Government
of South Australia

Department of Water,
Land and Biodiversity
Conservation

River Murray Act 2003

Neutral or Beneficial Effect Guidelines

to assist with the preparation and assessment of referred matters under the *River Murray Act 2003*

River Murray Act 2003
Neutral or Beneficial Effect Guidelines
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Part A – Background

1. River Murray Act 2003

The River Murray Act 2003 requires certain matters to be referred to the Minister for the River Murray for assessment against the objects and objectives for a healthy River Murray contained in the Act. The decision on what needs to be referred is determined by legislation and is made by the authority responsible for administering that legislation. The Minister can also exempt certain matters from needing to be referred. It is not the responsibility of the proponent of a proposal to identify if a referral is required. For example, the Development Act 1993 and Development Regulations 1993 have been amended to require certain types of development applications to be referred by the local council to the Minister for the River Murray for assessment. However, it is in the best interests of proponents to use this guideline to ensure their proposal is consistent with the River Murray Act.

To gain a better understanding of the Act and its relationship with other Acts, see the River Murray Act 2003 documents on the Department of Water, Land and Biodiversity Conservation (DWLBC) website (www.dwlbc.sa.gov.au), including:

User's First Guide

- Implementation Strategy
- Overview (fact sheet no 35)
- Referrals (fact sheet no 36)
- General Duty of Care (fact sheet no 37)
- Referrals – Exemption of Certain Outbuildings and Farm Buildings (fact sheet no 38).

2. The neutral or beneficial effect guidelines

This document has been developed to assist people with the initial planning of their proposal so that it is consistent with the River Murray Act 2003, which will increase the likelihood of a smooth passage through the assessment process.

It is a supporting document to the River Murray Referral Assessment Policy – Overview and General Provisions, which should be read first (see the DWLBC website www.dwlbc.sa.gov.au).

3. What matters are currently referred or exempt?

For a list of matters referred and exempt from referral to the Minister for the River Murray visit the River Murray Act 2003 page on the DWLBC website (www.dwlbc.sa.gov.au) or contact the DWLBC on 8463 6800. River Murray Act 2003 Referrals (fact sheet no 36) contains an overview of the referral process.

4. Other assessment processes

There are a number of other assessment processes that are not covered by a referral to the Minister for the River Murray. These include but are not limited to:

***Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)**

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) requires proponents to undertake a self-assessment to determine if their proposal should be referred to the Commonwealth Environment Minister. Responsibility to identify a referral rests with the proponent and not with state or local governments. A referral to the Minister for the River Murray does not remove the potential need for a referral under the EPBC Act. For further information on the EPBC Act, visit the Department of the Environment and Heritage website (www.deh.gov.au/epbc) or telephone free call 1800 803 772.

***Native Title Act 1993* (Commonwealth)**

Proposed activities or developments that may affect native title are classed as 'future acts' under the Commonwealth Native Title Act 1993. Responsibility lies with proponents to ensure they comply with the Act's requirements. A referral to the Minister for the River Murray does not remove the need for a proponent to check native title issues.

For further information on future acts and native title visit the National Native Title Tribunal website (www.nntt.gov.au) or telephone free call 1800 640 501.

***Environment Protection Act 1993* (SA)**

Certain activities may require approval from the Environment Protection Authority (EPA) in accordance with the Environment Protection Act 1993. This approval process is separate to a referral to the Minister for the River Murray under the River Murray Act 2003. Proponents should discuss their proposal with the EPA to ensure that any potential problems are identified early in the project planning phase. For further information on the Environment Protection Act visit the EPA website www.epa.sa.gov.au, or telephone (08) 8204 2000 or free call 1800 623 445 (South Australia non-metropolitan callers only).

***Major Developments or Projects – Development Act 1993* (SA)**

Major Developments or Projects are declared by the South Australian Minister for Urban Development and Planning under the Development Act 1993 if they have major environmental, social or economic importance. For further information on the Major Developments or Projects process visit the Planning SA website (www.planning.sa.gov.au) or telephone (08) 8303 0600.

***Native Vegetation Act 1991* (SA)**

South Australia's Native Vegetation Act 1991 requires a proponent to seek approval from the Native Vegetation Council (NVC) for the clearance of native vegetation. This approval process is separate to a referral to the Minister for the River Murray under the River Murray Act 2003. Responsibility to comply with the Native Vegetation Act lies with the proponent. For further information on the Act visit the DWLBC website (www.dwlbc.sa.gov.au) or telephone (08) 8463 6800.

5. Minister's discretion

This document and the River Murray Referral Assessment Policy have been developed to assist the Minister for the River Murray and delegates in assessing referred matters in accordance with the River Murray Act 2003. The Minister or delegate is not bound by the content of the policy or guidelines when making a decision.

Part B – A neutral or beneficial effect

1. What is a neutral or beneficial effect?[1]

The River Murray Act 2003 aims to protect and enhance the River Murray and related areas and ecosystems. The Act gives the Minister for the River Murray the opportunity to assess referred statutory instruments (e.g. planning amendment reports, or PARs, under the Development Act 1993) and applications for authorisations (e.g. development approvals under the Development Act).

In exercising the Minister's powers[2], on receipt of a referred application the Minister:

- will require a proponent to demonstrate that each potential impact of a proposed activity will have a neutral or beneficial effect on the River Murray
- may impose conditions necessary to ensure that the activity will have a neutral effect
- may impose conditions so that the activity has a beneficial effect, where it is reasonable and practicable to do so.

Neutral or beneficial effect

An activity has a neutral or beneficial effect on the River Murray when the impacts of the activity are known and understood, and the activity:

(1) has no potential for adverse impact, or

(2) will lead to an improvement consistent with the objects and objectives for a healthy River Murray, or

(3) has potential for adverse impact that would be inconsistent with one or more of the objectives for a healthy River Murray, however

  (A) the activity would avoid the adverse impact or the risk of impact because of the way it would be undertaken or

  (B) it is impossible to avoid the adverse impact or potential impact, and

    (i) the adverse impact is not very high (refer to Part C of this document), and

    (ii) the adverse effects of the activity can be offset[3] by specific cost-effective actions that will benefit the river and can be secured by the imposition of conditions, and

    (iii) the proponent can sufficiently demonstrate (e.g. via the results of an economic viability study and/or business case) that the activity provides:

      (a) significant social or economic benefit to the people of the state, and/or

      (b) a net improvement to the river. (For example, where a net improvement will be gained by replacing an existing activity that is having an adverse impact, with an activity of lesser impact)

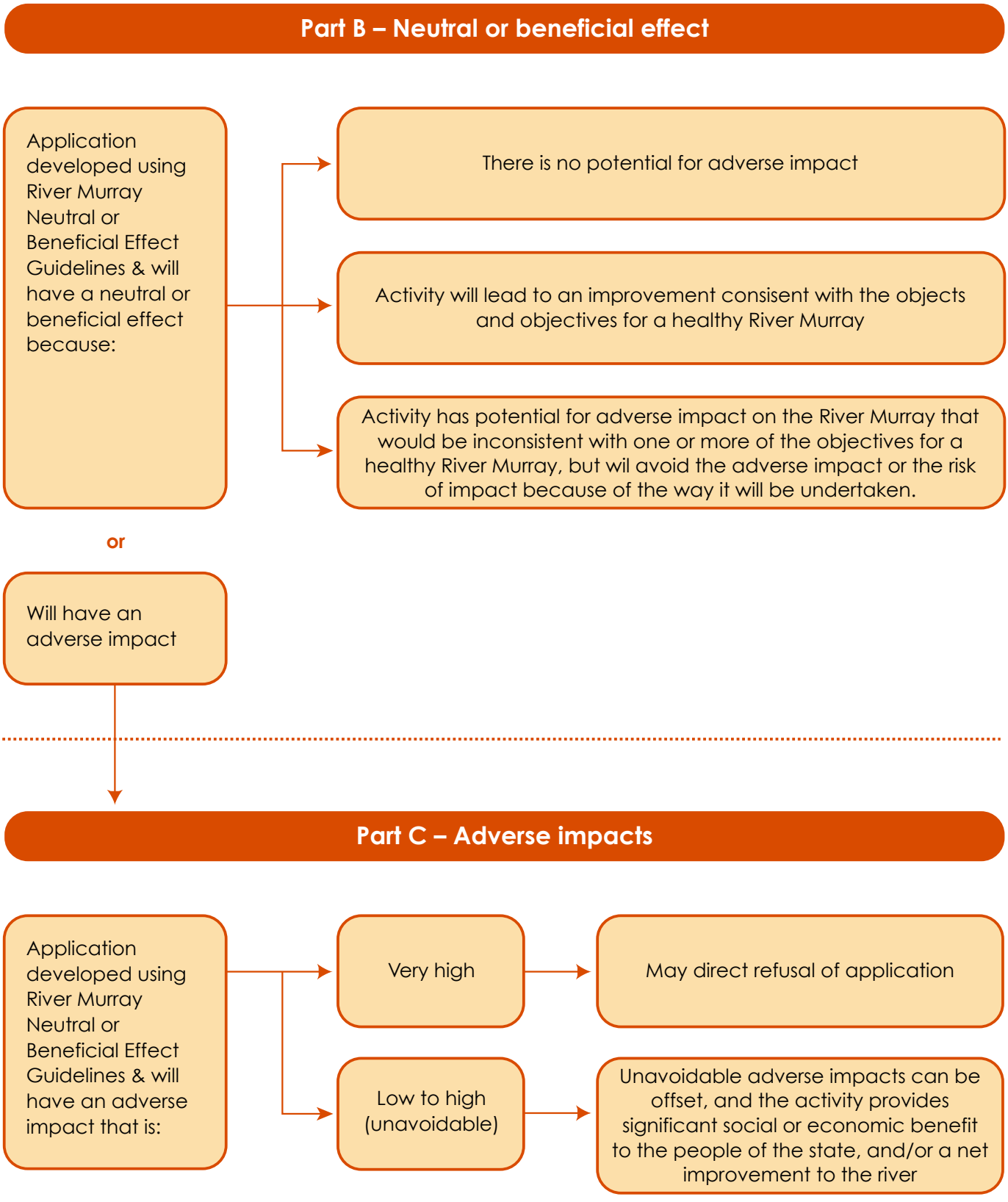
This neutral or beneficial effect framework is shown diagrammatically in figure 1.

[1] The concept of neutral or beneficial effect is established in the River Murray Referral Assessment Policy – Overview and General Provisions (DWLBC, 2007).

[2] The powers of the Minister are set out in section 22 of the River Murray Act 2003 and also in relevant provisions of the related operational Act under which an application is referred to the Minister.

[3] The concept of an offset is established in the River Murray Act 2003 s22(8)(b) and s42(3)(b), briefly discussed in the River Murray Referral Assessment Policy – Overview and General Provisions (DWLBC 2007) and will be addressed in detail in the River Murray Offsets Guidelines (currently under development by DWLBC).

Figure 1: Neutral or beneficial effect framework



2. Neutral or beneficial effect test

The neutral or beneficial effect test provides guidance on the relationship between proposed activities and the objectives for a healthy River Murray contained in the River Murray Act 2003. By referring to the test when developing a proposal, proponents will gain a better understanding of what the Act is trying to achieve and whether the proposal is heading in the preferred direction. It should also reduce the number of proposals that are likely to be refused or would require considerable time and resources to amend. DWLBC will refer to the same test, along with more detailed policies, in assessing proposals. Figure 2 summarises the referral assessment process highlighting the use of the neutral or beneficial effect test.

The test is outlined in tables 2.1 – 2.15. To use the test, read the information under adverse impact, neutral effect and beneficial effect for each River Murray objective and assess the likely outcome of the proposal.

Where the outcome is a potential adverse impact, the proponent should review the proposal and seek to make changes that would result in a beneficial or at least a neutral effect.

Professional advice may be required from the private or government sector to assist with this (refer Table 1).

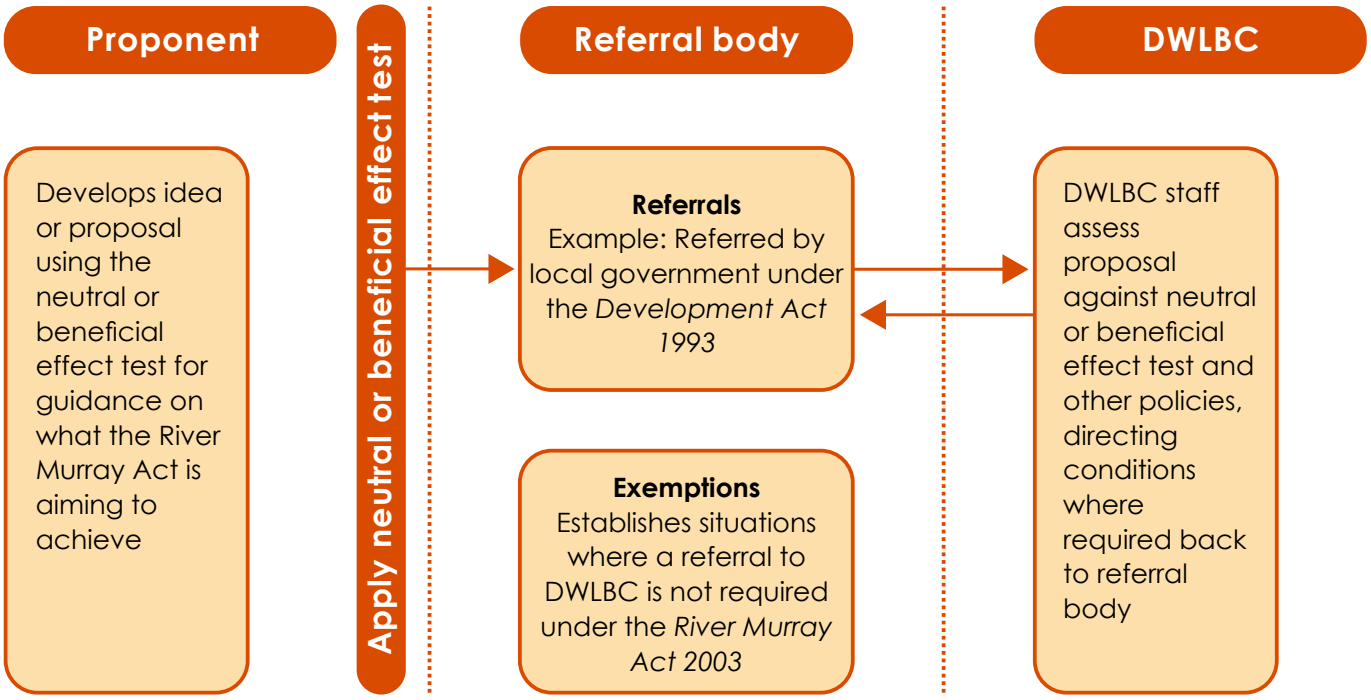
If the proposal most closely resembles the adverse impact examples there is a risk that it will not be approved. It is advised that proponents do not move on to Part C unless they have exhausted all options under Part B. Then, if the proposal still has the potential for an adverse impact, the degree of impact would need to be considered. The process described under Part C is a structured approach to assist in determining the likely degree of adverse impact. An appropriate offset that reflects the likely degree of adverse impact may need to be sought in accordance with the River Murray Offsets Guidelines developed by DWLBC.

If an appropriate offset is not achievable, the proposal is likely to be refused.

3. Cumulative impact

When assessing referred matters the Minister for the River Murray will consider a proposal's potential cumulative impacts (i.e. adverse impacts beyond the project site).

Figure 2: Referral assessment process



4. Need assistance?

Table 1 outlines State Government assistance available for completing the neutral or beneficial effect test.

Table 1: State Government assistance

Issue	Government sector
Questions about the neutral or beneficial effect test or the *River Murray Act 2003*	**Department of Water, Land and Biodiversity Conservation (Strategic Policy Division)** (08) 8463 6800
Aboriginal heritage	Aboriginal Affairs and Reconciliation Division (08) 8226 8900 (located within the Department of the Premier and Cabinet)
Agriculture, horticulture, primary industries	Department of Primary Industries and Resources South Australia (PIRSA) (08) 8226 0222
Crown Lands (right to occupy e.g. river structures, licences, permits)	Department for Environment and Heritage (Crown Lands Branch) (08) 8204 1910
Economic development	Department for Trade and Economic Development (08) 8303 2400
Heritage issues (non-indigenous)	Department for Environment and Heritage (Heritage Branch) (08) 8204 1910
Native animals	Department for Environment and Heritage (08) 8204 1910
Native Title and Indigenous Land Use Agreements	Attorney-General's Department (ILUA Unit) (08) 8207 1555
Native vegetation	Department of Water, Land and Biodiversity Conservation (Native Vegetation Group) (08) 8463 6800
Planning and development consents	Local government (your local council)
Reserve management (e.g. national parks, conservation parks, etc), Ramsar site management	Department for Environment and Heritage (08) 8204 1910
Salinity	Department of Water, Land and Biodiversity Conservation (Strategic Policy Division) (08) 8463 6800
Soil conservation, catchment management, pest plants and animals, environmental flows (water flows)	South Australian Murray-Darling Basin Natural Resource Management Board (08) 8532 1432
Water allocation and licensing	Department of Water, Land and Biodiversity Conservation (Resource Allocation Division) (08) 8463 6800
Water quality and pollution	Environment Protection Authority, (08) 8204 2000 or free call 1800 623 445 (South Australia non-metropolitan callers only)
Water supply, activities around intake points	SA Water, 1300 650 951

5. Neutral or beneficial effect tables

The neutral or beneficial effect test is designed to provide guidance on the types of actions that are considered desirable to achieve the objectives for a healthy River Murray contained in the River Murray Act 2003. The content of the tables is not a definitive summary of all the potential actions that could be undertaken and does not bind or limit the Minister for the River Murray or delegate in reaching a decision on a referred matter.

How to use the neutral or beneficial tables:

STEP 1:
Read the objectives for a healthy River Murray contained in the *River Murray Act 2003* to better understand what the Act aims to achieve

STEP 2:
The bold general statements help describe what is considered adverse, neutral or beneficial

STEP 3
Read the action statements provided that help to describe what type of actions are considered undesirable (adverse), acceptable (neutral) or preferred (beneficial)

River health objective 4	Barriers to the migration of native species of animal within the River Murray system are to be avoided or overcome	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Barriers to the migration of native animal species within the River Murray system	**No change to barriers affecting the migration of native animal species within the River Murray system**	**Removal of barriers to the migration of native animal species within the River Murray system**
Directly or indirectly contributing to reducing native animal migration as a consequence of the proposed activity. ***Undesirable actions:*** x Interfering with natural water regimes through the construction of structures, excavation, deposition of fill, changes in land use, etc. x Changing ecological conditions such as increasing or decreasing water temperatures, etc. x Physically blocking access through the construction of structures, excavation, deposition of fill, changes in land use, etc. x Removing habitat that provides a corridor for the movement of native animal species.	No direct or indirect contribution to reducing native animal migration as a consequence of the proposed activity. ***Acceptable actions:*** • Interfering with natural water regimes that do not contribute to reduced native animal migration. • No change in ecological conditions such as increasing or decreasing water temperatures, etc. • No change in native animal access through the construction of structures, excavation, deposition of fill, changes in land use, etc. • No change to habitat that provides a corridor for the movement of native animal species.	Directly or indirectly contributing to improved native animal migration as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes that provide for improved native animal migration. ✔ Improving ecological conditions such as increasing or decreasing water temperatures, etc to reflect natural conditions. ✔ Removing blockages to access, resulting in improved native animal migration. ✔ Restoring habitats that facilitate improved native animal migration.

STEP 4
Write in any relevant comments such as; "no impacts on this objective", or "the proposal is likely to cause an adverse impact by …", or "the proposal will have a beneficial effect by …"

Proponent's comments

Beneficial *(example) – Removal of some exotic plants (including willows),replaced by local native plants to stabilise bank and increase the amount of native vegetation on the property, providing more habitat and corridors for native animals. This is considered to be contributing beneficially to migration opportunities for native animals.*

Neutral *(example) – Exotic plants removed and structural engineering works (ie approved retaining wall) undertaken to protect bank from erosion. No revegetation using native plants.*

Adverse *(example) – Exotic plants will be removed from the riverbank, no remediation works will be undertaken to protect the exposed bank from erosion, grass (lawn) will be planted resulting in zero biodiversity benefit.*

Table 2.1: River health objective 1

River health objective 1	The key habitat features in the River Murray system[4] are to be maintained, protected and restored in order to enhance ecological processes	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Degradation (of any duration) of key habitat features in the River Murray system, such as vegetation, wetlands and the River Murray channel	**Existing key habitat features maintained and not degraded as a result of the proposed activity**	**Protection and/or restoration of key habitat features as a result of the proposed activity**
Vegetation (exotic and native unless stated otherwise, but not including commercial crops). a. Clearance of vegetation that provides key habitat for native animals and/or protects land from erosion, salinity or any other undesirable soil condition. Note: Damage to, disturbance of, or interference with, Aboriginal scarred trees and any part of landscape/ vegetation that is an Aboriginal site is contrary to law unless authorised by the Minister for Aboriginal Affairs and Reconciliation. ***Undesirable actions:*** x Physical removal of plant(s) (cutting, digging, etc). x Causing death through indirect actions (poisoning nearby soil, removal of a fence protecting vegetation, changing water flows/flooding regimes, groundwater status, etc). x Causing death through direct damage (tying rope around tree leading to ringbarking, inappropriate trimming, etc). x Introducing or facilitating the spread of exotic species that out-compete or physically destroy the existing vegetation. x Stock grazing that can place pressure on individual plant species within a habitat type, or cause erosion or reduce water quality. x Disturbance and clearing of benthic flora, bed and bank structure and soil disturbance caused by dredging and sang dumping. x Unapproved deliberate burning. x Traffic through vegetation (tracks, roads, paths, trails, etc) reducing natural regeneration ability.	Clearance of vegetation that does not provide key habitat for native animals and/or lead to erosion, salinity or any other undesirable soil condition, and does not provide an overall ecological benefit. ***Acceptable actions:*** • Lawful physical removal of vegetation that does not disturb the soil/riverbed, or involves soil/riverbed disturbance followed up with erosion or sediment control works. • Lawful poisoning of vegetation that does not involve disturbance of the soil and will not result in erosion or chemical pollution beyond the target species.	Clearance of vegetation that does not provide key habitat for native animals and/or lead to erosion, salinity or any other undesirable soil/riverbed condition, and is followed up with appropriate revegetation using local native species, or some other ecological improvement at the site. ***Preferred actions:*** ✔ Lawful physical removal of vegetation that does not disturb the soil/riverbed, or involves soil/riverbed disturbance followed up with erosion or sediment control works and/or revegetation using local native species. ✔ Lawful poisoning of vegetation that does not involve disturbance of the soil and will not result in erosion or chemical pollution, followed up with revegetation using local native species.
b. Degradation of native vegetation resulting from a change in conditions caused by the proposed activity. ***Undesirable actions:*** x Interfering with any water flows (including underground or surface) and flooding regimes, which will directly or indirectly contribute to a decline in the health of native vegetation. x Introduction of exotic species that out-compete or physically degrade the existing native vegetation.	No decline in native vegetation health despite a change in conditions caused by the proposed activity. ***Acceptable actions:*** • Changes to any water flows (including underground or surface) and flooding regimes that do not support native vegetation and will not cause environmental degradation. • Introduction of exotic species that do not out-compete or degrade the existing native vegetation and will not cause environmental degradation.	Improved native vegetation health as a result of a change in conditions caused by the proposed activity. ***Preferred actions:*** ✔ Changes to any water flows (including underground or surface) and flooding regimes that will improve the health, or lead to regeneration, of native vegetation. ✔ Introduction of native vegetation (e.g. reed beds to prevent erosion) in addition to existing habitat.

[4] River Murray system means the river itself, and all anabranches, tributaries, floodplains, wetlands and estuaries that are in any way connected or associated with the river, and related beds, banks and shores (River Murray Act 2003.

✗ Stock grazing that could destroy or place pressure on native plant species and habitats. ✗ Traffic through native vegetation (tracks, roads, paths, trails, etc) that could destroy or place pressure on species and habitats and reduce natural regeneration capability.	• Stock grazing that does not degrade native vegetation species and habitats and will not cause environmental degradation. • Changes in traffic (tracks, roads, paths, trails, etc) that does not impact on native vegetation and will not cause environmental degradation.	✔ Removal of existing stock grazing and the facilitation of native vegetation regeneration. ✔ Removal of existing traffic pressures (tracks, roads, paths, trails, etc) and the facilitation of native vegetation regeneration.
c. Degradation of exotic vegetation resulting from a change in conditions caused by the proposed activity, which then leads to erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. ***Undesirable actions:*** ✗ Interfering with any water flows (including underground or surface) and flooding regimes that degrade exotic vegetation and cause erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. ✗ Introduction of an exotic species that further degrades the existing environment. ✗ Stock grazing that degrades exotic species and leads to erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. ✗ Traffic through exotic vegetation (tracks, roads, paths, trails, etc) that leads to erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. Degradation of exotic vegetation resulting from a change in conditions caused by the proposed activity that does not lead to erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value.	***Acceptable actions:*** • Interfering with any water flows (including underground or surface) and flooding regimes that do degrade exotic vegetation and do not cause erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. • Stock grazing that does degrade exotic species but does not lead to erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. • Traffic through exotic vegetation (tracks, roads, paths, trails, etc) that does not lead to erosion, salinity or any other undesirable soil condition, or an overall loss in ecological value. Degradation of exotic vegetation resulting from a change in conditions caused by the proposed activity that does not lead to erosion, salinity or any other undesirable soil condition, but does contribute to an increase in overall ecological value, such as regeneration of local native species.	***Preferred actions:*** ✔ Interfering with any water flows (including underground or surface) and flooding regimes to degrade exotic vegetation, that does not cause erosion, salinity or any other undesirable soil condition, but does increase overall ecological value. ✔ Stock grazing that degrades exotic species and does not lead to erosion, salinity or any other undesirable soil condition, but does increase overall ecological value. ✔ Traffic through exotic vegetation (tracks, roads, paths, trails, etc) that does not lead to erosion, salinity or any other undesirable soil condition, but does increase overall ecological value.
River Murray channel Degradation of the River Murray channel resulting from a change in conditions caused by the proposed activity. ***Undesirable actions:*** ✗ Interfering with any water flows (including underground or surface) and flooding regimes that would contribute to the degradation of the river. ✗ Introduction of exotic species that may invade the river, decreasing its ability to function properly and reducing its ecological value. ✗ Stock grazing that degrades the river, decreasing its ability to function properly and reducing its ecological value. ✗ Traffic (tracks, roads, paths, trails, etc) that decreases the river's ability to function properly and reducing its ecological value. ✗ Dredging and other types of bed disturbances.	No decline in River Murray channel health resulting from a change in conditions caused by the proposed activity. ***Acceptable actions:*** • Interfering with any water flows (including underground or surface) and flooding regimes in a way that does not contribute to the degradation of the River Murray, decrease its ability to function properly or reduce its ecological value. • Traffic (tracks, roads, paths, trails, etc) that does not result in the degradation of the river, decrease its ability to function properly or reduce its ecological value.	Improved River Murray channel health as a result of a change in conditions caused by the proposed activity. ***Preferred actions:*** ✔ Restoring any water flows (including underground or surface) and flooding regimes that help to improve River Murray health and its ability to function properly, and increase its ecological value. ✔ Removal of existing stock grazing and the facilitation of river regeneration. ✔ Removal of existing traffic pressures (tracks, roads, paths, trails, etc) and the facilitation of river regeneration.

Proponent's comments:

Table 2.2: River health objective 2

River health objective 2	The environments constituted by the River Murray system[2], with particular reference to high-value floodplains and wetlands of national and international importance are to be protected and restored

Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Degradation of environments including high-value floodplains and wetlands of national and international importance	**Environments including high-value floodplains and wetlands of national and international importance, maintained and not degraded as a result of the proposed activity**	**Protection and/or restoration of environments, including high-value floodplains and wetlands of national and international importance as a result of the proposed activity**
Degradation of environments resulting from a change in conditions caused by the proposed activity. ***Undesirable actions:*** x Interfering with any water flows (including underground or surface) and flooding regimes that contribute to the degradation of floodplains and wetlands. x Introducing or facilitating the spread of exotic species that invade floodplains and wetlands, decreasing their ability to function properly and reducing their ecological value. x Stock grazing that degrades floodplains and wetlands, decreasing their ability to function properly and reducing their ecological value. x Traffic (tracks, roads, paths, trails, etc) through, or in the vicinity of, floodplains and wetlands, which decreases their ability to function properly and reduces their ecological value.	No decline in the ecological health of environments resulting from a change in conditions caused by the proposed activity. ***Acceptable actions:*** • Interfering with any water flows (including underground or surface) and flooding regimes that does not result in the degradation of floodplains and wetlands, decrease their ability to function properly or reduce their ecological value. • Stock grazing that does not degrade floodplains and wetlands, decrease their ability to function properly or reduce their ecological value. • Traffic (tracks, roads, paths, trails, etc) through, or in the vicinity of, floodplains and wetlands that does not result in the degradation of wetlands, decrease their ability to function properly or reduce their ecological value.	Improved ecological health of the environment as a result of a change in conditions caused by the proposed activity. ***Preferred actions:*** ✔ Restoring any water flows (including underground or surface) and flooding regimes that help to improve floodplain and wetland health, improve their ability to function properly and increase their ecological value. ✔ Removal of stock grazing pressure and the facilitation of floodplain and wetland regeneration. ✔ Removal of existing traffic pressures (tracks, roads, paths, trails, etc) and the facilitation of floodplain and wetland regeneration.

Proponent's comments: .....

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Table 2.3: River health objective 3

River health objective 3	The extinction of native species of animal and vegetation associated with the River Murray system is to be prevented	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Extinction of native animal and plant species associated with the River Murray system	**No contribution to the extinction of native animal and plant species associated with the River Murray system**	**Assistance with the recovery of threatened/ endangered native animal and plant species associated with the River Murray system**
Extinction of native animal species Directly or indirectly contributing to a new or existing threat affecting threatened/ endangered native animal species via the proposed activity. ***Undesirable actions:*** ✗ Directly or indirectly causing harm to a native animal species through an action such as poisoning, or some other disturbance. ✗ Interfering with natural water regimes in a way that results in harm to a native animal species or its habitat. ✗ Changing ecological conditions such as increasing or decreasing water temperatures, etc. ✗ Introducing or increasing the presence of exotic species that contributes to the decline of a native animal species or its habitat. ✗ Loss of native animal habitat (including corridors for movement) as a direct or indirect result of the activity. ✗ Introducing diseases that contribute to the decline of a native animal species or its habitat.	No direct or indirect contribution to a new or existing threat affecting threatened/ endangered native animal species caused by the proposed activity. ***Acceptable actions:*** • Protection or restoration works such as fencing, weed control, revegetation, or pest control that assists in maintaining the current status of the native animal species. • Establishing a buffer around existing important habitats that assists in maintaining the current status of the native animal species.	Directly or indirectly contributing to the protection of threatened/endangered native animal species as a result of the proposed activity. ***Preferred actions:*** ✔ Protection or restoration works such as fencing, weed control, revegetation, or pest control that enhances the survival of native animal species. ✔ Using a land management agreement to protect native animal species and habitats. ✔ Using a heritage agreement under the Native Vegetation Act 1991 to protect native vegetation species and habitats on specific lands. ✔ Establishing a buffer around existing important habitats that enhances the survival of native animal species.
Extinction of native plant species Directly or indirectly contributing to a new or existing threat affecting threatened/ endangered native plant species via the proposed activity. ***Undesirable actions:*** ✗ Directly or indirectly causing harm to a native plant species through an action such as poisoning, etc. ✗ Interfering with natural water regimes in a way that results in harm to a native plant species or its habitat. ✗ Changing ecological conditions such as increasing or decreasing water temperatures, etc ✗ Introducing or increasing the presence of exotic species that contributes to the decline of a native plant species or its habitat. ✗ Loss of native plant habitat as a direct or indirect result of the activity. ✗ Introducing diseases that contribute to the decline of a native plant species or its habitat. ✗ Changing fire frequency.	No direct or indirect contribution to a new or existing threat affecting threatened/ endangered native plant species caused by the proposed activity. ***Acceptable actions:*** • Protection or restoration works such as fencing, weed control, revegetation or pest control that assists in maintaining the current status of the native plant species. • Establishing a buffer around existing important habitats that assists in maintaining the current status of the native plant species.	Directly or indirectly contributing to the protection of threatened/endangered native plant species as a result of the proposed activity. ***Preferred actions:*** ✔ Protection or restoration works such as fencing, weed control, revegetation, or pest control that enhances the survival of native plant species. ✔ Using a land management agreement to protect native plant species and habitats. ✔ Using a heritage agreement under the Native Vegetation Act 1991 to protect native vegetation species and habitats on specific lands. ✔ Establishing a buffer around existing important habitats that enhances the survival of native animal species.

Proponent's comments:

Table 2.4: River health objective 4

River health objective 4	Barriers to the migration of native species of animal within the River Murray system are to be avoided or overcome	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Barriers to the migration of native animal species within the River Murray system	**No change to barriers affecting the migration of native animal species within the River Murray system**	**Removal of barriers to the migration of native animal species within the River Murray system**
Directly or indirectly contributing to reducing native animal migration as a consequence of the proposed activity. ***Undesirable actions:*** x Interfering with natural water regimes through the construction of structures, excavation, deposition of fill, changes in land use, etc. x Changing ecological conditions such as increasing or decreasing water temperatures, etc. x Physically blocking access through the construction of structures, excavation, deposition of fill, changes in land use, etc. x Removing habitat that provides a corridor for the movement of native animal species.	No direct or indirect contribution to reducing native animal migration as a consequence of the proposed activity. ***Acceptable actions:*** • Interfering with natural water regimes that do not contribute to reduced native animal migration. • No change in ecological conditions such as increasing or decreasing water temperatures, etc. • No change in native animal access through the construction of structures, excavation, deposition of fill, changes in land use, etc. • No change to habitat that provides a corridor for the movement of native animal species.	Directly or indirectly contributing to improved native animal migration as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes that provide for improved native animal migration. ✔ Improving ecological conditions such as increasing or decreasing water temperatures, etc to reflect natural conditions. ✔ Removing blockages to access resulting in improved native animal migration. ✔ Restoring habitats that facilitate improved native animal migration.

Proponent's comments: .....

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Table 2.5: Environmental flows objective 1

Environmental flows objective 1	**Ecologically significant elements of the natural flow regime of the River Murray system are to be reinstated and maintained**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Ecologically significant elements of the natural flow regime degraded	**No change to ecologically significant elements of the natural flow regime**	**Ecologically significant elements of the natural flow regime reinstated and maintained**
Directly or indirectly contributing to the degradation of ecologically significant elements as a consequence of the proposed activity. ***Undesirable actions:*** x Negatively interfering with ecologically significant elements of the natural water regimes through the construction of structures, excavation, deposition of fill, changes in land use, water diversions, etc. x Changing ecological conditions such as increasing or decreasing water temperatures (unless done to reflect natural conditions), etc.	No direct or indirect contribution to the degradation of ecologically significant elements of the natural flow regime as a consequence of the proposed activity. ***Acceptable actions:*** • No interference with ecologically significant elements of the natural water regimes. • No change in natural ecological conditions such as increasing or decreasing water temperatures (unless done to reflect natural conditions), etc	Directly or indirectly contributing to an improvement in ecologically significant elements of the natural flow regime as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring ecologically significant elements of the natural water regimes that provide for improved natural flow and beneficial ecological outcomes. ✔ Improving ecological conditions such as increasing or decreasing water temperatures, etc to reflect natural conditions.

Proponent's comments:.....

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Table 2.6: Environmental flows objective 2

Environmental flows objective 2	**The Murray mouth should be kept open in order to maintain navigation and the passage of fish in the area, and to enhance the health of the River Murray system and estuarine conditions in the Coorong**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Contributes directly or indirectly to the closure of the River Murray Mouth	**No change to the River Murray Mouth**	**Contributes directly or indirectly to keeping the River Murray Mouth open**
Directly or indirectly contributes to the closure of the River Murray Mouth as a result of the proposed activity. ***Undesirable actions:*** x Interfering with natural water regimes and contributing to less water reaching the river mouth. x Erosion of material from floodplains, watercourses, banks, etc contributing sediment to the river, which makes its way to the mouth. x Inefficient water use practices contributing to more water than required being taken from the river. x Depositing material on floodplains, river banks and in shallow waters, such as sand for artificial beaches, which washes downstream.	No direct or indirect contribution to the closure of the river mouth through the proposed activity. ***Acceptable actions:*** • No interference with natural water regimes. • No sediment or other undesirable material entering the river and making its way to the mouth. • Implementation of efficient water use practices.	Directly or indirectly contributes to keeping the River Murray Mouth open through the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes contributing to an increased flow of water to flush the river mouth. ✔ Stopping erosion from floodplains, watercourses, banks, etc, reducing the amount of sediment entering the river and making its way to the mouth. ✔ Using water more efficiently and returning water savings to the river for environmental flows.

Proponent's comments:.....

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Table 2.7: Environmental flows objective 3

Environmental flows objective 3	**Significant improvements are to be made in the connectivity between and within the environments constituted by the River Murray system**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Contributes directly or indirectly to degrading the connectivity between and within environments	**No change to the connectivity between and within environments**	**Contributes directly or indirectly to improving the connectivity between and within environments**
Directly or indirectly contributes to the degradation of connectivity between and within the environments constituted by the River Murray system as a consequence of the proposed activity. ***Undesirable actions:*** x Negatively impacting natural water regimes through the construction of structures, excavation, deposition of fill, changes in land use, etc. x Changing ecological conditions such as increasing or decreasing water temperatures, etc. x Physically blocking access through the construction of structures, excavation, deposition of fill, changes in land use, etc. x Removing habitat that provides a corridor for the movement of native animal species (except where allowed for the purposes of bushfire protection).	No direct or indirect contribution to the degradation of connectivity between and within the environments constituted by the River Murray system as a consequence of the proposed activity. ***Acceptable actions:*** • No interference with natural water regimes. • No change in natural ecological conditions such as increasing or decreasing water temperatures, etc. • No change in native animal access through the construction of structures, excavation, deposition of fill, changes in land use, etc. • No change to habitat that would fragment or otherwise significantly disturb a corridor for the movement of native animal species (except where allowed for the purposes of bushfire protection).	Directly or indirectly contributes to improving connectivity between and within the environments constituted by the River Murray system as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes that provide for improved connectivity. ✔ Improving ecological conditions such as increasing or decreasing water temperatures, etc to reflect natural conditions. ✔ Removing blockages to access resulting in improved connectivity. ✔ Restoring habitats that facilitate improved connectivity. ✔ Ensuring provision is made to maximise fish passage through structures.

Proponent's comments: .....

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Table 2.8: Water quality objective 1

Water quality objective 1	**Water quality within the River Murray system should be improved to a level that sustains the ecological processes, environmental values and productive capacity of the system**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Contributes directly or indirectly to the degradation of water quality	**No change in water quality**	**Contributes directly or indirectly to improving water quality**
Directly or indirectly contributes to the degradation of water quality as a consequence of the proposed activity. ***Undesirable actions:*** x Having a negative impact on water regimes by reducing circulation and flow and contributing to reduced water quality. x Facilitating erosion and contributing sediment to the river increasing turbidity and reducing water quality. x Discharging point source and diffuse pollution from land and water based activities including land uses. x Changing ecological conditions such as increasing or decreasing water temperatures, etc. x Having an adverse impact on the attributes and uses of the river (e.g. water supplies, recreational values).	No change in water quality as a consequence of the proposed activity. ***Acceptable actions:*** • No contribution to reduced water quality through interference with water regimes. • No change in natural ecological conditions such as increasing or decreasing water temperatures, etc. • No erosion associated with construction of structures, excavation, deposition of fill, changes in land use, etc. • No discharges from point and diffuse pollution sources associated with land and water based activities including land uses that are inconsistent with EPA standards.	Directly or indirectly contributes to the improvement of water quality as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes to improve circulation and flow and to contribute to improved water quality. ✔ Rehabilitating erosion points to reduce sediment entering the river and resulting in reduced turbidity and improved water quality. ✔ Removing the risk of discharges from point and diffuse pollution sources associated with land and water based activities including land uses, consistent with EPA standards. ✔ Restoring natural ecological processes to facilitate improved biological-chemical water interactions.

Proponent's comments:.....

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Table 2.9: Water quality objective 2

Water quality objective 2	**The impact of salinity on the ecological processes and productive capacity of the River Murray system is to be minimised**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Contributes directly or indirectly to increasing the threat of salinity	**No change in the threat of salinity**	**Contributes directly or indirectly to reducing the threat of salinity**
indirectly contributes to increasing the threat of salinity to the ecological processes and productive capacity of the river system as a consequence of the proposed activity. ***Undesirable actions:*** x Interfering with surface and groundwater regimes that facilitate or contribute to salinity problems. x Inefficient and poor irrigation planning practices (i.e. lack of soil surveys, quality system design or management systems), which lead to salinity problems. x Clearing native vegetation that is helping to reduce the impact of salinity without undertaking revegetation works using native species. x Inappropriate land use and land management activities that facilitate increased volumes of salinity in the river or on the floodplain.	No change in the threat of salinity to the ecological processes and productive capacity of the river system as a consequence of the proposed activity. ***Acceptable actions:*** • No contribution to the occurrence of salinity through interference with water regimes. • Establishment of efficient irrigation practices that do not increase the threat of salinity. • No clearance of native vegetation that may be helping to reduce the impact of salinity. • Appropriate land use and land management activities that do not facilitate the increased occurrence of salinity.	Directly or indirectly contributes to reducing the threat of salinity to the ecological processes and productive capacity of the river system as a consequence of the proposed activity. ***Preferred actions:*** ✔ Implementing surface and groundwater regimes that reduce existing or potential salinity impacts. ✔ Revegetation using native species that assists in reducing existing or potential salinity impacts. ✔ Best practice irrigation methods that reduce existing or potential salinity impacts, combined with irrigating in the low or high salinity impact (salt interception) zones. ✔ Best practice land use and land management activities that reduce existing or potential salinity impacts.

Proponent's comments:.....

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Table 2.10: Water quality objective 3

Water quality objective 3	Nutrient levels within the River Murray system are to be managed so as to prevent or reduce the occurrence of algal blooms, and to minimise other impacts from nutrients on the ecological processes, environmental values and productive capacity of the system	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Contributes directly or indirectly to increasing the level of nutrients	**No change in the level of nutrients**	**Contributes directly or indirectly to reducing the level of nutrients**
Directly or indirectly contributes to increasing the level of nutrients as a consequence of the proposed activity. ***Undesirable actions:*** x Inefficient and poor irrigation practices that lead to nutrients entering watercourses and the river channel. x Inappropriate land use and land management activities that lead to nutrients entering watercourses and the river channel. x Interfering with water regimes to reduce circulation and flow and contributing to reduced water quality.	No change in the level of nutrients as a consequence of the proposed activity. ***Acceptable actions:*** • No contribution to increased nutrient levels through interference with water regimes. • Establishment of efficient irrigation practices that do not contribute to nutrients entering watercourses. • No discharges from point and diffuse pollution sources associated with land and water based activities. • Appropriate land use and waste management activities that do not contribute nutrients to watercourses.	Directly or indirectly contributes to reducing the level of nutrients as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes to improve circulation and flow and to contribute to improved water quality. ✔ Revegetation using native species that assists in reducing existing or potential nutrient impacts. ✔ Best practice irrigation methods that reduce existing or potential nutrient impacts. ✔ Best practice land use and land management activities that reduce existing or potential nutrient impacts. ✔ Removing the risk of discharges from point and diffuse pollution sources associated with land and water based activities. ✔ Restoring natural ecological processes to facilitate improved biological-chemical water interactions.

Proponent's comments:.....

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Table 2.11: Water quality objective 4

Water quality objective 4	**The impact of potential pollutants, such as sediment and pesticides, on the environments constituted by the River Murray system is to be minimised**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Contributes directly or indirectly to discharging pollutants	**Does not discharge pollutants**	**Contributes directly or indirectly to reducing the level of pollution**
Directly or indirectly contributes to discharging pollutants as a consequence of the proposed activity. ***Undesirable actions:*** x Inefficient and poor irrigation practices that lead to pollutants entering watercourses. x Inappropriate land use and land management activities that lead to pollutants entering watercourses. x Interfering with water regimes to reduce circulation and flow and contributing to reduced water quality. x Discharging point and diffuse source pollution from land and water based activities. x Inappropriately designed and located structures that have the potential to contribute pollutants and debris during flood events. x Discharging point and diffuse source pollution from land and water based activities that are inconsistent with EPA standards.	No change in the discharge of pollutants as a consequence of the proposed activity. ***Acceptable actions:*** • No contribution to increased pollution levels through interference with water regimes. • Establishment of efficient irrigation practices that do not contribute pollutants to watercourses. • No discharges from point and diffuse pollution sources associated with land and water based activities. • Appropriate land use and land management activities that do not contribute pollutants to watercourses.	Directly or indirectly contributes to reducing the level of pollutants as a consequence of the proposed activity. ***Preferred actions:*** ✔ Restoring natural water regimes to improve circulation and flow and to contribute to improved water quality. ✔ Best practice irrigation methods that reduce existing or potential pollution impacts. ✔ Best practice land use and land management activities that reduce existing or potential pollution impacts. ✔ Removing the risk of discharges from point and diffuse pollution sources associated with land and water based activities. ✔ Restoring natural ecological processes to facilitate improved biological-chemical water interactions.

Proponent's comments: .....

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Table 2.12: Human dimension objective 1

Human dimension objective 1	**A responsive and adaptable approach to the management of the River Murray system is to be implemented, taking into account ecological outcomes, community interests and new information that may become available from time to time**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Does not account for ecological outcomes, community interests and new information	**No change to ecological outcomes or community interests, and available new information considered**	**Ecological outcomes, community interests and new information**
Proposed activity does not take into account ecological outcomes, community interests or new information. ***Undesirable actions:*** x No consideration of ecological outcomes. x No consideration of community interests, including those of Aboriginal people who have a traditional connection with the river. x No consideration of new information.	No change to ecological outcomes or community interests as a consequence of the proposed activity, which has also considered available new information. ***Acceptable actions:*** • Consideration of ecological outcomes with no beneficial effects. • Consideration of community interests with no beneficial effects. • Consideration of new information with no beneficial effects.	Proposed activity takes into account ecological outcomes, community interests and new information, and offers ecological and community benefits. ***Preferred actions:*** ✔ Consideration of ecological outcomes with identified beneficial effects. ✔ Consideration of community interests with identified beneficial effects. ✔ Consideration of new information with identified beneficial effects.

Proponent's comments: .....

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Table 2.13: Human dimension objective 2

Human dimension objective 2	**The community's knowledge and understanding of the River Murray system are to be gathered, considered and disseminated in order to promote the health and proper management of the system**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
Community knowledge and understanding required, but not gathered, considered or disseminated	**No need to gather, consider and disseminate community knowledge and understanding**	**The gathering, consideration and dissemination of community knowledge and understanding undertaken**
The community's knowledge and understanding have not been gathered, considered or disseminated in forming the proposal, yet are relevant to the assessment of the proposed activity. ***Undesirable actions:*** ✗ No gathering, consideration or dissemination of community knowledge or understanding when it is relevant to do so. ✗ No consultation with Aboriginal people – Aboriginal knowledge and understanding of the river system are nearly always relevant to activities on the river, as the many Aboriginal sites, objects and remains along the river are protected by law, and disrespect for the traditional beliefs and links to country of Aboriginal people has a negative effect on their wellbeing.	The community's knowledge and understanding have not been gathered or considered in forming the proposal and are not relevant to the assessment of the proposed activity. ***Acceptable actions:*** • Demonstrated consideration of the community's knowledge and understanding, however not relevant to the assessment of the proposed activity.	The community's knowledge and understanding have been gathered and considered in forming the proposal. ***Preferred actions:*** ✔ Community's knowledge and understanding have been gathered, considered and disseminated in forming the proposal. ✔ Improved relationships with Aboriginal people and agreements to protect and preserve their heritage.

Proponent's comments: .....

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Table 2.14: Human dimension objective 3

Human dimension objective 3	**The interests of the community are to be taken into account by recognising indigenous and other cultural, and historical, relationships with the River Murray and its surrounding areas, and by ensuring appropriate participation in processes associated with the management of the River system**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
No investigation and recognition of indigenous and other cultural, and historical, relationships with the River Murray and its surrounding areas	**Investigation and recognition of indigenous and other cultural, and historical, relationships with the River Murray and its surrounding areas with no beneficial effect**	**Investigation and recognition of indigenous and other cultural, and historical, relationships with the River Murray and its surrounding areas, with a beneficial effect**
The community's interests have not been taken into account and the appropriate participation has not been ensured. ***Undesirable actions:*** x Lack of recognition of native title claims and indigenous land use agreements. x Damage to, disturbance of, or interference with, Aboriginal sites, objects or remains. x Damage to or loss of historic shipwrecks and relics. x Damage to or loss of state or local heritage places, including designated geological, speleological and paleontological places. x Damage to or loss of significant archaeological sites or artefacts. x Damage to or loss of local or regional cultural heritage values. x No, or inappropriate, investigation and recognition of cultural or historical issues. x No, or inappropriate, participation processes.	The community's interests have been taken into account and appropriate participation has been ensured. ***Acceptable actions:*** • Appropriate investigation and recognition of cultural or historical issues. • No loss of local or regional cultural heritage values. • Recognition of native title claims and indigenous land use agreements. • No damage to, or loss of, historic shipwrecks and relics. • No damage to, or loss of, state or local heritage places, including designated geological, speleological and paleontological places. • No damage to or loss of significant archaeological sites or artefacts. • No damage to, disturbance of, or interference with, Aboriginal sites, objects or remains. • Appropriate, participation processes completed.	The community's interests have been taken into account and appropriate participation has been ensured, and there is broad community support for the proposal. ***Preferred actions:*** ✔ Appropriate, investigation and recognition of cultural or historical issues undertaken with a clear community beneficial effect identified. ✔ An improved outcome for local or regional cultural heritage values. ✔ Recognition of native title claims and indigenous land use agreements, and a positive contribution to a local indigenous community and/or project/ program. ✔ An improved outcome for a historic shipwreck or relic. ✔ An improved outcome for state or local heritage places, including designated geological, speleological and paleontological places. ✔ An improved outcome for significant archaeological sites or artefacts. ✔ Protection and preservation of Aboriginal sites, objects or remains. ✔ Appropriate participation processes completed with a clear beneficial effect for the community identified.

Proponent's comments: .....

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Table 2.15: Human dimension objective 4

Human dimension objective 4	**The importance of a healthy river to the economic, social and cultural prosperity of communities along the length of the river, and the community more generally, is to be recognised**	
Adverse impact *(undesirable)*	**Neutral effect** *(acceptable)*	**Beneficial effect** *(preferable)*
No investigation and recognition of the economic, social and cultural prosperity of communities along the length of the river and the community more generally	**Investigation and recognition of economic, social and cultural prosperity of communities along the length of the river and the community more generally, resulting in no implications or need for change**	**Investigation and recognition of economic, social and cultural prosperity of communities along the length of the river and the community more generally, resulting in clear benefit(s) to the community**
The importance of a healthy river to the community's economic, social and cultural prosperity has not been recognised. Undesirable actions: x Decline in industry and business diversification. x Decline in regional development opportunities. x Decline in tourism. x Decline in long-term employment opportunities. x Decline in local infrastructure capacity services. x Decline in local development opportunities.	The importance of a healthy river to the community's economic, social and cultural prosperity has been recognised. Acceptable actions: • No decline in industry and business diversification. • No decline in regional development opportunities. • No decline in tourism. • No decline in long-term employment opportunities. • No decline in local infrastructure capacity services. • No decline in local development opportunities.	The importance of a healthy river to the community's economic, social and cultural prosperity has been recognised, and there are substantial benefits to the community as a result of the proposal Preferred actions: ✔ Improved industry and business diversification. ✔ Improved regional development opportunities. ✔ Improved tourism opportunities. ✔ Improved long-term employment opportunities, including those for Aboriginal people. ✔ Improved infrastructure capacity services. ✔ Improved local development opportunities. ✔ Improved relationships with Aboriginal people.

Proponent's comments: .....

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PART C – Establishing the Degree of Adverse Impact

1. Degree of adverse impact

Proponents are encouraged to make their proposal beneficial, or at least neutral, under Part B of these guidelines, so that they do not have to complete this section, which is likely to require extra resources from the proponent, and also runs the risk of being refused.

If after reviewing the proposal an adverse impact is still likely, the degree of the impact will need to be established using Tables 3, 4 and 5. The following approach will be taken depending on the degree of impact:

Very high adverse impact:	Likely to result in direction to refuse application as appropriate and effective offset not possible.
High adverse impact:	Very unlikely to be approved; would require very significant offsets[3]; and state benefits and/or a net improvement for the river.
Medium adverse impact:	Unlikely to be approved; would require significant offsets[5]; and state benefits and/or a net improvement for the river.
Low adverse impact:	May be approved and offset[5] by cost-effective actions that will benefit the river system and can be secured by the imposition of conditions, where the activity provides a significant social or economic benefit to the people of the state, and/or a net improvement to the river (i.e. replacing an existing activity that has an adverse impact with an activity of lesser impact).

Table 3 describes the different types of adverse impact based on the perceived "acceptability" and "magnitude" (refer to Tables 4 and 5 for explanations of these terms) associated with the proposed activity. The higher the unacceptability and magnitude, the higher the adverse impact.

Table 3: Establishing the degree of adverse impact

Magnitude	Acceptability			
	Normally acceptable	**May be acceptable only with minimisation, mitigation & management**	**Normally unacceptable**	**Unacceptable**
Very high	High adverse impact	High adverse impact	Very high adverse impact	Very high adverse impact
High	Medium adverse impact	High adverse impact	Very high adverse impact	Very high adverse impact
Medium	Low adverse impact	Medium adverse impact	High adverse impact	Very high adverse impact
Low	Low adverse impact	Low adverse impact	Medium adverse impact	High adverse impact

[5] Offsets will be addressed in detail in the River Murray Offsets Guideline (currently under development by DWLBC).

2. Level of magnitude

Table 4 describes different levels of magnitude based on the potential impact of the proposed activity. The higher the potential impact, the higher the magnitude.

Table 4: Level of magnitude based on potential impact level

Level of magnitude	Potential impact level
Very high	**Major impact** • Affects an entire population or species of native plant or animal in sufficient magnitude to cause a decline in abundance and/or change in distribution beyond which natural recruitment would not return that population or species, or any population or species dependant upon it, to its former level within several generations. • Irreversible ecological damage. • Further deterioration of water quality in a location where current water quality does not meet the community agreed water quality objectives (as stated as water quality criteria in Schedule 2 of the Environment Protection (Water Quality) Policy 2003 or resource condition targets in the SA Murray-Darling Basin Natural Resource Management Plan. • Polluting activities within SA Water off-take buffer zones (3 km upstream and 500 m downstream of off-takes). • Increased risk to drinking water supplies. • Affects a subsistence or commercial resource to the degree that the wellbeing of the user is affected over a long term. • Affects all South Australian communities. • Affects an Aboriginal community. • Negative impact on health and safety of local and regional communities.
High	**Moderate impact** • Affects a portion of a native plant or animal population, and may bring about a change in abundance and/or distribution over one or more generations, but does not threaten the integrity of that population or any population dependent upon it. • Measurable changes to ecosystem components without there being a major change in function (i.e. no loss of components). • Ecological recovery measured in years. • May also constitute a short-term effect on the wellbeing of other resource users. • Affects regional communities. • Negative impact on health and safety of local communities.
Medium	**Minor impact** • Affects specific group of localised individuals within a native plant or animal population, over a short time period (one generation or less), but does not affect other trophic levels or the population itself. • Noticeable impact to habitats or populations, measurable against background variability (invoke precautionary principle in the absence of measurable data). • Ecological recovery measured in months. • Affects local communities.
Low	**Negligible impact** • Any impacts below the minor category are considered negligible. • Insignificant impacts to native plant or animal habitat or populations. • Unlikely to be measurable against background variability. • Habitat and ecosystem: Interactions may be occurring but it is unlikely there would be any change outside of natural variation. • Ecological recovery measured in days.

Source: Adapted from Sippe (1999)

3. Community acceptability

Table 5 describes different levels of community acceptability based on the potential impact thresholds associated with the proposed activity. The higher the potential impact the more unacceptable the activity is likely to be to the community. The information in Tables 4 and 5 provides indicative examples to assist users and is not intended to be an exhaustive list.

Table 5: Threshold tests for community acceptability

Level of acceptability	Potential impact thresholds
Unacceptable	• Exceeds legal threshold, e.g. water quality standard, Aboriginal heritage. • Increases level of risk to public health and safety above qualitative or quantitative standards. • Extinction of biological species, loss of genetic diversity, rare or endangered species, critical habitat. • Loss of populations of commercial biological species. • Large-scale loss of productive capacity (e.g. land salinity) of renewable resources. • Loss of existing rights to public access along the river without agreed compensation.
Normally unacceptable	• Conflicts with existing environmental policies, development plans, NRM plans, etc. • Spread of biological disease, pests, feral animals, weeds. • Taking of rare or endangered species. • Some loss of threatened habitat.
May be acceptable only with minimisation, mitigation and management	• Some loss of populations and habitats of non-threatened species.
Normally acceptable	• Modification of landscape without downgrading special aesthetic values or affecting Aboriginal sites, objects or remains. • Emissions demonstrably less than the carrying capacity of the receiving environment. • Creation of shared facilities for community use. • Compliance with related Acts or policies.

Source: Adapted from Sippe (1999)

4. Adverse impact example

How to complete the adverse impact tables using the template provided under Section 5 (page 31).

STEP 1:
Describe the adverse impact.

STEP 2:
Use Tables 4 and 5 to identify levels of magnitude and acceptability.

Describe potential adverse impact	Level of magnitude (Table 4)		Potential impact level (Table 5)	
	Potential impact level	**Level of magnitude**	**Potential impact thresholds**	**Level of acceptability**
Storage of chemicals in an area without appropriate containment facilities located immediately upstream of an SA Water off-take point – a chemical spill could cause environmental harm to plants, animals and water, and/or contaminate soil.	Major impact: – increased risk to drinking water supplies, water quality objectives, etc.	Very high	Likely to exceed several legal thresholds.	Unacceptable
Degree of adverse impact (Table 3)		**VERY HIGH ADVERSE IMPACT**		

STEP 3:
Use Table 3 to identify degree of adverse impact on the magnitude and acceptability.

5. Adverse impact template

The template below can be used to assist in working through any adverse impact scenarios.

Describe potential adverse impact	Level of magnitude (Table 4)		Potential impact level (Table 5)	
	Potential impact level	Level of magni-tude	Potential impact thresholds	Level of accep-tability
Degree of adverse impact (Table 3) ⟶				

Glossary

Activity
Includes: (a) an act carried out on a single occasion
(b) a series of acts
(c) the storage or possession of anything (including something in liquid or gaseous form)[4].

Biodiversity
The variety of life forms, including the plants, animals and micro-organisms, the genes they contain and the ecosystems and ecological processes of which they are a part.[5]

Degradation
To degrade; to reduce from a higher to a lower rank or degree; to lower in character or quality.

Ecological health
A measure of an ecosystem's structural intactness and integrity of ecological processes.[6]

Ecological integrity
A measure of an ecosystem's functional (process) intactness and ability to recover after a disturbance to a stable state.[8]

Ecological processes
Dynamic interactions among and between biotic and abiotic components of the biosphere.[8]

Environment
The interaction of climate, geology, water, soil, topography and biota that provides landscapes that consist of bioregions, ecosystems, catchments and land systems that may be natural and/or managed by people.[8]

Erosion
The breakdown and movement of soil and rock by water, wind or ice. Natural erosion processes may be accelerated by human activities.[8]

Exotic
Non-native vegetation or animals.

Flood-level
Means: (a) for the River Murray, the 1956 flood-level
(b) for the River Murray tributaries in the Eastern Mount Lofty Ranges, the 100-year average recurrence interval (ARI) flood-level.

Floodplain
Land within the flood-levels as defined above, including relatively flat land beside a river that is inundated when the river overflows its banks during a flood.[7]

Habitat
The natural place or type of site in which an animal or plant, or communities of plants and animals, live.[8]

Native
Vegetation or animals indigenous to South Australia.

Rehabilitation
Actions that improve the ecological health of a natural asset by reinstating important elements of the environment that existed prior to European settlement.[8]

Restoration
Actions that reinstate the pre-European condition of a natural resource.[8]

Riparian zone
The area adjacent to a water body that influences and is influenced by watercourse processes, commonly used to include the in-stream habitats, bed, banks and sometimes floodplains of watercourses.[7]

6 River Murray Act 2003
7 DWLBC (2005), Environmental Flows for the River Murray, Department of Water, Land and Biodiversity Conservation SA.
8 DWLBC (2006), State Natural Resources Management Plan 2006, Department of Water, Land and Biodiversity Conservation SA.

River Murray

Means: the River Murray system – the main stem and all anabranches, tributaries, floodplains, wetlands and estuaries that are in any way connected or associated with the river, and related beds, banks and shores, and the natural resources of the River Murray, being:

(a) soil, groundwater and surface water, air, vegetation, animals and ecosystems connected or associated with the river system

(b) cultural heritage and natural heritage, and amenity and geological values, connected or associated with the river system

(c) minerals and other substances, and facilities, that are subject to the operation of a Mining Act and are such that activities undertaken in relation to them may have an impact on the river. [6]

Salinity

The concentration of salts in soil or water, usually sodium chloride.[7]

Threatened species

Species or ecological community classified as being threatened by extinction and listed as vulnerable, endangered, critically endangered or presumed extinct (see Schedules of National Parks & Wildlife Act 1972).[8]

Value

A measure of worth that people place on an entity, including all economic, environmental, social or cultural significances, whether measurable in monetary terms or not. The value may be absolute or relative within a region (for example, an internationally versus locally important wetland).[7]

Vegetation

Any plant organisms. [6]

Wetland

Land inundated with temporary or permanent water that is usually slow moving or stationary, shallow, and either fresh, brackish or saline. [7]

Relevant codes of practice, guidelines, etc

The following codes and guidelines may assist with preparing a proposal.

ABORIGINAL AFFAIRS AND RECONCILIATION DIVISION (AARD) of the Department of the Premier and Cabinet

The following are available on the DWLBC website http://www.premcab.sa.gov.au/dpc/department_aard.html or by telephoning (08) 8226 8900.

- Aboriginal Heritage Act 1988, Overview document and numerous Guidelines.

DEPARTMENT FOR ENVIRONMENT AND HERITAGE (DEH)

The following publications are available on the DEH website (www.deh.sa.gov.au) or by telephoning (08) 8204 1910.

- Biodiversity Plan for the SA Murray – Darling Basin (Biodiversity section)
- Built Heritage – State Heritage Places Owners' Guide (Heritage section)
- Built Heritage – Guidelines to Approaches for Conserving Heritage Places (Heritage section – online only)
- Built Heritage – Summary of the Heritage Places Act 1993 (Heritage section – online only)
- Built Heritage – Summary of Heritage Provisions in the Development Act 1993 (Heritage section – online only)
- Built Heritage – Archaeological Sites and Artefacts (Heritage section – online only)
- Planting Indigenous Species Policy (Biodiversity section)

DEPARTMENT OF WATER, LAND AND BIODIVERSITY CONSERVATION (DWLBC)

The following are available on the DWLBC website (www.dwlbc.sa.gov.au) or by telephoning (08) 8463 6800.

Publications

- Farm Dams (fact sheet no 17)
- Groundwater in the Mallee Region (fact sheet no 6)
- Lower Murray Reclaimed Irrigation Areas (guidelines)
- Rainwater Tanks – Their Selection, Use and Maintenance (brochure)
- River Murray Salinity Zoning (fact sheet no 72)
- Salinity Management - Engineering Options (fact sheet no 15)
- Weed Risks in Dryland Salinity (fact sheet no 16)
- Water Re-use (fact sheet no 2)
- Watercourses (fact sheet no 27)

Policy Booth

- Marina Developments – Consolidated Across Government Policy for Marina Developments along the River Murray
- Native Vegetation – A Guide to the Exemptions under the Native Vegetation Act 1991
- Native Vegetation – Clearance Associated with Fire Prevention Around Dwellings and Other Buildings
- Native Vegetation – Clearance of Common Reeds and Bulrushes
- River Murray Act 2003 Referral Assessment Policies (a number of special and activity provisions)
- Weed Assessment Guide

ENVIRONMENT PROTECTION AUTHORITY (EPA)

The following are available on the EPA website (www.epa.sa.gov.au) or by telephoning (08) 8204 2000 or free call 1800 623 445 (South Australia non-metropolitan callers only).

- Aquifer Storage and Recovery (code of practice)
- Bunding and Spill Management (guidelines)
- Copper Chromated Arsenate (CCA) Timber Waste Storage and Management (guidelines)
- Dredging and Earthworks Drainage (guidelines)
- Environment Protection Act 1993 (guidelines for compliance and enforcement)
- Environment Protection (Water Quality) Policy 2003

- Lower Murray Reclaimed Irrigation Areas (guidelines)
- Liquid Biosolids From Domestic Septic Tanks (guidelines)
- Milking Shed Effluent (code of practice)
- Responsible Pesticide Use (guidelines)
- Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry
- Stormwater Pollution Prevention Code of Practice for the Community
- Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government
- Vessels on Inland Waters (code of practice)

PRIMARY INDUSTRIES AND RESOURCES SA (PIRSA)

The following are available on the PIRSA website (www.pir.sa.gov.au) or by telephoning (08) 8226 0222.

- Agricultural Chemical Products – Permitted and Prohibited Uses (fact sheet no 07/06)
- Building and Maintaining Contour Banks (fact sheet no 20/00)
- Catchment Management for Salinity Control (fact sheet no 28/00)
- Causes of Dryland Salinity (fact sheet no 29/00)
- Drip Irrigation in Vines (fact sheet no 26/99)
- Environmental Effects of Fertilisers (fact sheet no 07/01)
- Land Based Aquaculture Development Guidelines (fact sheet no 34/99)

SA TOURISM COMMISSION (SATC)

The following are available on the SATC website (www.tourism.sa.gov.au) or by telephoning (08) 8463 4500.

- Design Guidelines for Sustainable Tourism Development
- Case Studies for Sustainable Tourism Development
- Environmentally Sound Technology for Sustainable Tourism Development

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