



Natural Resources
Kangaroo Island



Kangaroo Island Water Resources Management Policy: Water Affecting Activities



Government of South Australia
Kangaroo Island Natural Resources
Management Board

Volume B: Business Plan 2017–2020

Kangaroo Island Water Resources Management Policy: Water Affecting Activities

May 2017

This plan was prepared by the Kangaroo Island Natural Resources Management Board and is a policy of the South Australian Government. This plan was adopted by the Minister for Sustainability, Environment and Conservation, Mr Ian Hunter MLC on the 22 May 2017.

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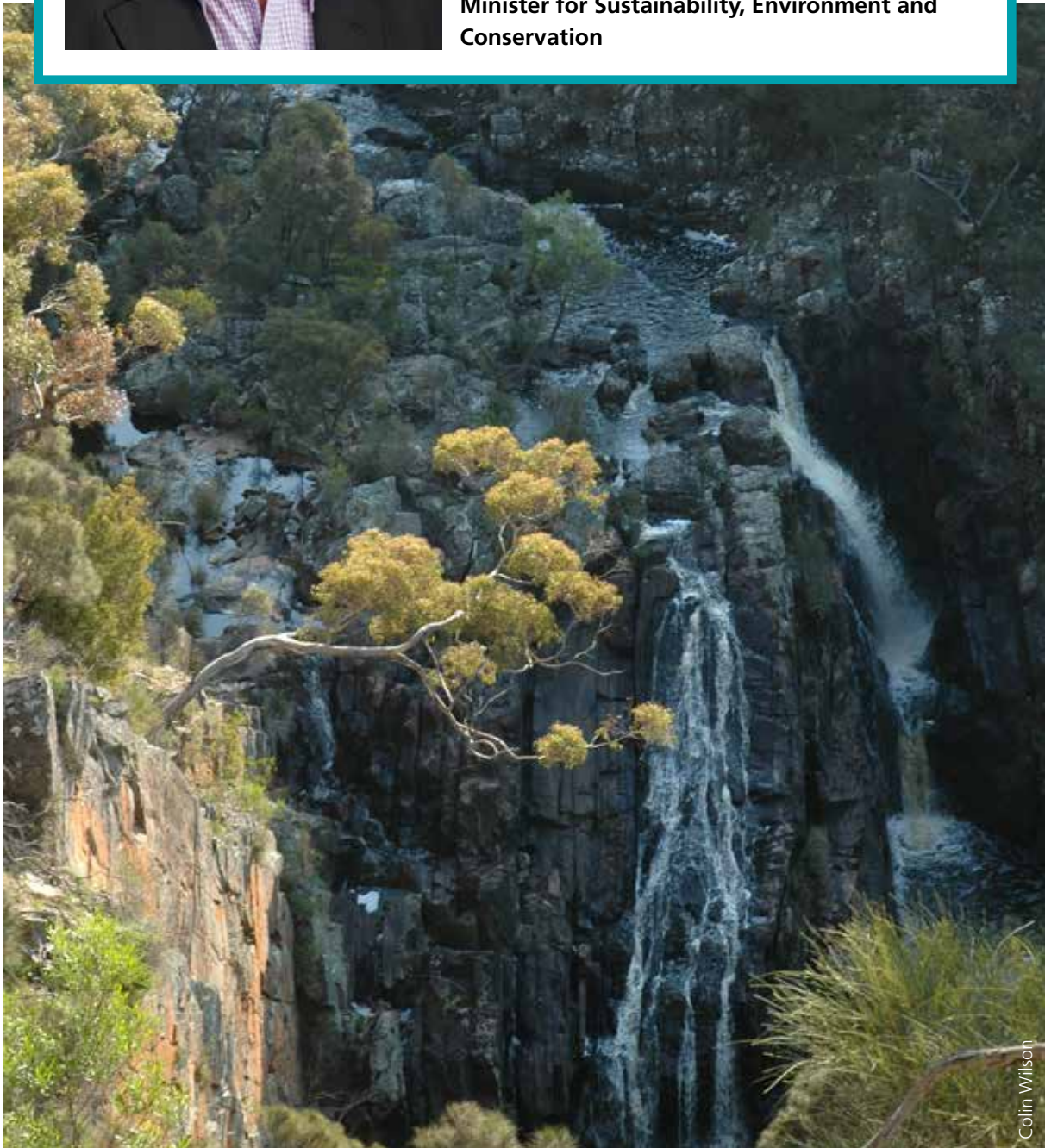
Signature Page



I, Honourable Ian Hunter MLC, Minister for Sustainability, Environment and Conservation, after taking into account and in accordance with the requirements of section 81 of the Natural Resources Management Act 2004 hereby adopt the Kangaroo Island Regional Natural Resources Management Plan 2017–2027.

A handwritten signature in blue ink, appearing to read 'Ian Hunter', written over a white background.

Honourable Ian Hunter MLC
Minister for Sustainability, Environment and Conservation



Colin Wilson

Foreword



Through 18 months of thought, conversation and workshopping, the Kangaroo Island community contributed ideas, visions and plain hard work to the plan for managing their natural resources.

Kangaroo Islanders belong to their Island. It is more than just their home; they love and respect it and are proud to be Islanders. And the Kangaroo Island Natural Resources Management (NRM) Board is proud to have brought their efforts together into the Natural Resources Management Plan 2017–2027 to guide us for the next 10 years. This business plan describes the Board’s program of activities in the 2017–18 financial year to ensure the strategic management plan is implemented.

The Board is obliged, under the *Natural Resources Management Act 2004*, to supply services for the control of pest animals and plants, and to plan and manage water use within the Kangaroo Island region. The Act instructs the Board to apply an appropriate levy to all landholders within the region to enable this work to be done. The NRM levy previously applied does not meet the costs of fulfilling our obligations. In 2017–18 the NRM levy will rise to \$78 per rateable property to offset these costs.

Kangaroo Island Council provides an efficient service in collecting this levy for the NRM Board at the same time as it collects its own rates. This levy is not revenue for Council and is not set by them. All responsibility for this levy rests with the Board, which sets and manages the levy. We thank Kangaroo Island Council for collecting the NRM levy on the Board’s behalf.

I believe everyone on our Island benefits from the work done in natural resources management — in community well-being, as the backbone of our tourist industry and in underpinning our sustainable farming systems. I can assure the people of Kangaroo Island that this small levy will be money well spent.

The Australian Government has financially supported a number of NRM projects over previous years, to Kangaroo Island’s great benefit. Funding for these projects ends in June 2018 and future funding opportunities are uncertain. Our small population and consequent low levy base mean that Kangaroo Island will always need some government financial support to manage our abundant natural resources.

I also thank the South Australian Government and particularly the Department of Environment, Water and Natural Resources for its continued support and funding, and assure this community that the Board will not waver in advocating for continued funding from both levels of government, and from all Australian taxpayers, to help manage our nationally renowned and valued natural assets.

Mr Richard Trethewey

Presiding Member of the Kangaroo Island Natural Resources Management Board

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Under Section 75(3)(k) of the *Natural Resources Management Act 2004* (the Act) the Kangaroo Island Natural Resources Management Plan is required to set out the matters that should be taken into account when the relevant authority is exercising its power to grant or refuse water-affecting activity permits.

1. General policy provisions

1.1 Management and protection of water resources

Pursuant to section 127(3)(e) and (5) of the Act a water-affecting activity (WAA) permit is required to undertake any of the WAAs listed in column 1 of Table 1.

WAA permits are granted by the “relevant authority”.

Pursuant to section 126 of the Act, the relevant authority is:

1. in the case of an activity referred to in sections 127(3)(a), (b), or (c) of the Act – the Minister; or
2. in the case of an activity referred to in sections 127(5)(a), (b), (d), (f), (g), (h) and (ja) of the Act — the Board.

1.2 Water-affecting activity permit criteria

All WAA permit applications will be assessed against the general objectives and general principles that follow. In addition, more detailed assessment criteria are defined for each specific WAA, as listed in section 2. Pursuant to section 127(5) of the Act, a person may not undertake a WAA contrary to this Plan. In addition, the Board may specify conditions in a permit for a WAA pursuant to section 135(9) of the Act.

Pursuant to section 135(8) of the Act, subject to its terms, a permit is binding on and operates for the benefit of the applicant and the owner and occupier of the land to which it relates, and all subsequent owners and occupiers of the land. Section 135(9) provides that depending on its nature, a permit condition may remain in force after the activity that is authorised by the permit has been completed.

For the purposes of this Plan, data and information on catchment/sub-catchment boundaries, stream orders, catchment/sub-catchment yields, catchment/sub-catchment water take limits, threshold flow rates, date modified and references to supporting information are available from the Natural Resources Kangaroo Island website at www.naturalresources.sa.gov.au/kangarooisland

1.3 Activities not requiring a WAA permit

Pursuant to section 129 of the Act a permit is not required to undertake an activity that is required or authorised under certain other legislation, including the *Development Act 1993*.

Pursuant to section 127(7) of the Act, neither the Minister nor the Board requires a WAA permit for a water-affecting activity if they are the relevant authority for the purposes of granting WAA permits for that kind of activity.

Additionally, a WAA permit is not required for the activities identified as exempt activities in section 2 of this plan. The exempt activities are summarised in column 3 of Table 1 in section 1.8

1.4 Best practice operating procedure (BPOP) permit

The Board has determined a process for granting a single WAA permit that allows a person to undertake a range of specified WAAs at multiple locations where each WAA is included in a best practice operating procedure (BPOP). This process streamlines the assessment and administration processes for a specified range of WAAs. Permits granted under this section are referred to in this Plan as “BPOP permits”.



A BPOP permit may not be granted unless:

1. The applicant provides a BPOP in relation to the proposed WAAs to the Board, that contains the following:
 - a. an assessment as to whether the proposed WAAs may be authorised by a BPOP permit.
 - b. the procedure or procedures that will be followed when undertaking each WAA specified in the BPOP.
2. The applicant provides to the Board sufficient details about:
 - a. the nature and type of each proposed WAA,
 - b. the specifications of each WAA
 - c. the location of each WAA, including maps.

The Board will advise an applicant whether each of the WAAs described in the BPOP may be undertaken under a BPOP permit or if a separate WAA permit will be required for each WAA.

WAAs permitted by a BPOP permit must be undertaken in accordance with the BPOP.

1.5 Current recommended practice (CRP)

CRPs will be developed by the Board for a range of simple or routine WAAs. A CRP sets out what the Board considers to be best practice standards for undertaking particular WAAs.

CRPs will be developed by the Board for a range of simple or routine classes of WAAs, including, but not limited to:

- replacing a culvert to the same or better specifications
- controlling exotic vegetation in a watercourse
- installing rip-rap in a first order stream
- creating mitre drains to divert road runoff
- constructing dams of less than 2 ML capacity.

If the Board has published a CRP for a class of WAAs, a permit is not required to undertake WAAs of that class.

If a person undertakes a WAA pursuant to this section, the WAA must be undertaken in accordance with the CRP.

1.6 General objectives

Applications for WAA permits will be assessed against the following general objective for managing water resources:

1. To support the development of water resources in a sustainable and equitable manner, optimising productive use while providing for the needs of water-dependent ecosystems and other water users.

1.7 General principles

Applications for WAA permits will be assessed against the following general principles for managing water resources. A WAA must not pose a risk of having significant adverse impacts on:

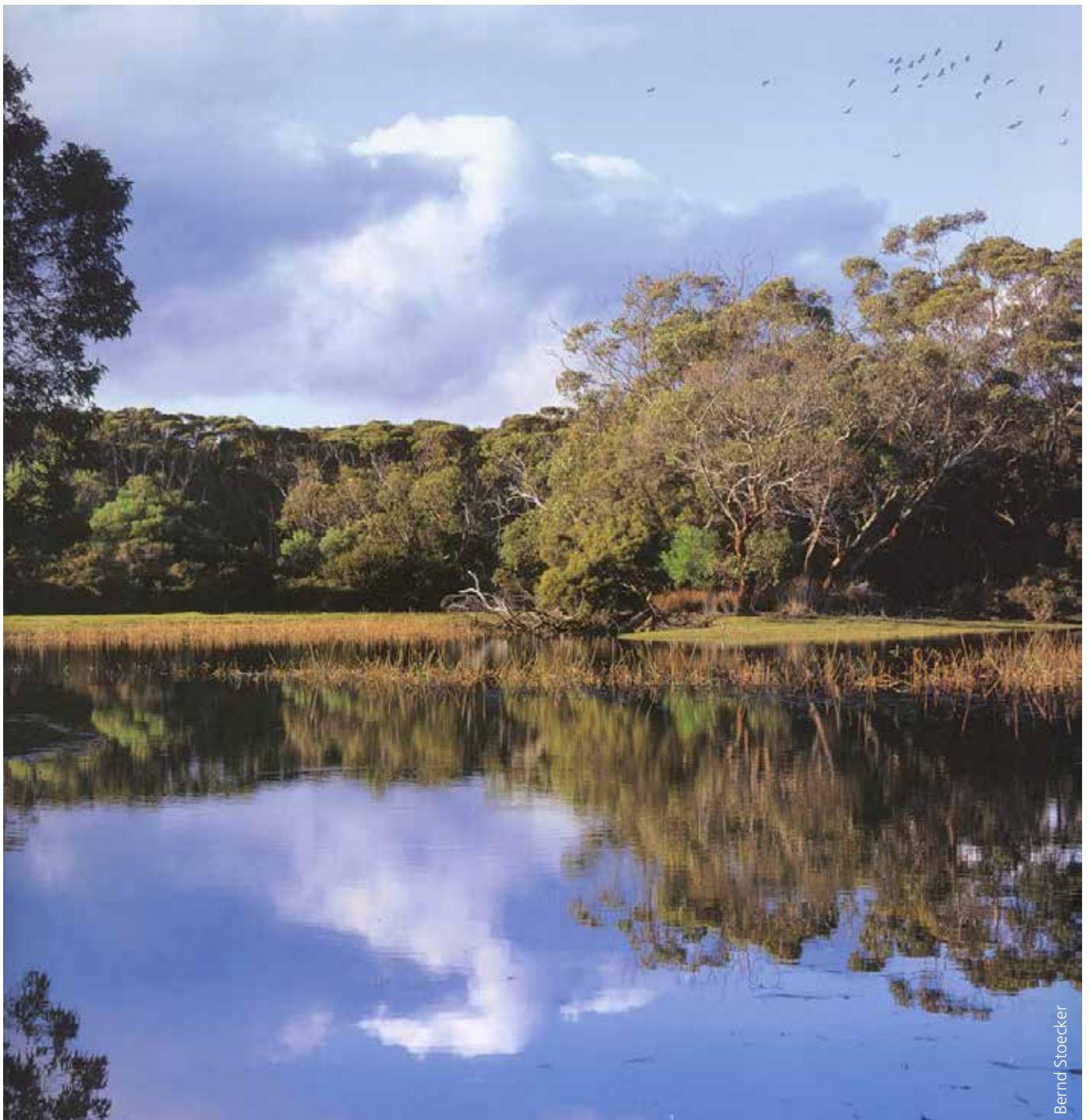
1. the long term availability of surface water, underground water or water in a watercourse or lake. Availability is defined by:
 - a. annual flow
 - b. the volume of water stored in the water resource
 - c. the volume of water that is fit-for-purpose.
2. water quality and flow regimes required to maintain the function of water-dependent ecosystems and meet the needs of existing water users
3. riparian and aquatic biota
4. equitable sharing of water resources for economic, social and cultural benefits
5. incidents of flooding of public and private assets
6. waterlogging, rising water tables or areas affected by salinity
7. soil erosion or bank destabilisation of a watercourse or lake, or erosion of a floodplain
8. an authorised device or an activity for scientific purposes.
9. the integrity of an aquifer or aquifers.

1.8 WAA requiring a permit

A person must not undertake a WAA related to a well, as listed in section 127(3)(a) to (c) of the Act, unless authorised by a permit granted by the Minister.

Pursuant to section 127(7) of the Act, the Minister or the Board does not require a permit to undertake a WAA, if it is the relevant authority for granting permits for that kind of WAA. References in this Plan to WAAs that are undertaken as part of a Board-endorsed work plan that specifies that WAA, are WAAs undertaken by the Board pursuant to section 127(7).

Pursuant to section 127(3)(e) and (5) of the Act a person may only undertake activities listed column 1 of Table 1 where the relevant authority listed in column 4 of Table 1 has granted a permit, or the activity is authorised under section 129 of the Act.



Bernd Stoecker

Table 1 Water Affecting Activities requiring a permit

1. Section of the Act	2. Examples of WAAs Note that the activities listed in this column are examples only of activities that require a permit. The list is not exhaustive.	3. WAAs exempt from requiring a WAA permit	4. Relevant authority
127(3)(a) Drilling, plugging, backfilling or sealing of a well	Well drilling or closure	None	Minister
127(3)(b) Repairing, replacing or altering the casing, lining or screen of a well	Well maintenance or upgrade	None	Minister
127(3)(c) Draining or discharging water directly or indirectly into a well	Managed aquifer recharge	None	Minister
127(5)(a) The erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse or flowing over the land.	<p>Construction of, or modification to, a:</p> <ul style="list-style-type: none"> • dam • weir • marron pond • clay pit. <p>Construction of, or modification to, water infrastructure that is hydraulically connected to a dam, watercourse or crosses catchment, sub-catchment or property boundaries, including:</p> <ul style="list-style-type: none"> • interception drains • graded catchments • pipes • contour banks • mole drains. 	<p>De-silting and other routine maintenance to a dam or other structure that is not located on a stream order of 3 or higher (see principle 2.3.2.19).</p> <p>Water infrastructure that is hydraulically disconnected from a dam, watercourse or that does not cross a catchment, sub-catchment or property boundary. (see principles 2.3.2.4, 2.3.2.5 and 2.3.2.8)</p> <p>A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</p>	Board

1. Section of the Act	2. Examples of WAAs Note that the activities listed in this column are examples only of activities that require a permit. The list is not exhaustive.	3. WAAs exempt from requiring a WAA permit	4. Relevant authority
<p>127(5)(b)</p> <p>The erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse.</p>	<p>Constructing a:</p> <ul style="list-style-type: none"> • building • pump house • stock shelter • creek crossing • bridge. <p>Placing any of the following in a watercourse or lake:</p> <ul style="list-style-type: none"> • culvert • pump • pipes. <p>Building a road across a wetland.</p>	<p>A WAA that is proposed to be undertaken beyond the 1-in-20 year average flood recurrence interval flood level, where a flood study is available, or a distance of 20 metres or more from the banks of the nearest watercourse where a flood study is not available (see principle 2.4.2.1).</p> <p>Minor maintenance to a building or structure that is not located on a stream order of 3 or higher (see principle 2.4.2.2).</p> <p>This exemption does not apply to any structure associated with the take of water.</p>	Board
<p>S127(5)(d)</p> <p>Depositing or placing an object or solid material in a watercourse or lake.</p>	<p>Island in a watercourse</p> <p>Placing any of the following in a watercourse or lake:</p> <ul style="list-style-type: none"> • ripraps • rocks • tyres • snags • fill. 	<p>A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</p>	Board
<p>S127(5)(f)</p> <p>Depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake.</p>	<p>Levee construction</p> <p>Depositing fill</p>	<p>A WAA that is proposed to be undertaken beyond the 1-in-20 year average flood recurrence interval flood level, where a flood study is available, or a distance of 20 metres or more from the banks of the nearest watercourse where a flood study is not available. (see principle 2.5.2.1)</p>	Board

1. Section of the Act	2. Examples of WAAs Note that the activities listed in this column are examples only of activities that require a permit. The list is not exhaustive.	3. WAAs exempt from requiring a WAA permit	4. Relevant authority
<p>S127(5)(g) Destroying vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse.</p>	<p>Removal or destruction of riparian trees, shrubs, grasses. Removal or destruction of aquatic vegetation. Removal or destruction of vegetation in a wetland.</p>	<p>A WAA that involves declared plants. (see principle 2.6.2.3(b)) Vegetation destruction that does not involve the physical removal of the plants. (see principle 2.6.2.3(c)) A WAA that involves clearance of native vegetation in accordance with the Native Vegetation Act 1991. (see principle 2.6) A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</p>	<p>Board</p>
<p>127(5)(h) Excavating or removing rock, sand or soil from: i. a watercourse, or lake or the floodplain of a watercourse; or ii. an area near to the banks of a lake so as to damage , or create the likelihood of damage to, the banks of the lake</p>	<p>Excavation within a wetlands, swamps or springs Realigning a watercourse Channelling a watercourse Changing the width or depth of a watercourse</p>	<p>A WAA that is proposed to be undertaken beyond the 1-in-20 year average flood recurrence interval flood level, where a flood study is available, or a distance of 20 metres or more from the banks of the nearest watercourse where a flood study is not available. (see principle 2.6.2.1)</p>	<p>Board</p>
<p>127(5)(ja) Undertaking commercial forestry</p>	<p>Blue gum plantations Pine plantations Plantations for carbon credits</p>	<p>Plantings solely for the purposes of amenity or biodiversity conservation. (see principle 2.7.2.5) A WAA that is undertaken as part of a Board endorsed work plan that specifies that WAA, pursuant to section 127(7) of the Act.</p>	<p>Board</p>

2. Specific policy provisions

Further to the general objectives and principles set out in 1.6 and 1.7, this section sets out the matters to be considered by the relevant authority when determining whether to grant or refuse a permit for a specific WAA.

Pursuant to section 127(5) of the Act, a person must not undertake a WAA contrary to the Plan. This section also sets out requirements that a person must comply with when undertaking WAAs. These requirements apply whether or not a permit is required to undertake the relevant WAA.

2.1 Constructing, backfilling or repairing wells — section 127(3)(a) and (b)

The objectives and principles that follow apply to an activity under the following sections of the Act:

- 127(3)(a): drilling, plugging, backfilling or sealing of a well
- 127(3)(b): repairing, replacing or altering the casing, lining or screen of a well.

2.1.1 Specific objectives

Further to the general objectives outlined in section 1.6 the following specific objectives apply:

1. Ensure the integrity of well head works are maintained.
2. Ensure wells are constructed in the targeted aquifer system.

2.1.2 Specific principles: regarding the granting of a WAA Permit

The following matters should be taken into account by the Minister when determining whether to grant or refuse a permit for an activity under section 127(3)(a) and 127(3)(b) of the Act.

The Minister should not grant a permit for:

1. A well proposed to be drilled within 100 metres of an existing well operated by another landholder, or a groundwater dependent ecosystem.

2. A well proposed to be drilled within 300 metres of a well into which water is drained or discharged pursuant to a permit granted under section 127(3)(c) of the NRM Act for the purposes of aquifer storage and recharge, unless:
 - a. the aquifer into which the proposed well will be drilled is not directly hydraulically connected with the existing well, or
 - b. the proposed well is part of a managed aquifer recharge (MAR) scheme that includes the existing well.
3. Notwithstanding principle 1, a permit may be granted for a replacement well provided that:
 - a. the original well is backfilled in accordance with a permit issued pursuant to section 127(3)(a) of the Act
 - b. the replacement well is within 50 metres of the original well, and
 - c. the replacement well takes water only from the same aquifer as the original well.
4. For the purposes of this plan, an existing well is defined as a well that has supplied water for irrigation, stock, domestic or commercial use within the last 10 years.

2.1.3 Specific principles: undertaking the WAA

The following principles are recommended well permit conditions:

1. Well construction must be in accordance with the *General Specification for Well Construction, Modification and Abandonment in South Australia*, as amended from time to time (or any subsequent or related policy), as provided by the relevant authority.
2. The equipment, materials and method used for the activity shall not adversely affect the quality of the underground water resource.
3. Where a well passes through two or more aquifers, an impervious seal must be made and maintained between the aquifers to prevent leakage between aquifers.

4. Wells constructed for the draining or discharge of water at pressures greater than gravity must be pressure cemented along the full length of the casing. This does not exempt the need to follow the general specifications for well construction.

2.2 Drainage or discharging water into a well — section 127(3)(c)

The objectives and principles that follow apply specifically to a WAA under section 127(3)(c) of the NRM Act, comprising draining or discharging water directly or indirectly into a well.

2.2.1 Specific objectives

Further to the general objectives outlined in section 0, the following specific objectives apply:

1. Ensure the integrity of head works are maintained.
2. Ensure the sustainable operation and management of managed aquifer recharge schemes (e.g. aquifer storage and recovery schemes).

2.2.2 Specific principles: regarding the granting of a WAA Permit

The following matters should be taken into account by the Minister when determining whether to grant or refuse a permit for an activity under section 127(3)(c) of the Act.

1. A permit to drain or discharge water into a well will not be granted unless a risk assessment is undertaken to the satisfaction of the Minister. This risk assessment must be consistent with the *National Water Quality Management Strategy — Australian Guidelines for Water Recycling: Managing Health and Environmental Risks, Phase 1, 2006* and *Phase 2, 2009*, and other related documents current at the time, including:
 - a. an investigation into the sustainability of the drainage or discharge site, including but not limited to, tests for transmissivity, maximum injection pressures and calculated likely impacts on the integrity of the well and confining layers, and impacts of potentiometric head changes to other underground water users
 - b. an appropriate operation or management plan demonstrating that operational procedures and monitoring regimes are in place to protect the integrity of the aquifer, minimise the wastage of water and protect the discharge site on an ongoing basis

- c. a water quality assessment which identifies hazards in the source water, and
- d. a report on the consequences and impacts to the ambient underground water resource where the water quality characteristics (salinity and chemistry composition) of the water to be discharged differs to that of the ambient underground water.

2. Water that is drained or discharged into a well only by means of gravity is exempt from meeting the requirements of principle 1.

2.2.3 Specific principles: undertaking the WAA

The draining or discharging of water directly or indirectly into a well may only be undertaken in accordance with the following principles.

1. Water that is drained or discharged into a well must comply with the Environmental Protection Act 1993 and any associated policy.
2. Further to principle 1, continuation of draining and discharge is dependent on an annual report, being provided to the Minister, that addresses the impacts to the ambient underground water at the draining or discharge site.
3. For the purposes of principles 1 and 2, the relevant concentrations, levels or amounts shall be measured in sufficient representative samples of:
 - a. the water to be drained or discharged
 - b. ambient underground water collected from the proposed point of injection, or as near as possible to the proposed point of injection.
4. For the purpose of principle 3, 'sufficient representative samples' means suitable samples, collected with equipment appropriate for the substance, material or characteristic to be measured and taken at suitable locations and times to accurately represent the quality of the relevant water.
5. The draining or discharging of water directly or indirectly into a well must not degrade ecosystems dependent on the underground water or detrimentally affect the ability of other persons to lawfully take from that underground water.
6. Water may not be drained or discharged directly or indirectly into a well unless the head works for the draining or discharge of water are constructed so that extraction, draining and discharge operations can be metered without interference.

7. Water may not be drained or discharged directly or indirectly into a well unless the head works for the draining or discharge of water are constructed so that water cannot leak if the well becomes clogged.
8. Water may not be drained or discharged directly or indirectly into a well constructed for the draining or discharge of water at pressures greater than gravity unless the well is pressure cemented along the full length of the casing. This does not exempt the need to follow the general specifications for well construction.

2.3 Management of water collection and diversion

Pursuant to section 127(3)(e) and (5)(a) of the NRM Act, a WAA permit is required for the erection, construction, modification, enlargement or removal of a dam, wall or other structure that will collect or divert, or collects or diverts, water flowing in a watercourse, or flowing over any other land, irrespective of the size, type, location or purpose of the dam, wall or other structure.

2.3.1 Specific objectives

As per the general objectives described in section 1.6

2.3.2 Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(a) of the Act.

Location, extent and capacity of infrastructure

1. A permit will not be granted for the construction or enlargement of a dam, wall or other structure in, on or across a watercourse with a stream order of three or higher.
2. Principle 1 does not apply where a dam, wall or other structure collects or retains less than 1 megalitre at the cease to flow level.
3. Diversion weirs within a watercourse with a stream order of three or greater may be allowed if the applicant can demonstrate to the Board that there is no reasonably practicable alternative location on the property to collect or divert water.
4. Hydraulically connected water infrastructure that diverts water into a structure that collects water (e.g. a dam or reservoir) shall be considered a component part of the collection structure.

Examples of the component parts contributing to the extent of a collection structure include, but are not limited to, interception drains directing water into a dam, or a pipe in a watercourse designed to pump water into a dam.

5. A permit will not be granted for the construction or enlargement of a dam, wall or other structure that collects or diverts water if the deemed take of that structure would cause the total volume of water deemed taken in a catchment or sub-catchment to exceed, or further exceed, the catchment and sub-catchment Water Take Limits as provided in the Attachment 1.
6. For the purposes of this plan, the volume of water deemed taken annually in a catchment or sub-catchment by dams, walls or other structures (including watercourse diversions), shall be 50% of the volume capable of being held by all dams, walls or other structures in the catchment or sub-catchment.
7. Further to principle 5, in regards to the deemed take of water from a watercourse with a stream order of three or greater, references to the sub-catchment water take limit shall also include the cumulative water take limits of all sub-catchments upstream of the sub-catchment in which that watercourse is located.
8. Further to principle 5, a permit will not be granted for the construction, modification or enlargement of a dam, wall or other structure that collects or diverts water if the deemed take of that structure would cause the total volume of water deemed taken on a property to exceed, or further exceed, the property Water Take Limits.
9. Principle 8, does not apply where the applicant can demonstrate to the satisfaction of the Board that:
 - a. the construction, modification or enlargement of a dam, wall or other structure that collects or diverts water would not detrimentally affect the ability of any other person to exercise a right to take water; and
 - b. the construction, modification or enlargement of a dam, wall or other structure that collects or diverts water would not detrimentally affect the enjoyment of the amenity of water in a watercourse or lake by the other occupiers of land within the catchment or sub-catchment; and

- c. the general objective at section 1.6 and principles at section 1.7 can be met.
10. The property Water Take Limit is calculated according to the area of the property that lies within the sub-catchment in which water is or will be taken (collected or diverted).

Adjustments to water deemed taken

11. Further to principles 5 and 8, the water deemed taken by a dam, wall or other structure, shall be reduced to 0 where the structure is for the purpose of flood mitigation.
12. The design construction and operation of flood mitigation dams must be consistent with the relevant Australian Standard and must meet the following criteria:
- a. A controlled flow release device with a minimum diameter of 50 millimetres must be fitted.
 - b. The controlled flow release device, referred to in principle (a) (above), shall be sited so as to drain most of the contents of the dam.
 - c. The dam must be constructed to drain within three days of the downstream floodwaters subsiding.
13. Further to principles 5 and 8, the water deemed taken by a dam, wall or other structure, shall be reduced to represent the mean annual volume of water deemed taken that is in excess of the normal yield due to hydraulically connected infrastructure that artificially enhances yield. Examples of hydraulically connected infrastructure that artificially enhance yield include but are not limited to: roads, buildings, earthworks, gravelled or paved area, including a graded catchment.
14. Further to principle 13, the applicant must provide to the Board's satisfaction sufficient details to allow the Board to calculate the annual mean volume of artificially enhanced yield.
15. Where an adjustment to water deemed take by a dam, wall or other structure has been made under principle 11 or 13, the Board should list the adjusted water deemed take as a condition on the permit or otherwise notify the applicant in writing.

Issue of permits where water take limits have been reached or exceeded

16. Where the water take limit(s) for either the catchment, sub-catchment and/or property has been reached or exceeded, a WAA permit for the construction of a dam, wall or other structure, or the enlargement of an existing dam, wall or other structure, may be granted:
- a. following the removal or modification of an existing dam, wall or other structure;
 - i. thereby causing the catchment, sub-catchment and/or property water deemed taken to fall below their respective water take limits; or,
 - ii. providing the total surface area of water exposed to evaporation within dam(s), wall(s) or other structure(s) does not increase within the catchment, sub-catchment and/or property relative to the time before the removal of the structure(s).
 - b. following the removal of a commercial forest;
 - i. thereby causing the catchment, sub-catchment and/or property water deemed taken to fall below their respective water take limits; or,
 - ii. where the catchment or sub-catchment water take limit is still exceeded, to take up to 25% of the yield from the area cleared of forest.

Yield from an area of cleared forest is determined by the calculations shown in the Kangaroo Island Catchment Data tables available from the Natural Resources Kangaroo Island website.

Water deemed taken following the removal of a dam, wall or other structure, or the removal of a commercial forest, shall be returned to the surface water yield (for water accounting purposes) of the catchment, sub-catchment or property where removed infrastructure or forest was located.

17. Further to principle 16, a WAA permit for the construction or enlargement of a dam, wall or other structure that collects or diverts water, will not be issued until the Board is satisfied that the dam, wall or other structure that is the subject of another WAA permit has been removed or modified, with a resultant reduction in the water deemed taken in the catchment, sub-catchment and/or property.

18. Notwithstanding principle 5, where the water take limit(s) for either the catchment or sub-catchment but not the property has been reached or exceeded and the applicant can demonstrate to the Board's satisfaction that there is/are no reasonably practicable alternative option(s), to access water on the property, including from existing water infrastructure or other sources, the applicant may be granted a permit to construct new or modify existing dam, wall or other structure to allow for the take of up to 1 megalitre of water per year on that property. The additional take will be added to the water account for the deemed water taken from the affected catchment, sub-catchment and property.
19. A WAA permit is not required for de-silting of an existing dam, wall or other structure that collects or diverts water where the activity meets all of the following provisions:
 - a. appropriate measures are taken to mitigate adverse water quality impacts arising from maintenance activities
 - b. the removal of silt includes only unconsolidated material deposited since construction of the structure, or since the structure was previously de-silted
 - c. the maintenance activity does not increase the capacity, wall height, width or length of the structure beyond its original dimensions
 - d. the structure is not on a watercourse with a stream order of three or higher
 - e. the excavated material is not placed:
 - i. within the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or
 - ii. within a distance of 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available, and
 - f. the excavated material is not disposed of in a manner or at a location that will:
 - i. adversely affect native vegetation
 - ii. impede the flow of surface water
 - iii. re-enter any water resource
 - iv. facilitate the spread of pest plants or pathogenic material.

2.3.3 Specific principles: undertaking the WAA

Location, extent and capacity of infrastructure

1. The capacity of dam, wall or other structure that collects or diverts water must not exceed the volume stated as a condition on the permit. The calculation of the capacity limit and resulting water deemed taken are outlined in principles 2.3.2.5 to 2.3.2.18

Impact on flow regime

2. A dam, wall or other structure that collects or diverts water must have design features or include a device that returns or bypasses water up to the threshold flow rate. Threshold flow rates for Kangaroo Island sub-catchments are provided in Attachment 1.
3. A design feature or device that will achieve the outcomes required by principle 2 shall:
 - a. not be obstructed or tampered with in any way
 - b. be designed and constructed to ensure its correct operation, and maintained in such a condition that it continues to be effective in meeting principle 2.
4. Principle 2 does not apply if the threshold flow rate is less than 1 litre per second.

Other design, construction and maintenance considerations

5. A dam, wall, or other structure that collects, stores or diverts of water shall, where appropriate and practicable, be designed and constructed to incorporate a range of features to improve water quality and enhance ecological values. Such features include, but are not limited to:
 - a. structures that minimise stock access to water
 - b. an upstream silt trap
 - c. provision for migration of aquatic biota, where appropriate
 - d. for structures that store over 250 megalitres, a mechanism to return water at specified times, frequency and flow rates maybe specified in permit.
6. The erection, construction, enlargement, modification or removal of a dam, wall or other structure that collects or diverts water must be undertaken in a manner that:
 - a. minimises the destruction or removal (e.g. by inundation) of riparian and in- stream vegetation

- b. minimises silt or sediment runoff, including, but not limited to, the use of erosion control measures such as diversion drains, revegetation, straw bale barriers, filter fences, sediment traps and detention basins
- c. ensures a minimum 20-year design life under all flow conditions up to the 20-year average flood recurrence interval (0.05 annual exceedance probability) for the proposed location
- d. has design parameters based on relevant Australian Standards.

2.4 Management of structures

A WAA permit is required for the erection, construction or placement of any building or structure in a watercourse or lake or on the floodplain of a watercourse pursuant to section 127(5)(b) of the Act.

2.4.1 Specific objectives

As per the general objectives described in section 1.6. No additional specific objectives apply.

2.4.2 Specific principles: regarding the granting of a WAA Permit

The following matters should be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(b) of the Act.

Location and extent

1. A WAA permit is not required for the erection, construction or placement of any building or structure:
 - a. beyond the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or
 - b. at a distance beyond 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available.
2. A WAA permit is not required for minor maintenance activities related to an existing building or structure where the activity meets the following provision:
 - a. appropriate measures are taken to mitigate water quality impacts arising from maintenance activities.

2.4.3 Specific principles: undertaking the WAA

Impact on flow regime

1. Any building or structure that impedes the flow of water must have design features or include a device that returns or bypasses water up to the threshold flow rate.
2. Threshold flow rates for Kangaroo Island sub-catchments are provided in Attachment 1.
3. Principle 1 does not apply to structures authorised by the Minister or the Board under section 127(7) of the Act for the specific purpose of measuring stream flow, or for managing water flow to assist with maintenance, rehabilitation or restoration of water-dependent ecosystems, habitats, communities or species.

Other design, construction and maintenance considerations

4. Any building or structure must ensure a minimum 20-year design life under all watercourse flow conditions up to the 20-year average flood recurrence interval flow rate for the proposed location.
5. Buildings and structures shall be maintained in a manner appropriate to meeting the conditions of the WAA permit.
6. In the case of construction of a culvert, the *Culvert Construction Guidelines*, as amended from time to time, available on the Natural Resources KI website, must be followed.

2.5 Management of obstructions

A WAA permit is required for depositing or placing an object or solid material in a watercourse or lake, pursuant to section 127(5)(d) of the Act.

A permit is required for depositing or placing an object or solid material on the floodplain of a watercourse or near the bank or shore of a lake to control flooding from the watercourse or lake, pursuant to section 127(5)(f) of the Act.

2.5.1 Specific objectives

As per the general objectives described in section 1.6.

2.5.2 Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(d) or 127(5)(f) of the Act.

Location and extent

1. A WAA permit is not required for the depositing or placing an object or solid material:
 - a. beyond the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or
 - b. at a distance beyond 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available.
2. A WAA permit is not required for minor maintenance activities related to an existing structure where the activity meets the following provision:
 - a. appropriate measures will be taken to mitigate water quality impacts arising from maintenance activities.

2.6 Management of vegetation removal and the excavation of material

A WAA permit is required for removing vegetation growing in a watercourse or lake or growing on the floodplain of a watercourse, pursuant to section 127(5)(g) of the Act.

A WAA permit is required for excavating or removing rock, sand or soil from:

- a watercourse or lake or the floodplain of a watercourse, or
- an area near to the banks of a lake so as to damage, or create the likelihood of damage to, the banks of the lake pursuant to section 127(5)(h) of the Act.

Permits in relation to section 127(5)(g) relate generally to non-native vegetation. Clearance of native vegetation is subject to the *Native Vegetation Act 1991* and the requirements under that Act.

2.6.1 Specific objectives

As per the general objectives described in section 1.6.

2.6.2 Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(g) or 127(5)(h) of the Act.

Location and extent

1. A WAA permit is not required for the excavation or removal of rock, sand or soil, or the removal of vegetation that is proposed to be undertaken:
 - a. beyond the 1-in-20 year average flood recurrence interval flood distance, where a flood study is available; or
 - b. at a distance beyond 20 metres from the banks of the nearest watercourse or lake, where a flood study is not available.
2. Further to principle 1, the excavated material or removed vegetation must not:
 - a. be placed in or near a watercourse, floodplain or lake
 - b. be disposed of in a manner or at a location that will:
 - i. adversely affect native vegetation
 - ii. impede the natural flow of surface water
 - iii. cause the removed vegetation to re-enter any water resource, or
 - iv. facilitate the spread of pest plants or pathogenic material.

Other considerations

3. A WAA permit is not required under this sub-section where:
 - a. the activity is undertaken by the Board under section 127(7) of the Act and as part of a Board-endorsed work plan.
 - b. the activity involves plants declared under Chapter 8 of the Act
 - c. the activity does not involve the physical removal of the plants, or
 - d. the volume of excavation or removal of rock, sand or soil does not exceed two cubic metres over a five-year period.

2.7 Undertaking commercial forestry

A permit is required for the establishment or expansion of commercial forestry pursuant to section 127(5)(ja) of the Act.

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

The objectives and principles in relation to forestry in this plan are consistent with the document *Managing the water resource impacts of plantation forests. A Statewide policy framework. Government of South Australia, 2009.*

2.7.1 Specific objectives

As per the general objectives described in section 1.6.

2.7.2 Specific principles: regarding the granting of a WAA Permit

The following matters must be taken into account by the Board when determining whether to grant or refuse a permit for an activity under section 127(5)(ja) of the Act.

Definition

1. A commercial forest is defined in the Act as a forest plantation where the forest vegetation is grown or maintained so that it can be harvested or used for commercial purposes (including through the commercial exploitation of the carbon absorption capacity of the forest vegetation).
2. Forest vegetation is defined in the Act and means trees and other forms of forest vegetation including—
 - a. roots or other parts of the trees or other forest vegetation that lie beneath the soil, and
 - b. leaves, branches or other parts or products of trees or other forest vegetation.
3. The expansion of a commercial forest will be taken to include:
 - a. for commercial forests in existence at the date section 127(5)(ja) of the Act began (1 July 2014), an increase in the area for which development approval for commercial forestry has been granted as at 1 July 2014, or

- b. for commercial forests established from 1 July 2014, an increase in the net planted area as approved through a WAA permit. Net planted area means the area of the commercial forest measured from stump to stump, minus any unplanted areas, areas under clearfell slash or areas consisting of dead plantation trees, that are greater than 0.1 hectare. Access tracks less than seven metres wide are part of the net planted area.
4. Further to principle 3, any proposed increase in net planted area in the second or a subsequent forest rotation of a commercial forest shall be considered to be a new commercial forest and therefore the area of forest in excess of the previous rotation shall be subject to the principles in this plan.
5. A WAA permit is not required for:
 - a. forest vegetation established solely for the purposes of amenity or biodiversity conservation, or
 - b. forest situated, or to be situated on a farm, and the net planted area of the commercial forest does not exceed, or will not exceed, 10% of the total area of the land described in a Certificate of Title or Crown Lease, or 10 hectares per Certificate of Title or Crown Lease, whichever is the lesser. Such forests shall be referred to as farm forestry.

Location and extent

6. A permit will only be granted for a new commercial forest, or expansion of an existing forest, where the proposed forest is to be situated at least 20 metres from a stream, wetland or water-dependent ecosystem.
7. A permit will not be granted for the establishment or expansion of a commercial forest if the volume of water deemed taken by the new or expanded commercial forest would exceed, or further exceed, the water take limit for the respective catchment, sub-catchment and/or property.
8. For the purposes of this plan, the volume of water deemed taken by a commercial forest is 85% of the mean annual surface water yield from the area of commercial forest.
9. The area of commercial forest is the maximum net planted area over the duration of a rotation.

10. Where a commercial forest is harvested or removed and no further forest rotation is to be planted or re-established by coppice regrowth or other means, the water deemed taken by that forest shall be returned to the surface water yield for the respective catchment, sub-catchment and/or property (for water accounting purposes).

Issue of WAA permits where water take limits have been reached or exceeded

11. Where the water take limit(s) for either the catchment, sub-catchment and/or property has been reached or exceeded, a WAA permit for the establishment or expansion of a commercial forest may be granted provided there is firstly a reduction in the volume of water deemed taken by other commercial forests or by dam, wall or other structures that collect or divert water, in the respective catchment, sub-catchment and/or property. The reduction in volume of water deemed taken must be sufficient to allow for the establishment or expansion of a commercial forest without exceeding the water take limit for the respective catchment, sub-catchment and/or property.
12. If, following removal of a commercial forest, the catchment or sub-catchment water take limit is still exceeded, a permit may be granted to take up to 25% of the surface water yield from the area cleared of forest.
13. Further to principles 11 and 12, a WAA permit for the establishment or expansion of a commercial forest, will not be granted until the Board is satisfied that the required reduction in the volume of water deemed taken on another WAA permit has been achieved. This principle applies but is not limited to:

- a. dam, wall or other structures that collect or divert water have been reduced in capacity or been removed.
- b. an area of commercial forest has been removed and no further forestry rotation is to be planted, or re-established by coppice regrowth or other means.

2.7.3 Specific principles: undertaking the WAA

Location and extent

1. Any commercial forest, or expansion of an existing forest, shall be situated 20 metres beyond a stream, wetland or water-dependent ecosystem.
2. A commercial forest shall only be replanted no closer to a stream, wetland or water-dependent ecosystem than the existing stump line, or the set-back distance of 20 metres, whichever distance is the greater.
3. Any natural regeneration of commercial forest species shall be removed from the set-back distance determined above.

Forestry activity

4. A WAA permit will continue to authorise commercial forestry activity in the manner and in the area specified in the permit, following clear-felling and replanting for subsequent rotations.
5. The holder of a WAA permit must at all times ensure that the relevant forestry activity is the subject of any necessary approval for the use of the relevant land under the *Development Act 1993*.



3. Definitions

Allotment — has the same meaning as in the Real Property Act 1886.

Annual exceedance probability (AEP) — the probability that a given flow or rainfall event will be exceeded in any one year.

Aquifer — a formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield economical quantities of water to wells and springs.

Average flood recurrence interval (AFRI) — the average value of the periods between exceedances of a given flow or rainfall event.

Biota — all of the organisms at a particular locality.

Best practice operating procedure (BPOP) permit — Refer clause 1.4 of the Water Resources Management Policy — Water Affecting Activities

Clear fell or clear felling — the cutting down or forest harvesting of all of the remaining crop trees from a commercial plantation forest in a given area. The clearfelling of a compartment shall be deemed to have been completed when all of the remaining crop trees within the boundary of the compartment have been harvested or felled. This definition excludes forest thinning.

Commercial forest — the Act defines commercial forest to mean ‘a forest plantation where the forest vegetation is grown or maintained so that it can be harvested or used for commercial purposes, including through the commercial exploitation of the carbon absorption capacity of the forest vegetation’ (i.e. carbon farming).

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

Current recommended practice (CRP) — Refer clause 1.5 of the Water Resources Management Policy — Water Affecting Activities

Dam, wall or other structure — refers to a dam, wall or other structure referred to in section 127(5)(a) of the Act.

Desilting — the removal of unconsolidated material deposited in a dam, wall or other structure since construction or material deposited since the structure was previously desilted.

Fit-for-purpose — water of a quality acceptable for a particular use.

Flood study — a published report that documents the measured or modelled extent of flooding.

Flow bands — flows of different frequency, volume and duration.

Flow regime — the character of the timing and amount of flow in a stream.

Forest vegetation — trees and other forms of forest vegetation including, (a) roots or other parts of the trees or other forest vegetation that lie beneath the soil; and (b) leaves, branches or other parts or products of trees or other forest vegetation.

Groundwater see underground water.

Hydraulically connected — as a result of natural or artificial pressure, water from one location can move water at another location within water infrastructure, a watercourse or a saturated media in a relatively rapid manner. Sources of natural pressure or artificial pressure include gravity, pumping or syphoning.

Lake — a natural lake, pond, lagoon, wetland or spring (whether modified or not).

Managed aquifer recharge — the process of draining or discharging water directly or indirectly into a well for the purposes of refilling or replenishing the aquifer or for the purposes of aquifer storage and recovery.

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

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

Occupier of land — has the same meaning as in section 3 (1) of the NRM Act, meaning a person who has, or is entitled to, possession or control of the land (other than a mortgagee in possession unless the mortgagee has assumed active management of the land), or who is entitled to use the land as the holder of native title in the land.

Owner of land — has the same meaning as in section 3 (1) of the NRM Act, meaning:

- a. if the land is unalienated from the Crown — the Crown
- b. if the land is alienated from the Crown by grant in fee simple — the owner (at law or in equity) of the estate in fee simple
- c. if the land is held from the Crown by lease or licence — the lessee or licensee, or a person who has entered into an agreement to acquire the interest of the lessee or licensee
- d. if the land is held from the Crown under an agreement to purchase — the person who has the right to purchase
- e. a person who holds native title in the land, or
- f. a person who has arrogated to himself or herself (lawfully or unlawfully) the rights of an owner of the land; and includes an occupier of the land and any other person of a prescribed class included within the ambit of this definition (under the NRM Act) by the regulations.

Potentiometric level, potentiometric surface or potentiometric head — the level to which water rises in a well due to water pressure in the aquifer.

Property — An allotment or contiguous allotments owned or occupied by the same person, persons or body and operated as a single unit. Allotments will be considered to be contiguous if they abut at any point, or are separated only by a road, street, lane, footway, court, alley, railway, thoroughfare, easement, right-of-way, watercourse, channel or a reserve or similar open space.

Riparian — relating to or situated on the part of the landscape adjacent to a water body that influences and is influenced by watercourse processes. This can include landform, hydrological or vegetation definitions. It is commonly used to include the in-stream habitats, bed, banks and sometimes floodplains of watercourses.

Runoff — water flowing over land or in a natural or man-made drain, after having fallen as precipitation.

Stream order — a method of classifying the size of a part of a watercourse, based on the hierarchy of connecting watercourse segments. The Strahler stream ordering system is used in the Plan. The most upstream part of a watercourse is a first order stream. Two first order watercourses join together to become a second order watercourse. Two second order watercourses join together to become a third order watercourse and so on. Arthur Strahler first proposed the approach in 1952 in an article in the Geological Society of America Bulletin.

Surface area — as applied to water contained within a dam, wall or other structure when at capacity, the extent of a 2 dimensional surface enclosed by the water line when the structure is filled to capacity.

Threshold flow rate — the flow rate at or below which water must not be taken, or if taken is to be returned to the same watercourse or drainage path immediately downstream of the structure, as soon as reasonably practicable. The threshold flow rate is specified as a flow rate that in an average year will be reached 10% of the time.

To take water from a water resource includes:

- a. to take water by pumping or syphoning the water
- b. to stop, impede or divert the flow of water over land (whether in a watercourse or not) for the purposes of collecting the water
- c. to divert the flow of water in a watercourse from the watercourse
- d. to release water from a lake.

Transmissivity — a parameter indicating the ease of underground water flow through a metre width of aquifer section.

Underground water —

- a. water occurring naturally below ground level
- b. water pumped, diverted or released into a well for storage underground.

Well —

- a. an opening in the ground excavated for the purpose of obtaining access to underground water
- b. an opening in the ground excavated for some other purpose but that gives access to underground water
- c. a natural opening in the ground that gives access to underground water.

Water deemed taken — an estimation of the water taken that approximates the actual average annual take over multiple years.

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

Water infrastructure — for the purposes of this Plan includes artificial lakes, dams or reservoirs, embankments, walls, channels or other works or earthworks, bridges and culverts, buildings or structures, roads, pipes, machinery or other plant or equipment.

Watercourse — has the same meaning as in section 3 (1) of the NRM Act, meaning a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows whether permanently or from time to time and includes:

- a. a dam or reservoir that collects water flowing in a watercourse
- b. a lake through which water flows
- c. a channel (but not a channel declared by regulation to be excluded from the ambit of this definition (under the NRM Act)) into which the water of a watercourse has been diverted
- d. part of a watercourse
- e. an estuary through which water flows, and
- f. any other natural resource, or class of natural resource, designated as a watercourses for the purposes of the NRM Act by an NRM plan.

Water take limits — the volume of water that can be taken from the shared water resource. Water take limits are based on the total yield of surface water runoff generated by rainfall over a given area of land – either a property, a catchment or a sub-catchment. The default limit of 25% of this volume is available at a particular location while the rest is released downstream.

Water take limits are calculated from the following equation: $WTL = (R \times A \times 0.25) / 100$

Where:

WTL = Water take limit (ML/yr) R = Mean annual runoff (mm/yr)

A = Area of catchment, sub-catchment or property (ha)

Wetland — has the same meaning as in section 3 (1) of the NRM Act, meaning an area that comprises land that is permanently or periodically inundated with water (whether through a natural or artificial process) where the water may be static or flowing and may range from fresh water to saline water and where the inundation with water influences the biota or ecological processes (whether permanently or from time to time) and includes any other area designated as a wetland:

- a. by an NRM Plan
- b. by a Development Plan under the *Development Act 1993*, but does not include:
 - i. a dam or reservoir that has been constructed by a person wholly or predominantly for the provision of water for primary production or human consumption
 - ii. an area within an estuary or within any part of the sea, or
 - iii. an area excluded from the ambit of this definition (under the NRM Act) by the regulation.





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