

Water Sharing Plan for the Tomago Tomaree Stockton Groundwater Sources 2003

[2003-118]



New South Wales

Status Information

Currency of version

Historical version for 9 July 2010 to 11 August 2011 (accessed 27 November 2024 at 10:54)

Legislation on this site is usually updated within 3 working days after a change to the legislation.

Provisions in force

The provisions displayed in this version of the legislation have all commenced.

Notes—

- **Note**

In incorporating the amendments made by the *Water Management (Minister's Plans) Order No 2 of 2004*, published in Gazette No 110 of 1.7.2004, p 5072, changes have been made to the numbering of some of the provisions to maintain appropriate numerical or alphabetical order.

Authorisation

This version of the legislation is compiled and maintained in a database of legislation by the Parliamentary Counsel's Office and published on the NSW legislation website, and is certified as the form of that legislation that is correct under section 45C of the [Interpretation Act 1987](#).

File last modified 9 July 2010

Water Sharing Plan for the Tomago Tomaree Stockton Groundwater Sources 2003



New South Wales

Contents

Part 1 Introduction	6
1 Name of Plan	6
2 Nature and status of this Plan	6
3 Date of commencement	6
4 Area to which this Plan applies	6
5 Waters to which this Plan applies	7
6 Interpretation	7
7 Effect on licences, authorities and permits under the Water Act 1912	7
8 State Water Management Outcomes Plan	7
Part 2 Vision, objectives, strategies and performance indicators	8
9 Vision, objectives, strategies and performance indicators.....	8
10 Vision.....	8
11 Objectives.....	8
12 Strategies	9
13 Performance indicators.....	9
Part 3 Basis for water sharing	10
14 Basis for water sharing	10
15 Climatic variability.....	10
16 Recharge	10
Part 4 Environmental water provisions	11

17 Environmental water provisions	11
18 Planned environmental water	11
19 Planned environmental water	11
20 Adaptive environmental water	12
Part 5 Basic landholder rights	12
21 Basic landholder rights	12
22 Domestic and stock and native title rights	12
Part 6 Bulk access regime	13
23 Bulk access regime	13
Part 7 Requirements for water for extraction under access licences	14
24 Estimate of water requirements	14
Part 8 Rules for granting access licences	14
25 Rules for granting access licences	14
Part 9 Limits to the availability of water	16
Division 1 Long-term average extraction limits	16
26 Long-term average extraction limits	16
27 Variation of the long-term average extraction limits	16
Division 2 Available water determinations	17
28 Available water determinations	17
Part 10 Rules for managing access licences	18
Division 1 General	18
29 Rules for managing access licences	18
Division 2 Water allocation account management	18
30 Water allocation account management	18
31 Water allocation accounts	18
32 Accrual of water allocations	19
33 Annual accounting for water extraction	19

Division 3 Management of local impacts	20
34 Management of local impacts.....	20
35 Extraction interference between neighbouring bores.....	20
36 Water level management	21
37 Water quality management	22
38 Protection of groundwater dependent ecosystems	23
39 Extraction restrictions	24
40 Infrastructure failure.....	24
Part 11 Access licence dealing rules	25
41 Access licence dealing rules	25
42 Rules relating to constraints within a groundwater source	25
43 Rules for change of water source	25
44 Rules for conversion of access licence category.....	26
45 Rules for interstate access licence transfer.....	26
46 Rules for water allocation assignments between water sources	26
47 Rules for interstate assignment of water allocations.....	27
Part 12 Mandatory conditions	27
48 Mandatory conditions on access licences.....	27
49 Access licence conditions	27
50 Mandatory conditions on water supply work (bore) approvals	28
Part 13 Monitoring and reporting	30
51 Monitoring and reporting of performance indicators	30
Part 14 Amendment of this Plan	31
52 Amendment of this Plan	31
53 Amendment relating to planned environmental water	31
Dictionary	31
Schedule 2 Tomago Tomaree Stockton Groundwater Sources	34
Schedule 3 Contribution to relevant targets in the December 2002 State Water Management Outcomes Plan	

.....	34
Schedule 4 Contamination sources in the Tomago Tomaree Stockton Groundwater Sources	
.....	38
Schedule 5 High priority groundwater dependent ecosystems	38
Schedule 6 Rules and additional mandatory conditions for Hunter Water Corporation major utility	
.....	39
Appendix 1 Lower North Coast and Hunter Water Management Areas	50
Appendix 2 Location of maps	50
Appendix 3 Performance indicators	50
Appendix 4 (Repealed)	52

Water Sharing Plan for the Tomago Tomaree Stockton Groundwater Sources 2003



New South Wales

Part 1 Introduction

1 Name of Plan

This Plan is the *Water Sharing Plan for the Tomago Tomaree Stockton Groundwater Sources 2003* (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 2004 and ceases 10 years after that date.

4 Area to which this Plan applies

- (1) The area in respect of which this Plan is made is that area of land within the Lower North Coast and Hunter Water Management Areas known as the Tomago Tomaree Stockton Groundwater Sources (hereafter **these groundwater sources**) as shown on the map in Schedule 2.

Note—

The Lower North Coast and Hunter Water Management Areas are shown on the map in Appendix 1.

Note—

Maps referred to in this Plan may be inspected at offices of the Department of Land and Water Conservation listed in Appendix 2.

- (2) The following groundwater sources referred to in this Plan are shown on the map in Schedule 2:

- (a) Tomago Groundwater Source (hereafter **Tomago**),
- (b) Tomaree Groundwater Source (hereafter **Tomaree**), and
- (c) Stockton Groundwater Source (hereafter **Stockton**),

5 Waters to which this Plan applies

These groundwater sources include all water contained in the Tomago, Tomaree and Stockton sand aquifers.

6 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.

7 Effect on licences, authorities and permits under the [Water Act 1912](#)

- (1) This Plan applies from the date of commencement to those matters that are administered under the Act at that time.
- (2) This Plan applies to other matters from the date the relevant provisions of the Act are commenced.

Note—

To the extent possible, the rules embodied in this Plan will apply to matters administered under the [Water Act 1912](#) in the interim.

8 State Water Management Outcomes Plan

- (1) This Plan is consistent with the State Water Management Outcomes Plan (hereafter the **SWMOP**) in accordance with section 16 (1) (a) of the Act.
- (2) Schedule 3 identifies the relevant SWMOP targets applicable to this Plan and how this Plan contributes to those targets.

Note—

The SWMOP applying at the commencement of this Plan is that gazetted on 20 December 2002 under section 6 of the Act.

Part 2 Vision, objectives, strategies and performance indicators

9 Vision, objectives, strategies and performance indicators

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

10 Vision

The vision for this Plan is to manage the Tomago Tomaree Stockton Groundwater Sources to sustain their environmental, social and economic uses for the present population and future generations.

11 Objectives

The objectives of this Plan are to:

- (a) manage groundwater extractions from these groundwater sources within the extraction limit of each groundwater source to preserve and enhance terrestrial vegetation dependent on groundwater and ecosystems dependent on that vegetation,
- (b) manage groundwater extractions from these groundwater sources within the extraction limit of each groundwater source to preserve and enhance wetlands,
- (c) manage groundwater extractions from these groundwater sources within the extraction limit of each groundwater source to preserve the groundwater-related features of the coastal dune environment and associated ecosystems,
- (d) manage groundwater extractions from these groundwater sources within the extraction limit of each groundwater source to preserve hypogean ecosystems,
- (e) manage groundwater extractions from these groundwater sources within the extraction limit of each groundwater source to preserve hyporheic ecosystems,
- (f) within the extraction limit of each groundwater source, and where there is no reticulated water supply, maintain water supply priority for basic rights for existing and potential domestic and stock use,
- (g) within the extraction limit of each groundwater source, manage groundwater extractions to ensure that reliability of supply to Hunter Water Corporation is maintained,
- (h) within the extraction limit of each groundwater source, provide an agreed level of water sharing for mining, industrial, agricultural and aquaculture, commercial and recreation requirements,
- (i) within the extraction limit of each groundwater source, and where reticulated water supply is available from Hunter Water Corporation, maintain water supply for basic rights for existing and potential domestic and stock use, but at a lower priority than

objective (f),

- (j) manage groundwater extraction to ensure that sites of significance to Aboriginal communities are protected, and
- (k) manage groundwater extractions to ensure that such extractions do not cause any reduction in the beneficial use of these groundwater sources, or any local impacts on groundwater quality, including salt water intrusion or lateral movement of contamination.

12 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 an extraction limit for each groundwater source, taking into account the requirements of the environment,
- (d) establish rules for granting of access licences,
- (e) establish rules for determining the groundwater available from time to time under access licences,
- (f) establish water allocation account management rules,
- (g) establish rules for minimising local impacts of groundwater extraction on the water quality, groundwater dependent ecosystems, and between users,
- (h) establish the access licence dealing rules, and
- (i) establish the conditions that will apply to all access licences and water supply work (bore) approvals.

13 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 limit,
- (b) change in climate adjusted groundwater levels,
- (c) condition and extent of targeted groundwater dependent ecosystems, including vegetation and wetlands,
- (d) change in groundwater quality,

- (e) change in the economic benefits derived from groundwater extraction and use,
- (f) extent to which domestic and stock rights requirements have been met,
- (g) extent to which major utility requirements (where major utilities are involved in urban water provision) have been met,
- (h) extent to which native title rights requirements have been met, and
- (i) extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people.

Note—

Appendix 3 details the objectives to which these performance indicators relate and the methods for assessing these indicators.

Part 3 Basis for water sharing

14 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.

15 Climatic variability

- (1) This Plan recognises climatic variability and therefore that the level of natural 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 and water quality of these groundwater sources.

16 Recharge

- (1) The overall basis for water sharing in this Plan is the average annual recharge to each of these groundwater sources, estimated to be as follows:
 - (a) 35,700 megalitres per year (hereafter **ML/yr**) in Tomago,
 - (b) 8,600 ML/yr in Tomaree, and
 - (c) 20,000 ML/yr in Stockton.
- (2) Pursuant to section 45 (1) (b) of the Act, the average annual recharge for each groundwater source established in subclause (1) may be varied by the Minister after June 30 2008, following further recharge studies undertaken by the Minister.

Note—

The extent of the impact of this change on access by licence holders is limited by the provisions in clause 28.

Part 4 Environmental water provisions

17 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.

18 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 ensure that sites of significance to Aboriginal communities are protected (see clause 11 (j)).

- (1) This Plan establishes the following planned environmental water rules:
 - (a) the long-term average storage component of each groundwater source, minus basic landholder rights is reserved for the environment, and
 - (b) 30% of the average annual recharge to each groundwater source will be reserved for the environment, as follows:
 - (i) 10,700 ML/yr in Tomago,
 - (ii) 2,600 ML/yr in Tomaree, and
 - (iii) 6,000 ML/yr in Stockton.
- (2) Pursuant to section 45 (1) (b) of the Act, the Minister may vary the proportion of recharge reserved as the planned environmental water in subclause (1) after June 30 2008, based on further studies of groundwater ecosystem dependency undertaken by the Minister.

Note—

The extent of the impact of this change on access by licence holders is limited by the provisions in clause 28.

- (3) The Minister should consult with the Minister for the Environment before varying planned environmental water in accordance with subclause (2).

19 Planned environmental water

At the commencement of this Plan, there is no water committed for specified environmental purposes in accordance with section 8 (1) (b) of the Act.

20 Adaptive environmental water

- (1) At any time an access licence holder may, by a process determined by the Minister, commit all or part of their licence as adaptive environmental water.
- (2) The Minister may grant an access licence in a water source to which this Plan applies if the licence is subject to an adaptive environmental water condition and arises through water savings in the system made in that water source as referred to in section 8C (1) of the Act.
- (2A) The Minister may change the category or subcategory of an access licence in a water source to which this Plan applies if the licence is subject to an adaptive environmental water condition that arises through water savings as referred to in section 8D of the Act.
- (3) At the commencement of this Plan there are no access licences committed to an environmental purpose in accordance with section 8 (1) (c) of the Act.

Part 5 Basic landholder rights

21 Basic landholder rights

- (1) This Part is made in accordance with sections 5 (3) and 20 (1) (b) of the Act.
- (2) Should the 3 year average of extractions exceed the extraction limit specified in clause 26 by 5% or more, the Minister may consider placing restrictions on basic landholder rights extractions in conjunction with any determination of a reduction in the water allocation for access licences, and such consideration could include a differential restriction on basic rights users who also have access to reticulated water from Hunter Water Corporation.

Note—

The Minister may issue an Order under section 328 of the Act to restrict the exercise of domestic and stock basic rights from these groundwater sources to protect the environment, for reasons of public health, or to preserve existing basic landholder rights.

22 Domestic and stock and native title rights

Note—

It is not recommended that the water from these groundwater sources be consumed directly 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 are estimated to be a total of 6,000 ML/yr, comprising:
 - (a) 1,000 ML/yr in Tomago,
 - (b) 3,000 ML/yr in Tomaree, and

(c) 2,000 ML/yr in Stockton.

Note—

These volumes are based on a figure of 0.5 ML per property for domestic and stock rights usage.

(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 domestic and stock rights by existing landholders.

(3) At the commencement of this Plan there are no holders of native title rights and therefore the water requirements for native title rights are estimated to be a total of 0 ML/yr.

(4) This Plan recognises that the exercise of native title rights may increase during the term of this Plan.

Note—

An increase in native title rights may occur as a result of the granting of native title rights under the Commonwealth's [Native Title Act 1993](#).

Part 6 Bulk access regime

23 Bulk access regime

(1) This Part is made in accordance with section 20 (1) (e) 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

24 Estimate of water requirements

- (1) At the time of commencement of Part 2 of Chapter 3 of the Act, the requirements identified for water for extraction under access licences within these groundwater sources are estimated to be as follows:
 - (a) 1,300 ML/yr, plus 25,300 ML/yr averaged over 3 years for Hunter Water Corporation, in Tomago,
 - (b) 800 ML/yr, plus 3,700 ML/yr averaged over 3 years for Hunter Water Corporation, in Tomaree, and
 - (c) 3,100 ML/yr in Stockton.

Note—

The amount of water specified in this Part is an estimate of the water that licence holders desire to take under access licences. It is not a commitment to supply that water.

- (2) This Plan recognises that the total requirements for water for extraction under access licences within these groundwater sources may change during the term of this Plan as a result of:
 - (a) the granting, surrender, non-renewal or cancellation of access licences, or
 - (b) the volumetric quantification of the share components of existing access licences that are currently non-volumetric.

Part 8 Rules for granting access licences

25 Rules for granting access licences

- (1) This Part is made in accordance with sections 20 (2) (b) 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 and groundwater quality.

- (2) Access licences may be granted in these groundwater sources, subject to any embargo on the making of applications for access licences made under Chapter 3 Part 2 Division 7 of the Act.
- (3) The Minister should declare an embargo on the making of applications for access licences in these groundwater sources, other than access licences of the following kinds:

- (a) major utility access licences in Stockton,

Note—

Hunter Water Corporation's augmentation strategy for the life of this Plan is focused on further development of the Grahamstown surface water source supplies. Hunter Water Corporation has advised that it is unlikely to seek any increase in its component from the Tomago and Tomaree Groundwater Sources during the life of this Plan.

- (b) domestic and stock access licences,
 - (c) access licences where the individual share component does not exceed 5 ML/yr, and total share components granted under this subclause remain below 100 ML/yr for each groundwater source,
 - (d) specific purpose access licences for which applications are provided for under the regulations in accordance with section 61 (1) (a) of the Act, or
 - (e) aquifer (Aboriginal cultural) access licences up to 10 ML/yr per application.
- (4) In applying for a new access licence, the applicant must establish the purpose and circumstance relating to that access licence, and that the share or extraction component sought will be the minimum required to meet that purpose and circumstance.
- (5) Access licences granted under this Part cannot be extracted through a water supply work (bore) located in areas where the extraction authorised by the licence, plus the full extraction authorised by existing access licences through 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 3 of this Plan.
- (6) If an access licence share component applied for is significant, as determined by the Minister on the basis of the particular aquifer characteristics, the application will not be granted until a water supply work (bore) approval has been granted and the work constructed.
- (7) Once the water supply work (bore) is constructed and the results of a pumping test or its equivalent are supplied by the applicant, in the required form and to the specification of the Minister, the access licence may be granted.

- (8) The share component of the access licence granted under subclause (7) will be the proportion of the share component sought that the water supply work (bore) is capable of extracting without any adverse local impact as outlined in Part 10 Division 3 of this Plan.
- (9) Subclauses (4), (6), (7) and (8) do not apply to a new access licence arising from:
 - (a) section 61 (1) (c), of the Act, where the right has been acquired by auction, tender or other open market process, or
 - (b) an access licence dealing.
- (10) The major utility access licences may have the share component expressed as a volume in megalitres over any 3 year period.
- (11) (Repealed)

Part 9 Limits to the availability of water

Division 1 Long-term average extraction limits

26 Long-term average extraction limits

- (1) This Division is made in accordance with section 20 (2) (a) of the Act.
- (2) The long-term average extraction limit for each groundwater source each year of this Plan is the recharge established in clause 16, minus the proportion of recharge reserved as planned environmental water in clause 18, and is as follows:
 - (a) 25,000 ML/yr for Tomago,
 - (b) 6,000 ML/yr for Tomaree, and
 - (c) 14,000 ML/yr for Stockton.

27 Variation of the long-term average extraction limits

- (1) Pursuant to section 45 (1) (b) of the Act, the Minister may vary the long-term average extraction limits under clause 26 after 30 June 2008, as a result of:
 - (a) any change to the average annual recharge arising from clause 16, or
 - (b) any change to the planned environmental water arising from clause 18.
- (2) If there is any change to the long-term average extraction limits arising from subclause (1) then:
 - (a) the extraction limit in any of these groundwater sources will not increase by more than 10%, and

- (b) the extraction limit in any of these groundwater sources will not decrease by more than 5%.

Division 2 Available water determinations

28 Available water determinations

- (1) This Division is made in accordance with section 20 (2) (b) of the Act.
- (2) In making an available water determination under section 59 of the Act, the Minister should consider the following rules:
 - (a) water extraction in each groundwater source will be monitored in each water accounting year to determine if any growth in volumes extracted is occurring above the extraction limit established in clause 26, based on a comparison of the extraction limit against the average extraction within each groundwater source over that year and the preceding 2 years,

Note—

A water accounting year is defined in clause 33 (3).

- (b) if water that, pursuant to an access licence, is committed as adaptive environmental water to be left in the aquifer for environmental purposes, then for the purpose of subclause (a), the extraction should be assumed to be 100% of the available water determination,
- (c) if water that, pursuant to an access licence, is committed as adaptive environmental water to be extracted for an environmental purpose, then for the purpose of subclause (a), the extraction should be that measured through the approved water supply work (bore),
- (d) for the major utility access licences, an initial available water determination of 76,000 ML in Tomago, and 11,000 ML in Tomaree, should be made on 1 July 2003, and such determination should apply for a period of 3 water accounting years, and thereafter,
- (e) available water determinations for the major utility access licences should be no more than 25,300 ML/yr in Tomago, and 3,700ML/yr in Tomaree, with priority given to making this water available above the making of water available to all other categories of access licence, and such determinations should be made annually,
- (f) on 1 July 2003, an available water determination should be made for all aquifer access licences of 100% of the aquifer access licence share component, and such a determination should remain in place for 1 water accounting year,
- (g) in years 2 to 10 of this Plan, if the 3 year average of extraction in a groundwater source exceeds the long-term average extraction limit established in clause 26 by 5% or greater, the available water determination for the following water

accounting year for aquifer access licences in that groundwater source should be reduced by an amount that is assessed necessary by the Minister to return subsequent total water extraction to the long-term average extraction limit,

- (h) if the 3 year average of extraction in a groundwater source is less than 95% of the long-term average extraction limit established in clause 26, then the available water determination for aquifer access licences in that groundwater source shall be increased to such an extent as to allow extraction to increase to that extraction limit,
- (i) notwithstanding subclause (h), the available water determination shall not exceed 100% of total access licence share components, and
- (j) the available water determination calculated in accordance with subclauses (g) and (h) will apply to all aquifer access licences in a groundwater source, and shall be the same percentage for all access licences to which it applies.

Part 10 Rules for managing access licences

Division 1 General

29 Rules for managing access licences

This Part is made in accordance with sections 20 (2) (b), 21 (a) and 20 (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 2 Water allocation account management

30 Water allocation account management

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

31 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 allocations 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.

32 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 28.

33 Annual accounting for water extraction

- (1) Water taken from these groundwater sources will be accounted for at least annually.
- (2) Water taken by an approved water supply work (bore) nominated by an access licence is taken to be extracted and will be periodically debited against the access licence water allocation account.
- (3) A water accounting year shall be the 12 month period commencing 1 July.
- (4) In any one water accounting year, subject to local impact management restrictions arising from Part 10, Division 3 of this Plan, water taken from any one of these groundwater sources under an aquifer access licence may not exceed a volume consisting of:
 - (a) 120% of the access licence share component,
 - (b) plus any water allocations assigned from another licence under section 71T of the Act in that year, and
 - (c) minus any water allocations assigned to another licence under section 71T of the Act in that year.
- (5) Total water in any aquifer access licence account at any time may not exceed a volume consisting of:
 - (a) 120% of the access licence share component,
 - (b) plus any water allocations assigned from another licence under section 71T of the Act in that year, and
 - (c) minus any water allocations assigned to another licence under section 71T of the Act in that year.
- (6) A maximum of 20% of any aquifer access licence share component may be carried forward in a water allocation account from one water allocation accounting year to the next.
- (7) A water allocation account shall remain at or above zero at all times.
- (8) Subclauses (4), (5) and (6) do not apply to major utility access licences.
- (9) The preceding subclauses do not apply to major utility access licences.
- (10) The water allocation account management rules for major utility access licences are

set out in Schedule 6.

Division 3 Management of local impacts

34 Management of local impacts

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

35 Extraction interference between neighbouring bores

- (1) To minimise interference between extraction under different access licences in each groundwater source, extraction authorised by an access licence will not be permitted from a water supply work (bore) within:
 - (a) 400 metres of an approved water supply work (bore) nominated by another access licence, or
 - (b) 200 metres of an approved water supply work (bore) from which basic landholder rights water is being extracted.
 - (2) Notwithstanding the provisions of subclause (1), the Minister may, upon application by an access licence holder, vary the distance restrictions specified in subclause (1) if:
 - (a) an hydrogeological study undertaken by the licence holder, and assessed as adequate by the Minister, demonstrates minimal potential for adverse impacts on existing licensed extraction,
 - (b) all potentially affected access licence holders have been notified by the proponent, and
- Note—**
- Potentially affected access licence holders are typically neighbouring access licence holders and those in the near vicinity.
- (c) there is a process for remediation in the event that any adverse impact occurs in the future, specified as conditions on the licence.
- (3) Subclause (1) does not apply to:
 - (a) extraction under existing access licences until such time as the relevant water supply work (bore) is replaced, or
 - (b) a major utility water supply work.

Note—

The intention of this clause is to minimise the impact of extraction under new access licences on extraction under existing access licences. It is intended to develop models to support hydrogeological assessment of the adverse impacts of new groundwater extractions on existing licensed extraction.

36 Water level management

- (1) The Minister may declare that, in order to protect water levels within these groundwater sources, local access rules are to apply in a defined area known as a local impact area.
- (2) In any local impact area identified under subclause (1), extraction from a water supply work (bore) nominated by an access licence, not being extraction authorised by a water supply work approval granted to the holder of a major utility access licence, shall be restricted, based on evaluations from monitoring bores or other predictive models where monitoring bores are not installed, as follows:
 - (a) when groundwater levels remain above, or recover to, the 80% exceedance level, extraction from water supply works (bores) nominated by an access licence in the area will be in accordance with the water supply work approval and access licence conditions, and annual available water determinations,
 - (b) when groundwater levels are between the 80% and the 90% exceedance levels, quarterly volumes extracted from water supply works (bores) nominated by an access licence in the affected area shall not exceed the access licence share component times 0.2 megalitres,
 - (c) when groundwater levels are between the 90% and the 95% exceedance level, quarterly volumes extracted from water supply works (bores) nominated by an access licence in the affected area shall not exceed the access licence share component times 0.125 megalitres, and
 - (d) when groundwater levels are at or below the 95% exceedance level, extraction shall cease from water supply works (bores) in the affected area nominated by an access licence.
- (3) Notwithstanding the provisions of subclause (2), the Minister may, upon application by an access licence holder, vary the particular extraction restrictions for such period as may be required for the irrigation of permanent plantings or in cases where the extraction of groundwater is essential for continuation of any industrial or commercial operations and where a cease to pump direction would result in significant social or economic consequences.
- (4) Any variation approved by the Minister in accordance with subclause (3) must ensure that the integrity of any associated groundwater dependent ecosystem is not compromised, that water quality is not threatened, and that other authorised water users are not adversely impacted.
- (5) The preceding subclauses do not apply to major utility access licences.
- (6) The water level management rules for the major utility access licences are set out in Schedule 6.

Note—

Water supply work (bore) approval and access licence holders will be advised as soon as possible if extraction restrictions are going to apply in accordance with this subclause.

Note—

This clause 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. The Department of Land and Water Conservation will identify monitoring bores, and determine the method for specifying an affected area.

37 Water quality management

- (1) The beneficial use of these groundwater sources is raw water for drinking and ecosystem protection.

Note—

There are localised areas within these groundwater sources where the beneficial use is of a lower class because of the impacts of surface activities. It is not recommended that water direct from these groundwater sources be consumed by humans without prior treatment. Land use activities may have resulted in pollution of the groundwater in some areas.

- (2) Water quality decline will be deemed unacceptable if extraction causes, or is likely to cause, water quality to decline to a lower beneficial use class, as prescribed within the framework described in the NH&MRC/ARMCANZ *Australian Drinking Water Guidelines* (1996), and the ANZECC/ARMCANZ *Guidelines for Fresh and Marine Water Quality* (2000).
- (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, and an unacceptable decline in water quality will be based on:
- (a) a site inspection, and
 - (b) water analysis from bores within the local impact area.
- (4) If water quality decline is resulting from extraction, extraction from all water supply works (bores) within a local impact area declared under subclause (3) nominated 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 the groundwater source.
- (5) In the case of subclause (4), the Minister may:
- (a) impose by Order a reduction in yearly, quarterly, or weekly extraction on holders of access licences in the affected areas, and
 - (b) undertake to monitor for changes using monitoring bores and assess if further extraction limitations are necessary.
- (6) Additional water quality management rules for the major utility access licences are set out in Schedule 6.

- (7) Construction of a new water supply work (bore) will not be permitted:
- (a) within 100 metres of a contamination source, unless the proponent can demonstrate to the Minister's satisfaction that a lesser distance will result in no more than minimal harm to the groundwater source, and that extraction will not impact on the environment or cause a threat to public health as advised by the Minister for Health, or
 - (b) within a greater distance than in subclause (a) that the Minister nominates in order to ensure that no more than minimal harm will occur to the groundwater source, and that extraction will not impact on the environment or cause a threat to public health as advised by the Minister for Health.
- (8) An existing water supply work (bore) within 100 metres of a contamination source will be able to continue extraction of groundwater at levels equivalent to 2002/03 access licence share components nominating that work, subject to any restrictions arising from subclause (4).
- (9) Extraction of groundwater from a new water supply work (bore) for any purpose except basic landholder rights between 100 metres and 500 metres of a contamination source, will require:
- (a) an application to the Minister by the licence holder providing evidence that no drawdown of the groundwater within 100 metres of the contamination source will occur,
 - (b) the Minister to assess the application as adequate, and
 - (c) the Minister to approve the application.
- (10) Schedule 4 lists contamination sources in these groundwater sources.
- (11) Subclauses (7), (8) and (9) may be applied by the Minister in relation to contamination sources not on Schedule 4, based on the results of a site inspection or other relevant information provided to the Minister.
- (12) Pursuant to section 45 (1) (b) of the Act, the Minister may vary Schedule 4 by inclusion or deletion of a contamination source based on the results of a site inspection or other relevant information provided to the Minister on that contamination source.

Note—

Schedule 4 is only to be used in relation to the granting of access licences and water supply work (bore) approvals under the [Water Management Act 2000](#).

38 Protection of groundwater dependent ecosystems

- (1) Extraction of groundwater from a new or replacement water supply work (bore),

except for a replacement water supply work (bore) that is part of a bore network, is excluded within 40 metres of high priority groundwater dependent ecosystems, or any river.

- (2) The location and rate of extraction from a new or replacement water supply work (bore) outside of high priority groundwater dependent ecosystems, except for a replacement water supply work (bore) that is part of a bore network, shall be such that there is negligible drawdown at the outside edge of the 40 metre buffer zone as determined by the Minister.
- (3) High priority groundwater dependent ecosystems include the following, as shown in Schedule 5:
 - (a) swamp forest,
 - (b) swamp heath—woodland, and
 - (c) wetlands, including those that provide habitat for threatened species, such as *Litoria aurea*.
- (4) Pursuant to section 45 (1) (b) of the Act, the Minister may identify further high priority groundwater dependent ecosystems and include them in Schedule 5 after July 1 2008 based on further studies of groundwater ecosystem dependency undertaken by the Minister.
- (5) The Minister should consult with the Minister for the Environment before adding further high priority groundwater dependent ecosystems to Schedule 5.

39 Extraction restrictions

The Minister may, in the event of local impact restrictions arising from this Division, impose by Order a reduction in yearly, quarterly, weekly or daily extraction rates from water supply works (bores) in the affected area.

40 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

41 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 on 27 December 2002 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 access licence dealing rules in this Plan to prevail.

42 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 a 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, unless provided for in clause 46, or
 - (b) the dealing would result in the total extraction under access licences through nominated water supply works in the area, plus basic landholder rights extraction, causing any adverse local impact in accordance with Part 10 Division 3 of this Plan,
 - (c) the dealing relates to new licences arising from applications under Clause 25 (3) of this Plan.

43 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 a water supply work (by a dealing under section 71W of the Act) in the receiving water source before extraction can commence.

- (2) Dealings under section 71R of the Act that change the water source to which an access licence applies are prohibited in these groundwater sources, except as provided for in this clause.
- (3) An access licence with a share component specifying one of these groundwater sources may be cancelled and a new licence issued specifying another of these groundwater sources only if the total share components of all access licences in the groundwater source in which the access licence is issued remains below the extraction limit for that groundwater source established in clause 26.
- (4) The volume of the share component on a licence issued under a dealing provided for in subclause (3) is to be the volume of the cancelled access licence share component.

44 Rules for conversion of access licence category

- (1) This clause relates to dealings under section 71O of the Act.
- (2) Dealings that result in conversion of an access licence of one category to an access licence of another category are prohibited in these groundwater sources, except as provided for in this clause.
- (3) A major utility access licence in one of these groundwater sources may be cancelled, and an aquifer access licence issued in that same groundwater source.
- (4) An aquifer access licence in one of these groundwater sources may be cancelled and a major utility access licence issued in that same groundwater source.
- (5) The volume of the share component on a licence issued under this clause is to be the volume of the cancelled access licence share component.

45 Rules for interstate access licence transfer

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

46 Rules for water allocation assignments between water sources

- (1) This clause relates to dealings under section 71T of the Act for assignment of water allocations between water sources.
- (2) Dealings that assign water allocations between access licences in other water sources and access licences in these groundwater sources are prohibited.
- (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 may be permitted only if:

- (a) the total water allocations credited to all access licences in the groundwater source to which the water allocation is assigned remains below the extraction limit of that groundwater source established in clause 26 less the requirements for basic rights as established in clause 22 (1), and
- (b) the assignment would not result in the total extraction of credited water allocations through nominated water supply works in the area, plus basic landholder rights extraction, causing adverse local impact in accordance with Part 10 Division 3 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.

47 Rules for interstate assignment of water allocations

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

Part 12 Mandatory conditions

48 Mandatory conditions on access licences

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

49 Access licence conditions

- (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 the share component of the access licence,
 - (b) the specification of the extraction component of the access licence,
 - (c) the requirement that all taking of water under the access licence will be subject to the available water determinations,
 - (d) the requirement that all taking of water under the access licence will be subject to any local impact management restrictions established in this Plan,
 - (e) the requirement that all taking of water under the access licence will be subject to the account management rules established in this Plan,

- (f) the requirement that water may only be taken under the access licence by the water supply work (bore) nominated by the access licence,
 - (g) the taking of water in accordance with the access licence may only occur if the resulting debit from the access licence water allocation account will not exceed the volume of water allocation remaining in the account, and
 - (h) any other conditions required to implement the provisions of this Plan.
- (2) The major utility access licences shall have additional conditions to give effect to Schedule 6.
- (3) Pursuant to section 45 (1) (b) of the Act, the Minister may amend the requirements in Schedule 6 following the review of the major utility access licences at 5 year intervals.
- (4) All aquifer (Aboriginal cultural) access licences shall have mandatory conditions that only allow the taking of water by Aboriginal persons or communities for personal, domestic and communal purposes including the purposes of drinking, food preparation, washing, manufacturing traditional artefacts, watering domestic gardens, cultural teaching, hunting, fishing, and gathering, and for recreational, cultural and ceremonial purposes.

50 Mandatory conditions on water supply work (bore) approvals

Note—

In accordance with the Act, actual extraction of groundwater can only be undertaken through an approved water supply work. Standards and conditions relating to the construction, maintenance, operation and decommissioning of these works are particularly important. If not properly adhered to, the works themselves can be a conduit for contamination of the groundwater source.

- (1) 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 ensure that access to the resource is not unacceptably impacted by other

- authorised extractions,
- (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 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 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 the groundwater source,
 - (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.

(2) Additional mandatory conditions on water supply works for the Hunter Water Corporation major utility access licences are specified in Schedule 6.

Part 13 Monitoring and reporting

51 Monitoring and reporting of performance indicators

The monitoring of the performance indicators specified in clause 13 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 relevant natural resource management standards and targets in the catchment management area (as referred to in section 5 of the *Catchment Management Authorities Act 2003*).

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 catchment management area.

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 the water management committee, where one exists.

Note—

Implementation Program

In accordance with section 51 of the Act, the Minister may establish an Implementation Program that sets out the means by which the provisions of this Plan are to be achieved.

It is proposed that the Minister establish an Implementation Program for this Plan. Pursuant to section 51 (5) of the Act, the Implementation Program is to be reviewed annually by the Minister to determine whether it is effective in implementing this Plan.

The results of the review of the Implementation Program are included in the annual report for the Department.

Part 14 Amendment of this Plan

52 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 16 in respect to recharge,
 - (b) clause 18 in respect to planned environmental water,
 - (c) clause 27 in respect to long-term average extraction limits,
 - (d) clause 37 in respect to contaminated sources,
 - (e) clause 38 in respect to high priority groundwater dependent ecosystems, or
 - (f) clause 49 in respect to major utility access rules set out in Schedule 6,
 - (g) Schedule 6, clause 4 in respect to:
 - (i) any water allocation account management rules for the Hunter Water Corporation major utility access licence in Stockton,
 - (ii) water level and water quality management rules for the Hunter Water Corporation major utility access licence.

53 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.

Dictionary

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

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

AHD is the Australian Height Datum, a height measurement.

ANZECC is the Australian and New Zealand Environment and Conservation Council.

ARMCANZ is the Agricultural and Resource Management Council of Australia and New Zealand.

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.

buffer zone is an area surrounding a groundwater dependent ecosystem or other feature (such as an area of low quality) within which extraction, or the impact of extraction, is restricted.

contamination sources, relates to activities that have resulted in the presence of a substance in the groundwater source at a concentration above that at which the substance is normally present, and at a level that presents a risk of harm to human health or reduces the beneficial use of a groundwater source.

Note—

Contamination sources can arise from a range of industrial and other land based activities. The impact of some activities will be temporary, while others pose a risk over a much longer timeframe. In some instances, particularly when the land use has involved hazardous substances, the source may be threatening to humans, or may affect the current or future beneficial uses of the groundwater source. Determining in any particular case whether or not contamination presents a significant risk of harm can be complex and difficult. It involves considerations such as the type, nature, quantity and concentration of contaminants, how they manifest themselves and the nature of their impact in the particular groundwater source. It also involves broader questions such as the current use of the groundwater source, who might be exposed to the contamination under that use, and whether they would be exposed.

drawdown refers to a lowering of the surface that represents the level to which water will rise in cased bores. Natural drawdown may occur due to seasonal climatic changes. Groundwater pumping may also result in seasonal and long-term drawdown.

exceedance level means the level that, under natural conditions, the water level at a monitoring point would have been higher than for a specified percentage of the time. Natural in this context means the levels established by monitoring bores not appreciably impacted by extraction.

extraction limit is the amount of the long-term average annual recharge and storage that can be extracted, on average, each water accounting year.

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 wholly or partially determined by groundwater.

hypogean means located or operating beneath the earth's surface.

hyporheic zone is the fluctuating zone of water exchange between the river and the groundwater.

major utilities are entities that are listed in Schedule 2 of the Act.

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

NH&MRC is the National Health and Medical Research Council.

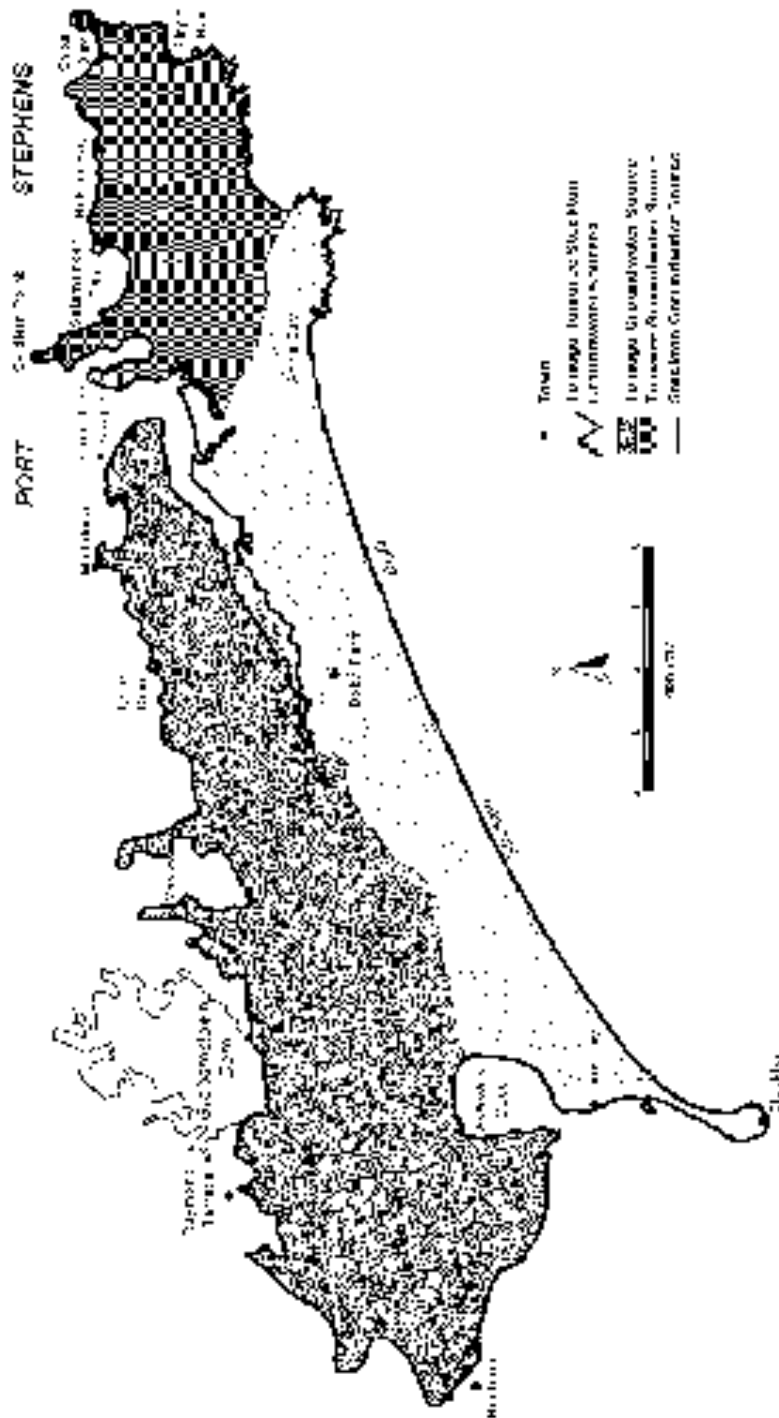
recharge is the addition of water, usually by infiltration, to an aquifer.

RL is reduced level.

share component is the share component of an access licence.

watertable is the upper surface of an unconfined aquifer.

Schedule 2 Tomago Tomaree Stockton Groundwater Sources



Schedule 3 Contribution to relevant targets in the December 2002 State Water Management Outcomes Plan

Levels of assessed contribution:

FULL—contributes to target in full

HIGH—while not fully contributing to target, there is a good level of contribution

PARTIAL—goes some way to contributing to the target

LOW—only small degree of contribution to target

Relevant Target	Level of contribution	Comments
<p>Target 1e The long term average annual extractions for groundwater limited (or being phased down) to an ecologically sustainable level (the sustainable yield) as determined by detailed assessment of each groundwater source and consultation with the relevant management committee. In the absence of such an assessment, the following to apply: 100% of average annual recharge for a groundwater source where there is no significant ecosystem dependency; 70% of average annual recharge where there is significant ecosystem dependency</p>	FULL	<ul style="list-style-type: none"> This Plan clearly sets out the sustainable yield (SY) or extraction limit as 70% of estimated recharge in each groundwater source.
<p>Target 1f Rules for adjustments to future available water determinations in the event that the extraction limits are exceeded, clearly prescribed in consultation with the relevant management committee, and acted upon</p>	FULL	<ul style="list-style-type: none"> Rules set out in Part 9 of this Plan. This Plan clearly sets out the planned environmental water as 30% of estimated recharge in each groundwater source.
<p>Target 2 All management plans incorporating mechanisms to protect and restore aquatic habitats, and the diversity and abundance of native animals and plants, with particular reference to threatened species, populations and communities and key threatening processes</p>	HIGH	<ul style="list-style-type: none"> This Plan sets out extraction rules/buffer zones to limit local environmental impacts of extraction (Part 10). Part 10 also identifies high priority groundwater dependent ecosystems. This Plan provides for variation in planned environmental water rules in Year 6 based on studies of groundwater ecosystem dependency.

Target 5 Access rights for water access licensees clearly and legally specified in terms of share and extraction components HIGH

- This Plan establishes transparent extraction limits and access rules.
- This Plan embargos new access licence applications excepting those less than 5ML, up to a total of 100ML per groundwater source. These could have a minor impact on the value of existing access licences in Tomago and Tomaree where current licence volumes already exceed the extraction limits.
- The local extraction rules (Part 10) means that future rights will not be exclusive but affected by the location of other water supply works. Access licences with existing bores will have priority over licences requiring new bores.

Target 6a For groundwater sources, the total volume of water specified on access licences reduced over the term of a water sharing plan to no more than 125 of the Sustainable Yield FULL

- The total licensed volumes for each groundwater source are not more than 125% of SY (extraction limit).

Target 7 Mechanisms in place to enable Aboriginal communities to gain an increased share of the benefits of the water economy HIGH

- This Plan makes no special provision for access to water for Aboriginal communities.
- This Plan provides general market opportunity.
- This Plan allows for applications for new access licences of up to 5ML/yr, but gives no priority of access.
- The Government has established alternative mechanisms to address this target

Target 10 Degree of connectivity between aquifers and rivers assessed, and zones of high connectivity mapped to enable baseflows to the river to be maintained or improved HIGH

- Baseflows to surface rivers and tidal rivers (eg Tilligerry Creek) are recognised as groundwater dependent ecosystems and therefore subject to a 40 metre buffer zone.
- Adequacy of this is not known but this Plan provides for this to be reviewed in Year 6.

<p>Target 11 Groundwater dependent ecosystems identified and mapped for all priority aquifers, and the ecological water requirements assessed to enable local groundwater extraction rates and/or Sustainable Yields to be reviewed</p>	<p>HIGH</p>	<ul style="list-style-type: none"> • Types of dependent ecosystem have been mapped, but ecological water requirements are not known. • This Plan sets out extraction rules/buffer zones to limit local environmental impacts of extraction on ecosystems (Part 10). • Part 10 identifies high priority groundwater dependent ecosystems. • This Plan provides for variation in planned environmental water rules in Year 6 based on further studies of groundwater ecosystem dependency.
<p>Target 12 Measures in place in all water sources subject to a gazetted water sharing plan to protect domestic and stock rights from the impact of other water access and use</p>	<p>PARTIAL</p>	<ul style="list-style-type: none"> • This Plan has identified the volumes necessary to meet basic domestic and stock requirements.
<p>Target 13 The knowledge sharing, training and resources necessary to ensure that Aboriginal people have the capacity to be effectively involved in water management identified and addressed</p>	<p>HIGH</p>	<ul style="list-style-type: none"> • Aboriginal community representatives have been involved in development of this Plan. • A workshop was held with broader members of Aboriginal community to input ideas into development of this Plan.
<p>Target 14 Water sources, ecosystems and sites of cultural or traditional importance to Aboriginal people identified, plans of management prepared, and measures put in place to protect and improve them</p>	<p>HIGH</p>	<ul style="list-style-type: none"> • This Plan does not address specific Aboriginal cultural or traditional requirements but has identified dependent ecosystems of particular importance. • This Plan does provide extraction rules to protect these dependent ecosystems which should assist in protecting Aboriginal values.
<p>Target 15 At least 90 percent of approved water management works for the extraction of surface or ground waters (excepting domestic and stock bores) metered and reported in each water source that is subject to a gazetted water sharing plan</p>	<p>HIGH</p>	<ul style="list-style-type: none"> • All major utility extraction metered, and most other licensed extraction.
<p>Target 16a All share components of access licences tradeable</p>	<p>FULL</p>	<ul style="list-style-type: none"> • This Plan provides for trading of access licences and water allocations.

Target 16f Zones established where necessary for environmental protection and limits/constraints on water dealings in them made explicit

FULL

- This Plan establishes three groundwater sources and the constraints to trading between these is based on share component levels versus the extraction limit in each groundwater source.

Target 35 All management plans incorporating water quality objectives that have considered Government approved Interim Environmental Objectives, the current Australian and New Zealand Environment and Conservation Council Guidelines and the recommendations of relevant Healthy Rivers Commission Inquiries

HIGH

- This Plan includes a water quality objective and recognises the beneficial use as raw water for drinking purposes. Part 10 specifically addresses water quality.

Target 38 Aquifer water quality vulnerability zones mapped and extraction limits reviewed to reduce the risk of lateral intrusion of poor quality water

PARTIAL

- No vulnerability mapping of area to date although this Plan provides for a schedule of contamination sources, and rules to manage the movement of poor quality water.

Schedule 4 Contamination sources in the Tomago Tomaree Stockton Groundwater Sources

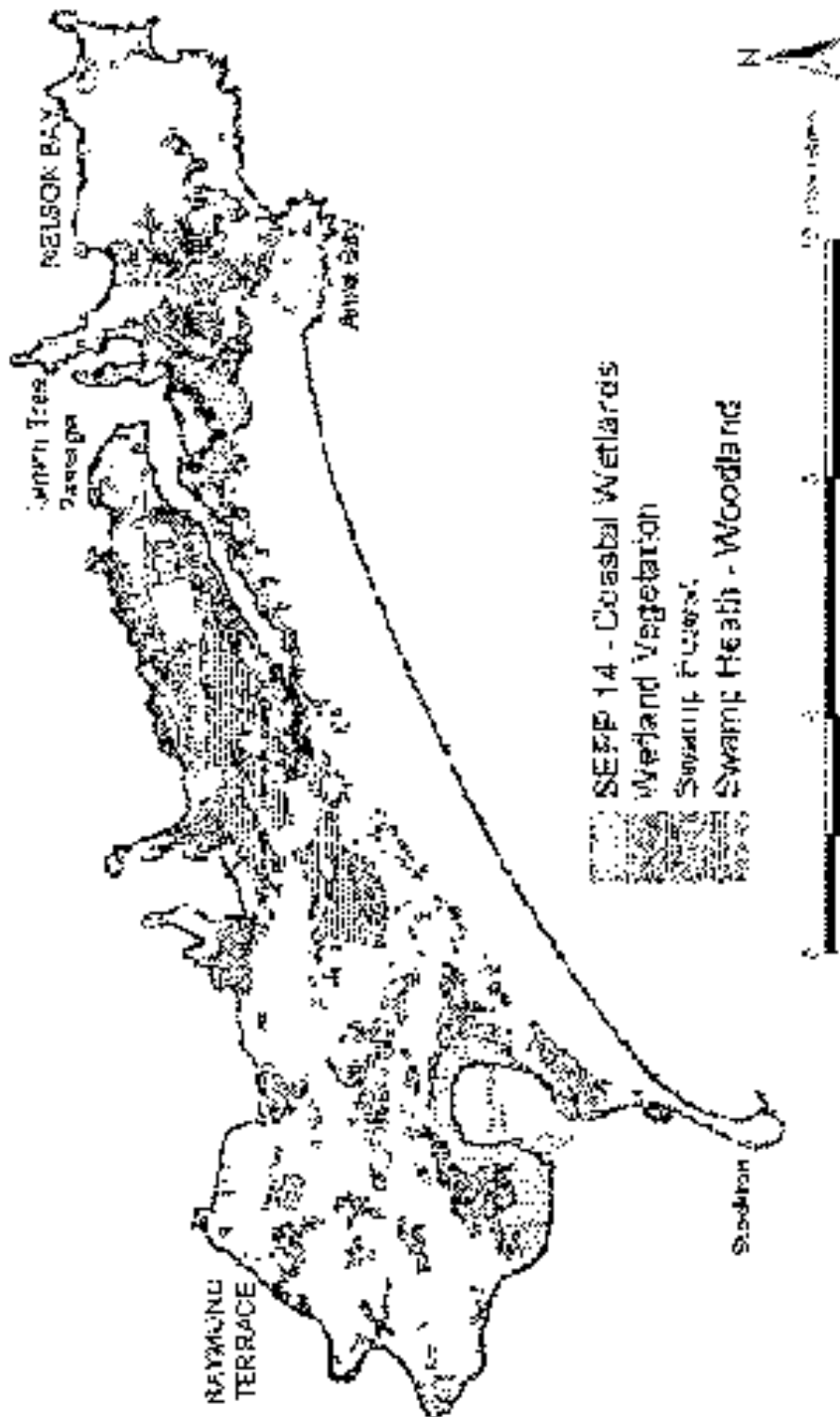
Note—

The contamination sources listed in this Schedule may change during the period of this Plan. The offices of the Department of Land and Water Conservation, shown in Appendix 2, should be contacted for a current list.

Schedule 5 High priority groundwater dependent ecosystems

Note—

The high priority groundwater dependant ecosystems listed in this Schedule may change during the period of this Plan. The offices of the Department of Land and Water Conservation, shown in Appendix 2, should be contacted for a current list.



Schedule 6 Rules and additional mandatory conditions for Hunter Water Corporation major utility

1 Water allocation account management rules for Hunter Water Corporation major utility access licences

- (1) In any 3 water accounting years, subject to local impact management restrictions

arising from this Schedule, water taken from a groundwater source under major utility access licences may not exceed a volume consisting of:

- (a) 76,000ML in Tomago (and only from within the Tomago Sandbeds Special Area), and

Note—

The Tomago Special Area is shown on the *Tomago Special Area and Monitoring Bores* map attached to this Schedule.

- (b) 11,000ML in Tomaree (and only from within the Nelson Bay Special Area),

Note—

The Nelson Bay Special Areas are shown on the *Nelson Bay Special Area and Tomaree Monitoring Bores* map attached to this Schedule.

- (c) plus any water allocations assigned from another licence under section 71T of the Act in that year,
- (d) plus any water allocations recredited in accordance with section 76 of the Act in that year, and
- (e) minus any water allocations assigned to another licence under section 71T of the Act in that year.

- (2) Total water in any major utility access licence account at any time may not exceed a volume consisting of:

- (a) 76,000ML in Tomago (and only from within the Tomago Sandbeds Special Area),
- (b) 11,000ML in Tomaree (and only from within the Nelson Bay Special Area),
- (c) plus any water allocations assigned from another licence under section 71T of the Act in that year,
- (d) plus any water allocations recredited in accordance with section 76 of the Act in that year, and
- (e) minus any water allocations assigned to another licence under section 71T of the Act in that year.

- (3) A water allocation account shall remain at or above zero at all times.

2 Water level and water quality management rules for Hunter Water Corporation major utility access licences

- (1) The rate of extraction of groundwater from Tomago (and only from within the Tomago Sandbeds Special Area) must not exceed 200 megalitres per day.
- (2) The major utility (Hunter Water Corporation) must undertake the following operational

monitoring in the Tomago (within the Tomago Special Area):

- (a) approximately weekly, that is at intervals of no more than 10 days, measure the groundwater level at monitoring bore IP109 (nominated level RL 5.2 metres Australian Height Datum, hereafter ***m AHD***), and
- (b) once every month, measure the groundwater levels at the following 4 monitoring bores:
 - (i) bore number 40A (nominated level RL 0.9m AHD),
 - (ii) bore number SK3534 (nominated level RL 2.5m AHD),
 - (iii) bore number SK3491 (nominated level RL 4.0m AHD), and
 - (iv) bore number 284 (nominated level RL 6.0m AHD),
- (c) maintain hydrographs showing the trends in groundwater levels since 1990 at monitoring bore IP109 and at the 4 observation bores monitored in accordance with subclause (2) (b),
- (d) once every 3 months, measure the groundwater levels at the following 32 monitoring bores: SK5266, 295, SK3505, SK4932, SK3514, SK3530, SK4934, SK4939, SK5387, 230A, SK3499, SK5819, SK5992, F8, 9-SE-4000, SK3524, 287, SK5389, SK3525, SK1709, SK3516, SK3493, SK3523, SK4936, SK4935, SK3492, SK4933, SK3487, SK3481, SK3500, P2, and P5,
- (e) once every 3 months, measure the groundwater level and salinity profile at the following 15 monitoring bores: BL501, BL502, BL503, BL84, SK3508, SK5676, BL504, BL505, BL506, SK3515, BL507, BL508, BL69, BL509, and BL37,
- (f) measure the salinity (electrical conductivity (EC)) in subclause (2) (e) at each of the nominated monitoring bores at 2 metre intervals measured from the top of the bore casing to the base of the bore, and
- (g) measure the electrical conductivity ($\mu\text{S}/\text{cm}$) monthly, and iron (total inmg/L), manganese (mg/L), and arsenic (mg/L) weekly, at each pump station when operating.

Note—

The Tomago monitoring bores are shown on the *Tomago Special Area and Monitoring Bores* map attached to this Schedule.

- (3) If the groundwater level in any 2 or more of the monitoring bores in Tomago, monitored in accordance with subclauses (2) (a) and (2) (b), falls below the levels nominated in those subclauses, the major utility must:
 - (a) advise the Regional Director of the Department of Infrastructure, Planning and

Natural Resources of the situation in writing within 7 days of the reading, or readings, being taken,

- (b) increase the frequency of the monitoring in subclause (2) (b) to once every 2 weeks,
 - (c) once every month, measure the groundwater level at the following 9 monitoring bores: SK5266, SK1709, SK3505, SK4932, SK3514, SK3530, SK4934, SK4939, and SK5387, and
 - (d) maintain monitoring in accordance with this subclause until groundwater levels are higher than the nominated levels in subclauses (2) (a) and (2) (b), and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the monitoring regime prescribed subclause (2).
- (4) If any EC measurement taken in accordance with subclause (2) (e) or (2) (f) from monitoring bores BL503, SK5676, BL506, BL508, or BL37, excluding any measurement taken within 2m of the aquifer basement material, is greater than or equal to 10,000 μ S/cm, the major utility (Hunter Water Corporation) must:
- (a) inform the Regional Director of the Department of Infrastructure, Planning and Natural Resources as soon as practicable,
 - (b) increase the frequency of the monitoring in subclauses (2) (e) and (2) (f) to once every two weeks, and
 - (c) maintain monitoring in accordance with this subclause until EC measurements fall below 10,000 μ S/cm, and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the monitoring regime prescribed subclause (2).
- (5) If, at any pump station in Tomago, consecutive measurements of one or more of the determinands specified in subclause (2) (g) exceed the rolling mean plus two standard deviations, the major utility (Hunter Water Corporation) must report the exceedance in the Annual Water Licence Report, and include in that report:
- (a) the date and pumping station, or station, where the exceedance occurred,
 - (b) the level of exceedance,
 - (c) an assessment of the risk of harm or damage to Hunter Water Corporation infrastructure and/or the environment or any other parties,
 - (d) any action taken to prevent, control or mitigate the exceedance, and
 - (e) any action that has been taken or will be taken to prevent the re-occurrence of the exceedance.

- (6) The major utility must undertake the following operational monitoring in Tomaree:
- (a) approximately weekly, that is at intervals of no more than 10 days, measure the groundwater level at monitoring bore SK1273B,
 - (b) once every 3 months, measure the groundwater levels and salinity levels at the following 9 monitoring bores: SW1, SW8, SW2, BL40, BL68, BL206 (at Shoal Bay),
 - (c) once every 3 months, measure the groundwater levels and salinity levels (EC) at the following 4 monitoring bores: SW4, SW5, SW6, and SW7 (at Fingal Bay), and
 - (d) the salinity measurements specified in subclauses (6) (b) and (6) (c) shall be taken at 2m intervals measured from the top of the bore casing to the base of the bore,
 - (e) once every 3 months measure the groundwater level at monitoring bore SK3913,
 - (f) measure the electrical conductivity ($\mu\text{S}/\text{cm}$) quarterly, and pH (pH units) daily, at the inlet to the water treatment plant for Glovers Hill and Anna Bay, when operating.

Note—

The Tomaree monitoring bores are shown on the *Nelson Bay Special Area and Tomaree Monitoring Bores* map attached to this Schedule.

- (7) If the monitoring specified in subclause (6) (f) with respect to pH gives 14 consecutive measurements that exceed the rolling mean plus or minus 0.5 pH units, or with respect to EC gives 3 consecutive measurements that exceed the rolling mean plus two standard deviations, the major utility (Hunter Water Corporation) must report the exceedance in the Annual Water Licence Report, and include in that report:
- (a) the date and water treatment plant or plants where the exceedance occurred,
 - (b) the level of exceedance,
 - (c) an assessment of the risk of harm or damage to Hunter Water Corporation infrastructure and/or the environment or any other parties,
 - (d) any action taken to prevent, control or mitigate the exceedance, and
 - (e) any action that has been taken or will be taken to prevent the re-occurrence of the exceedance.
- (8) If any EC measurement taken in accordance with subclause (6) (b) from monitoring bores SW2 or BL40, excluding any measurement taken within 2m of the aquifer basement material, is greater than or equal to $10,000\mu\text{S}/\text{cm}$, the major utility (Hunter Water Corporation) must:
- (a) inform the Regional Director of the Department of Infrastructure, Planning and

Natural Resources as soon as practicable,

- (b) increase the frequency of the monitoring in subclause (6) (b) to once every two weeks, and
 - (c) maintain monitoring in accordance with this subclause until EC measurements fall below 10,000 μ S/cm, and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the monitoring regime prescribed subclause (6).
- (9) If any EC measurement taken in accordance with subclause (6) (c) from monitoring bores SW5 or SW7, excluding any measurement taken within 2m of the aquifer basement material, is greater than or equal to 10,000 μ S/cm, the major utility (Hunter Water Corporation) must:
- (a) inform the Regional Director of the Department of Infrastructure, Planning and Natural Resources as soon as practicable,
 - (b) increase the frequency of the monitoring in subclause (6) (c) to once every two weeks,
 - (c) measure the watertable level at SK5059d every two weeks,
 - (d) not extract more than 150ML per year from the Fingal Bay bores (AB12 to AB16), calculated from the date when at least 10,000 μ S/cm is detected at either SW5 or SW7, and
 - (e) maintain monitoring in accordance with this subclause until EC measurements fall below 10,000 μ S/cm, and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the monitoring regime prescribed subclause (6) (c).
- (10) If any watertable level measurement taken in accordance with subclause (9) (c) from monitoring bore SK5059 is equal to or less than 0.9m AHD, the major utility (Hunter Water Corporation) must:
- (a) inform the Regional Director of the Department of Infrastructure, Planning and Natural Resources as soon as practicable,
 - (b) not extract more than 150ML per year from the Anna Bay bores (AB1 to AB11), calculated from the date when a watertable level equal to or less than 0.9m AHD was detected at monitoring bore SK5059d, and
 - (c) maintain monitoring in accordance with this subclause until watertable level measurements at SK5059d exceed 0.9m AHD, and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the extraction and monitoring regime prescribed subclause (9).

- (11) If any watertable level measurement taken in accordance with subclause (6) (e) from monitoring bore SK3913 is equal to or less than 1.4m AHD, the major utility (Hunter Water Corporation) must:
- (a) inform the Regional Director of the Department of Infrastructure, Planning and Natural Resources as soon as practicable,
 - (b) increase the frequency of the monitoring in subclause (6) (e) to once every two weeks,
 - (c) measure the watertable level at SK3917 every two weeks,
 - (d) not extract more than 150ML per year from the Anna Bay bores (AB1 to AB11), calculated from the date when a watertable level equal to or less than 1.4m AHD was detected at monitoring bore SK3913, and
 - (e) maintain monitoring in accordance with this subclause until watertable level measurements at SK3913 exceed 1.4m AHD, and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the extraction and monitoring regime prescribed subclause (6).
- (12) If any watertable level measurement taken in accordance with subclause (11) (c) from monitoring bore SK3917 is equal to or less than 1.3m AHD, the major utility (Hunter Water Corporation) must:
- (a) inform the Regional Director of the Department of Infrastructure, Planning and Natural Resources as soon as practicable,
 - (b) not extract more than 150ML per year from the Fingal Bay bores (AB12 to AB16), calculated from the date when a watertable level equal to or less than 1.3m AHD was detected at monitoring bore SK3917, and
 - (c) maintain extraction in accordance with subclause (12) (b) until watertable level measurements at SK3917 exceed 1.3m AHD, and the Regional Director of the Department of Infrastructure, Planning and Natural Resources approves a return to the extraction and monitoring regime prescribed subclause (11).

3 Additional mandatory conditions on water supply works and monitoring bores for Hunter Water Corporation major utility

- (1) The major utility is permitted to relocate or replace water supply works in Tomago, Tomaree and Stockton (and only from within the special areas), provided that:
- (a) the relocation or replacement of the water supply works in Stockton is within 50 metres of the abandoned bore,
 - (b) the relocation or replacement of the water supply works in Tomago or Tomaree is within 50 metres of a boreline, where the boreline is defined by the boreline

header pipe,

- (c) the relocation or replacement of the water supply works does not increase the installed extraction capacity, except with the agreement of the Minister,
 - (d) the relocation or replacement of the water supply works does not adversely impact upon any environmental, economic or social values of these groundwater sources,
 - (e) any abandoned water supply work is abandoned by means suitable to prevent degradation of these groundwater sources and the Regional Director of the Department of Infrastructure, Planning and Natural Resources is notified of the method of abandonment, and
 - (f) the Regional Director of the Department of Infrastructure, Planning and Natural Resources is provided with details of relocation and abandonment annually.
- (2) Should any of the monitoring bores referred to in this Schedule become lost or unsuitable for measurement, Hunter Water Corporation must substitute the bore or bores with a nearby bore, or sink a bore at the previous location within three months, and notify the Regional Director of the Department of Infrastructure, Planning and Natural Resources of the replacement.

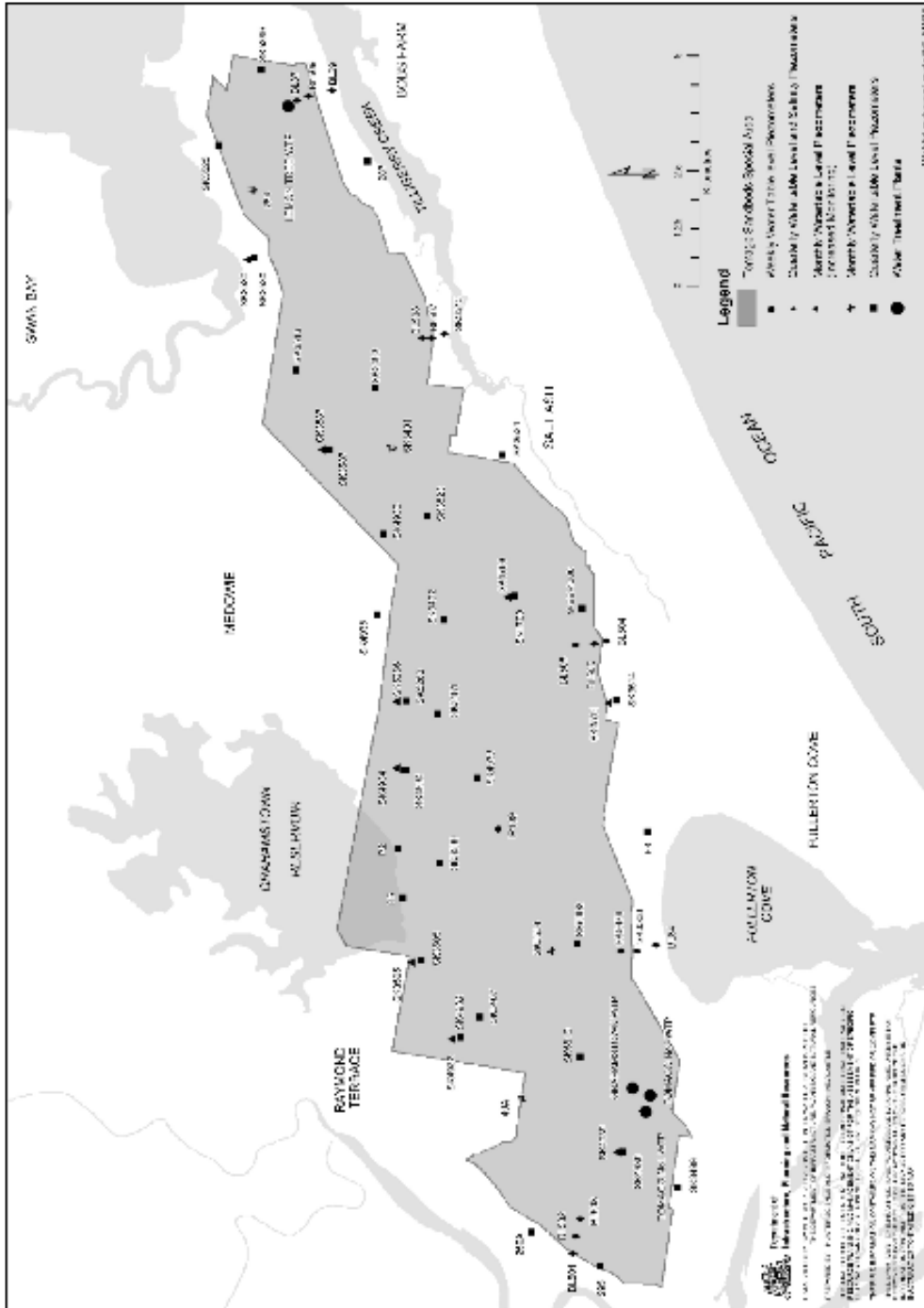
4 Amendments to this Schedule

- (1) This clause is made in pursuant to section 45 (1) (b) of the Act.
- (2) The Minister may amend clause 1 of this Schedule to include water allocation account management rules for any Hunter Water Corporation major utility access licence granted in Stockton, in accordance with clause 25 (3) of this Plan.
- (3) The Minister may amend clause 2 of this Schedule following approval by the Minister of a Sustainable Groundwater Extraction Strategy prepared by Hunter Water Corporation.
- (4) The amendments referred to in subclause (3) may include any such monitoring and extraction restrictions in Tomago, Tomaree and Stockton required to:
 - (a) avoid exposure of pyritic layers to oxidating conditions,
 - (b) minimise water quality impacts from mined areas,
 - (c) avoid water level drawdowns that result in a detrimental impact on groundwater dependent ecosystems, and
 - (d) avoid saline intrusion to the groundwater sources.

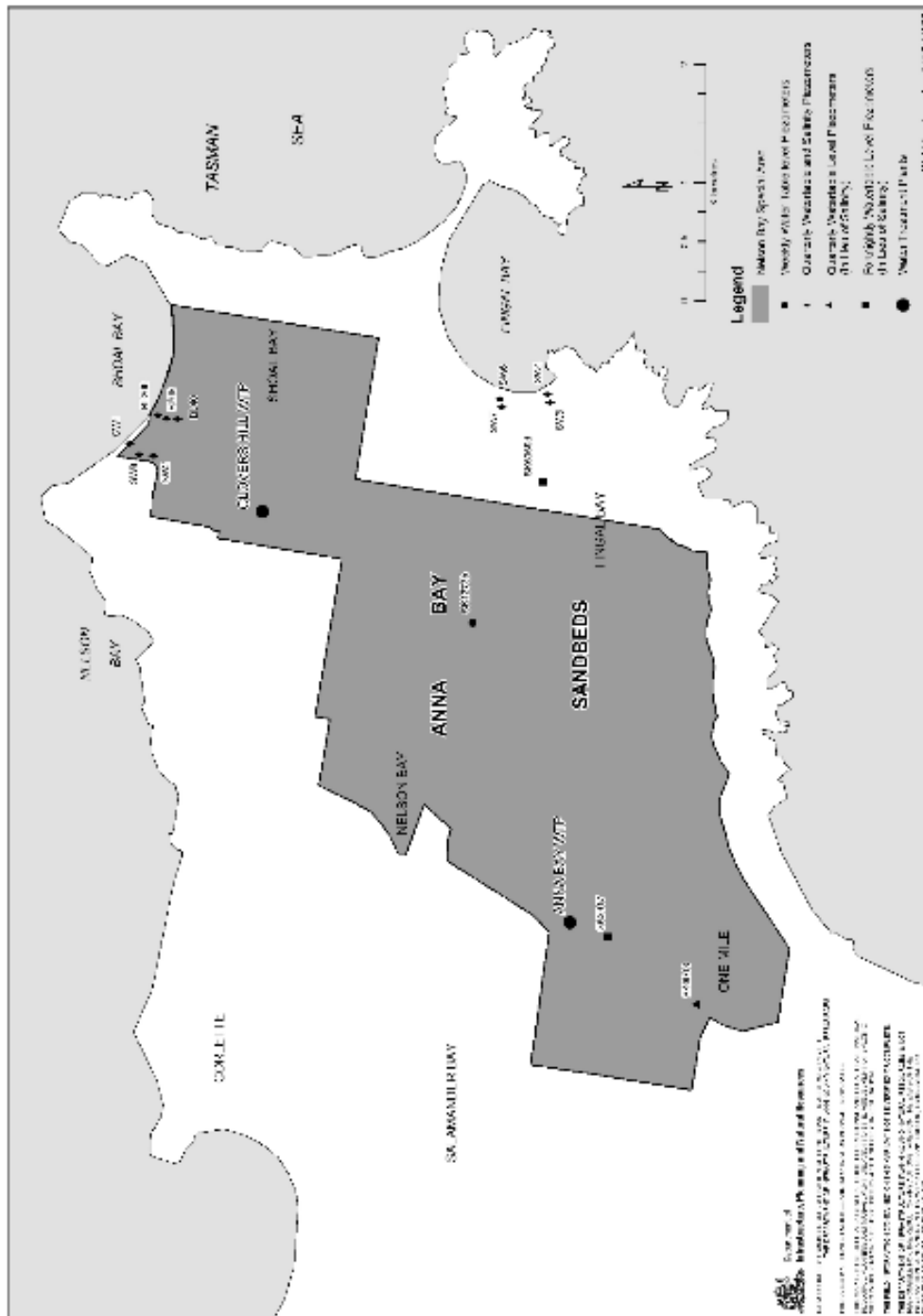
Note—

The Stockton observation bores are shown on the *North Stockton Special Area and Observation Bores* map attached to this Schedule.

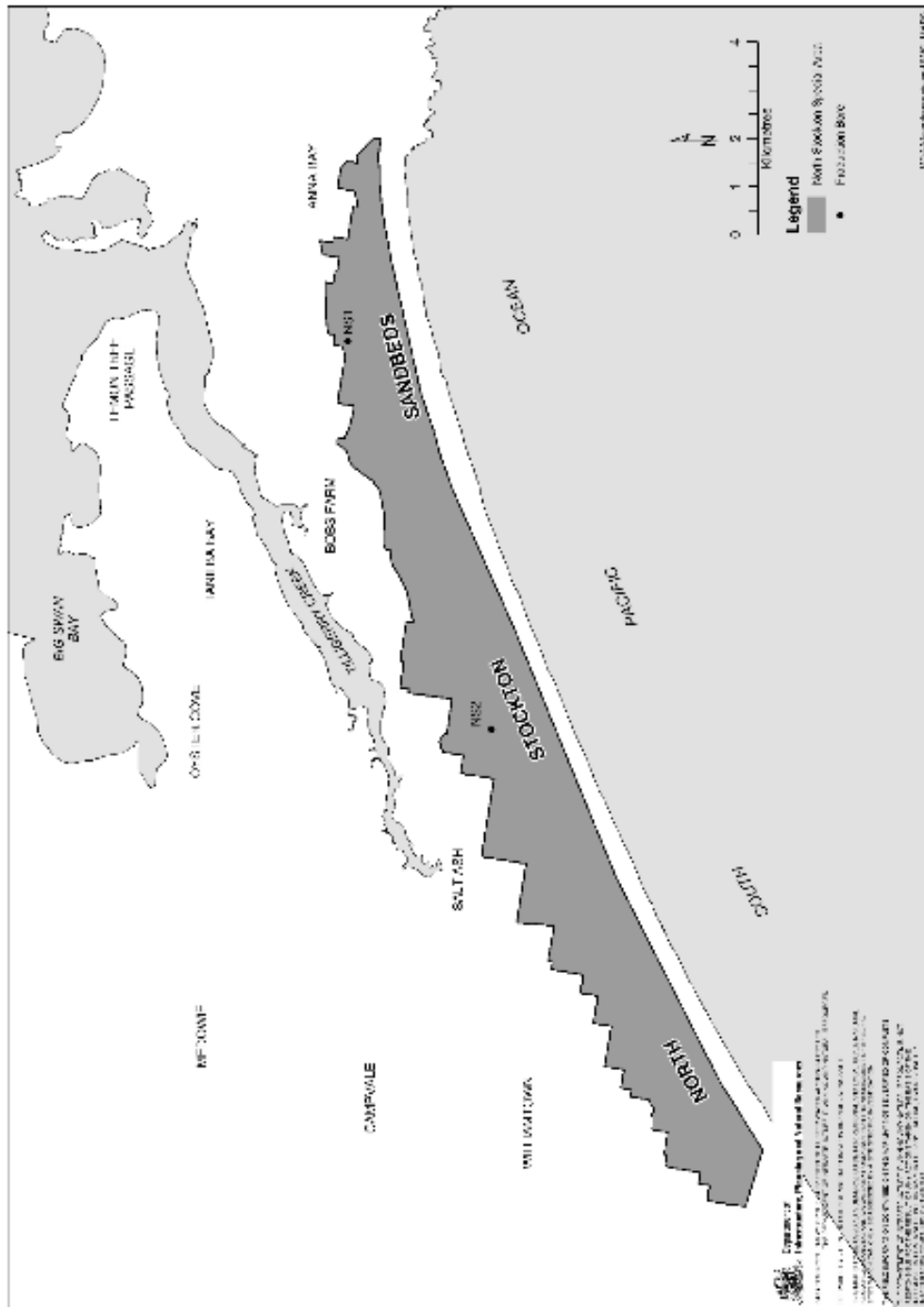
Tomago (Special Area) Monitoring Bores



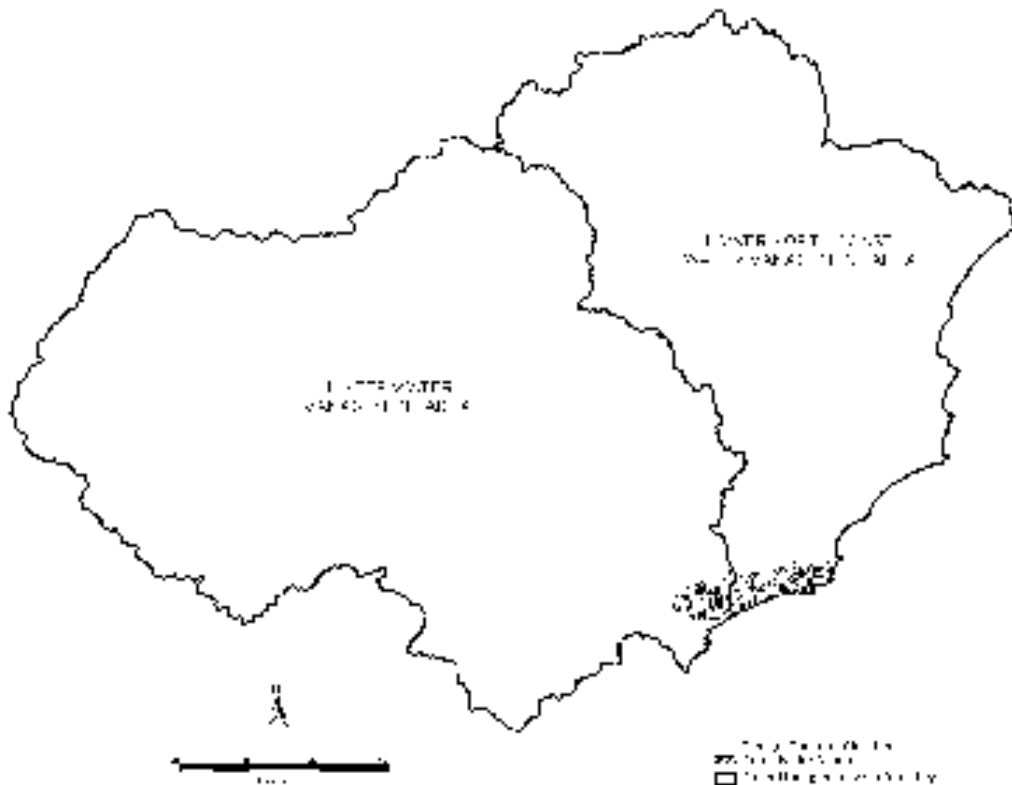
Nelson Bay Special Area and Tomaree Monitoring Bores



North Stockton Special Area and Observation Bores



Appendix 1 Lower North Coast and Hunter Water Management Areas



Appendix 2 Location of maps

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

Regional Office
 Department of Land and Water Conservation
 464 King Street
 Newcastle West NSW 2302

District Office
 Department of Land and Water Conservation
 Cnr Newcastle Road and Banks Street
 EAST MAITLAND NSW 2323

Appendix 3 Performance indicators

Performance indicators for Tomago Tomaree Stockton Groundwater Sources Water Sharing Plan

Performance indicator	Related objective	As measured by	Comments
-----------------------	-------------------	----------------	----------

(a) Change in groundwater extraction relative to the extraction limit	All	<ul style="list-style-type: none"> • Average annual extraction volume for each groundwater source as a percentage of the extraction limit 	<ul style="list-style-type: none"> • Plan provisions set the mechanism to remain within the sustainable yield.
(b) Change in climate adjusted groundwater levels	11 (a) 11 (b) 11 (c) 11 (d) 11 (e)	<ul style="list-style-type: none"> • Change in depth to water table 	<ul style="list-style-type: none"> • Water levels will fluctuate with climate and resultant variable recharge. Some level declines will be expected during dry times, just as level rises are expected during wetter periods.
(c) Condition and extent of targeted groundwater dependent ecosystems, including vegetation and wetlands	11 (a) 11 (b) 11 (c) 11 (d) 11 (e)	<ul style="list-style-type: none"> • Identify representative groundwater dependent ecosystems (GDEs) • Number and area of targeted GDEs • Condition and extent of targeted GDEs, particularly vegetation and wetlands 	<ul style="list-style-type: none"> • Groundwater dependent ecosystems identified in this water sharing plan.
(d) Change in groundwater quality.	11 (k)	<ul style="list-style-type: none"> • Trends in selected water quality parameters at selected monitoring bores that are likely to be affected by groundwater extraction 	<ul style="list-style-type: none"> • Many water quality issues are a function of contamination by land based activities, rather than extraction.
(e) Change in economic benefits derived from groundwater extraction and use	11 (h)	<ul style="list-style-type: none"> • Water use per sector. • Qualitative assessment through structured interviews with water user groups 	<ul style="list-style-type: none"> • There are many factors affecting economic status of a region, for example commodity prices, other sources of water (ie surface water) etc. • Assessment undertaken as part of plan performance monitoring will make assumptions to attempt to identify the impact of the plan provisions.
(f) Extent to which domestic and stock rights requirements have been met	11 (f) 11 (i)	<ul style="list-style-type: none"> • Monitor increase in applications for water supply work (bore) approvals • Water use per sector • Qualitative assessment through basic rights focus group 	<ul style="list-style-type: none"> • Domestic and stock usage figures in this plan are estimated (not actual use).

<p>(g) Extent to which major utility requirements (where major utilities are involved in urban water provision) have been met</p>	<p>11 (g)</p>	<ul style="list-style-type: none"> • Water use per sector. • Utility water use compared to utility access licence share component
<p>(h) Extent to which native title rights requirements have been met</p>	<p>11 (h)</p>	<ul style="list-style-type: none"> • Monitor increase in applications for water supply work approvals for native title basic rights • Qualitative assessment through focus group semi structured interviews
<p>(i) Extent of recognition of spiritual, social and customary values of groundwater to Aboriginal people</p>	<p>11 (j)</p>	<ul style="list-style-type: none"> • Qualitative assessment through focus group and semi structured interviews • The number of licence applications referred to the Local Aboriginal Land Council measuring change in consultation on Aboriginal values in water licensing
		<ul style="list-style-type: none"> • The collection of information on the values associated with water is considered the first step in addressing the objects of the Act. • It would be expected that at the end of five years there should be relevant information collected for each water source, as a minimum requirement. • Consultation with the local Aboriginal community will seek to minimise the effects of new licences on important social, customary, cultural, and spiritual values.

Appendix 4 (Repealed)