Native title rights may be exercised in accordance with the *Native Title Act 1993* of the Commonwealth, including section 211 of that Act.

## **Part 6 Bulk access regime**

### **21 Bulk access regime**

- (1) This Part is made in accordance with section 20 (1) (d) of the Act.
- (2) This Plan establishes a bulk access regime for the extraction of water under access licences in these groundwater sources having regard to:
  - (a) the environmental water provisions established under Part 4 of this Plan,
  - (b) the requirements for basic landholder rights identified under Part 5 of this Plan, and
  - (c) the requirements for water for extraction under access licences identified under Part 7 of this Plan.
- (3) The bulk access regime established in subclause (2):
  - (a) recognises the effect of climatic variability on the availability of water as provided for under Part 3 of this Plan,
  - (b) establishes rules according to which access licences are granted as provided for in Part 8 of this Plan,
  - (c) recognises and is consistent with limits to the availability of water as provided for in Part 9, Division 1 of this Plan,
  - (d) establishes rules according to which available water determinations are to be made as provided for in Part 9 Division 2 of this Plan,
  - (e) establishes rules according to which access licences are managed as provided for in Part 10 of this Plan, and
  - (f) establishes rules with respect to the priorities according to which access licences are to be adjusted as a consequence of any reduction in the availability of water as provided for in Parts 9 and 10 of this Plan.



## **Part 7 Requirements for water for extraction under access licences**

### **22 Requirements for water under access licences**

This part is made in accordance with section 20 (1) (c) of the Act.

**Note.** The amount of water specified in this Part represents the total volumes or total shares specified in the share components on access licence in these groundwater sources. The actual volume of water available at any time will depend on climate, access licence priority and the rules in this Plan.

### **23 Share components of domestic and stock access licences**

It is estimated that at the time of commencement of this Plan, the share components of domestic and stock access licences authorised to extract water from these groundwater sources will total 0 ML/yr.

### **24 Share components of local water utility access licences**

It is estimated that at the time of commencement of this Plan, the share components of local water utility access licences authorised to extract water from these groundwater sources will total 10,687 ML/yr, distributed as follows:

- (a) 1,216 ML/yr in Zone 1,
- (b) 59 ML/yr in Zone 2,
- (c) 198 ML/yr in Zone 3,
- (d) 4,660 ML/yr in Zone 4,
- (e) 50 ML/yr in Zone 8,
- (f) 97 ML/yr in Zone 9,
- (g) 4,407 ML/yr in the Lower Namoi.

### **25 Share components of aquifer access licences**

It is estimated that at the time of commencement of this Plan, the share components of aquifer access licences authorised to extract water from these groundwater sources will total 191,757 ML/yr, distributed as follows:

- (a) 384 ML/yr in Zone 1,
- (b) 7,141 ML/yr in Zone 2,

- (c) 17,101ML/yr in Zone 3,
- (d) 21,399 ML/yr in Zone 4,
- (e) 15,992 ML/yr in Zone 5,
- (f) 10,948 ML/yr in Zone 6,
- (g) 3,697 ML/yr in Zone 7,
- (h) 16,122 ML/yr in Zone 8,
- (i) 11,245 ML/yr in Zone 9,
- (j) 1,920 ML/yr in Zone 10,
- (k) 2,223 ML/yr in Zone 11,
- (l) 1,999 ML/yr in Zone 12, and
- (m) 81,586 ML/yr in the Lower Namoi.

## **26 Changes to share components**

This Plan recognises that the total requirements for water for extraction within these groundwater sources may change during the term of this Plan as a result of:

- (a) the granting, surrender or cancellation of access licences, or
- (b) the variation of local water utility access licences under section 66 of the Act.

## Part 8 Rules for granting access licences

### 27 Rules for granting access licences

- (1) This Part is made in accordance with sections 20 (2) (b), 61 and 63 of the Act, having regard to the limits to water availability in these groundwater sources and the need to protect groundwater dependent ecosystems, aquifer integrity and groundwater quality.
- (2) Applications for access licences may be made and access licences granted in these groundwater sources if they are for:
  - (a) a specific purpose access licence for which application is provided for under clause 10 of the *Water Management (General) Regulation 2018* (hereafter ***the Regulation***) in accordance with section 61 (1) (a) of the Act,  
**Note.** At the commencement of this Plan, clause 10 of the Regulation provides for the following specific purpose access licences to be applied for:
    - (a) a local water utility access licence (subcategory “domestic and commercial”), for the purpose of domestic consumption and commercial activities,
    - (b) a domestic and stock access licence (subcategory “domestic”), for the purpose of domestic consumption,
    - (c) an aquifer access licence (subcategory “town water supply”), for the purpose of supply to communities for domestic consumption and commercial activities, and
    - (d) any category of specific purpose access licence (subcategory “Aboriginal cultural”), for Aboriginal cultural purposes.  
**Note.** Pursuant to sections 66 (3) and 66 (4) of the Act, the Minister may also vary a local water utility’s share component at 5 year intervals, or on application of the local water utility where there is rapid growth in population.
  - (b) an access licence with a zero share component in accordance with sections 61 (1) (b) and 63 (5) of the Act,
  - (c) an access licence that may be granted in accordance with a dealing that is permitted by Part 11 of this Plan.
- (3) In applying for a new access licence, the applicant must establish the purpose and circumstances relating to that access licence, and that the share and extraction component sought will be the minimum required to meet that purpose and circumstance.
- (4) Access licences granted under this Part cannot be used to extract water through a water supply work (bore) located in areas where the extraction authorised by the access licence plus the full extraction authorised by existing access licences nominating water supply works (bores) located in the area and the exercise of basic

landholder rights, are likely to cause an adverse local impact, as outlined in Part 10 Division 2 of this Plan.

## **Part 9 Limits to the availability of water**

### **Division 1 Extraction limits**

#### **28 Extraction limits**

- (1) This Division is made in accordance with sections 20 (2) (a) of the Act.
- (2) The extraction limit for each groundwater source each year of this Plan is the recharge established in clause 14, minus the proportion of recharge reserved as planned environmental water in clause 16, and are initially as follows:
  - (a) 2,100 ML/yr plus basic rights in Zone 1,
  - (b) 7,200 ML/yr plus basic rights in Zone 2,
  - (c) 17,300 ML/yr plus basic rights in Zone 3,
  - (d) 25,700 ML/yr plus basic rights in Zone 4,
  - (e) 16,000 ML/yr plus basic rights in Zone 5,
  - (f) 14,000 ML/yr plus basic rights in Zone 6,
  - (g) 3,700 ML/yr plus basic rights in Zone 7,
  - (h) 16,000 ML/yr plus basic rights in Zone 8,
  - (i) 11,400 ML/yr plus basic rights in Zone 9,
  - (j) 4,500 ML/yr plus basic rights in Zone 10,
  - (k) 2,200 ML/yr plus basic rights in Zone 11,
  - (l) 2,000 ML/yr plus basic rights in Zone 12, and
  - (m) 86,000 ML/yr plus basic rights in the Lower Namoi.

#### **29 Variation of extraction limits**

- (1) The Minister may under section 45 (1) (b) of the Act amend clause 28 to vary the extraction limits in accordance with:
  - (a) any change to the average annual recharge arising from subclause 14 (2) and (3), and
  - (b) any change to the planned environmental water arising from subclause 16 (2).

- (2) If there is any change to the extraction limits arising from subclause (1) then:
- (a) the extraction limit for Zone 1 will not be greater than 2,625 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 1,575 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
  - (b) the extraction limit for Zone 2 will not be greater than 9,000 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 5,400 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
  - (c) the extraction limit for Zone 3 will not be greater than 21,625 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 12,975 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
  - (d) the extraction limit for Zone 4 will not be greater than 32,125 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 19,275 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
  - (e) the extraction limit for Zone 5 will not be greater than 20,000 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 12,000 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
  - (f) the extraction limit for Zone 6 will not be greater than 17,500 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 10,500 ML/yr, plus the total requirements basic landholder rights at the commencement of this plan,
  - (g) the extraction limit for Zone 7 will not be greater than 4,625 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 2,775 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
  - (h) the extraction limit for Zone 8 will not be greater than 20,000 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan

and will not be less than 12,000 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,

- (i) the extraction limit for Zone 9 will not be greater than 14,250 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 8,550 ML/yr, plus the total requirements basic landholder rights at the commencement of this plan,
- (j) the extraction limit for Zone 10 will not be greater than 5,625 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 3,375 ML/yr, plus the total requirements basic landholder rights at the commencement of this plan,
- (k) the extraction limit for Zone 11 will not be greater than 2,750 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 1,650 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
- (l) the extraction limit for Zone 12 will not be greater than 2,500 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 1,500 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan,
- (m) the extraction limit for the Lower Namoi will not be greater than 107,500 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan and will not be less than 64,500 ML/yr, plus the total requirements for basic landholder rights at the commencement of this plan.

### **30 Compliance with the extraction limits**

- (1) Water extraction in each of these groundwater sources will be monitored each water year to determine if there is any growth in volume extracted above the respective extraction limit specified in clause 28, based a comparison of the extraction limit against the extraction within each groundwater source over that year and the preceding 2 years.
- (2) For the purposes of auditing compliance with the extraction limit, if water that:
  - (a) pursuant to an access licence is committed as adaptive environmental water to be left in the aquifer for environmental purposes, then extraction will be

assumed to be equal to 100% of the available water determination made under clause 31, or

- (b) pursuant to an access licence is committed as adaptive environmental water to be extracted for environmental purposes, then extraction will be that measured through the approved water supply work (bore).
- (3) If the 3 year average of extraction in a groundwater source exceeds the extraction limit established in subclause 28 (2) by 5% or greater, then the available water determination made for aquifer access licences under clause 31 in that groundwater source, for the following water year, should be reduced by an amount that is assessed necessary by the Minister to return subsequent total water extraction to the extraction limit.

## **Division 2 Available water determinations**

### **31 Available water determinations**

- (1) This Division is made in accordance with section 20 (2) (b) of the Act.
- (2) All available water determinations in these groundwater sources shall be expressed as either:
  - (a) a percentage of the share component for all access licences where share components are specified as megalitres per year, or
  - (b) megalitres per unit of share component for all access licences where share components are specified as a number of shares.
- (3) An available water determination for each category of access licence in each groundwater source should be made at the commencement of each water year.
- (4) The available water determinations made at the commencement of the water year for domestic and stock and local water utility access licences should be 100% of share components.
- (5) The available water determination made at the commencement of each water year for aquifer access licences should be such that the total of available water determinations for each water source under this clause equals the extraction limit for the water source set in clause 28 (2) minus the total requirements for basic landholder rights, minus the total available water determinations for domestic and stock and local water utility



access licences, or such lower amount as results from the operation of clause 30 (3) and subclause (6).

- (6) The available water determination for all aquifer access licences in the Zones 6, 9 and 10 will not exceed 1 ML per unit of share component.

## **Part 10 Rules for managing access licences**

### **32 Rules for managing access licences**

This Part is made in accordance with sections 20 (2) (b), 21 (a) and 21 (c) of the Act, having regard to:

- (a) the environmental water rules established in Part 4 of this Plan,
- (b) requirements for water to satisfy basic landholder rights identified in Part 5 of this Plan, and
- (c) requirements for water for extraction under access licences in Part 7 of this Plan.

### **Division 1 Water allocation account management**

#### **33 Water allocation account management**

This Division is made in accordance with sections 20 (2) (b) and 21 (c) of the Act.

#### **34 Water allocation accounts**

In accordance with section 85 of the Act, a water allocation account shall be established for each access licence in these groundwater sources.

**Note.** Water allocation may be assigned to, or from, these accounts by a water allocation assignment made under section 71T of the Act, where these are allowed under rules specified in Part 11 of this Plan.

#### **35 Accrual of water allocations**

Water allocations will be accrued into water allocation accounts each year in accordance with the Minister's available water determinations as specified in clause 31.

#### **36 Annual accounting for water extraction**

- (1) Water taken from these groundwater sources will be accounted for at least annually.
- (2) Water taken by a water supply work (bore) nominated by an access licence will be periodically debited against the access licence water allocation account.
- (3) A water allocation account shall remain at or above zero at all times.

- (4) Unused water allocations in the water allocation accounts of domestic and stock access licences or of local water utility access licences, cannot be carried over from one water year to the next.
- (5) In any water year, subject to local impact management restrictions arising from Part 10, Division 2 of this Plan, water taken from these groundwater sources under a local water utility access licence or a domestic and stock access licence may not exceed a volume equal to:
  - (a) 100% of the share component of the access licence at the beginning of that water year,
  - (b) plus any water allocations assigned from another access licence under section 71T of the Act in that year,
  - (c) plus any water allocations re-credited in accordance with section 76 of the Act in that year, and
  - (d) minus any water allocations assigned to another licence under section 71T of the Act in that year.
- (6) Unused water allocations in the water allocation accounts of aquifer access licences may be carried over from one water year to the next, subject to subclauses (7) and (8).
- (7) The maximum amount of unused water allocations that can be carried over under subclause (6) is equal to 2 ML per unit of share component for Zones 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and the Lower Namoi.
- (8) The maximum amount of unused water allocations that can be carried over under subclause (6) is equal to 2.3 ML per unit of share component for Zone 1.
- (9) In any water year, subject to local impact management restrictions arising from Part 10, Division 2 of this Plan, water taken from Zones 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 and the Lower Namoi under an aquifer access licence may not exceed a volume that is equal to:
  - (a) 2 ML per unit of aquifer access licence share component at the beginning of that water year, plus
  - (b) any water allocations assigned from another access licence under section 71T of the Act in that year, minus

- (c) any water allocations assigned to another access licence under section 71T of the Act in that year.
- (10) In any water year, subject to local impact management restrictions arising from Part 10, Division 2 of this Plan, water taken from Zone 1 under an aquifer access licence may not exceed a volume that is equal to:
  - (a) 2.3 ML per unit of aquifer access licence share component at the beginning of that water year, plus
  - (b) any water allocations assigned from another access licence under section 71T of the Act in that year, minus
  - (c) any water allocations assigned to another access licence under section 71T of the Act in that year.

## **Division 2 Management of local impact**

### **37 Management of local impact**

This Division is made in accordance with sections 21 (a) of the Act.

### **38 Extraction interference between neighbouring bores**

- (1) With the exception of a water supply work (bore) for the supply of basic landholder rights only, applications for a new water supply work (bore) within 100 metres of any bores for the supply of basic landholder rights, will require an investigation by the proponent of the potential impact on neighbouring bores.
- (2) A new water supply work (bore) to exercise basic landholder rights will be required to be drilled to sufficient depth to maintain long-term access to the water source.
- (3) A minimum distance of 400 metres is to be maintained between all new water supply works (bores), except for a replacement water supply work (bore) and those for the supply of basic landholder rights only.
- (4) A new water supply work (bore) that is not a replacement water supply work (bore) or a water supply work (bore) for the supply of basic landholder rights only shall be located no closer than 200 metres from a property boundary.
- (5) Notwithstanding the provisions of subclauses (3) and (4), the Minister may, upon request of the applicant for the water supply work approval, vary the distance restrictions specified in subclauses (3) and (4) if the Minister is satisfied that:

- (a) a hydrogeological study undertaken by the applicant, assessed as adequate by the Minister, demonstrates that the location of the new water supply work (bore) will have no more than minimal potential for adverse impact on existing authorised extraction, including consideration of cumulative impact, and
  - (b) written consent has been obtained by the applicant from adjacent landowners, and
  - (c) there is a process for remediation in the event that an adverse impact occurs in the future, specified as conditions on the water supply work approval.
- (6) In the event that there is a dispute between neighbours as to whether the new water supply work has had an impact on overall water security, the Minister may impose or amend conditions on the water supply work approval of any or all parties to address such impact, including requiring the construction of an additional monitoring bore on the property boundary in order to establish conditions to limit the level of drawdown off-site.
- (7) A new water supply work (bore) with the exception of a replacement water supply work (bore) or a water supply work (bore) for the supply of basic landholder rights only, cannot be constructed within a minimum distance of:
- (a) 500 metres of a bore nominated by a local water utility access licence,
  - (b) 400 metres of a Departmental monitoring bore,
  - (c) 400 metres of a bore extracting from the Great Artesian Basin,
  - (d) 500 metres of a wetland, or
  - (e) 200 metres of a river.

### **39 Water level management**

- (1) The Minister may declare that, in order to protect water levels within these groundwater sources, local access restrictions are to apply in a defined area known as a local impact area.
- (2) If water levels in any part of these groundwater sources have declined to such an extent that adverse impact is occurring, or is likely to occur, extraction from all water supply works (bores) nominated by access licences within a local impact area declared under subclause (1) will be restricted to such an extent and for such time as is required to reinstate water levels to such a degree as to mitigate or avoid that impact.

**Note.** This provision recognises that in some locations, at certain periods of high groundwater demand, critical water level declines may occur, and that additional extraction limitations may be required.

#### 40 Water quality management

(1) The beneficial uses of these groundwater sources are:

- (a) raw water for drinking, and
- (b) agriculture use,

based on beneficial use classes identified in the Australian and New Zealand Environment and Conservation Council *Water Quality Guidelines 2001*, and the National Health and Medical Research Council *Raw Water for Drinking Purposes Guidelines 1996*.

(2) Pursuant to subclause (1), water quality decline will be deemed unacceptable if extraction is likely to cause water quality to decline to a lower beneficial use class.

**Note.** It is not recommended that the water from these groundwater sources be consumed without prior treatment. Land use activities may have polluted the groundwater in some areas.

(3) The Minister may declare that, in order to protect water quality within these groundwater sources, local access rules are to apply in a defined area, known as a local impact area.

(4) If water quality declines are resulting from extraction, extraction from all water supply works (bores) within a local impact area declared under subclause (3) from which access is authorised by an access licence will be restricted to such an extent and for such time as required to halt that decline, or restore the beneficial use of these groundwater sources.

#### 41 Protection of groundwater dependent ecosystems

(1) Extraction of groundwater from a new or replacement water supply work (bore) is excluded within 100 metres of high priority groundwater dependent ecosystems, or any creek or river, or where impact may occur on Aboriginal cultural heritage values for those exercising basic landholder rights, and 200 metres for extraction authorised by all other access licences, unless the water supply work (bore):

- (a) only draws water from an aquifer at depths as approved by the Minister, and
- (b) has an impermeable seal, as specified by the Minister, constructed within the bore to isolate aquifers preventing water ingress from the restricted aquifer.

**Note.** Subclause (1) will not apply to extraction from an existing work until such time as the work is replaced.

- (2) High priority groundwater dependent ecosystems are listed in Schedule 3.
- (3) The Minister may, under section 45 (1) (b) of the Act, identify further high priority groundwater dependant ecosystems and include them in Schedule 3, based on further studies of groundwater dependency undertaken by the Minister.
- (4) The Minister should consult with the Minister for the Environment before adding further high priority groundwater dependent ecosystems to Schedule 3.

#### **42 Protection of aquifer integrity**

- (1) The Minister may declare that, in order to protect the integrity of the aquifers within these groundwater sources, local access restrictions are to apply in a defined area known as a local impact area.
- (2) The Minister may, on presentation of evidence of land subsidence or aquifer compaction, restrict extraction from all water supply works (bores) nominated by access licences within a local impact area declared under subclause (1), to such an extent and for such time as to stabilise that subsidence or compaction.

#### **43 Extraction restrictions**

- (1) The Minister may, in the event of local impact restrictions arising from this Division, impose by Order, a reduction in annual, quarterly, monthly, weekly or daily extraction rates from water supply works (bores) nominated by access licences in the affected area.
- (2) Before making an Order under subclause (1) the Minister should consult with representatives of the affected access licence holders.

#### **44 Group registration**

This Plan allows for the formation of a group of access licences with respect to the sharing of local impact restrictions arising from this Division, subject to the following rules:

- (a) the group register will be maintained by the Minister,
- (b) holders of access licences must make a request to the Minister to form a group,
- (c) total extraction by all access licences within a group will be assessed as a whole against their combined restricted extraction and must not exceed that amount,

- (d) no access licence holder within the group may extract more than is permitted by Division 1 of this Part in any one water accounting year as a result of participation in a group,
- (e) an access licence holder may apply to be removed by the Minister from the group and the extraction by the group will be reduced by the extraction restriction of that licence holder,
- (f) an access licence holder may apply to be added by the Minister to the group and the combined restricted extraction of the group will be increased by the extraction restriction of that licence holder, and
- (g) the Minister reserves the right to remove a licence holder from a group where that individual causes the group extraction restriction to be exceeded, or to dissolve a group where its members exceed their combined extraction restriction.

#### **45 Infrastructure failure**

- (1) The operational rules relating to local impact management may rely on water levels at specified monitoring bores.
- (2) In the event of a monitoring bore failure the Minister may:
  - (a) continue with the current access rules until the monitoring bore is reinstated,
  - (b) adjust the current access rules based on climatic conditions and any other monitoring bore information, until the monitoring bore is reinstated, or
  - (c) rely on another monitoring bore in the area to provide information.



## Part 11 Access licence dealing rules

### 46 Access licence dealing rules

- (1) This Part is made in accordance with section 20 (1) (d) of the Act and with the Minister's access licence dealing principles gazetted under section 71Z of the Act.
- (2) Applications for access licence dealings may be granted subject to the Minister's access licence dealing principles gazetted from time to time under section 71Z of the Act and the rules in this Part.

**Note.** There are a number of mechanisms within the Act, called access licence dealings, to change either the ownership of all or part of an access licence, or the location within a water source at which all or part of the share and extraction components of access licences can be exercised. These dealings are governed by the principles in section 5 of the Act, Minister's access licence dealing principles, and the rules in this Part.

**Note.** Where there is an inconsistency between access licence dealing rules established in this Plan and Minister's access licence dealing principles gazetted subsequent to the commencement of this Plan, section 71Z of the Act provides for the Minister's access licence dealing principles to prevail.

### 47 Rules relating to constraints within a groundwater source

- (1) This clause applies to any relevant dealings under sections 71Q, 71S, and 71W of the Act, and section 71T of the Act with respect to allocation assignments within this groundwater source.
- (2) Dealings are prohibited under this clause if:
  - (a) any of the access licences or water allocations involved are not within these groundwater sources,
  - (b) the dealing results in the total access licence share components or credited water allocations authorised to be extracted through nominated works at a location exceeding 600 ML/yr per square kilometre,
  - (c) the dealing would result in the total extraction under access licences through nominated works in the area, plus basic landholder rights extraction, causing an adverse local impact in accordance with Part 10 Division 2 of this Plan.

### 48 Rules for change of water source

- (1) This clause relates to dealings under section 71R of the Act.

**Note.** Section 71R dealings are the mechanism by which access licences can move from one water source to another. Once the change in water source has been effected, if permitted, the new licence will have to nominate specified works (by a dealing under section 71W of the Act) in the receiving water source before extraction can commence.

- (2) An access licence with a share component specifying one of these groundwater sources may be cancelled and a new licence issued under this dealing only if:
  - (a) the access licence cancelled is an aquifer access licence within one of the Upper Namoi Groundwater Sources,
  - (b) the access licence issued is within Zone 10, and
  - (c) the total share components of all access licences in Zone 10 remains below 58% of the recharge established in clause 16 for that Zone until the 30 December 2007,
  - (d) the total share components of all access licences in Zone 10 remains below 70% of the recharge established in clause 16 for that Zone after the 30 December 2007.
- (3) The share component of an access licence issued under a dealing provided for in subclause (2) is to be equal to the share component of the cancelled access licence.

#### **49 Rules for conversion of access licence category**

- (1) This clause relates to dealings under section 71O of the Act.
- (2) Dealings that result in conversions of an access licence of one category to an access licence of another category are prohibited in these groundwater sources.

#### **50 Rules for interstate access licence transfer**

- (1) This clause relates to dealings under section 71U of the Act.
- (2) Dealing that result in interstate access licence transfers into or out of these groundwater sources are prohibited.

#### **51 Rules for water allocation assignments between water sources**

- (1) This clause relates to dealings under section 71T of the Act.
- (2) Dealings that assign water allocations between access licences in different water sources are prohibited unless provided for in this clause.
- (3) Dealings that assign water allocations between an access licence in one of these groundwater sources and an access licence in another of these groundwater sources are permitted only if:
  - (a) the access licence from which the water allocation is assigned is an aquifer access licence within one of the Upper Namoi Groundwater Sources,

- (b) the access licence to which the water allocation is assigned is within Zone 10,
- (c) the total water allocations credited to all access licences in Zone 10 remains below 70% of the recharge established in clause 16 for that Zone, and
- (d) the assignment would not result in the total extraction of credited water allocations through nominated works in the area, plus basic landholder rights extraction, causing adverse local impact in accordance with Part 10 Division 2 of this Plan.

**Note.** Each water allocation assignment must be applied for. Access licence holders may enter into private contracts to assign water allocations for a number of years. Such contracts are not guaranteed by the Government, and approval must be sought annually. Approval will be subject to the rules in this Plan, including local impact assessment.

## **52 Rules for interstate assignment of water allocations**

- (1) This clause relates to dealings under section 71V of the Act.
- (2) Dealings that result in the interstate assignment of water allocations to or from these groundwater sources are prohibited.

## **Part 12 Mandatory conditions**

### **53 Mandatory conditions on access licences**

This Part is made in accordance with sections 17 (c) and 20 (2) (c) of the Act.

### **54 Access licences**

- (1) All access licences shall have mandatory conditions to give effect to the provisions of this Plan in relation to the following:
  - (a) the specification of share components of the licences,
  - (b) the specification of extraction components of the licences,
  - (c) the requirement that all extraction under access licences will be subject to the available water determinations,
  - (d) the requirement that all extraction under access licences will be subject to any local impact management restrictions established in this Plan,
  - (e) the requirement that all extraction under access licences will be subject to the account management rules established in this Plan,
  - (f) the taking of water in accordance with the access licence will only be permitted if the resulting debit from the access licence water allocation account will not exceed the volume of water allocation remaining in the account, and
  - (g) any other conditions required to implement the provisions of this Plan.
- (2) All domestic and stock access licences shall have mandatory conditions that only allow the taking of water for the purpose of domestic consumption or stock watering as defined in section 52 of the Act.
- (3) All local water utility access licences shall have mandatory conditions that only allow the taking of water for the exercise of a water supply function of the local water utility or for other such purpose provided for under the Act.

### **55 Mandatory conditions on water supply work (bore) approvals**

All approvals for a water supply work (bore) to which this Plan applies shall have mandatory conditions in relation to the following:

- (a) the water supply work (bore) is only to be constructed by a driller licensed under section 349 of the Act,
- (b) the water supply work (bore) must comply with drilling standards as specified by the Minister,
- (c) construction of a water supply work (bore) must prevent contamination between aquifers through proper bore construction,
- (d) a water supply work (bore) approval holder must ensure decommissioning procedures comply with applicable standards as specified by the Minister,
- (e) a new or replacement water supply work (bore) to access water for basic rights will be required, as a condition of approval, to be constructed to sufficient depth to maintain access to the water source for the life of the work,
- (f) the water supply work (bore) approval holder is, within 2 months of completion, or after the issue of the approval if the water supply work (bore) is existing, to provide the Minister with:
  - (i) details of the work on the prescribed form,
  - (ii) a plan showing accurately the location of the work in relation to portion and property boundaries, and
  - (iii) details of any water analysis and/or pumping tests required by the Minister,
- (g) if, during the construction of the water supply work (bore), saline or contaminated water is encountered above the producing aquifer, such water is to be sealed off by:
  - (i) inserting the appropriate length(s) of casing to a depth sufficient to exclude the saline or contaminated water from the work, and
  - (ii) placing an impermeable seal between the casing(s) and the walls of the bore hole from the bottom of the casing to ground level, as specified by the Minister,
- (h) if a water supply work (bore) is abandoned, the water supply work (bore) approval holder is to:
  - (i) notify the Minister that the work has been abandoned, and

- (ii) seal off the aquifer by backfilling the work to ground level after withdrawing the casing (lining), as specified by the Minister,
- (i) an extraction measurement device shall be installed and maintained on each water supply work (bore) used for extraction of water under an access licence, and such devices shall be of a type and shall be maintained in a manner which is acceptable to the Minister,
- (j) a water supply work (bore) must comply with the relevant local impact management rules in Part 10 of this Plan,
- (k) notwithstanding the available water determination, it is the responsibility of the water supply work (bore) approval holder to ascertain from the Minister whether or not there are in place any local impact restrictions before commencing to take water from these groundwater sources,
- (l) extraction under an access licence through the approved water supply work (bore) is only authorised with respect to the access licences specified on the water supply work (bore) approval,
- (m) a water supply work (bore) approval holder must supply to the Minister on request, and to the required standards, a report pertaining to the quality of the water obtained from the water supply work (bore), and
- (n) any other conditions required to implement the provisions of this Plan.

**Note.** It is recommended that the Minister also apply conditions to water use approvals requiring the supply of information on an annual basis on types and areas of irrigated crops.

## Part 13 Monitoring and reporting

### 56 Monitoring

The monitoring of the performance indicators specified in clause 11 shall be undertaken by the Minister.

**Note.** Review and Audit of this Plan

In accordance with section 43A of the Act, the Natural Resources Commission must undertake a review of this Plan prior to any decision to extend its term or to make a new plan. The review must consider the extent to which the Plan's water sharing provisions have contributed to achieving or not achieving the State priorities for local land services relevant to natural resource management (as referred to in the *Local Land Services Act 2013*).

When undertaking this review the Natural Resources Commission is required to call for public submissions. The Commission will take into consideration any submission received as well as any other relevant State-wide or regional government policies or agreements that apply to the Local Land Services region.

In accordance with section 44 of the Act, this Plan will be audited at intervals of no more than five years, for the purpose of ascertaining whether its provisions are being given effect to. This audit is to be carried out by an audit panel appointed by the Minister in consultation with a water management committee where one exists.

## **Part 14 Amendment of this Plan**

### **57 Amendment of this Plan**

- (1) This Part is made in accordance with section 45 (1) (b) of the Act.
- (2) This Plan can be amended in accordance with the following clauses of this Plan:
  - (a) clause 14 in respect to the average annual recharge,
  - (b) clause 16 in respect to planned environmental water,
  - (c) clause 29 in respect to the extraction limit, or
  - (d) clause 41 in respect to high priority groundwater dependent ecosystems.

### **58 Amendment relating to planned environmental water**

- (1) The Minister may amend this Plan to provide for the recovery of planned environmental water as follows:
  - (a) the recovery is only to apply where the Minister has cancelled an access licence held by the Minister in accordance with section 8A of the Act,
  - (b) the amount of additional water to be provided as planned environmental water is to be equivalent to the annual average extraction of water under the cancelled licence over the long-term,
  - (c) the average annual long-term availability of water for the remaining access licences that relate to the water source concerned is to be reduced by the average annual long-term extraction of water under the cancelled licence.
- (2) The Minister may amend this Plan to specify the purposes for which planned environmental water committed under section 8A of the Act is to be used.



## Schedule 1 Dictionary

The following definitions apply to this Plan in addition to the definitions set out in the Act:

***abandoned*** refers to a water supply work (bore) that is no longer being used.

***aquifer compaction*** refers to the reduction in the porosity (pore spaces) of an aquifer, and may result from over pumping the aquifer.

***aquitards*** are geologic units that are of low permeability. Aquitards usually form a layer in a geologic sequence. They may contain water, but would not yield reasonable volumes of water to bores or wells. An example of an aquitard would be a saturated clay layer that is overlying a saturated sandy aquifer.

***aquitard compaction*** refers to the reduction in the porosity (pore spaces) of an aquitard.

***available water*** in relation to a water management area or water source, is the water that is available in that area or water source in accordance with an available water determination that is in force in respect of that area or water source.

***available water determination*** is a written Order by the Minister as to the availability of water for the various categories of access licence in relation to a specified water management area or water source.

**Note.** An available water determination gives rise to a water allocation that is credited to a water allocation account for each licensed holder.

***compaction*** see aquifer compaction.

***component*** see share component.

***drawdown*** refers to a lowering of the piezometric surface. Natural drawdown may occur due to seasonal climatic changes. Groundwater pumping may also result in seasonal and long-term drawdown.

***extraction limit*** is the amount of water that can be extracted in each water accounting year of this Plan., subject to water allocation account management rules.

***Great Artesian Basin*** is a 'confined' groundwater basin comprised of a complex multi-layered system of water bearing strata (porous sandstone aquifers) separated by largely impervious rock units, underlying largely arid and semi-arid landscapes to the

west of the Great Dividing Range, and extending from Queensland through New South Wales and the Northern Territory, to South Australia.

**groundwater** is water that occurs beneath the ground surface in the saturated zone.

**groundwater dependent ecosystems** are ecosystems which have their species composition and natural ecological processes determined by groundwater.

**long term average storage component** is the volume of water in the aquifer less the combined average annual recharge and requirements for basic rights at the commencement of this plan, and exceeds the combined requirements for basic rights extraction provided for in this Plan.

**monitoring bore** refers to a bore constructed for the purpose of measuring water levels and/or taking samples for water quality analysis.

**recharge** is the addition of water, usually by infiltration, to an aquifer.

**replacement water supply work (bore)** is a bore constructed within 20 metres of, and which replaces, an existing water supply work (bore) licensed under the Act and which has an internal diameter no greater than 110 percent of the internal diameter of the bore it replaces.

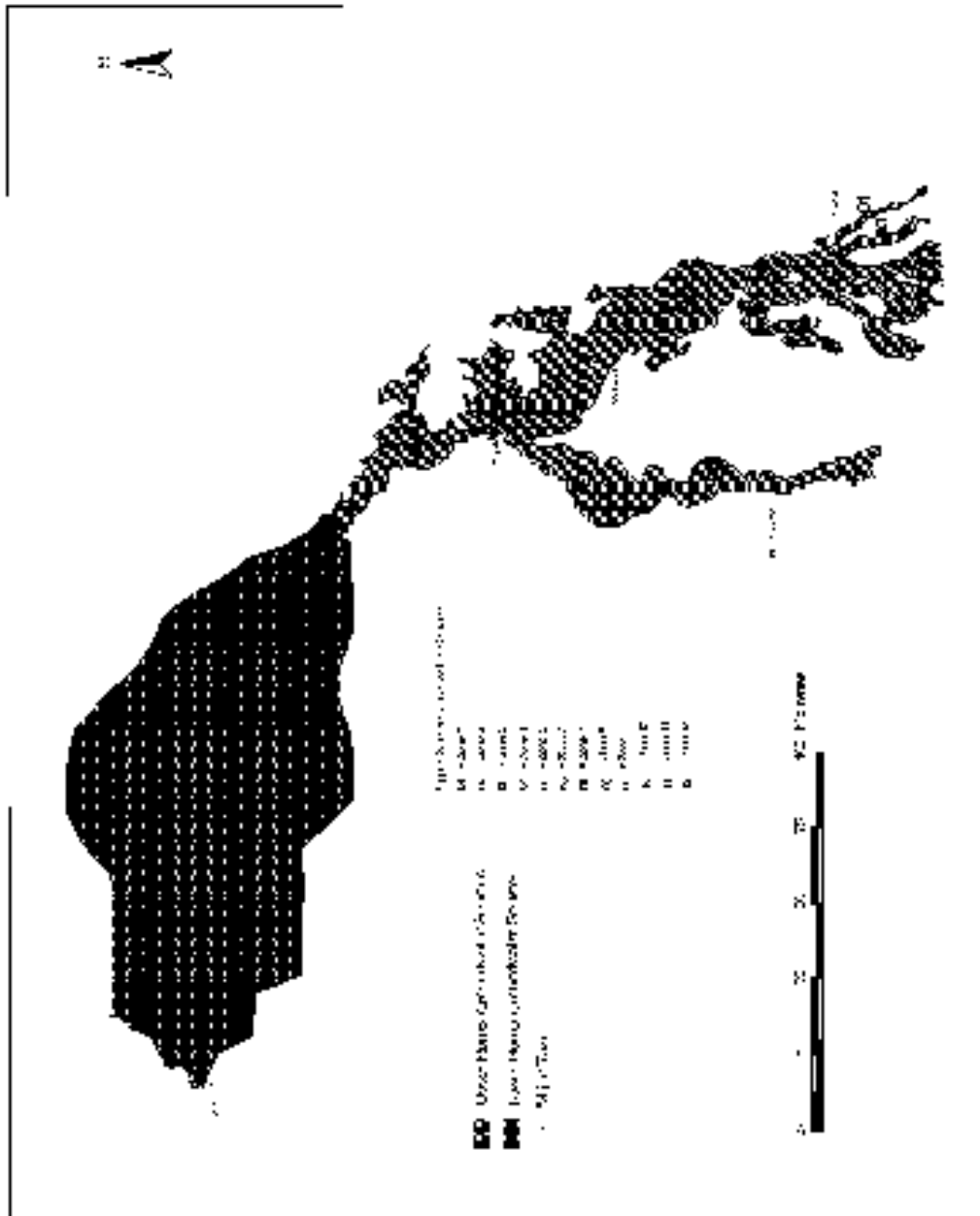
**share component** is the share component of an access licence.

**unconsolidated alluvial sediments** are sediments deposited by the action of flowing water, in particular along river beds and floodplains, but not including lakes and seas.

**water supply work (bore)** means a water supply work that is a bore.

**water year** is a 12 month period from 1 July to 30 June.

## Schedule 2 Upper and Lower Namoi Groundwater Sources

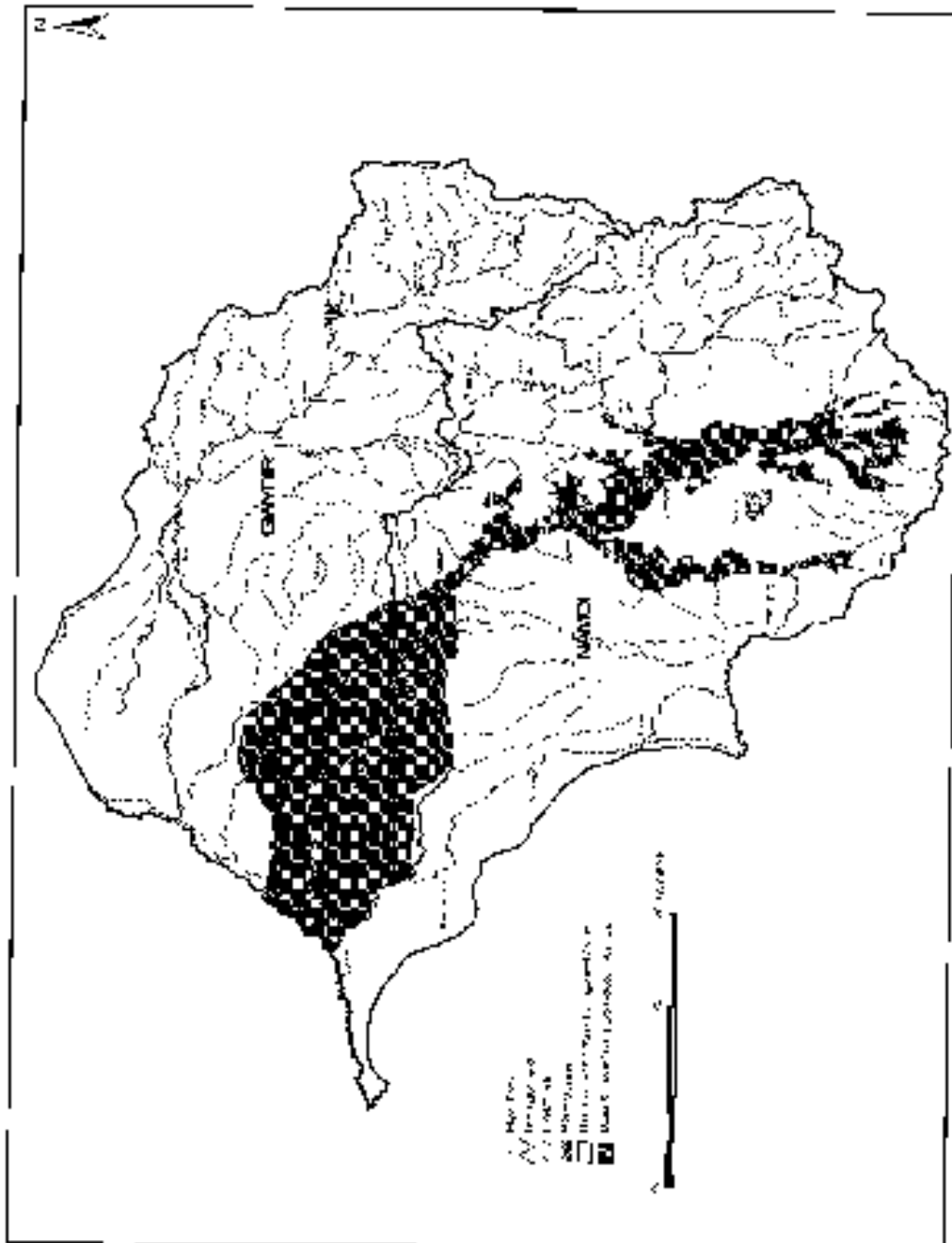


### **Schedule 3 High priority groundwater dependent ecosystems**

**Note.** There are no high priority groundwater dependent ecosystems identified and scheduled at the commencement of this Plan.

**Note.** High priority groundwater dependant ecosystems may be added to (and removed from) this Schedule during the period of this Plan. The Regional or District Office of the Department of Land and Water Conservation, shown in Appendix 2, should be contacted for a current list.

## Appendix 1 Namoi and Upper and Lower Namoi Water Management Areas



## **Appendix 2 Location of maps**

The maps in relation to this Plan may be inspected at:

Department of Industry, Water  
4 Marsden Road  
Tamworth Agricultural Institute  
CALALA NSW 2340