State Planning Commission

AMENDMENT to the ASSESSMENT REPORT

MANNUM WATERS RESIDENTIAL MARINA – HOLIDAY VILLAGE & ADVENTURE WATER PARK

Tallwood Pty Ltd

April 2022

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1. Milestones and Key Dates

Milestone	Date
Variation of Major Development Declaration	1 August 2019
Release of Guidelines for an Amendment to the EIS	5 March 2020
Release of Amendment to the EIS for public comment	25 February 2021

2. Executive Summary

The 'Mannum Waters' Marina and Residential Development (major development) proposal was approved on 30 October 2008 after undergoing an Environmental Impact Statement (EIS) process. Construction of the project started in 2010, with the major earthworks, marina facility, boat ramp, waterways, constructed wetlands and initial stages of the residential land-division now completed.

The proponent, Tallwood Pty Ltd, seeks to amend their current development authorisation to incorporate a proposed Holiday Village and Adventure Water Park. The key aim of the project is to improve the economic viability, through the proposed attractions and increased visitation, and to enhance the attractiveness of the destination for tourists and prospective residents.

The new features would occupy land previously approved for residential and waterway / wetland development at the western end of the site. They would replace 24 waterfront allotments, 18 standard allotments and 10 affordable housing allotments that have been approved (in conceptual form), but not constructed.

In March 2020 the State Planning Commission issued new Guidelines for the preparation of an Amendment to the Environmental Impact Statement (AEIS).

The AEIS underwent public consultation during February-March 2021. In November 2021 the proponent submitted a Response Document that addressed the matters raised in the public submissions, agency advice and council comments.

This Amendment to the Assessment Report (AAR) considers the implications of the proposed changes for the approved residential marina development and assesses the potential environmental, social and economic impacts of the new components on the two subject sites, surrounding landowners and the River Murray.

The proposed development sites are located at the western and south-western end of the residential marina site, and have been previously disturbed by the former dairying use and more recent earthworks works related to the residential marina development.

Whilst the construction impacts (such as dust, noise and traffic) would be similar to those for constructing a sub-division and dwellings, the main effect of the change would be a significant increase in noise and traffic during operation (especially during peak periods).

The closest current or future residents within the marina site are around 500m from the main noise sources (i.e. activities associated with the water park). The development sites are buffered from the residential area and marina by constructed waterways and wetlands (including substantial areas of revegetation and landscaping). A vegetated screening mound would be established along the site boundary, whilst noise levels associated with the park's operations (primarily during peak holiday and summer periods) and would not exceed EPA noise limits.

Earthworks would be conducted within a bunded area and run-off would be controlled so that there would be no impact on the River Murray. The impacts from construction, would be temporary and can be reasonably managed through various management plans.

Water sourced from the river to fill the constructed waterbodies and to maintain ongoing water levels (i.e. to account for evaporative losses) would need to be purchased from the water market in accordance with relevant legislative requirements. This would include the use of Environmental Land

Management Allocations (ELMA) water entitlements granted by the Minister for the Environment and Water for maintaining the existing and planned constructed wetlands, which would be sustainably managed to minimise water demand whilst providing functional ecosystems and amenity for residents.

During operation, the hydrological management and monitoring of constructed waterbodies would be critical to ensure water quality is suitable for recreational activities (or maintaining wetlands) and discharging to the River Murray.

Measures to avoid or minimise potential impacts on the River Murray environment and water resource have been thoroughly considered (especially in the original EIS) and can be adequately addressed by the proponent's environmental management plan framework.

An increase in visitor numbers would result in a substantive increase in traffic volumes to and from the site, primarily during peak periods. The main access road to the site - Belvedere Road - has previously been upgraded to service the residential marina development, with the proponent's traffic assessment confirming that predicted traffic levels can be accommodated without upgrade.

A single safe and convenient access point would be provided to the holiday village / water park site, which would separate visitor traffic from local resident traffic. Increased traffic could affect the operations of the adjacent dairy farm (especially the safe movement of stock across Belvedere Road), which could be addressed by reducing the speed limit and/or constructing an underpass.

Changes to local speed limits would be a matter for the Mid Murray Council and Department of Infrastructure and Transport, and would require further analysis and consultation.

Overall, no significant long-term land use impacts are considered to result from the construction or operation of the proposed holiday village and water park.

The assessment process has been informed with advice from State Government agencies; the Mid Murray Council; and public and key stakeholder submissions. On balance, the proposed development has the support of the local Council, with no public opposition or state agency concerns. Issues raised by the public mainly related to traffic and the management of the constructed wetlands, whereas agency issues related to water quality and allocations.

The assessment process has found that the proposed development will have significant economic benefits, especially by establishing 'Mannum Waters' as significant tourist destination for the region and the State. In particular, the adventure water park would provide an attraction that is currently not found anywhere in South Australia (noting that a cable ski and aqua park – the 'Bridge Watersport Park' - was granted development approval in January 2021).

Some risks and residual issues remain, which can be appropriately dealt with as conditional requirements through various management plans, and an effective and responsive monitoring and compliance framework. No long-term deleterious effects were found in respect to existing land uses and/or the local community.

Having carefully considered these matters, along with the advice obtained, it is considered that the impacts and potential risks associated with the proposed holiday village and water park can be managed through a strict suite of management plans and relevant legislative requirements. On this basis it is concluded that a variation to the current development authorisation should be granted, subject to additional conditions recommended in the AAR.

3. Introduction

The 'Mannum Waters' Marina and Residential Development proposal was originally declared a major development on 31 March 2005 and underwent an Environmental Impact Statement (EIS) process in 2007/8. The proposal was approved by the Governor on 30 October 2008.

The approved site layout plan is shown in Figure 1.

Figure 1: Layout plan showing the various components of the approved development.

Construction of the residential marina project started in 2010, with the major earthworks, marina facility, boat ramp, waterways, constructed wetlands and initial stages of the residential land-division now completed. The development site now includes:

- Major waterways, including the main waterbody (including river inlet / entrance channel), marina mooring basin and the northern and western anabranches (i.e. that provide residential waterfrontage, watercraft access and for recreation/amenity).
- 148 houseboat-berth marina.
- 57 waterfront residential allotments.
- 111 traditional (i.e. dryland) residential allotments.
- First stage of the boat ramp and boat refuelling facility.
- Land for commercial houseboat operations.
- Approximately 12 hectares of constructed wetland.

The current extent of the development is shown in Figure 2.

Figure 2: Layout plan showing the current extent of project development.

The proponent, Tallwood Pty Ltd, now wishes to incorporate a proposed Holiday Village and Adventure Water Park into the marina site to improve the economic viability of the project and to enhance the attractiveness of the destination for tourists and prospective residents and investors in the development.

The proposed attractions would also encourage increased visitation to Mannum and the region.

Consequently, the existing major development declaration was varied to capture the proposed new land uses for assessment purposes. The original Guidelines and EIS did not address these additional uses, so new Guidelines were issued for the preparation of an Amendment to the EIS (AEIS).

The proponents' AEIS went on public exhibition in February 2020, from which a number of public, council and agency submissions were received.

This Amendment to the Assessment Report (AAR) considers the potential environmental, social and economic impacts of each new component and how they relate to the existing marina development.

The report outlines the assessment process, project scope, public-council-agency submissions, consideration of the main planning issues, and then makes a recommendation on the merits of the proposal for the further consideration and decision by the Minister for Planning.

4. Assessment Process

The existing 'Mannum Waters' Marina and Residential Development was granted provisional development authorisation on 30 October 2008 after undergoing an Environmental Impact Statement (EIS) process, including the preparation of an Assessment Report.

The 'reserved matters' of the authorisation (such as a finalised site layout plan, a land division plan, detailed designs for each component and a range of management plans) were approved on 1 April 2010. The development authorisation has been varied several times since then to enable modifications to be made to the layout of the development or the design of individual components.

The variations were granted by the former Development Assessment Commission (now State Commission Assessment Panel), as the delegate of the Governor.

A copy of the current authorisation (dated 27 September 2018) is provided at Appendix 1.

Pursuant to Section 47 of the *Development Act 1993*, an EIS can be amended by a proponent at any time to take account of an alteration to the original proposal. If the Minister considers that a proposed amendment would significantly affect the substance of the original EIS, the amendment must not be made before interested persons have been invited, by public advertisement, to make written submissions on the amendment.

The Act also requires the amendment to be referred to the local Council and, as the proposal involves a prescribed activity as defined by the *Environment Protection Act 1993*, to the Environment Protection Authority (EPA) for review and any comment. Additionally, if more than five years have elapsed since the public consultation of the original proposal, the documentation must be formally reviewed as part of this process.

4.1 Declaration and Guidelines

The 'Mannum Waters' residential marina proposal was originally declared a major development on 31 March 2005, with Guidelines for the preparation of an EIS released on 7 December 2005. On 1 August 2019, the former Minister for Planning varied the declaration to include two additional forms of development - a proposed holiday village and an adventure water park.

Following the variation to the declaration, on 5 December 2019 the State Planning Commission considered the proponent's application to vary the current development authorisation for the proposed new components. The Commission noted that the appropriate level of assessment for the marina development had been previously set as an EIS and determined that the assessment would be subject to an Amendment to the Environmental Impact Statement (AEIS) process.

On 5 March 2020 the Minister released the Commission's Guidelines for the preparation of the AEIS (i.e. issues to be addressed).

4.2 Consultation on the Amendment to the EIS

Public consultation on the AEIS occurred between 25 February and 26 March 2021.

Copies of the AEIS were made available at the Mid Murray Council office and on the SA Planning Portal. Two public notices were published in the *Adelaide Advertiser* and the *Murray Pioneer* advising of the release of the AEIS, where to obtain or view a copy of the AEIS and when the public meeting would be

held. This meeting were convened by AGD-PLUS staff and held in Mannum on 10 March 2021. A total of 20 members of the public attended the meeting, held over a five-hour period.

4.3 The Relevant Authority

The original and varied declarations were made prior to the introduction of the Planning and Design Code, such that Regulation 11(3) of the *Planning, Development and Infrastructure (Transitional Provisions) Variation Regulations 2017* had the effect of making the Minister for Planning the decision-maker (rather than the Governor) for the application.

When making a decision, the Minister must have regard to the Amendment to the EIS, public, agency and Council submissions, the Response Document, relevant planning policies of the Code, the Planning Strategy, the *Environment Protection Act 1993* and any other matters that the Minister considers relevant to the assessment and determination of the variation.

It should be noted that the holiday village and adventure water park are conceptual proposals at this stage and, if approved, detailed designs would need to be submitted for further assessment and approval before they could be constructed.

5. The Amendment to the Assessment Report

It should be noted that, under the *Planning, Development and Infrastructure Act 2016*, the State Planning Commission is now responsible for the preparation of an Assessment Report (including an amendment to an Assessment Report). Under the previous *Development Act 1993*, this was the role of the Minister for Planning. The original Assessment Report for the 'Mannum Waters' Marina and Residential Development proposal was prepared by the Minister in August 2008.

This Amendment to the Assessment Report (AAR) assesses the environmental, social and economic impacts of the proposal by Tallwood PL to add two new components to the approved residential marina development. The AAR takes into consideration the requirements established under the *Planning, Development and Infrastructure Act 2016* (and previously the *Development Act 1993*), including an assessment of the proposal as presented in the AEIS, community, Council and agency comments, and the Response Document.

The Response Document, along with the AEIS, forms the finalised proposal.

The public submissions and the Response Document is available at https://plan.sa.gov.au/state_snapshot/development_activity/major_projects

The AAR does not include an assessment of any elements of the proposal against the provisions of the Building Rules under the *Planning, Development and Infrastructure Act 2016*. Further assessment of the elements of the proposed development against these rules will be required should an approval be issued.

6. Description of the Proposal

The proposal is to establish a proposed Holiday Village and Adventure Water Park at the western / south-western end of the marina site. The approved layout plan identifies this land as being an undeveloped future stage of the residential land division (site of the holiday village) and proposed open space comprising a constructed wetland and revegetation area (site of the water park). The land is currently disused grazing land (cliff top) and dairy flat (floodplain) that adjoin the marina basin and constructed wetland area. Figure 3 shows the location of the proposed sites in the context of the overall layout plan for the 'Mannum Waters' development.

Figure 3: Location of the proposed sites.

The **Holiday Village** would comprise:

- Reception office, small store and Manager's residence.
- 61 cabins of various sizes.
- 41 powered caravan / motorhome sites.
- 15 powered camping sites and 15 unpowered camping sites.
- Associated facilities, including recreation rooms, camp kitchens, amenities blocks, laundry etc.
- Caravan and boat storage area.
- Boat ramp.

The existing residential waterway adjacent the marina ('western anabranch') would be expanded at the western end to create a recreational lake for the holiday village. This would be integrated with the existing constructed waterbody / wetland that has an outlet to the River Murray (i.e. which is used for maintaining water quality through natural filtration and biological treatment).

Figure 3 shows the conceptual layout plan of the holiday village.

Figure 4 shows the staging of construction.

Figure 4: Proposed layout of the Holiday Village

Figure 5: Proposed staging of construction of the Holiday Village

The **Adventure Water Park** would comprise a variety of low to high intensity activities.

The park would include a reception office, shops and café. Activities would include water slides, Zorb balls, cable ski / wakeboarding area, flyboard / jetpack area and zip-lines. The activities would be undertaken within a series of constructed water bodies (i.e. 'pools' / artificial lakes / waterways) located adjacent the existing constructed wetland. The park lake water would be filtered by natural biological processes and renewed from the River Murray. Discharges would be minimal and would be integrated with the existing constructed wetlands for the control of water quality and salinity. Mains

water would be used for the pools, water slides and waterways. It is estimated to operate for 102 full open days during each calendar year (mainly over the summer holiday period). Figure 6 shows the conceptual layout plan of the water park.

Figure 6: Proposed layout of the Adventure Water Park.

The proposal is intended to complement the recreational and tourism uses associated with the marina, which has become an attraction for Mannum and the region (especially due to the boat ramp and base for houseboats).

The proposal would establish a holiday village with water frontage and access to the River Murray, plus an adventure water park of a scale not present in the State. Bringing new visitors to the development may also encourage increased residential and commercial allotment sales to help complete the overall development.

The capital expenditure for the proposed development is $7M and is expected to generate substantial employment opportunities for the region.

The holiday village would be established by Tallwood, whereas the adventure water park would be developed by the company LANDN Pty Ltd. Tallwood has a Memorandum of Understanding with LANDN Pty Ltd to identify the basis for a land division. If approved, a Heads of Agreement would be established for the orderly development and the transfer of the land for the water park.

The two projects will occupy land previously approved for residential and waterway / wetland development. They will replace 24 waterfront allotments, 18 standard allotments and 10 affordable housing allotments.

There is adequate capacity within the service infrastructure of 'Mannum Waters' to facilitate the needs of the holiday village and water park by extension of water supply, sewerage, electricity and NBN services.

9. Description of the Existing Environment

The proposed sites for the holiday village and adventure water park are located on undeveloped land at the western end of the residential marina site. Both sites have already been substantially cleared, excavated and farmed (i.e. the floodplain has previously been modified to create irrigated dairy flats), so there is no natural habitat remaining and much of it is bare or open ground.

Previous dairying use of the site was discontinued prior to development of the residential marina. In the absence of irrigation water being applied to the site, the land has become degraded due to salinity and weed infestation.

Figure 7: View from Belvedere Road at NW corner of site – location of Holiday Village.

Figure 8: View from Belvedere Road at NW corner of site – location of Adventure Water Park.

The discovery of Aboriginal remains during previous development works necessitated an archaeological review of the area, with the locations of several burial grounds identified (and future monitoring protocols established). Both sites have been cleared of any specific heritage areas.

10. Public Consultation

A total of nine (9) public submissions on the AEIS were received during the four-week consultation period. None of the submissions were opposed to the proposal (with three in support), with some providing comments related to the existing development.

The key matters raised on the proposal are summarised as follows:

Environmental

- Use of River Murray water for the construction of the waterbodies (including ELMA water for the wetlands) and water licencing.
- Possible contaminated water discharges from the water park.
- Concerns about the changed hydrology of the constructed wetlands, especially if they are made ephemeral or drained. Subsequent loss of amenity, bird habitat and the additional ecological value they make to the adjoining Baseby wetland. Shallow pools could lead to anaerobic conditions and mosquito problems (including disease risk). Water should be purchased to maintain wetland water levels.
- Should be regular testing of salinity of water flows from the holiday village and water park waterbodies to the wetlands and then the river.
- The wetlands need to be of a suitable design to filter water going through to the river and monitoring should be undertaken regularly.
- The whole site needs to minimise runoff to minimise pollution and salinity (especially discharges to river).
- The Sewage treatment works should be monitored and wastewater treated to a level where it hopefully can be used on public areas.
- Flood risks.
- Proposal is within the environmental zone of the River Murray and short-term and long-term planning policies, procedures and documentation must be in place to protect riverbanks, vegetation, birdlife, waterways and neighbours.

Social

- Prevention of wind-blown dust, smoke and odour that could impact on the lives and property of occupants.
- Potential issue with noise affecting those who live in the marina. A suitable curfew for construction and operational noise (especially loud music) to be comparable with conditions for marina residences.
- Need to protect the right of the adjacent dairy farm to continue to operate unimpeded by the development. Current and future impact of increased traffic to/from the marina site on dairy traffic (including milk tankers and grain trucks) and the movement of cows from properties either side of Belvedere Road. A cow culvert under the road should be considered. Need for a fence along the boundary with the dairy for security and to provide a noise barrier. Concern that holiday park may generate complaints about noise and odour from the dairy farm, which could impact current operations.
- Current 100 km/hr speed limit along Belvedere Road should be reduced to 80 km/hr due to a likely significant increase in traffic.
- Further greening and a bike track to Mannum are needed.

Economic

- Will encourage tourists to visit, which would benefit local business, infrastructure and jobs
- Holiday village would be an asset to Mannum and the surrounding area (which has also been a goal of the Progress Association). Mannum needs more accommodation.
- Could attract new residents to the area.
- Additional attractions suggested (such as mini-golf).

11. Agency Advice

Key matters raised by state agencies are summarised as follows:

- **Environment Protection Authority (EPA)** questioned the interpretation of the Mid Murray Development Plan to derive *Environment Protection (Noise) Policy 2007* indicative noise levels in the AEIS Noise Assessment Report, primarily the inclusion of the River Murray Zone (Rural Industry) as a receiver zone. However, the predicted noise results of the report would still meet the indicative noise levels at all sensitive receivers during the daytime period when this is considered. Additional noise mitigation strategies were suggested.

  The EPA also questioned the use of an annual evaporation rate of 800 mm in the AEIS to calculate the amount of water required from the river, especially given that Bureau of Meteorology evaporation data and maps indicate that the annual evaporation rate at Mannum is between 1600 – 1800 mm/yr. This could have implications for water use and the salinity assessment. In addition, a concern was raised that the modelled increase of water salinity in the constructed wetlands to around 1,000 mg/L TDS is not an insignificant increase and that such a discharge from the wetland could ultimately affect aquatic species in the River Murray.

  Clarification was sought on the disposal of backwash or other by products from filtration activities associated with water park attractions that would be operated as a 'public swimming pool' (i.e. using chlorination and filtration).

- **Department for Environment and Water (DEW)** advised that the AEIS does not provide evidence that the Mid Murray Council and the water park developer (LANDN P/L) accept responsibility to purchase water to maintain constructed water bodies under their control.

  The draft Water Allocation Plan for the River Murray Prescribed Watercourse released by the SAMDB Landscape Board in September 2020 implies that Tallwood's future Environmental Land Management Allocation (ELMA) water entitlement will not be more than 54.3169 ML (12.1 ha x 4.489 ML/ha), which would be insufficient to fill the revised waterbody and additional water will need to be purchased.

- **Department for Infrastructure and Transport (DIT)** advised the AEIS satisfactorily addresses the traffic and transport requirements related to the arterial road network.

12. Council Comments

The Mid Murray Council was consulted on the AEIS, with the Council Assessment Panel providing the following comments:

- Consideration be given to the inclusion of traditional land owners interpretive design within the proposal.
- Consideration be given to the inclusion of a cultural/interpretive facility relating to river history within the development.

- Please note that the merits of the final proposal or otherwise have not been considered as part of these comments.

The Council (Infrastructure and Field Services) also provides the following comments:

- A Traffic Impact statement should be provided on the entry/exit points to Belvedere Road, including an investigation into the speed and adding auxiliary lanes and lighting. Investigation should include the stock crossing to the west of the site on Belvedere Road.
- Designs of the access points should be provided to Council for approval.
- All internal roads are to be constructed in accordance of the Infrastructure Guidelines SA (https://www.ipwea.org/southaustralia/viewdocument/infrastructure-guidelines-sa-rev-1) and the Australian Standards.
- Ensure that stormwater is directed to the Murray River with appropriate water quality measures in place (e.g. Gross Pollutant Trap). No stormwater to be directed to Belvedere Road or Marina Way.
- If any infrastructure works are required as a result of the proposed (or future) development, they must be at the cost of the developer, and Council would insist on entering into an Agreement with the developer prior to these works being undertaken.

13. Response Document

On 26 November 2021, Tallwood provided a formal Response Document (RD) that addressed the matters raised in the public submissions, agency advice and council comments. The RD noted the number of submissions received and issues raised.

The main points to be noted from the RD are:

- Water park operations will only occur during day time hours, so that noise levels would meet the EPA Noise Policy criteria for surrounding sensitive receivers. In addition, the Construction EMP would include measures to minimise noise (including those suggested by the EPA).
- The annual evaporation figure used is misleading as this is a figure that is required to be used to determine the annual evaporation cost (i.e. the amount of water that needs to be purchased to maintain the water level in constructed waterbodies). The figure used in the AEIS takes into account a discount for the input of water from rainfall, run-off and discharges from the local creek catchment (i.e. to determine total river water loss).
- The modelled salinity increase of 1,000 mg/L TDS for the constructed wetland was an example model output only (i.e. to indicate the scale of flows required to maintain wetland vegetation) and was not meant to indicate a management target for outflows from the wetland. A smaller seasonal variation in salinity would be preferable in the wetland.
- Water flows through the waterbodies and wetlands can be managed by pumping to ensure water salinity does not increase to unacceptable levels.
- Pool filtration backwash would be disposed of via the mains sewer connection with the Mannum WWTP.
- Tallwood Pty Ltd and the Mid Murray Council established a Development Deed in 2012 covering ongoing and future water purchasing requirements.
- LANDN Pty Ltd (via a letter of acknowledgement) understands its obligation to purchase water for the water park that was not attached to the AEIS.
- Acknowledged the ELMA allocation update from DEW.
- The speed limit along Belvedere Road would need to be reviewed.
- Changing the permanent wetlands to ephemeral to reduce river water use would still provide a range of habitat and a landscape of high amenity for residents. Establishing a more natural

cycle in the wetlands would not result in them being 'drained' (and presenting an odour problem) nor risk mosquito problems arising.

- Tallwood has met with the neighboring dairy farm owners about providing a vegetative buffer along the common boundary, reducing the speed limit along Belvedere Road and the investigation of a stock crossing.
- Holiday village and water park facilities will be above the 1956 flood level. The current Flood Management Plan for Mannum Waters (part of the overall Operational Management Plan) will be updated as necessary to include the new developments.
- Impacts during construction and operation would be addressed in revised Environmental Management and Monitoring Plans for each phase.

The RD is considered to have adequately addressed the issues raised by public, agency and council submissions received during the notification period.

14. Assessment of Key Issues

14.1 Need for the Proposal

The AEIS considers that the proposed Holiday Village and Adventure Water Park would enhance 'Mannum Waters' destination and tourism appeal, to improve the projects' long-term viability and extend its economic influence in the region (especially employment opportunities). In addition, it would provide a greater opportunity to complete the constructed wetlands complex, which is not viable on its own and requires considerable expenditure to construct.

The AEIS notes the proposal is supported by the Mid-Murray Council and Regional Development Australia - Murraylands & Riverland SA.

Whilst the proposed modified development would result in the loss of 52 residential allotments, greater visitation due to the new attractions could increase interest in current and future stages of residential land and the development of the commercial area (including retail shops and a tavern). This would help to realise the full development of 'Mannum Waters' and the range of economic and community benefits predicted in the original EIS.

14.2 Economic Impact

Guideline	Assessment Outcome
Impact on the local and regional economy during construction and operation	Avoidance – Economic benefits to the region unrealised if proposal does not proceed. No detrimental effect on economic viability of surrounding landowners. Mitigation – Impacts on surrounding landowners avoided or minimized. Management – Will meet all statutory requirements to ensure continued operation and economic benefits.

With the establishment of a holiday village and water park, it is expected that Mannum would experience a considerable increase in visitor numbers. Coupled with the already iconic river tour boats, annual events and river based recreational pursuits at Mannum, the proposal would provide a significant opportunity to further develop the town as a prime tourism hub in the region.

The AEIS (Section 3.1.4) estimates the capital expenditure for the holiday village to be $7m, with on-going employment once fully functional estimated at 7 full time equivalent persons. The water park

construction costs are estimated to be $2.6M and would provide employment to an equivalent of 15,000 hours during construction. Each of the two projects are expected to be constructed in stages over a five-year period, during which time the holiday village is expected to generate 26 full-time one-year equivalent jobs and the water park 8 full-time equivalent jobs.

Once operational, a full day would require 18 persons (team members) for 7 hours per day, over 102 days per year. An additional number of staff will be required for special events, school outings and corporate hire at other times. The projects are each expected to gross between $2M and $4M/annum.

Assuming that capital expenditure of the approved (but not constructed) residential area is comparable with the construction of the two projects replacing it, the additional economic activity that results from the two projects is a function of increased visitor numbers and the operational employment numbers for the two projects. The bulk of the tourism activity would come from intrastate visitors.

However, the growing overall tourist base at Mannum (including regional attractions such the nearby Monarto Zoo and The Bend Motorsport Park) indicates that an expanding interstate client base is likely. Conservative estimates indicate there could be 54,000 visitors per annum using the holiday village and 50,000 visitors per annum using the water park, which represents an additional 79,000 visitors to Mannum (assuming that 25,000 visitors to the holiday village are numbered among the visitors to the water park). This could represent a total annual spend of $2.4M on accommodation once the holiday village is fully operational and an annual retail expenditure of $5.0M. Expenditure in the local economy has economic multipliers that could result in tourist expenditure of $7.4M per year and employment of 71 FTE's/yr.

The AEIS states that Mannum is a community that needs all the assistance that it can obtain to increase its rate base and local incomes. The two proposed projects would provide a significant boost to employment opportunities through the anticipated construction and commercial activities. Many local businesses already testify to the benefits gained from the 'Mannum Waters' development. Every activity that increases the desirability of 'Mannum Waters' and the wider Mannum township as a destination will have a beneficial effect on the region. The additional economic benefits would be an unfortunate loss to the local community if the projects do not proceed.

The AAR considers the replacement of the approved future residential stage of the 'Mannum Waters' development with a holiday village and water park would provide far greater economic benefits, particularly given the future stock available (i.e. a further 440 allotments approved for development). In particular, the two proposed attractions would be particularly effective in bringing new visitors to the area and an encouragement for others to establish residences or holiday homes, which would reinforce the infrastructure and services for permanent residents.

14.3 Effects on Surrounding Land Uses

Guideline	Assessment Outcome
Immediate and long term effects on marina residents and surrounding uses.	Avoidance – Adequate separation distances from sensitive receivers (especially for dust and noise). Mitigation – Suitable impact control measures to be implemented. Management – Residual impacts addressed via Environmental Management Plans.

The AEIS (Section 3.1) identifies that the proposed site is bordered by the River Murray to the south, dairy farming to the north and west and the existing residential marina to the east (refer to Figure 9).

Figure 9: Land uses around the proposed sites.

The AEIS considers the level of construction required for both the new components would be similar to that required for the residential and wetland areas currently approved for the site. During construction, surrounding residents and landowners could experience impacts from traffic, noise and dust.

The AEIS estimated the approved (but not constructed) land division would have supported an average of 130 residents, based on an occupancy rate of existing residences calculated at 2.5 per household. As all waterfront homes would have private pontoons, based on current experience, some 20 water craft would have operated in the southern waterway from the waterfront homes (plus additional jet skis and water craft if also used as holiday rentals). Thus, there would have been a level of ongoing activity and noise associated with the residential use.

The proposed new uses would result in an increased level of ongoing traffic, noise and visitor activity that would affect surrounding residents and landowners, particularly during school holidays and the summer period. As shown in Figure 10, the greatest noise sources (i.e. associated with the water park) would be located around 500m from the nearest future residents and existing houseboats in the marina (many of which are used as residences). The dairy farm residence is around 400m away.

The AEIS (Section 3.1.1 and Appendix D) included a noise impact assessment that concluded that the requirements of the EPA Noise Policy would be achieved at the closest sensitive receivers without any specific acoustic treatment measures. In addition, the noise from construction would also achieve the policy requirements when works are restricted to the hours between 7:00am and 7:00pm and do not

occur on a Sunday or public holiday. The development has been designed and sited to minimise any negative impacts on existing and potential future land uses and will not detrimentally affect the amenity of the locality, thereby achieving the provisions of the Mid Murray Council Development Plan related to environmental noise, which is based on the EPA Noise Policy. The implementation of a Construction Environmental Management Plan would ensure that and all reasonable and practicable measures are taken to minimise noise (and other impacts).

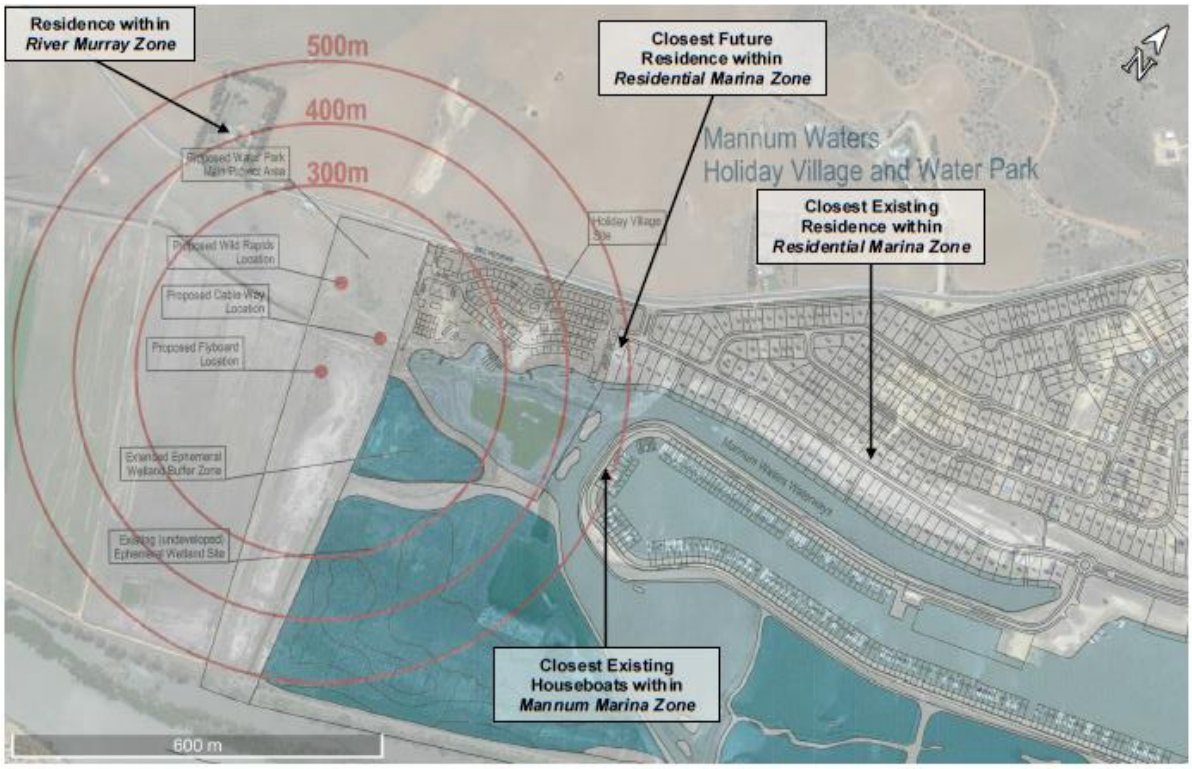

Figure 10: Separation distances from surrounding residents.

In a public submission, an adjoining landowner raised a concern that the proposed uses could affect dairy farming operations and that a vegetated buffer should be established along the western boundary. In addition, the current 100 km/hr speed limit along Belvedere Road should be reduced to 80 km/hr and a culvert under the road for the movement of stock should be considered. Similarly, the operator of the water park may make noise or odour complaints about the dairy operations.

The Response document (Section 3.2.5) states that Tallwood have met with local dairy farmers, who are generally supportive of the proposal, including the proposed vegetative buffer along the common boundary. Tallwood is also supportive of reducing the Belvedere Road speed limit to 80 km/hr. In addition, Tallwood would facilitate a complaints management procedure to resolve issues raised by neighbouring landowners. It noted the dairy farmers are aware of the stock crossing grant funds that are available and are investigating these options with PIRSA.

Public submissions from residents of the marina raised concerns with the current and proposed management of the existing constructed wetlands. In particular, their conversion from permanent wetlands to more ephemeral wetlands, primarily to reduce the amount of permanent surface water in order to minimise the annual evaporative loss of river water. Nearby residents considered that 'draining' the wetlands would reduce their amenity value, reduce bird habitat and could cause odour and mosquito problems.

The AEIS (Section 3.2.15) stated that the intention is to develop wetland systems that have a diverse habitat structure, with a range of depths (i.e. shallows and deeper pool areas) and planted aquatic, riparian and terrestrial vegetation. The configuration and plantings would provide a landscape of high amenity and habitat diversity. As part of the natural cycle in wetlands, there would be a seasonal variation in water levels, which is a necessary part of the life cycle of many aquatic species. This would result in a draw down in water levels in summer, when evaporative water loss is highest. Experience with all other constructed wetlands, which are similarly managed, is that mosquitoes will not be a problem as wetlands with a diverse habitat and biota have sufficient predation to control numbers.

The AAR considers that the proposed management of the existing and proposed constructed wetlands (i.e. to replicate natural wetting and drying cycles) would continue to provide a diverse range of habitats, whilst providing a high level of amenity for residents (and without causing undue odour or mosquito issues). This approach would also reduce River Murray water requirements, especially given the ELMA water allocation reduction planned by the Department for Environment and Water.

The current landscape quality of the two sites is considered to be low, primarily due to the highly modified nature of the floodplain and the amount of bare areas on the disused dairy flats (often with salt scalding). In addition, the ruins of the old dairy buildings are still in place and present an eyesore.

The establishment of recreational water bodies and the western constructed wetland, supplemented by landscaping around the holiday village and water park, would substantially improve the visual amenity of the area for visitors and marina residents.

The flood protection levee mound along the western boundary would be revegetated to screen views from the adjacent dairy farm. Views of the holiday village and water park from the River Murray would largely be screened by existing vegetation along the river bank and revegetation associated with the western constructed wetland.

The AAR concludes that the proposed location of the holiday village and water park at the western end of the residential marina site would provide suitable separation/buffer distances from current and future residents (especially to minimise noise impacts). Limiting the operation of the water park to daytime hours would ensure the EPA *Environment Protection (Noise) Policy 2007* would be met at the closest sensitive receivers.

The location is also a suitable distance away from the residence of the nearest neighboring landowner, an adjoining dairy farmer. In addition, a vegetated buffer (using an existing levee mound) would also be established along the common boundary to reduce impacts on stock and dairying operations. Implications for dairying operations due to increased traffic along Belvedere Road would need to be further addressed by the proponent and the Mid Murray Council (such as reducing the speed limit or installing a culvert stock crossing under the road).

The modified water management regime for the constructed wetlands would result in significant water savings and a greater diversity of habitat, whilst avoiding odour or mosquito problems and still providing a high level of amenity for residents and visitors.

14.4 Effects on the River Murray and Water Quality

Guideline	Assessment Outcome
Amount of river water to fill and maintain waterbodies, including water allocations. Measures to protect and maintain suitable water quality. Management of waterbodies Effect on downstream water users Effect on riverine environment (including the Baseby Wetland) and protection measures Public access to river front	Avoidance – The proposed waterbodies have been designed to avoid creating a significant risk to water quality in the River Murray (including the ability to divert water into constructed wetlands for biological treatment). Mitigation – The redesign of the original layout of waterbodies has reduced the total area of permanent water surfaces and the amount of River Murray water required. Management – Hydrological manipulation of each waterbody (guided by monitoring) to manage water quality, especially salinity.

The residential marina site is connected to the River Murray via the marina entrance channel, which acts as an inlet for river water to enter the site (as shown in Figure 11). Water flows through the site, via the marina basin (open waterway), the marina (mooring facility), waterfront residential waterways (northern and western anabranches) and the permanent wetland (open waterway), before flowing back into the river through the downstream outlet. Water flow through the site is via gravity (i.e. the force of the river flow velocity), which can be assisted by strategically located pumping stations. Water from the end of the marina or the permanent wetland can also be pumped into the constructed wetlands for biological treatment purposes, as a contingency for managing any water quality problems (such as a pollutant spill or algal bloom).

Figure 11: Current layout of inlet, waterbodies and outlet.

Waterbody Design and Operation

The modified proposal involves the construction of an artificial lake for the adventure water park and a westward expansion of the existing anabranch waterway to create a recreational waterbody for the

holiday village. Both waterbodies would be filled and maintained with water from the River Murray. The land-based waterpark aquatic attractions (such as pools and waterslides) would be operated using mains water, so would not use river water or have any discharges to the River Murray.

The artificial lake would replace part of a planned wetland area that has been approved, but not constructed. The lake would be contained by embankments to physically isolate it from the marina waterbodies (and the river), with water flows through the lake provided via pipe or culvert connections with the 'upstream' recreational waterbody and the proposed 'downstream' ephemeral wetland (western wetland). Flows would be controlled via gravity feed through culverts or pumping through pipes. The recreational waterbody would be similar to the approved, but not constructed, waterway associated with the originally planned waterfront residential allotments (i.e. an extension of the existing western anabranch waterway). Thus, the total area of proposed waterbodies for this part of the residential marina site is similar to that originally proposed and approved. Figure 12 shows the layout of the existing and proposed waterbodies and flow control points.

Figure 12: Design of waterbodies and water flow management.

The design of the proposed western wetland (i.e. to be constructed south-east of the artificial lake) has also been redesigned to accommodate the proposed waterbodies and to be more ephemeral in nature to mimic seasonal water level variation, especially to reduce permanent water surfaces and minimise water use / loss from evaporation.

The western wetland would be maintained at a water level at least 200 mm below the level of the 'upstream' artificial lake and recreational waterbody, so that inflows can be provided by gravity (i.e. via inlets D and B respectively).

Pumping may also be used if a higher level of water in the wetland is required. Within the wetland there are three flow paths through various ponds. At the interior control points, operating water levels in any particular year/season can be varied for the various ponds. All of the ponds drain to a single sump and outflow from the wetland would be by metered pumping from the sump to the river, via

the outlet (or the Baseby wetland). Water usage within the wetland would be the difference of inflow minus outflow, which would be determined by metering at the inlets (D and B) and the outlet (sump).

The wetland area planned for the south-western corner of the site would not proceed, with the degraded floodplain being reclaimed for future recreational use. The existing constructed wetlands have also recently been changed from being permanent (i.e. connected to the river) to ephemeral wetlands (i.e. disconnected from the river by levees) in order to reduce the overall usage of river water and to better manage the wetlands habitats. Figure 13 shows the final configuration of the constructed waterbodies.

The wetlands hydrological regime would be controlled through gravity feed or pumping of water into each basin to initiate wetting and drying cycles to manage vegetation and salinity. Discharges to the river would also be managed, taking into consideration any implications for water quality (especially salinity). For example, high flows in the river could provide dilution flows or the flushing of wetlands to periodically occur. These wetlands were permanently filled to enable vegetation to establish, but now require more natural flooding regimes for the maintenance of a diverse range of habitats.

Figure 13: Final layout plan of waterbodies.

The proposed new waterbody design and modified hydrological regime for the existing wetlands would reduce the total area of permanent water surfaces, which would reduce overall river water usage for the residential marina site.

The AEIS (Section 3.2; Table 4) identifies that the total area would be reduced from 42.48 ha (as per the original EIS) to 37.93 ha (as now proposed). The total area of the constructed wetland water bodies would be reduced from 19.10ha to 6.98ha. The total area of wetland islands and riparian areas (i.e. that do not need water) would be increased from 24.55ha to 27ha.

The AEIS (Section 3.3.3) states that water quality monitoring for the existing waterbodies demonstrates that salinity levels have not increased over time, compared to salinity results observed by SA Water at Mannum (located 2km upriver). This indicates that sufficient water exchange can occur for the waterways due to a combination of river flows, wind generated currents, local catchment inflows, rainfall, barrage manipulation and boat movements.

River Murray Water Requirements

The water park artificial lake would be constructed in two stages, with Stage 1 (1.63 ha) requiring 21.5 ML of water to fill and Stage 2 (2.49 ha) requiring 55.4 ML to fill, with a combined volume of 76.9 ML of water required. Each stage would be maintained at an average water depth of 1.5m. Based on a calculated evaporation rate of 800mm per year, an annual volume of 13 ML/yr for Stage 1 and 19.9 ML/yr for Stage 2 (combined total of 22.9 ML/yr) would be required to maintain water levels.

Water would be diverted from the anabranch waterway to fill and maintain the lake. If the lake is maintained at a lower level than the waterway, then gravity can be used to provide water inflows. The operating level would generally be maintained at a minimum of 200mm above the level of the (downstream) western wetland, so that water can discharge to the wetland via gravity. Alternatively, if the lake is maintained at a higher level and pumping is used to divert water into the wetland, the wetland can be maintained at a higher level (especially for salinity or wetland management purposes).

The 3.6 ha recreational waterbody for the holiday village would be maintained at an average depth of 1.5m and would require 73.8 ML to fill. The waterbody would be maintained at the same level as the anabranch and the marina basins, being the same level as the river. Water flows and exchange would be managed by pumping (via water transfer stations WST 1 and WST 2). The operating level would also be maintained at a minimum of 200mm above the level of the proposed western wetland basin, to enable water to be diverted into the wetland via gravity. Water flowing from the anabranch waterway and through the recreational waterbody would then flow into the permanent wetland and then be discharged into the River Murray via the outlet.

The constructed wetlands have been developed to provide a water quality management function (i.e. a contingency for dealing with any spills or poor water quality from the residential marina) and an amenity / recreational feature for residents and visitors. They also provide natural habitat and a way to manage floodplain salinity and acid sulfate soils, especially by reducing evapo-concentration of salts in the soil and the discharge of saline water into the River Murray during flood events. Thus, the proponent has been able to secure river water for the filling and maintenance of the wetlands through an Environmental Land Management Allocation (ELMA) under the Water Allocation Plan for the River Murray Prescribed Watercourse.

The AEIS (Section 3.2.1.5) generally describes the proposed western wetland as a shallow, partly ephemeral system with permanent deeper water areas. Hydrologically, the intent is to mimic the natural water level variations for wetlands enabling the development of a relatively diverse habitat structure and a range of aquatic flora and fauna.

The existing eastern wetlands would also be managed this way. Wetlands that have a mix of large shallow macrophyte beds (as proposed) and deeper pools, generally referred to as marsh pond systems in water quality management terms, are particularly effective in reducing pollutant loads.

The current wetland concept for the western and eastern wetland basins has been developed so that the volume of water required each year for ecological maintenance is within the ELMA water allocation for the site. At this point, the actual volume of ELMA water that is available for the ephemeral wetlands is assumed to be 75 ML/yr. For each of the two wetlands combined this is a rolling 5 year average, with alternating wet and dry periods for each of the two wetlands.

To assist in the design, a water balance model was constructed to determine wetland size, configuration and water use. The model takes into account the areas and depths of the individual ponds, rainfall, evaporation and seepage. It allows for the desired hydrological behaviour of the ponds

to be an input and determines the water volumes that would need to be diverted or pumped to the wetland. The AEIS (Section 3.2.1.5; Table 6) estimates that for the western wetland the volume when full is approximately 30 ML and approximately 40 ML is required on average annually to compensate for evaporation and seepage losses, with an annual flow-through of approximately 12 ML of water needed to maintain suitable water quality (i.e. for dilution purposes to manage salinity).

The AEIS (Section 3.3.2) states that to maintain salinity between 1000-1100 mg/L TDS (Total Dissolved Salts), which the selected wetland vegetation can tolerate, requires a total inflow of approximately 52 ML. With a volume of 30 ML when full, this annual flow would provide a flushing flow, but with a very long residence time measured in months for water quality improvement. Through-flow rates could be increased via pumping, if required based on water quality monitoring (i.e. when salinity threshold levels are exceeded). Increased though-flows would not affect annual river water usage, which is based on evaporative losses.

The AEIS (Section 3.2.1.6) clarifies that, at the present time, in the eastern wetland basin Pond A operates at River Murray pool level, the same as the marina and waterways. Ponds B and C have currently been isolated from the river by embankments.

The AEIS (Table 7) estimates that the volume of the wetland when full is approximately 23.2 ML and approximately 36.5 ML is required on average annually to compensate for evaporation losses (and some seepage), with a flow-through of approximately 10 ML required.

As originally intended in the EIS, the operating level of all three ponds will be readjusted to below river level (i.e. RL 0.2 metres). This will enable the wetland to have more efficient water use (and to be within the ELMA allocation), increase habitat diversity and develop wetland characteristics that facilitate more effective and sustainable water quality improvement.

Water will be diverted to the eastern wetlands by gravity via the marina outlet culvert or by the pumping pipe (i.e. WST 2). It can also receive water directly from the adjacent permanent wetland. Inlet flows will be metered, as would metered pumping outflows from the wetland to the River Murray, via the permanent wetland / outlet (or to the Baseby wetland).

The EPA questioned the use an annual evaporation rate of 800 mm in the AEIS to calculate the amount of water required from the river, especially given that Bureau of Meteorology evaporation data and maps indicate that the annual evaporation rate at Mannum is between 1600 – 1800 mm/yr. This could have implications for water use and the salinity assessment, which are based on the rate of flow through the water bodies.

The Response document (Section 3.1.3) clarifies that the figure used is misleading as this is a figure used to determine the annual evaporation cost (i.e. the amount of water that needs to be purchased to maintain the water level in constructed waterbodies). The figure used in the AEIS takes into account a discount for the input of water from rainfall, run-off and discharges from the local creek catchment (i.e. to determine total river water loss).

The modelling used in the AEIS to determine flow requirements and water use for the artificial lake and modified wetlands used daily Mannum rainfall data, Wellington Class A pan evaporation data and an estimated locality Class A evaporation data. Daily River Murray levels and salinity data were recorded at Murray Bridge.

For the purpose of determining actual water use, both the inflows and outflows from the lake would be metered to determine the actual volume of water lost through evaporation (and a minor amount

of seepage), which the proponent would be required to purchase. Water usage within the wetland will be the difference of inflow minus outflow, which would be determined by metering for the inlets (D and B) and outlet.

Water Quality

Providing water flows through the artificial lake is essential for maintaining constant water levels (i.e. to compensate for evaporative losses) and is also critical for managing water salinity levels, which would increase over time due to evaporation if not diluted by fresh inflows. An adequate through-flow of water for the wetlands is also required to prevent a gradual salinity increase in the wetland soils and water bodies (and to freshen the root zone).

Water flows through the lake would be discharged into the western wetland. Water from the recreational waterbody could also be diverted into the wetland. Water in the wetland would discharge to the River Murray, either directly via the permanent wetland / outlet or indirectly via the Baseby Linear Wetland. The AEIS (Section 3.2.1.4; Table 5) used modelling to determine the potential effect of the proposed hydrological regimes for the constructed waterbodies on salinity. The Hydrodynamic Model established for the original EIS (Appendix I, Vol 2) was used for the proposed modified waterbodies.

The EIS modelling determined that pumping would be required, in addition to natural forcing from river water level variation and flow rates, to ensure a high volume of water exchange. In particular, the two main water transfer stations (WST 1 and WST 2) would be more than adequate to turn over the 520,000 m^3 of the waterways, requiring a pumping capacity of 690 L/sec.

A third pumping station (WST 3) was also included to circulate water in the northern anabranch (residential waterway), requiring a capacity of 60 L/sec. The pumping station WST 1 provides water flow from the western end of the marina (mooring) basin into the recreational waterbody / permanent wetland, whilst WST 2 provides flows from the marina (main water body) basin into the eastern end of the western anabranch (residential waterway). This provides a flow of river water from the marina inlet, through the marina and waterbodies, and back to the river via the outlet.

The configuration of the modelled waterways is consistent with the original EIS (i.e. includes the marina basins and anabranch waterways) and the results of the model remain valid, particularly as turnover can also be increased by mechanical pumping. The model predicted that river water entering the artificial lake, with an average salinity of 250 mg/L TDS (Total Dissolved Solids), would be discharged to the downstream western wetland with an average salinity of 488 mg/L TDS. This was based on a total water exchange in the lake over a year (i.e. an average annual output volume of 74.47 ML to achieve a 150% water exchange). The AEIS (Section 3.3.2) states that most of this through-flow would likely be in the wetter winter months.

An arbitrary 500 mg/L TDS was used in the model as a maximum desirable salinity increase, which is double that of the input concentration (i.e. river water). This figure was considered to be acceptable for the wetland, given that many of the species of aquatic flora and fauna that grow in the wetland would tolerate much higher concentrations. The AEIS considers that, in practice, a much larger volume would flow through the lake, in order to achieve suitable water quality to maintain the wetland system. Even without water being diverted to the wetland, increased flows through the lake may be required to maintain general water quality (i.e. at a similar salinity to that of river water).

For the constructed western wetland, modelling predicted that a through-flow of approximately 12 ML would result in an average water salinity in the wetland of 1,064 mg/L TDS (AEIS Table 6), which

would be within the tolerance range of most aquatic species. For the existing eastern constructed wetlands, when managed as an ephemeral system, modelling predicted that a through-flow of approximately 10 ML results in an average salinity of 1,059 mg/L TDS (AEIS Table 7).

The EPA raised a concern that an increase of water salinity in the constructed wetlands to around 1,000 mg/L TDS is not an insignificant increase and that such a discharge from the wetland could ultimately affect aquatic species in the River Murray.

The Response document (Section 3.1.3) clarifies that this was an example model output only, to indicate the scale of flows required, and was not meant to indicate a management target for outflows from the wetland. A smaller seasonal variation in salinity would be preferable in the wetland. Whilst a freshwater system is preferred, the western wetland is to be developed in an area with saline soils and due to the nature of the site, salt tolerant vegetation is proposed to be introduced (particularly aquatic species). An adequate through-flow is required to freshen the vegetation root zone, to manage soil salinity (and potential acid sulfate soils) and to prevent a gradual salinity increase in the wetland waterbodies. Furthermore, it considered that the modelled annual 12 ML (gravity) through-flow is not a large volume of water and larger through flows could easily be achieved by pumping.

The EPA also noted that most of the water flow through the lake would occur in the winter months. Hence, flows through the lake in summer would be restricted. This would have potential implications for poor water quality, particularly during summer when flow is low and evaporation rates higher.

The final design will need to ensure that flow through the lake is maintained throughout the year to ensure necessary water quality. The Response document (Section 3.1.3) states that, due to evaporation, increased input flows from the recreational waterbody would be required in summer to maintain water levels and satisfactory water salinity. The need to control salinity levels in the western wetland will also determine through-flow volumes for the lake and lake salinity levels. Water quality will be monitored and through-flows can be increased when necessary. The AEIS (Section 3.3.2) states that water quality in the lake would be monitored, with the types of analyses, sample locations, frequency and reporting determined in consultation with relevant agencies. The need for increased flows would be based on monitoring results.

This AAR considers that the 1,000 mg/L TDS salinity level of water in the western wetland is an upper limit of salinity increase (due to evaporation) that wetland vegetation could tolerate. Such a level of salinity would not be acceptable for discharging to the river (or the recreational waterbody / permanent wetland) when river salinity is around 250 mg/L TDS. This modelled scenario is also based on a salinity level of water discharged into the wetland from the lake of 488 mg/L TDS (i.e. nearly twice as saline as river water). These figures were based on a complete turn-over of water in the wetland and lake over a 12 month period. To maintain discharges to the river at the same level of salinity to river water, a much greater level of through-flow would be required. During periods of high flows in the river, maintaining a higher level of water in the wetland (and/or lake) could enable dilution or flushing to reduce salinity levels.

The management of water levels in the wetland would need to be stringently monitored to ensure water salinity does not increase to such an extent that it would be unacceptable to discharge (through-flow) water to the river, via the recreational waterbody / permanent wetland (or Baseby Linear Wetland). If water cannot be discharged from the wetland, there is a risk that the health of wetland vegetation and fauna could be detrimentally affected (especially if subject to increasing salinity over a prolonged period of time). The management objective for water quality should be that discharges from the western wetland to the river achieves a level of salinity equivalent to the salinity of river water. If discharged to the recreational waterbody / permanent wetland (which uses river water and

would have a similar salinity level), dilution would need to ensure that water discharged from the marina outlet has the same salinity as river water. Water discharged to the Baseby wetland would need to have a level of salinity that would not detrimentally affect the health of the wetland or if eventually discharged to the river have a higher salinity than river water. The same objective would need to apply to the hydrological management regime for the existing eastern constructed wetlands.

It is considered the amount of water flowing through the waterbodies can be managed to ensure suitable water quality is maintained and to ensure discharges to the river are of the same quality (as a minimum standard) as water in the river, especially salinity levels. This approach does not necessarily require the use of more river water, as such water is simply moving through the site from the upstream marina entrance channel inlet to the downstream permanent wetland outlet.

Actual annual river water usage is based on the annual evaporative losses of water from the various waterbodies, minus the input of water from rainfall, run-off and discharges from the local creek catchment.

The overall design and layout of the marina basin, waterways and wetlands enables river water to flow through the site in a managed way to maintain water quality, with the ability to divert any water of poor quality (such as from a pollutant spill, algal bloom or sediment plume) into the constructed wetlands for biological treatment. This ensures that the quality of water entering the marina is discharged back to the river in the same (or possibly better) condition. The artificial lake and recreational waterbody would be integrated into this hydrological management system.

Baseby Linear Wetland

Whilst the proponent has no obligation to manage the existing Baseby Linear Wetland as part of the approval for the residential marina development, the wetland complex has been included in the hydrological management regime for the site. The provision of water during times of drought or very low river flows will help sustain the wetland. The AEIS (Section 3.2.1.7) calculated that an average annual through-flow of approximately 12 ML of water would be needed to maintain water quality in the western section of the wetland and an approximate through-flow of 10.4 ML to maintain the eastern section. During times of water restrictions, when wetland requirements are reduced, there is still a need to maintain water flow through the recreational waterbody / permanent wetland. Thus, through-flow water for the Baseby wetlands would still be available. Decisions to direct water flows through the Baseby wetlands would be made in consultation with relevant agencies (i.e. to determine the hydrological requirements of the wetlands).

Water Purchasing and Allocations

During the development of the residential marina site, water has been secured on the open market for the construction and operation of waterbodies and through Environmental Land Management Allocation (ELMA) water allocations for the control of salinity on the floodplain by flood irrigation of wetland areas. Water on the open market can be bought as temporary water or permanent water all year through water brokerage. Tallwood Pty Ltd holds several Water Licence approvals for these purposes and has purchased all its requirements through the temporary market.

Responsibility for maintaining water levels in the waterbodies (and the annual cost of evaporation water use / loss) has now been transferred to the Mid Murray Council, as per the hand-over Deed between Tallwood and Council.

The AEIS (Section 3.2.2) states the original EIS calculated that the post-development water balance would result in an annual average evaporation loss from the site of 400.16 ML, of which 69.03 ML would be lost from ephemeral wetlands. Hence, under the original proposal the permanent water losses were approved at 331.13 ML, which is 27.69 ML more than required for the proposed modified design.

In regard to the use of ELMA water, the original allocation was 127.356 ML, which based on an evaporative loss of 800 mm/year, could be used over an area of 15.92 ha for wetland development to counteracted saline groundwater below the floodplain (and to provide enhanced habitat). Recognising that the ELMA quantities were under review by the Murraylands and Riverland Landscape Board, the proposed modified wetland designs opted for a predicted revised allocation of 75 ML.

Securing additional water allocations for the water park artificial lake would be the responsibility of the developer (i.e. LANDN Pty Ltd). Filling of the lake would be undertaken through the purchase of temporary water and on-going evaporation water use by the purchase of a combination of temporary and permanent water.

The Department for Environment and Water (DEW) commented that the 'letter of acknowledgement that LANDN Pty Ltd understands its obligation to purchase water if the park proceeds' that was stated in the AEIS (pg 35) was not included as an attachment.

The Response document (Attachment 2) includes this correspondence.

DEW also considered that no evidence had been provided from the Mid Murray Council that it accepts the liability of being responsible for purchasing water for evaporative water losses from the wetlands.

The Response document (Section 3.1.4) clarifies that Tallwood and Council established a Development Deed in 2012 that covers ongoing and future requirements and that the Mid Murray Council is responsible for maintaining water levels in the waterbodies (and the annual cost of evaporation water use). Mid Murray Council understands that LANDN P/L is aware of their responsibilities to meet the water licensing requirements for artificial waterbodies, but suggested that this be made clear in any approval notice (i.e. over and above any agreement made between the LANDN P/L and Tallwood).

The AAR notes that Council did not make any comment on the joint agreement and water purchasing responsibility discussed in the AEIS. DEW has suggested that in addition to LANDN P/L that Mid Murray Council's liabilities for the annual evaporative losses are also made clear in any approval.

In addition, DEW advised that under the Water Allocation Plan for the River Murray Prescribed Watercourse approved by the Minister for Environment and Water on 21 September 2021 that Tallwood's future ELMA allocation is not expected to be more than 90 ML.

According to the proponent's calculations (AEIS pg 27, 31) this is insufficient to fill the expansion of the existing anabranch waterway and the western wetland to be constructed by Tallwood (excluding the water park lake) and additional water would need to be purchased.

DEW has also advised that for the River Murray Prescribed Watercourse, a quarterly accounting period now applies. This means that a penalty charge applies if water is taken without authorisation or a water account holder is found to have taken water in excess of the allocation available on their water account at the end of each quarter – being 30 September, 31 December, 31 March and 30 June.

Effects on the River Murray Environment

The AEIS (Section 3.2.5) considers that the proposed new development components would not adversely affect water quality or the riverine environment, based on the proposed hydrological management of waterbodies to ensure suitable discharges to the River Murray.

The AEIS (Section 3.2.3) considers that the proposed changes would have no greater effect on the water resource values and users of the River Murray than that already approved (i.e. no or negligible impacts). Domestic toilet and other liquid waste (including backwash water from the waterslides, pools etc.) would continue to be treated via the Mannum WWTP. Water sensitive urban design (WSUD) features would be incorporated in the detailed design, to minimise and manage stormwater runoff. WSUD measures have been incorporated into the existing development, based on the recommendations of the Stormwater Industry Association (Argue 2004), and include:

- The use of porous surfaces, such as for car parks and footpaths, to facilitate infiltration.
- Rainwater tanks on all buildings to harvest and reuse water.
- Incorporating grassed or vegetated drainage swales to reduce flow rate and increase infiltration (which also aids landscaping by reducing watering requirements).
- The use of Gross Pollutant Traps (GPT's) and retention basins located in open space areas to treat runoff from hard surfaces. The GPT's can treat up to 90% of the theoretical total annual flow to reduce gross pollutants and suspended solids (i.e. for a one year return interval), whilst retention basins can be expected to remove 80% of suspended solids and associated pollutants (such as heavy metals). High rates of nutrient removal and microbial decay can also occur (i.e. up to 99%).

Measures to protect and maintain water quality in the existing waterways also include:

- Riparian buffers around waterbodies (where possible).
- Configuration of the waterways, so that houseboat facilities are off-river, including all liquid waste (sewage and greywater) and solid waste collection and disposal.
- Bunding of the recently established fuel supply location.
- Implementation of an Operational Environmental Management and Monitoring Plan, including a Waste Management Plan, Stormwater Management Plan and Spill Management Plan.

Building setbacks from the recreational waterbody would also be maintained at 19 metres, consistent with the development of current waterfront properties, and riparian edges would be provided wherever possible along the waterbody frontage.

In particular, the water park artificial lake is situated off-river, with controlled flows to and from it. Outward flow would be to the proposed western wetland (which is also situated off-river), with controlled outflow to the permanent wetland (or the Baseby Linear Wetland) before returning to the river via the outlet. The constructed wetlands also provide a safeguard for protecting and managing water quality and discharges to the river.

Within the water park site, only a relatively small area (approx. 5%) would be sealed, so the volume of any runoff would be small. The car park may be porous, such as using quarry rubble. The majority of the sealed areas or relatively impervious areas would comprise pathways, mainly for pedestrians and maintenance vehicles. Potential pollution loads will be relatively low, compared to runoff from typical urban areas with larger volumes of traffic. Except in infrequent larger events, most runoff will

not reach any waterbodies. All open areas in the water park will be extensively vegetated and landscaped so there will be no bare areas.

As a result of these measures, the AEIS considers that, given there are no effluent or untreated stormwater discharges, from a sanitary perspective the risk of contamination is very low.

Whereas the water park activities would be wholly contained within its site, there would be an increase in human activity from the holiday village from passive recreation (i.e. canoeing, walking, fishing etc.). It also includes a boat ramp (in Stage 2) that would only be used by patrons.

The greatest noise sources from both these sites would primarily be from people, vehicles and maintenance activities, which would largely be located close to Belvedere Road. They would be a suitable distance from the wetlands and the river so as not to unduly disturb native fauna. The main activity areas are located approximately 500m from the Baseby wetlands. Most of the activities and noise would occur during daylight hours.

The existing marina, waterways and wetlands are currently used for such recreational pursuits, so there would be an increase in such activities and human disturbance along this section of the river. The establishment of the constructed wetlands and protection of the Baseby wetlands provides increased habitat for native fauna and a buffer from such disturbance. Public access is controlled via trails through the wetlands and native vegetation provides a barrier to access.

Native vegetation (especially Lignum bushes) also provides shelter and seclusion for fauna. Powered water craft will be limited to 4 knots while travelling to the river and only on the river are higher speeds legal. The AEIS identifies that these activities are already occurring and are considered appropriate recreational pursuits in this location.

Whilst the level of noise and human disturbance would be greater than would occur for the currently approved use of the site for waterfront residential development, such an increase is considered to be acceptable in the context of similar uses and impacts associated with the existing development. During construction, impacts on the river (especially on water quality) would be adequately managed through the implementation of a Construction Environmental Management and Monitoring Plan (CEMMP).

The AEIS (Section 3.2.9) states that an existing temporary embankment will be used to separate the two proposed sites from direct contact with river water, with all construction work on the holiday village and recreational waterbody conducted behind this barrier. Once the waterway has been completed, the embankment would be removed from behind a silt curtain. This is a similar practice to that undertaken successfully for the construction of existing waterways and at the entranceways to the river.

Similarly, the water park artificial lake would have no direct contact with the river as it would be constructed within the old anabranch embankments that are already in place. The new waterbodies would be operated in accordance with the Operational Environmental Management and Monitoring Plan (OEMMP), which would be amended to include the management and protection of all waterways and wetlands within the residential marina site.

In regard to visual impacts, the AEIS (Section 3.2.4) states that structures associated with the new components are low key, mostly single storey, and approximately 750m from the river. Each site is completely obscured from the river by existing vegetation along the river, especially within the Baseby wetlands. The entire boundary of the 'Mannum Waters' development site with the River Murray is

screened in such a manner (except where the bank is cut by the entrance channel and outlet). Revegetation of the constructed wetlands would provide additional screening.

This AAR concludes that the redesign of the waterbodies associated with the western end of the residential marina site, primarily to enable the inclusion of a recreational waterbody and artificial lake, is acceptable. The redesign of the western wetland, especially to act as a receival basin for water discharged from the artificial lake, is also acceptable. As with the existing constructed eastern wetlands, the western wetland would be used as a contingency to biologically treat any contaminated or poor quality water from the lake, whilst providing habitat and amenity. The redesign of the artificial lake and wetland introduces two waterbodies that will be physically separated by levee banks from the other marina waterbodies that are connected to the river via the inlet (and are influenced by river levels and flows). Thus, the flow of water through the two waterbodies would be managed by gravity flows (i.e. natural river flow velocity through inlets and outlets with a set sill level) and/or by mechanical pumping.

Hydrological management of the two waterbodies would need to ensure suitable water quality is maintained to prevent an unacceptable build-up of salinity (i.e. in water and soils). In particular, water quality in the artificial lake would need to be suitable for primary contact recreational activities. Discharges from the two waterbodies into the permanent wetland (or Baseby Linear Wetland), and ultimately the River Murray, would need to be maintained at the same level of water quality in the river (at a minimum) at the outlet. The ability to provide an adequate through-flow of water is a key requirement for ensuring adequate turn-over of water to flush the water bodies and provide dilution, so that salinity levels do no increase over time due to evaporation. This approach does not require the use of extra river water. Annual evaporative losses from the waterbodies, minus inputs from rainfall and run-off, determines the amount of water lost from the river each year to maintain the level of water in waterbodies. Such losses would need to be purchased via the water market.

The redesign of the waterbodies, and changing the hydrological management of the existing constructed wetlands (i.e. from permanent to seasonal), has also led to a reduction of the overall surface area of permanent water within the residential marina site (i.e. compared with the original approved design). This would result in lower annual evaporative losses from the waterbodies, with a reduction in annual use of river water. The use of river water for the initial filling of the new waterbodies is considered acceptable, as such use has previously been approved and the water would be purchased via the water market. The use and cost of River Murray water is justified by the economic benefits the water park and holiday village would deliver. In addition, there would be environmental benefits from using such water for re-establishment of wetlands on the floodplain.

Due to the increased level of complexity of the hydrological regime that would result from the redesigned waterbodies, a Hydrological Management and Monitoring Plan would need to be implemented. The Plan would need to be prepared in consultation with the EPA, the Department for Environment and Water, the Murraylands and Riverland Landscape Board and the Mid Murray Council. The revised hydrological regime for the existing constructed wetlands (and the Baseby Linear Wetland) should also be addressed in the Plan. The establishment of a real-time water monitoring network would enable a responsive approach to providing suitable water flows through the waterbodies for salinity control. The pumping systems for the inlets / outlets for the various waterbodies should be linked with the monitoring network to provide an automated system for hydrological management.

In regard to impacts on the River Murray, the key safeguard is to ensure suitable water quality within the residential marina site, so that water quality in the river is not affected by discharges from the site. It is considered the suite of design and management measures proposed are adequate to protect downstream water users and the environment. It should be noted there are no sensitive downstream users. Direct impacts on local natural wetlands and the riverine environment would be limited to noise and disturbance from human activity. Whilst such impacts already result from the current development, there would be a substantial increase due to the nature of the activities proposed. However, most of the new activities would be located close to Belvedere Road, with a suitable buffer distance provided from any sensitive habitats. In addition, the constructed wetlands provide a further buffer, plus additional habitat and sanctuary for native fauna.

14.5 Impact on the Physical Environment

Guideline	Assessment Outcome
The potential to disturb landforms, soils, groundwater and to affect surface water run-off.	Avoidance – Sites already disturbed / degraded. Mitigation – Earthworks conducted within a bunded area. Management – Construction impacts controlled via an EMP

The AEIS (Section 4.1) states that existing groundwater characteristics were fully investigated in the original EIS, with two monitoring wells installed in the vicinity of the holiday village and water park. Most of the excavation for the associated waterbodies has already been completed in forming embankments for the major levee at the western boundary and the temporary embankment preventing water from filling areas west of the current development (including the western wetland for which the design has been revised). These have now been in place for at least four years and groundwater has not been exposed and monitoring within the waterways has shown that water salinity is maintained at similar levels to that in the River Murray.

Both the waterbodies would be excavated to RL -1.5 metres, which is approximately 1.1 metres above the groundwater level. Thus, construction of the waterbodies would not intercept saline groundwater. The introduction of river water in both waterbodies will create a positive head of more than 2.6 metres on the groundwater, with no environmental impacts (such as creating a groundwater mound).

Soils on the modified flood plain are high in salts, due to their previous use as irrigated dairy flats. A small quantity of earthworks remains to be done at the junction of the holiday village site with its waterbody to achieve the uniform depths within the waterbody. Material removed from the new waterbody area will be placed on the holiday village site to achieve working levels on the site after removing and stockpiling good topsoil. After completion of the fill placement, the topsoil will be replaced. Soils on the hill slopes above the flood plain areas, where most of the commercial buildings and cabin / caravan park would be located, have previously been used for agricultural purposes. These areas have been fully audited and approved previously for human habitation.

It should be noted both proposed sites have previously been substantially cleared, excavated and farmed (i.e. the floodplain was modified to create irrigated dairy flats), so there is no natural habitat remaining and much of it is bare or open ground. In the vicinity of the proposed western wetland, there are areas of Samphire low shrubland which have been retained in the wetland concept design. Clearance of samphire shrubs for the holiday village and water park would not be significant. as the vegetation is largely scattered and has a low ecological value.

Figure 14 shows the condition of the water park site and figure 15 shows the holiday village site.

Figure 14: View of the floodplain site for the Water Park (looking towards the River Murray)

Figure 15: View of the Holiday Village site (looking towards Belvidere Road)

The AAR concludes that there would be limited effects on the physical environment, given the site has already been highly modified by previous farming activities (i.e. dairying) and recent earthworks associated with the development of the residential marina site. Importantly, saline groundwater would not be intercepted by waterbody excavations and saline soils would be appropriately managed (i.e. through the CEMP).

14.6 Hazards and Risks

Guideline	Assessment Outcome
Construction and operation involves a range of general and specific risks.	Avoidance – Use of chlorinated/filtered mains water for primary contact recreational activities in the water park (except the artificial lake). Mitigation – Waterbodies designed to be free of submerged hazards and to ensure suitable water quality. Management – Water park to be operated in accordance with relevant public health legislative requirements and industry standards.

Public Health and Safety

Except for the artificial lake, all water used for the various water activities in the water park will be mains water (i.e. treated and disinfected with chlorine).

All recreational waterbodies and water features would be operated and maintained in accordance with the requirements of the *Australian Public Health (General) Regulations 2013*. Pool water quality will be monitored and kept at the standard set out in *Standards for the Operation of Swimming Pools and Spa Pools 2013*.

All water in the pools would pass through a filter (as often as necessary) to ensure that the water is maintained in a clean and clear condition. Generally, filtration frequency would be equivalent to the total volume of the pool at least once in every six hours for a swimming pool, once every hour for a waterslide pool and once every two hours for a wading pool.

All pools and waterslide pool water quality will be monitored and maintained by a qualified Aquatic Technical Operator who would implement Risk Management Processes, Aquatic Facility Maintenance Procedures and Pool Water Maintenance procedures. All water activities will be supervised by qualified, trained Pool Lifeguards.

The artificial lake and recreational waterbody would use river water and water quality would need to be suitable for contact recreation. The AEIS (Section 3.3.3) identified the main water quality issues to be:

- Protection of users from submerged hazards (such as logs, rocks etc.), due to the high turbidity of River Murray water.
- Potential for contamination by faecal pathogenic microorganisms.
- Nutrient enrichment and the potential for algal blooms, particularly blue-green algae.
- General aesthetic appearance of the water bodies, being free of debris, oils etc.

The NHMRC (2008) *Guidelines for Managing Risk in Recreational Waters* outlines the approach in classifying suitability of waters for recreational use, with recommended water quality guidelines summarised in the AEIS (Table 8).

Water entering the artificial lake would be free of materials, such as floating logs, as water has to flow through the water diversion control pipes. Any such materials coming from the River Murray or from the anabranch waterway would be intercepted. To date no incident has occurred where floating debris has entered the Mannum Waters waterways. The inlets to the lake also provide opportunity to prevent any spill materials from reaching the lake. The lake would be included in an updated Spill Management Plan, which forms part of the OEMMP.

The AAR concludes that the recreational waterbodies and water-based activities would be suitably designed and operated to ensure public health and safety, especially in strict in accordance with relevant public health related legislative requirements and industry standards.

14.7 Traffic and Transport

Guideline	Assessment Outcome
Access for the transportation of construction materials / infrastructure and a permanent access point for ongoing operation.	Avoidance – Location of site entrance meets road safety requirements. Mitigation – Upgraded Belvedere Road already adequate for increased traffic volumes. Management – Possible reduced speed limit along Belvedere Road (and stock crossing culvert).

The development will involve both a construction and operational phase, with vehicle movements to and from the proposed sites reliant on both the state arterial and local road network.

The most significant impacts, in terms of the volume, type and frequency of movements would occur during the operational phase, especially during peak holiday and summer periods.

The main access road to the residential marina site, Belvedere Road, was upgraded to a two-lane sealed road during the initial stages of construction of the residential marina development. The upgrade included treatment of the Belvedere Road/Mannum Road intersection, which provides a channelised right-turn lane.

Traffic currently accesses the residential marina via a single entrance road off Belvedere Road (i.e. at the northern end of the development site). A secondary access point is approved (but not constructed) for the western end of the site to provide access for future residential stages. The proposed redesign of the western end of the site has resulted in the secondary access point being relocated further to the east. A separate access point is proposed to be established for the holiday village / water park, which meets road safety requirements.

The AEIS (Section 5.1 and Appendix E) includes a transport and access impact assessment for both proposals, which predicted a total increase in daily traffic volumes of 970 vehicles, with 775 vehicles accessing the site from the west and 195 from the east. Individually, the holiday village would account for approximately 530 trips to/from the site per day (i.e. 265 to the site and 265 from the site), with 65 trips occurring during the peak hour.

This was based on data collected for the Waikerie Holiday Park where the daily traffic volume is in the order of four trips per site / day. The water park would generate approximately 240 - 320 vehicles accessing the site per day, based on a rate of 2.5-3 visitors per car (given that such facilities are typically frequented by families and groups). This estimate was based on an anticipated demand of 600-800 visitors per day. Assuming 25% of visitors access the site during the peak hour, this would equate to 120 to 160 trips in the peak hour, with the majority to/from Murray Bridge. The traffic generation would vary over the year, based on seasonal conditions

The assessment noted that, following the upgrade of Belvedere Road, traffic volumes would have increased as it now provides a more convenient route between Murray Bridge and Mannum. Data obtained from the Department of Planning, Transport and Infrastructure identifies that Mannum Road has Average Annual Daily Traffic volumes in the order of 1,700 vehicles per day. Belvedere Road would likely have traffic volumes of a similar order of magnitude.

The original EIS identified daily traffic volumes during peak season in the order of 2,700 vehicles per day, distributed to the east and west on the adjacent road network, but with the majority of these trips to/from Mannum. However, with the upgrade of Belvedere Road, additional traffic now use this

road as a more convenient route to/from Mannum (especially for traffic to/from Murray Bridge and Adelaide).

The proposed new components would replace 52 residential allotments that have been approved but not constructed. The AEIS calculated this would have generated approximately 200 trips per day on Belvedere Road (i.e. 100 trips entering the site and 100 trips exiting the site), based on four trips per dwelling/ day during peak periods (such as the Christmas holidays). The majority of these trips would have been to/from Mannum. The original EIS assessment forecast this to be in the order of 85%, which would equate to approximately 170 trips to/from the east and 30 trips to/from the west.

The traffic generated during the construction of the proposed development sites is not anticipated to be atypical for such developments, and the impacts associated with these additional vehicles would be low due to the nature of the adjacent road network (which does not have substantial volumes of either commercial or domestic traffic). Deliveries to the sites would typically be undertaken by general access vehicles (semitrailers up to 19 m in length). In the event that larger loads are to be transported (e.g. cabins), these would be subject to a separate approval for oversize/overmass transport and appropriate conditions would be imposed to ensure the safe and efficient access of such vehicles to the site (i.e. through permits issued by the National Heavy Vehicle Regulator in consultation with the impacted road authorities).

The AEIS concluded that the proposed new land uses would have a minimal impact on the adjacent road network, primarily due to road upgrade works previously undertaken to cater for current and future traffic volumes for the residential marina development. The additional traffic volumes predicted to be generated would not result in capacity or amenity impacts on road users. Access to the sites would be able to be safely accommodated in accordance with relevant Standards and Guidelines. It should be noted the Mid Murray Council and the Department for Infrastructure and Transport raised no concerns with any traffic impacts and considered the AEIS adequately addressed this matter.

If the proposal is approved, car parking requirements would need to be addressed when detailed plans for the holiday village and water park are lodged in the future. Detailed plans and designs for the access arrangement off Belvedere Road would also need to be approved by the Mid Murray Council.

The new components would not only result in increased traffic volumes accessing the residential marina site, but would also change the types of traffic. A proportion of traffic using the holiday village would comprise vehicles towing caravans (or trailers or boats) or motorhomes, whilst the water park traffic would also include busses. The design of the entrance would need to consider such larger, slower moving vehicles turning into/out of the sites (including a potential speed limit reduction along Belvedere Road).

The AAR concludes that the holiday village and water park would result in a significant increase in current traffic volumes using Belvedere Road (and the Belvedere Road/Mannum Road intersection) to access the proposed site, especially during the peak holiday and summer periods.

The AEIS predicted a total (maximum) increase in daily traffic volumes of 970 vehicles, compared to current volumes in the order of 1,700 vehicles per day. It is also a substantial increase compared to approximately 200 vehicles per day predicted to be generated by the 52 residential allotments that are currently approved for the site (and proposed to be replaced). However, it should be noted the original EIS predicted that daily traffic volumes during peak season would be in the order of 2,700 vehicles per day, with the project fully developed.

Given the current rate of residential development and the long time-frame for the full completion of the residential marina development, the increased traffic volumes are considered acceptable in the context of the original assessment. Importantly, the upgrade of Belvedere Road (and the

Belvedere Road/Mannum Road intersection) to cater for the residential marina development traffic ensures the predicted increase in traffic volumes can be adequately accommodated by the local road network.

The establishment of a separate access point for the holiday village / water park (i.e. in a safe and convenient location) would separate the majority of visitor traffic from residential marina traffic.

During construction, the transport of machinery, equipment and materials to the sites would be undertaken by general access vehicles (i.e. semitrailers up to 19 m in length). The volume and frequency of construction traffic is likely to be low and can be adequately accommodated by the local road network.

If approved, detailed plans for the access point on Belvedere Road would need to be submitted for assessment and approval by the Mid Murray Council.

14.8 Management of Construction and Operational Impacts

The 'Mannum Waters' residential marina project has been constructed and operated in accordance with a comprehensive environmental management framework established by the original EIS and approval requirements, primarily through the implementation of Environmental Management and Monitoring Plans for the construction and operational phases for each component of the development. The plans address mitigation measures for all residual and short-term impacts that cannot be adequately avoided during construction and/or operation. Monitoring ensures the measures have been effective or require refinement to avoid any long-term detrimental impacts.

The AEIS (Section 1.4) states that the current Construction Environmental Management and Monitoring Plan (CEMMP), which includes a Soil Erosion and Drainage Management Plan (SEDMP), would be used as the basis for a CEMMP prepared specifically for the proposed developments. The current Operational Environmental Management and Monitoring Plan (OEMMP) would also be updated for the proposed new components. The OEMMP also includes the following sub-plans that would need to be reviewed and updated where relevant:

- Entrance Channel, Marina Basin and Waterways Management and Monitoring Plan
- Flood Management Plan
- Revegetation Management Plan
- Wetland Management Plan
- Site Preparation, Revegetation, Hydrology and Management Plan
- Spill Contingency Plan
- Stormwater Management Plan
- Traffic Management Plan
- Waste Management Procedures Plan
- Wastewater Management Plan
- Weed and Feral Animal Management Plan

All of these plans set-out various legislative requirements and industry-accepted principles, procedures and practices to manage and mitigate construction and operational impacts to land and water resources, and to protect areas of cultural significance. These would also need to be reviewed and updated where necessary.

Periodic inspections, record keeping, formal auditing and compliance actions will need to be undertaken to verify that various conditions and requirements of any development authorisation are

complied with. Monitoring and reporting protocols are included in the CEMMP and OEMMP, including the need to periodically review and update these plans, ensuring a process of adaptive management and response is undertaken that can measure both the effectiveness and performance of the control and mitigation measures.

Due to the increased level of complexity of the hydrological regime that would result from the redesigned waterbodies, a specific Hydrological Management and Monitoring Plan would need to be implemented. This could replace or be a sub-plan to the Entrance Channel, Marina Basin and Waterways Management and Monitoring Plan (and/or supersede the hydrology aspect of the Site Preparation, Revegetation, Hydrology and Management Plan). The Plan would need to be prepared in consultation with the EPA, the Department for Environment and Water, the Murraylands and Riverland Landscape Board and the Mid Murray Council. The revised hydrological regime for the existing constructed wetlands (and the Baseby Linear Wetland) should also be addressed in the Plan. The Plan would need to consider the current and future responsibilities and legislative requirements for securing water allocations to construct and maintain all waterbodies.

In addition, the Plan should include a real-time water monitoring programme that demonstrates how a responsive approach to providing adequate water flows through the waterbodies would be achieved to ensure suitable water quality (especially for salinity control and the protection of public health). The pumping systems for the inlets / outlets for the various waterbodies should be linked to a monitoring network to provide an automated system for hydrological management (i.e. based on a trigger – action – response plan).

The development must be undertaken in accordance with a range of other legislative requirements and environmental standards that seek to protect, conserve and maintain the natural environment under the *Environment Protection Act 1993* (including companion water quality and noise policies), *Landscape South Australia Act 2019* (including water allocation policies and procedures) and *River Murray Act 2003*. Reference to these requirements will need to be carried across to various management plans.

The AR concludes that the proposed developments can be undertaken without undue impacts to either the natural or developed environments of the residential marina, surrounding landowners and the River Murray, subject to the preparation and implementation of appropriate management plans.

15. Consistency with Current Planning Policies

The assessment of a Major Development proposal only has to have regard to current planning policies, including State Planning Policies, Regional Plans, the Planning and Design Code, and in this case for reference purposes, the previous Development Plan (now superseded). Unlike a standard development application that has to be in general accordance with those Code policies that relate to the development of land in a certain parcel(s) of land, a major development process is guided by more expansive guidelines which cover a wider range of issues and requirements to be satisfied.

It should be noted that since the time the 'Mannum Waters' residential marina project was approved, the entire site has been rezoned to accommodate the types of development envisaged in the EIS and to establish planning policies for final approval of the various components (including applications for dwellings and commercial buildings that have been assessed and approved by Council).

At the time of submission of the variation request (and the release of the AEIS), the proposed sites were partly within the Residential Marina Zone and the Mannum Marina Zone. Under the planning definitions, the holiday village would constitute a 'Caravan Park' or 'Tourist Accommodation' and the adventure water park an 'Amusement Park'. Whilst these forms of development were not specifically envisaged for the zones, tourist accommodation and recreational facility developments are considered to be complimentary uses and desirable within the overall site (as proposed in the original EIS). Whilst not specifically envisaged in the EIS, the water park would meet the objective of establishing 'Mannum Waters' as a destination for tourists and visitors.

Under the Planning and Design Code, the proposed sites are now within the Suburban Neighbourhood Zone, Waterfront Neighbourhood Zone, Infrastructure (Ferry and Marina Facilities) Zone and the Conservation Zone. Most of the built structures are not in the Conservation Zone (including the majority of the holiday village), within which most of the constructed waterbodies are located. The AEIS (Appendix H) provides a comprehensive analysis of the planning policies (and relevant legislation and guidelines) that relate to the proposal, both under the previous Development Plan and the current Planning and Design Code planning systems.

15.1 State Planning Policies

State Planning Policies (SPPs) address the economic, environmental and social planning priorities for South Australia. They are the highest level of policy in our new planning system. The sixteen SPPs set the general direction for new development within the state's urban and regional areas.

Two SPPs are relevant to the assessment of the proposal:

SP4: Biodiversity

The maintenance of a healthy, biologically diverse environment ensures greater resilience to climate change, increases productivity and supports a healthy society. The Planning System has a role to play in ensuring biodiversity and associated life-supporting functions are maintained and enhanced through the identification and protection of areas of high biodiversity value, ensuring development occurs in appropriate locations, and assessing the cumulative impact of development on biodiversity, including spatial, temporal and incremental impacts.

> *Relevant Policies:*
> 4.1 - Minimise impacts of development on areas with recognised natural character and values, such as native vegetation and critical habitat so that critical life-supporting functions to our state can be maintained.
> 4.2 - Recognise the value of modified landscapes and allow appropriately scaled development that can co-exist with and safeguard biodiversity values and critical functions.
> 4.3 - Encourage the re-introduction of biodiversity or its components in development areas to provide life-supporting functions at low cost.
> 4.4 - Enhance the biodiversity of urban areas and townships through a connected and diverse network of green infrastructure systems along streetscapes, major watercourses, linear parks, open space, the coast and other strategic locations.
> 4.5 - Where impacts to biodiversity cannot be avoided, these impacts should be minimised and where possible, offset.
> 4.6 Encourage nature-based tourism and recreation that is compatible with, and at an appropriate scale for, conserving the natural values of that landscape.

SP14: Water Security and Quality

Water is one of South Australia's most valuable natural resources. Access to a safe and reliable water supply is essential to support our communities and our diverse economy. Our water dependent ecosystems also rely on access to water so that they can continue to provide cultural, aesthetic, amenity, recreational and tourism benefits.

Relevant Policies:

14.1 - Protect the state's water supply to support a healthy environment, vibrant communities and a strong economy.

14.2 - Protect and recognise water supply catchments, including: Water Protection Areas under the *Environment Protection Act 1993* (including those located in the Mount Lofty Ranges, South East and River Murray); the River Murray Protection Areas under the *River Murray Act 2003*; and Prescribed water resources and wells under the *Natural Resources Management Act 2004*.

14.3 - Safeguard our water supply and supporting infrastructure to meet the needs of a growing population and economy while maintaining a healthy environment and enabling safe access to alternative water sources for 'fit-for-purpose' use.

14.5 - Development should incorporate water sensitive urban design principles that contribute to the management of risks to water quality and other risks (including flooding) to help protect people, property and the environment and enhance urban amenity and livability.

14.6 - Support development that does not adversely impact on water quality.

Summary: the proposal is consistent with current SPPs, as it would not unduly impact upon areas of high biodiversity value or the water resource values of the River Murray. In particular, the proposed sites are already disturbed and have low ecological value. Construction sites would be controlled so that there would be no run-off that could enter the river. During operation, the constructed waterbodies would be managed to ensure suitable water quality, especially discharges to the river. The constructed wetlands would reinstate riverine habitat and increase biodiversity, whilst providing amenity, open space and recreation for residents and visitors.

15.2 Regional Planning Policies

Each region in South Australia has a plan to both guide development and reflect the vision of the State Planning Policies. Regional plans set the direction for future planning and development of South Australia. The current (operative) plan is the Murray and Mallee Region Plan (2011), being a volume of the South Australian Planning Strategy.

Key points in the plan include:

- Developing an integrated plan to guide the expansion of tourism, particularly nature based, eco- and cultural tourism, building on the strong regional character and natural and heritage assets.
- Encouraging economic diversification as a means of reducing the region's economic dependence on water resources.
- Providing greater employment, recreation and other opportunities to retain young people.
- Ensuring development protects and preserves of the region's environmental assets, including areas of international and national importance, conservation parks, riverine, lake and coastal habitats, wetlands, threatened species, ecological communities, terrestrial habitats and water resources.
- Supporting the creation of biodiversity corridors and NatureLinks (including wetlands) to enhance landscape connectivity for biodiversity.

- Ensuring development is appropriately located and does not adversely affect environmentally significant areas, scenic landscapes and heritage places.
- Ensuring development is located to achieve an appropriate separation between conflicting land uses.

Specifically, 'Principle 7: Reinforce the region as a preferred tourism destination', identifies Mannum as the visitor gateway to the River Murray. The principle also seeks the provision of good quality, environmentally sound tourist accommodation that is linked to the natural landscape and/ or character of towns (including upgrading existing caravan parks and camping facilities to contemporary standards).

Summary: the proposal is consistent with the regional plan, as it would further enhance the 'Mannum Waters' site and the Mannum township as tourism destinations, especially the inclusion of the adventure water park as a regional attraction. The inclusion of a holiday village (cabin / caravan park) would provide tourist accommodation in a relatively natural landscape, with access to the waterbodies and river for recreation. The proposal would also deliver significant economic benefits to Mannum, especially employment opportunities.

15.3 Planning and Design Code

The phased introduction of the Planning and Design Code (the Code) and repeal of existing Development Plans applied to the Mid Murray Council area as part of Phase 3 that was implemented on 19 March 2021 (and which signified the full introduction of the Code).

As this assessment is post the implementation of the Code, the application has been considered in the context of the planning policies contained within the Planning and Design Code.

15.3.1 Zones

The proposed sites are located within the following Code zones, as depicted in Figure 16:

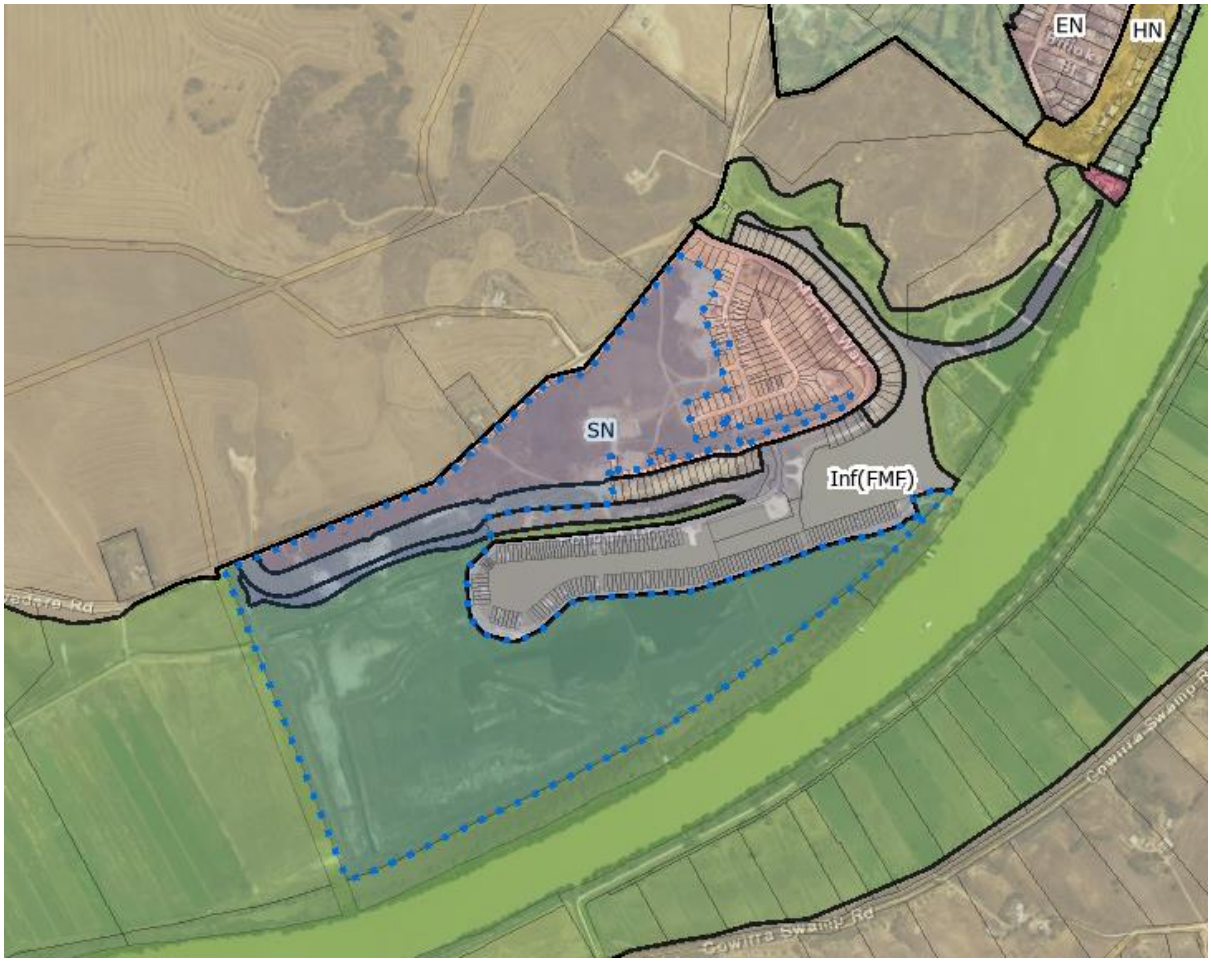

Figure 16: Planning and Design Code Zoning for the site.

Conservation Zone

Desired Outcome:
DO1 - The conservation and enhancement of the natural environment and natural ecological processes for their ability to reduce the effects of climate change, for their historic, scientific, landscape, habitat, biodiversity, carbon storage and cultural values and provision of opportunities for the public to experience these through low-impact recreational and tourism development.

Performance Outcome (Land Use):
PO 1.1 - Small-scale, low-impact land uses that provide for the conservation and protection of the area, while allowing the public to experience these important environmental assets.

Suburban Neighbourhood Zone

Desired Outcome:
DO1 - Low density housing is consistent with the existing local context and development pattern. Services and community facilities contribute to making the neighbourhood a convenient place to live without compromising residential amenity and character.

Waterfront Neighbourhood Zone

Desired Outcome:

DO1 – A diverse range of housing which takes advantage of waterfront locations. Development enhances public access to waterfront areas. Dual aspect allotments incorporate designs to enhance the streetscape.

Infrastructure (Ferry and Marina Facilities) Zone

Desired Outcome:
DO1 - A zone accommodating on-water development associated with the function of marinas and passenger ferry services together with a range of complementary waterfront-oriented recreational and tourist development activities.

Summary: the majority of the proposal is located within the Conservation Zone, primarily the waterbodies that would be constructed on the floodplain, including the holiday village waterfrontage / recreational waterbody, the water park artificial lake and the western wetland. It should be noted this zone was designed to capture the approved, but not built, constructed wetlands and waterways depicted on the current layout plan for the residential marina development. The proposed uses are generally consistent with the zone policies to enhance the natural environment and provide recreational and tourism development. Whilst the proposed water park activities may not be considered 'small scale and low-impact', their context within the overall residential marina site makes them a compatible use within an urban / riverine setting. The constructed wetlands would enhance the ecological and landscape values of the river environment.

The majority of built structures and infrastructure associated with the holiday village and water park (such as offices, managers residence, toilets / showers, camp kitchen, recreation hall, café, car parking and sewer) would be located within parts of the Suburban Neighbourhood Zone, Waterfront Neighbourhood Zone and Infrastructure (Ferry and Marina Facilities) Zone. These facilities would be located on the higher ground above the 1956 flood limit. It should be noted these zones were designed to capture the approved, but not built, residential allotments (including those with water frontage) and an extension of the western anabranch waterway. The proposed uses are inconsistent with the zoning policies, which are primarily related to dwellings and neighbourhoods (or the marina).

It is considered that, in the overall context of the residential marina site, the proposal is compatible with the range of commercial, recreational and environmental uses envisaged for the site in the original EIS. Suitable separation distances and buffer zones from existing (and future) residents and landowners would minimize any conflict with surrounding land uses.

15.3.2 General Development Policies

The general Code policies that relate to the proposed sites include:

Tourism Development

Desired Outcome:
DO1 - Tourism development is built in locations that cater to the needs of visitors and positively contributes to South Australia's visitor economy.

Performance Outcome (General):
PO1.1 - Tourism development complements and contributes to local, natural, cultural or historical context where:

(a) it supports immersive natural experiences;
(b) it showcases South Australia's landscapes and produce; and

(c) its events and functions are connected to local food, wine and nature.

PO1.2 - Tourism development comprising multiple accommodation units (including any facilities and activities for use by guests and visitors) is clustered to minimise environmental and contextual impact.

Performance Outcome (Caravan and Tourist Parks):
PO2.1 - Potential conflicts between long-term residents and short-term tourists are minimised through suitable siting and design measures.

PO 2.2 - Occupants are provided privacy and amenity through landscaping and fencing.

PO 2.3 - Communal open space and centrally located recreation facilities are provided for guests and visitors.

PO 2.4 - Perimeter landscaping is used to enhance the amenity of the locality.

PO 2.5 - Amenity blocks (showers, toilets, laundry and kitchen facilities) are sufficient to serve the full occupancy of the development.

PO 2.6 - Long-term occupation does not displace tourist accommodation, particularly in important tourist destinations such as coastal and riverine locations.

Open Space and Recreation

Desired Outcome:
DO1 - Pleasant, functional and accessible open space and recreation facilities are provided at State, regional, district, neighbourhood and local levels for active and passive recreation, biodiversity, community health, urban cooling, tree canopy cover, visual amenity, gathering spaces, wildlife and waterway corridors, and a range of other functions and at a range of sizes that reflect the purpose of that open space.

Performance Outcome (Land Use and Intensity):

PO 1.1 - Recreation facilities are compatible with surrounding land uses and activities.

PO 1.2- Open space areas include natural or landscaped areas using locally indigenous plant species and large trees.

Performance Outcome (Design and Siting):

PO 2.1 - Open space and recreation facilities address adjacent public roads to optimise pedestrian access and visibility.

PO 2.2 - Open space and recreation facilities incorporate park furniture, shaded areas and resting places.

PO 2.3 - Open space and recreation facilities link habitats, wildlife corridors and existing open spaces and recreation facilities.

Summary: The proposal is consistent with the tourism development policies, as it enhances the recreational experience centred on the River Murray (including the reintroduction of waterbodies and wetlands into the riverine landscape). In addition, the holiday village generally meets the policies for Caravan and Tourist Parks (based on the conceptual design provided at this stage). The provision of waterways, wetlands and landscaping for passive and active recreation meets the policies for open space and recreation.

15.3.3 Overlays

The following overlays apply to the proposed sites:

- Murray-Darling Basin Overlay - seeks to ensure sustainable water use in the Murray-Darling Basin area.
- Water Resources Overlay - seeks to protect the quality of surface waters in South Australia.
- Prescribed Water Resources Area Overlay - seeks to ensure the sustainable use of water in prescribed water resource areas.
- Hazards (Flooding - Evidence Required) Overlay - adopts a precautionary approach to mitigate potential impacts of potential flood risk through appropriate siting and design of development.
- Native Vegetation Overlay - seeks to protect, retain and restore areas of native vegetation.
- Hazards (Bushfire - Urban Interface) Overlay - seeks to ensure urban neighbourhoods adjoining bushfire risk areas allow access through to bushfire risk areas, are designed to protect life and property from the threat of bushfire and facilitate evacuation to areas safe from bushfire danger.
- Affordable Housing Overlay - seeks to ensure the integration of a range of affordable dwelling types into residential and mixed use development.
- Limited Land Division Overlay - seeks to limit fragmentation of land to avoid undermining primary production.

It should be noted the residential marina site is excluded from the River Murray Flood Protection Overlay. Whilst the site is covered by the Native Vegetation Overlay, the highly disturbed nature of the sites means they do not support native vegetation communities.

The AAR concludes that the development is consistent with State Planning policies and the Planning and Design Code that seeks the provision of tourism development in appropriate locations to support the economic development of the region and South Australia, but at the same time ensure that potential environmental and societal impacts are minimised during both the construction and operational phases. It should be noted that, if the proposal is approved, a more detailed assessment against the provisions of the Code would be made when detailed plans and designs are submitted for approval of the holiday village and adventure water park. A Code amendment may also need to be considered to change the current zone boundaries and to change the zoning of the proposed sites to reflect the approved use.

16. Conclusion

The proposal to incorporate a Holiday Village and Adventure Water Park into the 'Mannum Waters' residential marina site seeks to improve the economic viability of the project and to enhance the attractiveness of the destination for tourists and prospective residents and investors in the development. The proposed new components would replace an undeveloped future stage of the residential land division and proposed open space comprising a constructed wetland and revegetation area, but would operate alongside the existing development.

The assessment of the proposal has been considered against a comprehensive Amendment to an Environmental Impact Statement (AEIS) and Response document prepared by the proponent (Tallwood P/L), which has been carefully reviewed by State government agencies, the local council and was the subject of a four week public exhibition period.

The assessment also considered the original EIS and Assessment Report in regard to the implications of the proposed changes to the master layout plan and how the original assessment outcome could be affected. The assessment concluded the proposed holiday village and adventure water park would complement the range of uses within the residential marina development and can be conveniently integrated into the overall design. Importantly, the proposal would significantly enhance 'Mannum Waters' and Mannum as a tourism destination, resulting in substantial direct and flow-on economic benefits for the region and the State.

The loss of a small number of residential allotments (i.e. 52) would be inconsequential, given the substantial amount of allotments that have been developed and planned within the site.

The economic benefits of the holiday village and adventure water park would far outweigh such loss. The redesign of the western recreational waterbody and constructed wetland would have no material effect on the overall layout. Although, the more complex hydrological management of all waterbodies within the development (including the conversion of wetlands from permanent to ephemeral) would require greater coordination and control (based on real time monitoring) to ensure suitable water quality, especially discharges to the River Murray.

No substantive issues were raised during the consultation process that were not adequately addressed by the proponent or where residual issues remained, could be adequately dealt with through appropriate conditions of approval (if approved). A reduced speed limit along Belvedere Road and a stock crossing for the adjoining dairy farm are issues that would need to be further investigated by the proponent and the Mid Murray Council. It is also noted that the Council is supportive of the proposed new components due to the tourism and economic benefits they would deliver.

The proponent would integrate the two new components into the current Environmental Management System for the residential marina site (comprising a range of management and operational plans) to further minimise potential impacts and ensure no unacceptable outcomes result from the development, based around an on-going monitoring and auditing program. If approved, a range of conditions have been recommended (i.e. for inclusion in the current development authorisation) to ensure the development is constructed and operated in a manner that provides both certainty and accountability to the community and regulatory bodies.

17. Recommendations

The 'Mannum Waters' Marina and Residential Development site is currently the subject of a major development authorisation that includes a range of conditions for the development of future stages and the operation of those stages that have been completed. Compliance with the Building Rules for each stage of the marina development is a matter reserved for further assessment.

Should a variation to the current development authorisation be granted, it is recommended that the following additional requirements be included in the revised decision notice:

GENERAL CONDITIONS

1. Except where minor amendments may be required by other legislation or by conditions imposed herein, the construction, operation, use and maintenance of the Holiday Village and Adventure Water Park shall be undertaken in accordance with:

   (a) Amendment to the Environmental Impact Statement – Mannum Waters Holiday Village and Adventure Water Park – 15 June 2020.
   (b) Amendment to the Environmental Impact Statement – Mannum Waters Holiday Village and Adventure Water Park – Response to Submissions – September 2021.

   To the extent of any inconsistency, a later document will prevail over an earlier one.

2. The proponent must, prior to the commencement of construction for each project element / stage, submit to the Minister for Planning for approval:

   (a) final detailed plans and designs for the Holiday Village, including site plans, building floor plans, elevations, cross-sections, finishes and colours, details of cut and fill, access roads and car parking.
   (b) final detailed plans and designs for the Adventure Water Park, including site plans, building floor plans, elevations, cross-sections, finishes and colours, details of cut and fill, access roads and car parking.

3. The proponent shall have substantially commenced the development within two (2) years from the date of this authorisation, and substantially completed the development within five (5) years of the date of this authorisation, failing which an extension of time may be sought from the Minister for Planning or the authorisation may be cancelled.

4. Except where minor amendments may be required by other legislation or by other conditions imposed below, all buildings, structures and infrastructure comprised in or required for the purposes of the major development shall be constructed, used, operated and maintained in accordance with the approved final plans, drawings, designs and specifications as approved by the Minister for Planning.

5. Should the development cease during the period between the commencement of earthworks and final completion, the proponent shall undertake all necessary steps to reinstate the land and make good any damage or disturbance.

6. The proponent must, prior to the commencement of construction for each project element / stage, submit to the Minister for Planning for approval a copy of all relevant certification documentation following the assessment and certification as complying with the provisions

of the Building Rules, by an accredited professional (or by a person determined by the Minister), of all building work in accordance with the provisions of the *Planning, Development and Infrastructure Act 2017*. For the purposes of this condition 'building work' does not include plant and equipment or temporary buildings that are not permanently attached to the land.

7. The proponent must, prior to the commencement of construction for each project element / stage, submit to the Minister for approval a Construction Environmental Management Plan (CEMP), prepared in consultation with the Environment Protection Authority; the Department of Environment and Water; the Murraylands and Riverland Landscape Board and the Mid Murray Council. The CEMP must identify measures to manage and monitor (at a minimum) the following matters:

   (a) soil erosion and drainage;
   (b) groundwater;
   (c) flora and fauna;
   (d) weeds and pests;
   (e) air quality and greenhouse gas emissions;
   (f) noise and vibration;
   (g) traffic;
   (h) waste streams (in accordance with the EPA waste hierarchy); and
   (i) local community impacts.

   The CEMP shall be prepared taking into consideration, and with explicit reference to, relevant *Environment Protection Act 1993* policies and guidance documents, including but not limited to:

   - the Environment Protection (Air Quality) Policy 2016.
   - the Environment Protection (Noise) Policy 2007.
   - the Environment Protection (Water Quality) Policy 2015.
   - the Environment Protection (Waste to Resources) Policy 2010.
   - the Environment Protection Authority Bunding and Spill Management Guideline 2016.
   - Environment Protection Authority Handbooks for Pollution Avoidance.
   - the Environment Protection Authority Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry 1999.
   - the Environment Protection Authority guideline 'Construction environmental management plan (CEMP) 2019'.
   - any other legislative requirements, Guidelines and Australian Standards requiring compliance.

8. The construction of the holiday village and adventure water park shall be undertaken in accordance with the final approved plans and designs and the approved CEMP.

9. The CEMP shall be monitored by the proponent to ensure implementation of the mitigation measures for the predicted impacts and shall be reviewed every six (6) months by the proponent to ensure mitigation measures are effective. Each review shall be made publicly available and a copy provided to the Minister for Planning until the construction phase is complete.

10. The proponent must, prior to the commencement of construction for each project element / stage, submit to the Minister for Planning for approval a revised Operational Environmental

Management and Monitoring Plan (OEMMP), prepared in consultation with the Environment Protection Authority; the Department of Environment and Water; the Murraylands and Riverland Landscape Board and the Mid Murray Council. The OEMMP must identify measures to manage and monitor (at a minimum) the following matters:

(a) soil erosion and drainage;
(b) flora and fauna;
(c) weeds and pests;
(d) air quality;
(e) noise and vibration;
(f) waste streams (in accordance with the EPA waste hierarchy); and
(g) local community impacts.

11. The operation of the major development shall be undertaken in accordance with the final approved OEMMP.

12. The OEMMP shall be monitored by the proponent to ensure compliance with mitigation measures for the predicted impacts and shall be reviewed at regular intervals (being at least every 6 months for the first 2 years of operation) and updated as necessary.

13. The proponent must, prior to the commencement of construction for each project element / stage, submit to the Minister for Planning for approval a Hydrological Management and Monitoring Plan (HMMP), prepared in consultation with the Environment Protection Authority, the Department for Environment and Water; the Murraylands and Riverland Landscape Board and the Mid Murray Council. The Plan should:

(a) address the coordinated hydrological management of all waterbodies within the 'Mannum Waters' residential marina site, including hydrological regimes for the constructed wetlands and the Baseby Linear Wetland;
(b) detail the approach for establishing a real-time based water monitoring programme that would provide responsive management for ensuring suitable water flows through the waterbodies achieves suitable water quality (especially for salinity control); and
(c) detail the approach for linking the pumping systems for the inlets / outlets for the various waterbodies with the monitoring network to provide an automated system for hydrological management.

14. The operation of the major development shall be undertaken in accordance with the final approved HMMP.

15. All water pumps within the development must be metered to comply with the Meter Implementation Plan for the River Murray Prescribed Watercourse and the South Australian Licensed Water Use Meter Specifications.

16. Council, utility or state agency maintained infrastructure that is demolished, altered, removed or damaged during the construction of the major development shall be reinstated to Council, utility or state agency specifications as applicable. All costs associated with these works shall be met by the proponent.

17. All road infrastructure upgrades shall be completed to the standard required to enable use of the identified vehicle type and traffic volumes, to the satisfaction of the Minister for Planning.

18. All road infrastructure upgrades, unless otherwise identified, are to be funded by the proponent.

19. All external lighting, including for car parking areas and buildings at the site shall be designed and constructed to conform with *Australian/New Zealand Standard AS/NZS 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting* and shall be located, directed and shielded, and of such limited intensity, as far as reasonably practicable, that no unreasonable nuisance is caused to any person beyond the boundary of the site.

20. All vehicle car parks, driveways and vehicle entry and maneuvering areas at or providing access to and from the site shall be designed and constructed in accordance with the relevant Australian Standards and appropriately line marked, and shall be constructed, drained and paved with bitumen, concrete or paving bricks (or other such material as agreed to by the Minister for Planning), in accordance with sound engineering practice.

21. All loading and unloading, parking and maneuvering areas at or providing access to and from the site shall be designed and constructed to ensure that all vehicles can safely traffic the site and enter and exit the subject land in a forward direction.

22. All stormwater design and construction at the site shall be in accordance with Australian Standards and recognised engineering best practice to ensure that stormwater does not adversely affect any adjoining property, or public road.

23. All liquids or chemical substances that have the ability to cause environmental harm must be stored within a bunded compound that has a capacity of at least 120% of the volume of the largest container, in accordance with the EPA 'Bunding and Spill Management Guidelines' (2016).

24. The development shall be maintained in a serviceable condition and operated in an orderly and tidy manner at all times.

25. Unless otherwise specifically provided for in these conditions or otherwise agreed to in writing with the Minister, all costs necessary for compliance with these conditions shall be met solely by the proponent.

ADVISORY NOTES

a. The proponent is advised that all conditions must be met including monitoring, mitigation and reporting requirements as detailed in relevant management plans. Failing to comply with a condition is considered a breach of the *Development Act 1993/Planning, Development and Infrastructure Act 2016*, under which this authorisation is given, and the Minister for Planning may direct the proponent to make good any breach. The Minister may also take such action as is required because of any situation resulting from the breach, including the cessation of the operation of the development.

b. An accredited professional undertaking Building Rules assessments must ensure that the assessment and certification are consistent with this development authorisation (including any conditions or advisory notes that apply in relation to this development authorisation).

c. Construction of each component of the development may commence only after a Building Rules assessment and certification has been undertaken in relation to that component and

has been issued by an accredited professional undertaking Building Rules assessments, and the Minister for Planning has received a copy of the relevant certification documentation.

d. Detailed applications will need to be submitted to the Minister for Planning for assessment and approval for the holiday village and adventure water park. A Traffic Impact assessment should be provided on the entry/exit points to Belvedere Road, including an investigation into the speed and adding auxiliary lanes and lighting. Investigation should also include the stock crossing to the West of the site on Belvedere Road. Road access designs should be prepared in consultation with the Mid Murray Council.

e. The Water allocations required for the initial fill of the water bodies and subsequent ongoing evaporative losses need to be calculated according to the requirements for *Artificial Water Bodies* established under the *Landscapes South Australia Act 2019*. The responsibilities for obtaining suitable allocations is as follows:

    i. Tallwood P/L and its successors will need to acquire water allocations equivalent to the volume required for the initial fill of the western expansion of the existing anabranch waterway and the western wetland in the first full water accounting period.

    ii. LANDN P/L and its successors will need water allocations equivalent to the volume required for the initial fill of the Adventure Water Park in the first full water accounting period (or part of that water accounting period) and for each subsequent water use year after the initial fill of the waterbody, an allocation will be required to cover the ongoing evaporative losses from the Adventure Park Lake in each accounting period.

    iii. Mid Murray Council and its successors will need water allocations equivalent to the ongoing evaporative losses from the western expansion of the existing anabranch waterway and the western wetland in each water accounting period from the transfer of the assets from Tallwood P/L.

    The above parties should note that use from water accounts is reconciled at the end of each quarter, being 30 September, 31 December, 31 March and 30 June each year and that penalties for overuse apply even if any overuse from one quarter is balanced in a subsequent quarter (that is, the account is put back into credit).

f. In accordance with the *National Heavy Vehicle Law (South Australia) Act 2013*, the proponent must apply to the National Heavy Vehicle regulator to obtain permits for use of Restricted Access Vehicles and/or High Productivity Vehicles on public roads, where access for such vehicle is currently not available. This might include such things as construction equipment and vehicles carrying large indivisible construction materials.

g. The proponent is reminded of its obligations under the *Aboriginal Heritage Act 1988* that excavation, damage, disturbance of, or interference with, any Aboriginal site, object or ancestral remains is unlawful without ministerial authorisation under sections 21 and 23 of the Act.

h. The proponent, and all agents, employees and contractors, such as construction crew, is reminded of the need to be conversant with the provisions of the *Aboriginal Heritage Act 1988*, particularly the requirement to immediately contact the Department of Aboriginal

Affairs and Reconciliation in the event that archaeological items (especially skeletal material) are uncovered during earthmoving.

i. The proponent is reminded of its obligations under the *Native Vegetation Act 1991* (and the Native Vegetation Regulations 2017), whereby any native vegetation clearance must be undertaken in accordance with the Act (where necessary).

j. Should the proponent wish to vary the Major Development or any of the components of the Major Development, an application to the Minister for Planning must be submitted, provided that the development application variation remains within the ambit of the Environmental Impact Statement (and as amended) and Assessment Report (and as amended) referred to in this development authorisation. If an application variation involves substantial changes to the proposal, pursuant to section 47 of the *Development Act 1993 /* section 114 of the *Planning, Development and Infrastructure Act 2016*, the proponent may be required to prepare an amended Environmental Impact Statement for public inspection and purchase. An amended Assessment Report may also be required to assess any new issues not covered by the original Assessment Report and the decision made pursuant to section 48 of the *Development Act 1993/* section 115 of the *Planning, Development and Infrastructure Act 2016.*

k. The Minister for Planning has a specific power to require testing, monitoring and auditing under section 48C of the *Development Act 1993 /* section 117 of the *Planning, Development and Infrastructure Act 2016*

Appendix 1: Current Development Authorisation

DEVELOPMENT ACT 1993: SECTION 48

DECISION BY THE STATE COMMISSION ASSESSMENT PANEL
UNDER DELEGATION FROM THE GOVERNOR

Preamble

1. On 30 October 2008 notice of the Governor's decision to grant a provisional development authorisation under section 48 of the Development Act 1993, in respect of the construction of the 'Mannum Waters' residential marina development (Major Development) at Mannum, was published in the *South Australian Government Gazette* at p 4948.

2. Simultaneously, the Governor delegated his power to grant a variation to the residential marina development authorisation to the Development Assessment Commission (now the State Commission Assessment Panel) pursuant to Section 48(8) of the Development Act 1993.

3. Variations to the development authorisation were notified in the *Gazette* on 17 March 2011 at p 776 (variation to the layout plan for the commercial area and the boat maintenance area), on 30 June 2011 at p 2758 (variations to the layout plan for an additional stormwater detention basin, replacement of a road bridge with a pedestrian/cycle bridge and a modified layout of roads, waterway and residential allotments) and on 27 February 2014 at p 1134 (expansion of the commercial houseboat mooring area, the deletion of a bridge, the relocation of the public boat ramp, the relocation of the southern exit to/entrance from the River Murray and an expansion/reconfiguration of the constructed wetlands).

4. By letter dated 22 August 2018 Tallwood Pty Ltd, being the beneficiary of the development authorisation, sought a variation to the authorisation so as to permit the replacement of the vacuum sewer system for the marina facility with a mobile vacuum unit system. A variation was also sought for a boat refueling facility to be relocated adjacent the boat ramp.

5. The Development Assessment Commission has, in considering the application, had regard to all relevant matters under section 48(5) of the Development Act 1993.

6. The Development Assessment Commission is satisfied there is no requirement to prepare a further or amended Environmental Impact Statement.

7. For ease of reference the conditions attached to the "Mannum Waters" residential marina provisional development authorisation are republished in full hereunder, with the only changes being the addition of a reference to the variation application (and associated plans) to condition 1a.

Decision

Pursuant to Section 48 (7) (b) (ii) of the Development Act 1993, and having due regard to the matters set out in Section 48 (5) and all other relevant matters, the State Commission Assessment

Panel exercising the power of the Governor delegated by notice in the *South Australian Government Gazette* dated 30 October 2008 pursuant to Section 48 (8), varies the 'Mannum Waters' residential marina development authorisation dated 27 February 2014, in accordance with the following:

PART A: RESERVED MATTER

The following matter I have reserved for further assessment:-

(a) Compliance with the Building Rules in relation to all aspects of the Major Development.

PART B: CONDITIONS OF PROVISIONAL DEVELOPMENT AUTHORISATION

1. The development authorisation granted hereunder is provisional only, does not operate as a final development authorisation, and does not therefore authorise implementation of the Major Development. Only an authorisation granted under section 48(2)(b)(i) can operate to authorise implementation of the Major Development, which authorisation will only be granted after the reserved matter has been assessed and approved.

1a. Except where minor amendments may be required by other legislation, or by conditions imposed herein, the Major Development shall be undertaken in strict accordance with the following documents:

- Development application dated 28 June 2005 (except to the extent that it may be varied by a subsequent document in this paragraph);
- Environmental Impact Statement (Volumes 1 & 2), Mannum Waters Marina and Residential Development by Tallwood Pty Ltd dated May 2007 (except to the extent that it may be varied by a subsequent document in this paragraph);
- Response to Submissions, Mannum Waters Marina and Residential Development by Tallwood Pty Ltd dated November 2007 (except to the extent that it may be varied by a subsequent document in this paragraph);
- Correspondence from Tallwood Pty Ltd to Planning SA dated 1 February 2008 and 18 February 2008 containing additional information and modified plans (except to the extent that it may be varied by a subsequent document in this paragraph);
- Assessment Report prepared by the Minister for Urban Development and Planning dated August 2008 (except to the extent that it may be varied by a subsequent document in this paragraph);
- Application from Tallwood Pty Ltd for approval of Reserved Matters dated 15 February 2010, including the following documents (except to the extent that it may be varied by a subsequent document in this paragraph):

  (i) Reserved Matters – Information for Assessment (dated January 2010);
  (ii) Construction Plan – Stages 1 to 4 (dated January 2010);
  (iii) Mid Murray Council Development Deed (undated);
  (iv) Construction Environmental Management and Monitoring Plan (dated January 2010);
  (v) Environmental Management Implementation Plan (dated July 2009);

(vi) Operational Environmental Management and Monitoring Plan (dated January 2010);
(vii) Geotechnical Report – Geotechnical Investigation, Mannum Waters Marina Development (dated 30 September 2009);
(viii) Environmental Site Assessment – Phase 1, 'Mannum Waters' Site (dated 12 October 2007);
(ix) Environmental Site Assessment – Phase 2, Proposed Mannum Water Development (dated 28 July 2009);
(x) Environmental Site Assessment – Phase 2, SA Water Site (dated 15 December 2009);
(xi) Site Preparation, Revegetation, Hydrology and Management Plan for the Constructed Anabranch Wetland and Ephemeral Wetland System (dated January 2010);
(xii) Soil Erosion and Drainage Management Plan (dated January 2010);
(xiii) Stormwater Management and Monitoring Plan (dated January 2010);
(xiv) Revegetation Plan (dated January 2010);
(xv) Revegetation Management Plan (dated January 2010);
(xvi) Landscape Plan (dated January 2010);
(xvii) Traffic Management Plan (dated January 2010);
(xviii) Flood Management Plan (dated January 2010);
(xix) Entrance Channel, Marina Basin and Waterways Management and Monitoring Plan (dated January 2010);
(xx) Riverine and Wetland Management and Monitoring Plan (dated January 2010);
(xxi) Constructed Anabranch Channel Wetland Management Plan (dated January 2010);
(xxii) Waste and Pollutant Source Management Plan (dated January 2010);
(xxiii) Spill Contingency Plan (dated January 2010);
(xxiv) Wastewater Environmental Management Plan (dated January 2010);
(xxv) Weed and Feral Animal Management Plan (dated January 2010);
(xxvi) Native Vegetation Clearance Application (dated January 2010);

- Site Contamination Audit Report – Residential Portion of 'Area A', Mannum Waters Development prepared by Soil & Groundwater Consulting dated 3 March 2010;

- Application from Tallwood Pty Ltd for approval of minor variations to the layout plan dated 24 February 2011 (except to the extent that it may be varied by a subsequent document in this paragraph);

- Application from Tallwood Pty Ltd for approval of minor variations to the layout plan dated 28 March 2011 and 14 June 2011 and the following plans (except to the extent that it may be varied by a subsequent document in this paragraph):

  (i) Proposed Plan of Division, prepared by Weber Frankiw and Associates Pty Ltd, dated 25 May 2011;
  (ii) Mannum Waters Stages 1-4 D.N 711/D010/09 Bioretention Basin Enlargements, prepared by Herriot Consulting, dated January 2010 revision 16-05-11;

- Application from Tallwood Pty Ltd for approval of minor variations to the layout plan dated 9 September 2013 (except to the extent that it may be varied by a subsequent document in this paragraph); and

- Application from Tallwood Pty Ltd for approval of a variation to the marina sewer system and the boat refuelling facility, including the following documents:

(i) Letter from Tallwood Pty Ltd to the Department of Planning, Transport and Infrastructure dated 22 August 2018; and
(ii) Report titled 'Installation of a Marine Refuelling Facility on the Murray River at Mannum Waters Boat Ramp, Mannum South Australia', dated 15 February 2017, and Addendum dated 7 March 2018, prepared by BT River Fuels.

2. Subject to Condition 3, no building works on any part of the development shall commence until a favourable decision has been notified to the applicant by the Governor or the Governor's delegate in respect of the reserved matter referred to in Part A paragraph (a) of the Decision section above.

3. The applicant may commence a stage of building works without the Governor or his delegate having granted a development authorisation in respect of the reserved matter, if the Governor or his delegate has notified the applicant in writing that that particular stage complies with the building rules.

4. All works and site activities shall be undertaken in accordance with an approved Construction Environmental Management and Monitoring Plan and an approved Environmental Management Implementation Plan.

5. Waterways shall not be flooded with water from the River Murray for a period of two years from the date of 30 October 2008.

6. All contamination management or remediation works shall be undertaken in accordance with an approved Site Contamination Audit Report and Remediation Plan and to the reasonable satisfaction of the Environment Protection Authority.

7. Transport routes for the delivery of construction materials shall be selected to the reasonable satisfaction of the Mid Murray Council.

8. Stockpiled soils shall be suitably managed to control dust emissions, erosion and weed infestation.

9. Armour rock used for waterway revetments shall not be contaminated by fine sediment.

10. The proponent must maintain a 50-metre wide strip of land adjacent the river's edge as public land.

11. The wastewater collection and treatment system shall be designed to ensure that the general obligations of the Environment Protection (Water Quality) Policy 2003 are met, and to ensure that effluent does not overflow or escape from any drains, pipes, sumps, tanks, storage/treatment basins into any watercourse, or into stormwater drains which do not drain into the effluent collection, treatment and disposal system; except where the effluent complies with criteria in the above policy.

12. All marina moorings shall be connected to a vacuum sewer system.

13. The proponent shall provide underground public lighting, power supply, water supply and telephone supply to each allotment in accordance with, and to engineering design standard plans approved by the electricity, mains water and telephone public utility authorities.

14. The proponent shall ensure that all waters discharged to the River Murray are equal to, or better than, the quality of water in the River Murray at the point of discharge.

15. The land to be used for land-based allotments shall be formed to prevent stormwater flows entering into the waterways without suitable treatment.

16. Water-sensitive urban design measures and practices shall be adopted for the management of run-off, including stormwater capture and reuse.

17. All buildings shall have a floor level above the 1956 flood level.

18. All infrastructure relating to the management of stormwater (including rainwater tanks) shall be located above the 1956 flood level and/or be designed so as not to be affected by flooding.

19. All residential allotments that are a minimum of 40 metres in length shall be constructed to have a finished slope of approximately 1:16 (3.6 degrees).

20. All residential allotments that are a minimum of 70 metres in length shall be constructed to have a finished slope of approximately 1:42 (1.4 degrees).

21. Setbacks from building envelopes to pool level shall be no less than 19 metres for all residential allotments that are a minimum of 40 metres in length and 40 metres for all residential allotments that are a minimum of 70 metres in length.

22. Undeveloped allotments shall be left in a neat and tidy condition, with soil surfaces stabilised to minimise erosion.

23. Riparian buffer strips shall be established by the proponent for all waterfront allotments, prior to titles being issued for residential allotments. The buffer shall be a minimum of five metres wide and be planted with suitable species of native vegetation.

24. The edges of all residential waterways shall be designed and constructed to replicate a natural river bank as far as practicable.

25. Road designs shall not affect existing natural lines in such a way as to cause flooding. All roads and drainage works shall be built according to approved designs.

26. Appropriate navigational aids shall be erected in prominent locations, in consultation with the Department of Transport, Energy & Infrastructure, prior to use of the facility for boating purposes.

27. Access systems for all floating boat moorings shall be capable of adjustment or be readily adaptable to variable river levels and all marina mooring structures shall be designed in accordance with the Australian Standard AS 3962-2001 Guidelines for Design of Marinas and AS 4997-2005 Guidelines for the Design of Maritime Structures.

28. The public boat ramp facility shall be designed in accordance with the South Australian Boating Advisory Committee's Guidelines for Planning, Design and Construction of Boat Launching Facilities.

29. The boat refuelling area and boat effluent/greywater pump-out connection points shall be designed to meet the requirements of the Environment Protection Authority, the Department for Transport, Energy & Infrastructure and the Country Fire Service (CFS) respectively, and shall be in place prior to commencement of operation of the marina.

30. The proponent shall ensure satisfactory oil-spill and fire-fighting facilities and contingency plans, determined in consultation with responsible officers within the Department for Transport, Energy & Infrastructure and the Metropolitan Fire Service (MFS) or the Country

Fire Service (CFS) (as applicable), are in place prior to commencement of operation of the marina.

31. The water contained in the marina basin shall be kept as a minimum to a quality appropriate for secondary contact recreation, public amenity and the maintenance of aquatic ecosystems, as stipulated from time to time by the ANZECC Australian Water Quality Guidelines for Fresh and Marine Waters.

32. Normal operating hours for construction activities and truck movements to and from the site shall be from 7.00am to 7pm, Monday to Saturday inclusive. Only if it is considered necessary by the proponent, shall construction be undertaken on Sundays, in which case construction hours shall be from 9.00 am to 6.00pm.

33. The Environment Protection (Noise) Policy 2007 shall be complied with during construction activities and truck movements.

34. Landscaping and street scaping of the site shall commence prior to the issuing of Certificates of Title for each stage of the land division, and when established shall be maintained in good health and condition at all times. A plant shall be replaced if or when it dies or becomes seriously diseased within the first growing season after the plant dies or becomes seriously diseased. A weed control program shall also be implemented.

35. Permanent water flow and water quality monitoring stations shall be established at suitable sites within the development, to the reasonable satisfaction of the Minister for Environment and Conservation prior to the commencement of operation.

36. All water pumps within the development must be metered to the reasonable satisfaction of Minister for Environment and Conservation.

37. The Mid Murray Council shall be given seven days notice, prior to the commencement of works, and be provided with the name and contact facilities for the person responsible for co-ordinating site works by this approval.

38. A site audit report, completed by an Environmental Auditor (Contaminated Land), must be presented to all purchasers of allotments.

39. A Management Plan must be prepared for the Crown Reserve north of the entrance channel, in consultation with the Mid Murray Council, and responsible officers of the Department for Environment and Heritage, the Department of Water, Land and Biodiversity Conservation and the South Australian Murray Darling Basin Natural Resources Management Board, prior to the transfer of land to the Mid Murray Council.

40. The final design of the southern waterway exit to/entrance from the River Murray must be prepared in consultation with the Mid Murray Council, the Environment Protection Authority and the Department of Environment, Water and Natural Resources, and be finalised to the reasonable satisfaction of the Department of Planning, Transport and Infrastructure.

41. The proponent shall address the reserved matter and submit relevant documentation to the Development Assessment Commission for its approval.

PART C: NOTES TO PROPONENT

1. In respect of the reserved matter, the following is advised to the proponent:-

(a) Building Rules

The proponent must obtain a Building Rules assessment and certification from either the Mid-Murray Council or a private certifier (at the proponent's option) and forward to the Development Assessment Commission all relevant certification documents as outlined in Regulation 64 of the *Development Regulations 2008*.

Pursuant to Development Regulation 64, the proponent is especially advised that the Mid-Murray Council or private certifier conducting a Building Rules assessment must-

- provide to the Minister for urban Development and Planning a certification in the form set out in Schedule 12A of the *Development Regulations 2008* in relation to the building works in question; and

- to the extent that may be relevant and appropriate-

(i) issue a Schedule of Essential Safety Provisions under Division 4 of Part 12; and

(ii) assign a classification of the building under these regulations; and

(iii) ensure that the appropriate levy has been paid under the *Construction Industry Training Fund 1993*.

Regulation 64 of the *Development Regulations 2008* provides further information about the type and quantity of all Building Rules certification documentation for Major Developments required for referral to the Minister for Urban Development & Planning. The Mid Murray Council or private certifier undertaking Building Rules assessments must ensure that the assessment and certification are consistent with this provisional development authorisation (including its Conditions and Notes).

2. Should the proponent wish to vary the Major Development or any of the components of the Major Development, an application may be submitted, provided that the development application variation remains within the ambit of the Environmental Impact Statement and Assessment Report referred to in this provisional development authorisation. If an application for variation involves substantial changes to the proposal, it will be processed pursuant to section 47(2)(b) of the *Development Act 1993*.

3. The proponent is advised that a suitable water licence and water allocation would need to be secured under the *Natural Resources Management Act 2004* for the initial filling of the marina basin, waterways and the constructed anabranch/wetland system and for the on-going maintenance of water levels.

4. The following activities in relation to the components of the development hereby approved and/or requiring future approval will require licences under the *Environment Protection Act 1993*:

    - Earthworks Drainage: the conduct of earthworks operations in the course of which more than 100 kilolitres of waste water containing suspended solids

in a concentration exceeding 25 milligrams per litre is discharged directly or indirectly to marine waters or inland waters.

- Marinas and Boating Facilities: the conduct of-

  (a) facilities comprising pontoons, jetties, piers or other structures (whether on water or land) designed or used to provide moorings or dry storage for 50 or more powered vessels at any one time; or

  (b) works for the repair or maintenance of vessels with the capacity to handle five or more vessels at any one time or vessels 12 metres or more in length.

- Dredging: removing solid matter from the bed or any marine waters by any digging or suction apparatus, but excluding works carried out for the establishment of a visual aid to navigation and any lawful fishing or recreational activity.

It is likely that as a condition of such licences the Environment Protection Authority will require the licensee to carry out specified environmental monitoring of water quality and to make reports of the results of such monitoring to it.

5. All works associated with the rehabilitation and remediation of the site are required by law to be undertaken in accordance with section 25(1) of the *Environment Protection Act 1993* which requires that a person must not undertake any activity, which pollutes, or may pollute without taking all reasonable and practical measures to prevent or minimise harm to the environment); the Environment Protection (Water Quality) Policy 2003; other relevant Environment Protection Policies made under Part 5 of the *Environment Protection Act 1993*. Works should also be undertaken in accordance with the ANZECC Best Practice Guidelines for Waste Reception Facilities at Ports, Marinas and Boat Harbours in Australia and New Zealand, guideline Environmental Management of On-Site Remediation and other relevant Environment Protection and Authorisation publications and guidelines.

6. The proponent is advised of the Duty of Care under the *River Murray Act 2003*, which requires that a person shall ensure that their actions do not cause harm to the River Murray.

7. The proponent is advised of the requirement under the *Native Vegetation Act 1991* to obtain permission under that Act for any clearance of native vegetation or otherwise to bring itself within an exemption under that Act. Neither this development authorisation nor any final development authorisation granted under section 48(2)(b)(i) of the *Development Act 1993* operates as an authorisation to clear native vegetation.

8. The proponent is reminded of its obligations under the *Aboriginal Heritage Act 1988* whereby any 'clearance' work, which may require permission to disturb damage or destroy Aboriginal Sites, must be undertaken with the full authorisation of the Minister for Aboriginal Affairs and Reconciliation, according to section 23 of the *Aboriginal Heritage Act 1988*.

9. The proponent, and all agents, employees and contractors, such as construction crews, should be conversant with the provisions of the *Aboriginal Heritage Act 1988*, particularly the requirement to immediately contact the Department of Premier & Cabinet (Aboriginal Affairs and Reconciliation) in the event that archaeological items (especially skeletal material) are uncovered during earthmoving.

10. The proponent, and the Council after hand-over, should comply with the *Public and Environmental Health Act 1987* in regard to the maintenance of suitable water quality within the marina basin, residential waterways, stormwater retention ponds and the constructed anabranch/wetland system to protect public health and amenity.

11. For the purposes of condition 31, it is noted that the expression 'secondary contact recreation' includes activities such as wading, boating and fishing in which some human contact with the water may occur, but in which the probability of bodily immersion or the intake of significant amounts of water is minimal.

12. It is recommended that the proponent approach the Mid-Murray District Council with a view to the Council enacting by-laws to manage activities associated with the:

    - Entrance channel and waterways to ensure safe navigation and to protect water quality
    - Boat ramp, boat lift and boat maintenance facilities (including car parking and access)
    - Refuelling facility and boat effluent/greywater pump-out connection points
    - Residential development and reserves (including stormwater management devices and the pedestrian bridge)
    - Constructed anabranch/wetland system
    - Crown land reserve along the river bank and associated wetlands and buffer zones

13. The Mid Murray Council will need to review and amend the zoning policies in the relevant Development Plan to reflect any development approved by the Governor and for future assessment and decision-making for buildings and structures not forming part of this provisional development authorisation. In particular, policies will need to address sustainability matters (especially water and energy efficiency), environmental protection requirements, flood protection requirements and amenity aspects.

14. A common building scheme encumbrance or equivalent device for the purpose of ensuring compliance with design standards for residential and other buildings will be required at the land division stage.

15. Binding legal arrangements (e.g. easements, encumbrances, charge-back arrangements etc, as appropriate) between the proponent and allotment owners must be put in place, prior to application to the Registrar General for the issue of new Certificates of Title, to ensure financial and management responsibilities related to the maintenance of edge treatments, the maintenance of the riparian buffer strip and the design and appearance of structures are clearly allocated. These arrangements must be to the reasonable satisfaction of the Development Assessment Commission.

16. The proponent will need to satisfy the requirements of the Mid Murray Council relating to the provision of 12.5% Open Space as part of any land division application.

17. The Marina Owner's Charter and House Owner's Charter documents should be finalised to the satisfaction of Planning SA, prior to application to the Registrar General for the issue of new Certificates of Title. The relevant Charters should be presented to purchasers of marina berths or allotments.

18. Approvals from the Environment Protection Authority and the Department of Health would need to be sought for the Waste Water Treatment Plant and the use of reclaimed water for irrigation purposes. An Environmental Management Plan for Wastewater and an Irrigation Plan would be required.

19. The Minister has a specific power to require testing, monitoring and auditing under section 48C of the *Development Act 1993*.

20. It is noted that the provisional development authorisation granted herein does not apply to any residential, commercial, retail, tourist-related or other buildings, for which a separate application for approval, addressed to Council, will be required. Additional design and infrastructure/service plans will be required by Council when application is made for approval for any such buildings.

Given under my hand at Adelaide, 7 September 2018.

Simone Fogarty, Presiding Member, State Commission Assessment Panel

Appendix 2: Definitions and Acronyms

ACRONYM	DEFINITION
AEIS	Amendment to the Environmental Impact Statement
AGD	Attorney-General's Department
AR	Assessment Report
AS	Australian Standard
CEMP	Construction Environmental Management Plan
DEW	Department for Environment and Water
DPC-AAR	Aboriginal Affairs and Reconciliation, Department for the Premier and Cabinet
DIT	Department for Infrastructure and Transport
EIS	Environmental Impact Statement
ELMA	Environmental Land Management Allocation
EMP	Environmental Management Plan
EMMP	Environmental Management and Monitoring Plan
EPA	Environment Protection Authority
EP Act	*Environment Protection Act 1993*
FTE	Full Time equivalent (jobs)
Ha	hectare
ML	Megalitre = 1 million litres of water
Noise EPP	*Environment Protection (Noise) Policy 2007*
NHMRC	National Health and Medical Research Council
OEMP	Operational Environmental Management Plan
PLUS-AGD	Planning and Land Use Services (within the Attorney-General's Department)
RD	Response Document
RL	Relative Level
SPC	State Planning Commission
SPP	State Planning Policy
TDS	Total Dissolved Salts
The Minister	Minister for Planning
WWTP	Waste Water Treatment Plant

Appendix 3: Assessment Guidelines

STATE PLANNING COMMISSION

GUIDELINES

For the preparation of an

AMENDMENT to the ENVIRONMENTAL IMPACT STATEMENT

'Mannum Waters' Marina and Residential Development – Holiday Village and Adventure Water Park

Tallwood Pty Ltd

Endorsed 5 December 2019

State Planning Commission

Department of Planning, Transport and Infrastructure

www.saplanningportal.sa.gov.au

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SOUTH AUSTRALIA

Government of South Australia
Department of Planning, Transport and Infrastructure

BACKGROUND

The 'Mannum Waters' Residential Marina proposal was declared a Major Development in 2005 and was the subject of an Environmental Impact Statement (EIS) process. The EIS was released for public consultation in 2006. The proposal was granted a Provisional Development Authorisation by the Governor on 30 October 2008. Construction started in June 2010, with the major earthworks, marina basin, boat ramp, constructed wetlands and initial stages of the residential land-division now completed.

The major development site has also been rezoned by the Mid Murray Council and a series of zones and policy areas have been established. The role of these zones is to guide the staged construction of the approved development and to provide planning polices for Council to assess aspects of the development that were not captured by the declaration (such as applications for dwellings, tourist accommodation and commercial buildings).

The proponent for the marina development - Tallwood Pty Ltd, now wishes to modify the layout plan and design of the site to incorporate a proposed holiday village and adventure water park. This would require the current development authorisation to be varied to approve the additional land uses. In order for the Minister for Planning to consider granting such an approval (as the delegate of the Governor), a relevant EIS would be required. Thus, the EIS would need to be amended pursuant to Section 47 of the *Development Act 1993*. An amended Assessment Report would also be required for decision-making. Prior to this process being undertaken, the 2005 major development declaration would need to be varied to capture the proposed land uses.

On 18 March 2019 the proponent wrote to the Department of Planning, Transport and Infrastructure (the Department) seeking to vary the existing major development declaration to specifically include provision for a holiday village and adventure water park. A variation to the declaration, to insert *recreational and tourist development*, was gazetted on 1 August 2019.

On 22 August 2019, the proponent provided a Review of the EIS document as part of the amendment process to inform the preparation of Guidelines.

The State Planning Commission (SPC) is responsible for setting the level of assessment required (Environmental Impact Assessment, Public Environmental Report or Development Report) and provides Guidelines for the preparation of the assessment document. For this proposal, an EIS has previously been set as the level of assessment. The previous Guidelines issued in November 2005 for the residential marina did not address the proposed two new components. Thus, revised Guidelines need to be issued for the preparation of an Amendment to the EIS.

Due to the nature of proposal, the need for a broader assessment and investigation of the following is required:

- The strategic tourism / recreational and economic benefits of establishing a holiday village and adventure water park within the existing marina development site, the Mannum township and the region.
- Impact upon the River Murray, especially water quality and water allocation requirements.
- Impact on existing marina residents (especially noise and traffic)
- Impact on the local road network.

Following consideration of the potential implications of the proposal, the State Planning Commission has now prepared Guidelines (this document) for the proposed holiday village and adventure water park based upon the significant issues relating to the proposed development. The Amendment to the EIS should be prepared in accordance with these Guidelines and should describe what the proponent wants to do, what the environmental effects will be and how the proponent intends to manage the project.

The Amendment to the EIS should cover both the construction and ongoing operation of the development and, where possible, should outline opportunities to incorporate best practice design and management.

For the purposes of environmental impact assessment under the *Development Act 1993*, the meaning of 'environment' is taken to include an assessment of environmental (biological and physical), social and economic effects associated with the development and the means by which those effects can be managed.

In this context this document is the guidelines as set by the State Planning Commission specifically prepared for this application. The guidelines have been developed to properly define the expected impacts (extent, nature and significance) associated with the proposal in the manner suggested, the proposed mitigation strategies, and on balance whether such impacts are acceptable.

The documentation and analysis from the assessment process will then be used by the Minister (as the delegate of the Governor for this application) in the decision-making process, pursuant to Section 48 of the *Development Act 1993*, to decide whether the proposal can be approved, and the conditions that would apply.

The Commission's role in the assessment process is now completed. From this point the Minister will continue with the assessment under Section 47 of the Act.

DESCRIPTION OF PROPOSAL

The proposal is to establish a holiday village and adventure water park at the south-western end of the marina site. The approved layout plan identifies this land as being an undeveloped future stage of the residential land division (site of the holiday village) and proposed open space comprising a constructed wetland and revegetation area (site of the water park). The land is currently disused grazing land (cliff top) and dairy flat (floodplain) that adjoin the marina basin and constructed wetland area.

The Holiday Village would comprise:

- Reception office, small store and Manager's residence.
- 61 cabins of various sizes.
- 41 powered caravan / motorhome sites.
- 15 powered camping sites and 15 unpowered camping sites.
- Associated facilities, including recreation rooms, camp kitchens, amenities blocks, laundry etc.
- Caravan and boat storage area.
- Boat ramp.

The existing residential waterway adjacent the marina would be expanded at the western end to create a recreational lake for the holiday village. This would be integrated with the existing constructed wetland beside the River Murray (i.e. which is used for maintaining water quality through natural filtration).

The Adventure Water Park would comprise a variety of low to high intensity activities. The park would include a reception office, shops and café. Activities would include water slides, Zorb balls, cable ski / wakeboarding area, flyboard / jetpack area and zip-lines. The activities would be undertaken within a series of constructed water bodies (i.e. 'pools' / artificial lakes / waterways) located adjacent the existing constructed wetland. The park pool water would be filtered by natural biological processes and renewed from the River Murray. Discharges would be minimal and would be integrated with the existing constructed wetlands for the control of water quality and salinity. It is estimated to operate for 102 full open days during each calendar year.

The proposal is intended to compliment the recreational and tourism uses associated with the marina, which has become an attraction for Mannum and the region (especially due to the boat ramp and base for houseboats). The proposal would establish a Holiday Village with water frontage and access to the River Murray, plus an Adventure Water Park of a scale not present in the State. Bringing new visitors to the development may also encourage increased residential and commercial allotment sales to help complete the overall development.

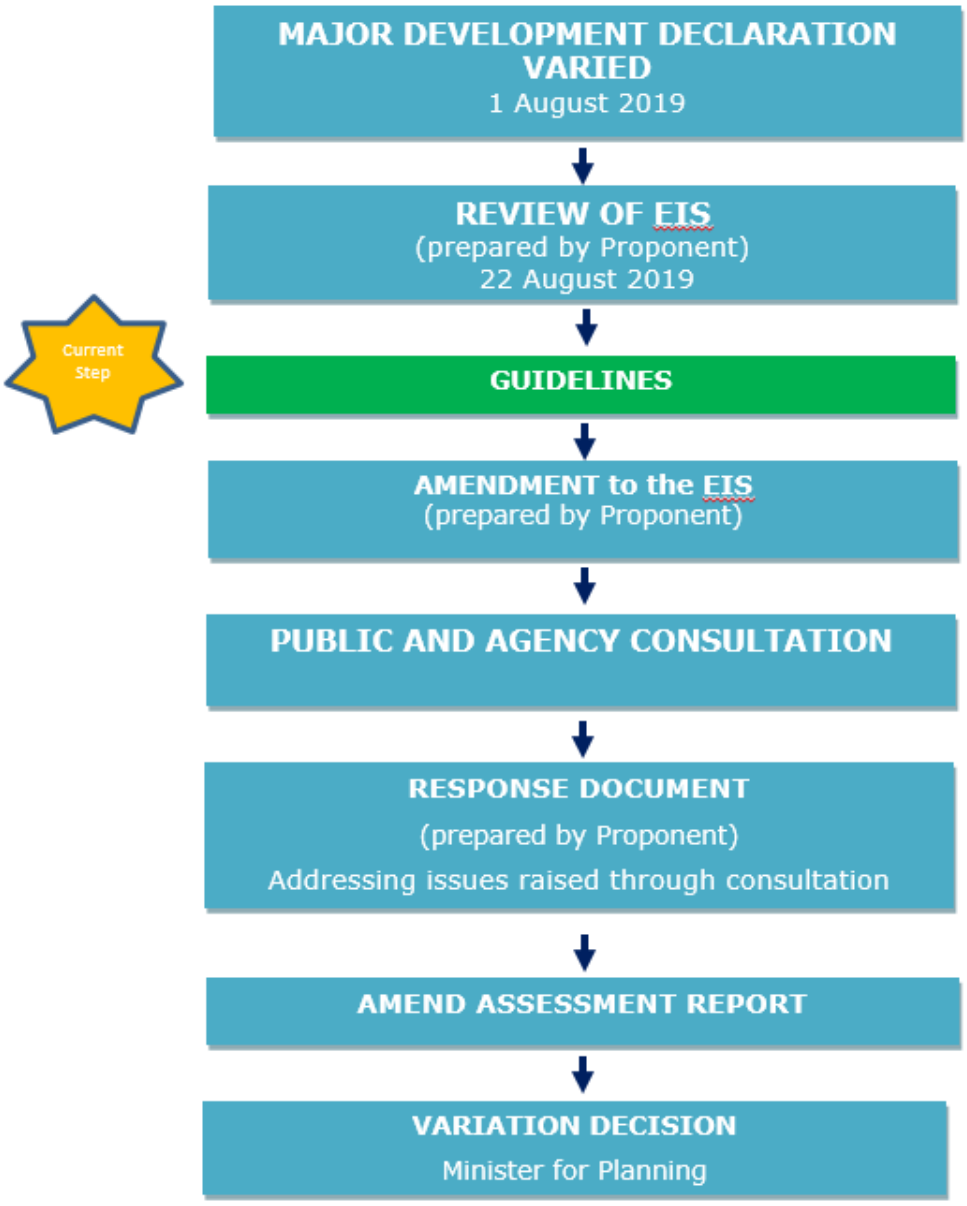
The capital expenditure for the proposed development is $7M and is expected to generate substantial employment opportunities for the region.

MAJOR DEVELOPMENT PROCESS AND ROLE OF GUIDELINES

The Major Development assessment process enables the Minister for Planning to utilise impact assessment as a strategic tool.

Impact assessment enables the holistic consideration of proposals that might otherwise be of a nature or scale that is not expected through the regular development assessment process and/or Council Development Plan(s).

The major development assessment process has several steps:



These Guidelines are prepared to inform the preparation of the Amendment to the EIS. They set out the assessment issues associated with the proposal along with their scale of risk as determined by the State Planning Commission.

An Amendment to the EIS must be prepared by the proponent in accordance with the Guidelines and should specifically address each guideline.

Each guideline is intended to be outcome focused and may be accompanied by suggested assessment approaches. These suggestions are not exhaustive, and may be just one of a wide range of methods to consider and respond to a particular guideline.

The Amendment to the EIS should detail any expected environmental, social and economic effects of the development, and the extent to which the development is consistent with the provisions of the Councils Development Plan, the Planning and Design Code, the Planning Strategy and any matter prescribed by the Regulations under the Act.

Whilst not mandatory for this Amendment to the EIS due to it being declared under the Development Act, the proponent may wish to address the State Planning Policies given they are now a relevant planning instrument.

The completed Amendment to the EIS is submitted (by the proponent) to the Minister for public release, and is subsequently referred to the relevant Council(s) and government agencies for comment.

An opportunity for public comment will occur when the completed Amendment to the EIS is released. Public exhibition is undertaken for 20 business days. An advertisement will be placed in the *Advertiser* and local newspapers inviting submissions.

Copies of the submissions from the public, Council and relevant government agencies will be provided to the proponent.

The proponent must then prepare a 'Response Document' to address the matters raised during the public exhibition period.

An Amendment to the Assessment Report is then prepared. The amended Assessment Report and the Response Document will be available for inspection and purchase at a place determined by the Minister for a period determined by the Minister.

Availability of each of these documents will be notified by advertisements in *The Advertiser* and local newspapers. A copy of the Amendment to the EIS, Response Document and the Amendment to the Assessment Report will be provided to Council.

When a proposal is subject to the EIS process, from 1 July 2019 the Minister for Planning makes the final decision under Section 48 of the Act having regard to Regulation 11 (3) of the *Planning, Development and Infrastructure (Transitional Provisions) (Code) Variation Regulations 2019*. .

In deciding whether the proposal will be approved and any conditions that will apply, the Minister for Planning must have regard to:

- provisions of the appropriate Development Plan or Planning and Design Code
- the Development Act and Regulations
- if relevant, the Building Code of Australia
- The South Australian Planning Strategy, including the Integrated Land Use and Transport Plan
- the Amendment to the EIS, Response Document and the Minister's Amendment to the Assessment Report
- if relevant, the *Environment Protection Act 1993*
- any other relevant government policy and/or legislation.

The Minister for Planning can at any time indicate that the development will not be granted authorisation. This may occur if the development is inappropriate or cannot be properly managed. This is commonly referred to as an ***early no***.

AMENDMENT TO THE ENVIRONMENTAL IMPACT STATEMENT (AEIS)

The AEIS should be presented in terms that are readily understood by the general reader. Technical details should be included in the appendices.

The report must include the following:

Assessment of expected environmental, social and economic effects
The assessment of effects should include all issues identified in these Guidelines and cross referenced to supporting technical references.

Consistency with Government policy
The *Development Act 1993* requires the AEIS to state the consistency of the expected effects of the proposed development:

- with the relevant Development Plan, Planning and Design Code and Planning Strategy.
- with the objects of the *Environment Protection Act 1993*, the general environmental duty and relevant environment protection policies, and
- with the objects of the *River Murray Act 2003*, the Objectives for a Healthy River Murray and the general duty of care.

Avoidance, Mitigation, Management and Control of adverse effects
The proponent's commitment to meet conditions proposed to avoid, mitigate, satisfactorily manage and/or control any potentially adverse impacts of the development on the physical, social or economic environment, must be clearly stated as part of the AEIS.

The design of the proposal should be flexible enough to incorporate changes to minimise any impacts highlighted by this evaluation or post-operation monitoring programs.

The report should include the following:

Summary
The AEIS should include a concise summary of the matters set out in Section 46B of the *Development Act 1993* and include all aspects covered under the headings set out in the Guidelines, in order for the reader to obtain a quick but thorough understanding of the proposal and the resulting environmental impacts.

Introduction
The introduction to the EIS should cover the following:

- background to, and objectives of, the proposed development
- details of the proponent
- staging and timing of the proposal, including expected dates for construction and operation
- relevant legislative requirements and approval processes
- purpose and description of the AEIS process

Need for the Proposal
A statement of the objectives and justification for the proposal, including:

- the specific objectives that the proposal is intended to meet, including market requirements
- expected local, regional and state benefits and costs, including those that cannot be adequately described in monetary or physical terms (e.g. effects on aesthetic amenity)
- a summary of environmental, economic and social arguments to support the proposal, including the consequences of not proceeding with the proposal.

Description of the Proposal

The description of the proposal should include the following information:

- the nature of the proposal and location
- a project plan to outline objectives, constraints, key activity schedule and quality assurance
- site layout plans (including indicative land division plan, if relevant)
- the construction and commissioning timeframes (including staging)
- a description of the existing environment (including the immediate and broader location)
- a description of the current land use activities occurring in the area
- details of all buildings and structures associated with the proposed development
- details of any other infrastructure requirements and availability
- details of the construction methods to be used
- details on the operation of the proposed development, including proposed maintenance programs
- the relevant Development Plan zones
- management arrangements for the construction and operational phases (including Environmental Management and Monitoring Plans)
- a contingency plan for delays in construction.

Plans and Forms

- Current Certificate(s) of Title.
- **Context and locality plans** should illustrate and analyse the existing environment and site conditions and the relationship of the proposal to surrounding land and buildings. The plan should be drawn to a large scale and be readily legible. The plan(s) should indicate:
    - any neighbouring buildings, infrastructure or facilities, including identification of all nearest sensitive receptors and the likely use of existing or proposed neighbouring buildings (e.g. dwelling, farm outbuildings, shop, office)
    - location of any watercourse, dams, underground wells and/or any other environmentally sensitive areas
    - location of any state heritage and cultural heritage in relation to the site
    - existing native vegetation, regulated or significant trees
    - known sites for protected, threatened or vulnerable species, including migratory species, on the site, the adjoining land and riverine environment
    - existing roads and access tracks (public & private)
    - any other information that would help to set the context for the locality
- **Site plan(s)** clearly indicating all proposed buildings, structures and works (drawn at a scale of 1:100 or 1:200).
- **Elevations** (drawn at a scale of 1:100 or 1:200) showing all sides of the buildings, structures and works with levels and height dimensions provided in Australian Height Datum.
- **Cross sections** of the buildings, structures and works (including any stockpile and storage facilities) showing ground levels, floor levels, ceiling heights and maximum height in Australian Height Datum.
- Any technical or engineering drawings and specifications including geotechnical data, details of cut and fill and depth to groundwater.

Specialist Reports and Details

- A **Water Quality Management Plan** prepared by an appropriately qualified consultant or engineer that includes hydrodynamic modelling of water circulation in the constructed main lake and the maintenance of suitable water quality for recreational users and the environment (including any discharges to the marina waterways, constructed wetlands or the Murray River). The Plan must outline measures to manage and monitor water quality.

- A **transport and access impact assessment** prepared by a suitably qualified traffic and access planner/engineer. The assessment should evaluate current and proposed access arrangements including the effect on the arterial road network and car parking, as well as vehicle interface with the local road network. Any assessment must include the traffic and access impact for the

construction period as well as any ongoing operations and maintenance including details of the traffic/transport vehicle sizes/movements outside of normal gazetted heavy vehicles.

- A **waste management and minimization plan (for construction and operation)** detailing the sources of waste including spoil and removed vegetation, the location of waste management storage areas (including the separation of waste streams, such as recyclables, hard waste and e-waste) and disposal facilities located on site or within laydown areas and provide details of how these facilities will be serviced.

- A **noise assessment** prepared by a suitably experienced, professional acoustic engineering consultant[1] to moderate external and environmental noise disturbance and amenity impacts for residents and other sensitive uses within the immediate area as a result of the proposed development (primarily during construction).

- Details of any proposed **wastewater management**, including segregation, collection, treatment, storage, reuse and disposal of wastewater.

- A **construction environmental management plan** (CEMP) that describes how construction will be managed to mitigate negative environmental impacts to the environment, and public health and the amenity, and how those environmental management requirements will be implemented. Any CEMP should include consideration of a soil erosion and drainage management plan such as details of proposed stormwater management, including any opportunities for retention and reuse.

- A **fire hazard management plan** that considers requirements both during the construction and operational phases - including measures to minimise fire risk at and to/from the site, resources and training required, sources of water to fight fires (and how this water will be accessed), options to utilise and coordinate with other operations in the region/area, and cost recovery.

- A **operational environmental management plan** (OEMP) that describes how operations, in particular maintenance regimes, will be managed to mitigate negative impacts to the environment, and public health and the amenity, and how any ongoing environmental management requirements will be implemented. Any OEMP should include risk management plan which includes consideration of minimising maintenance works during fire danger season.

Sources of Information

- All sources of information (e.g. reference documents, literature services, research projects, authorities consulted) should be fully referenced, and reference should be made to any uncertainties in knowledge. Where judgements are made, or opinions given, these need to be clearly identified as such, and the basis on which these judgements or opinions are made need to be justified. The expertise of those making the judgements including the qualifications of consultants and authorities should also be provided.

- Any technical and additional information relevant to the EIS that is not included in the text should be included in appendices.

- It is **RECOMMENDED** that the AEIS consider issues that may generate concerns based on inaccurate or outdated perceptions. The information provided should explain key concepts in a factual manner. This can help to provide base level information to assist with community understanding of the proposal.

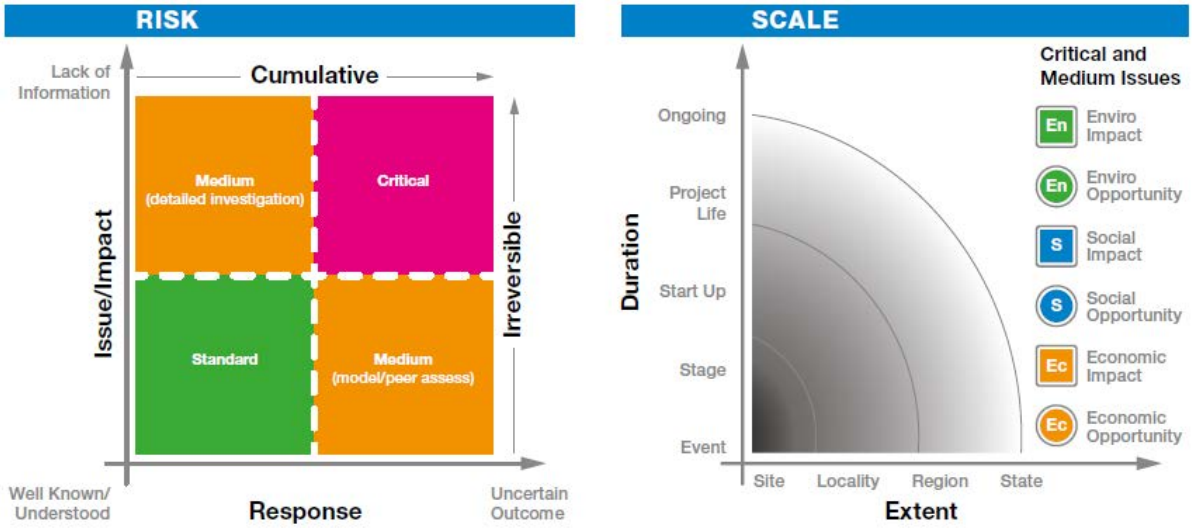
ASSESSMENT

[1] An acoustic engineer is defined as a person eligible for full Member status of both Engineers Australia and the Australian Acoustical Society

Impact assessment is an important tool that enables the consideration of projects that might otherwise struggle to be addressed properly or fairly under the 'normal' assessment system.

In setting these Guidelines, the State Planning Commission has considered the scale of issues associated with the project and determined whether they represent issues or opportunities. The potential impacts and issues have then been organised according to the level of work and type of attention required by the proponent: either standard, medium or critical:

- Where the issue is well known and the response is well understood then the risk assessment is classed as '**standard**'
- Where work is required to address the issue but the risk is likely to be manageable with additional information then the risk assessment is classed as '**medium**'.
- Where information about the issue is lacking and the response is unclear, the issue is classed as '**critical**'.



The issues and impacts identified by the Commission as requiring standard, medium or critical level assessment are listed below. Each requirement includes a description of the issue/impact and a description of the action or investigation needed.

To assist with the assessment of the AEIS the proponent is requested to provide a table (as an appendix) that cross references each Guideline requirement (action or investigation needed) with the relevant section and page of the EIS.

NOTE: The investigative requirements of the AEIS do not negate the need for the proponent to obtain all necessary licences, permits and/or management plans prior to undertaking any investigations or works in relation to this AEIS. It also does not negate the need for the proponent to comply with any legislative obligations or duty of care under the relevant legislation.

			Risk		Scale		Level of assessment
No	Issue/Impact	Description	Issue/Impact	Response	Duration	Extent	
1	Land Use and Economic Effects	The proposal will have an impact on the local and regional economy during construction and operation and may result in immediate and long terms effects on marina residents, land owners and surrounding uses. .	The proposal is expected to have a positive impact in terms of employment and contribution to the local economies during construction. Potential impacts on existing and future residents / landowners could include construction effects (especially dust and noise) and ongoing noise and traffic effects during operation (especially due to increased visitation and recreational activities).	The proponent needs to provide an analysis of employment generation opportunities and the economic benefits of the proposal, including flow on effects for the marina development and the region.	During construction and ongoing.	Local and Regional	More information required on: • Strategic tourism related benefits. • Employment opportunities • Multiplier/flow on effects. • Impact on surrounding land uses. **= CRITICAL**
2	Effect on the River Murray	The proposed development is located on the floodplain next to the River Murray, which is an important environment and water resource for South Australia.	The proposal would require the use of river water to fill and maintain water bodies. The management of waterbodies would need to ensure water quality in the river is not detrimentally affected, especially to protect downstream users. The proposed uses would introduce a substantial level of human activity that could cause disturbance the natural environment (especially the Baseby Wetlands)	The proponent would need to detail how water would be sourced and how water quality would be protected.	During construction and ongoing.	Regional and State	The River Murray water resource could be negatively impacted by potential threats to water quality. Need for further assessment, including any interaction with the existing marina development or discharges to the river. **= CRITICAL**
3	Effect on Water Quality	The proposal includes the construction and operation of artificial water bodies for recreational use.	The waterbodies need to be designed and managed to ensure safe use, especially water quality standards. The waterbodies may also interact with the existing waterways.	The proponent needs to detail the design and operational requirements and standards applicable for recreational use and to protect the environment.	Design and ongoing.	On-site and surrounding environment.	Protecting the health and safety of recreational users is essential. Hydrodynamic modelling for the main lake would need to demonstrate how suitable water quality would be maintained. **= CRITICAL**
4	Effect on the Physical Environment	The proposed development has the potential to substantially disturb landforms, soils and groundwater and to affect storm water run-off.	Construction activities (especially for the waterbodies) has the potential to cause erosion (wind and water), sedimentation and the alteration of natural drainage patterns. Waterbody excavations could also intercept groundwater that may be saline.	Whilst the 2006 EIS adequately described the physical environment, the proponent will need to provide a detailed description of the potential effects of the proposed works.	Primarily during construction.	Local	Issue is well understood, but more specific information is required. **=MEDIUM**

			Risk		Scale		Level of assessment
5	Effect on Native Vegetation and Fauna (Terrestrial and Aquatic)	Construction would require the clearance of some native vegetation / fauna habitat and disturbance to fauna species.	Based on the information provided in the 2006 EIS, construction would involve a small amount of clearance of native vegetation that has been degraded by past agricultural uses and salinity (and is of low habitat value). Ecologically important riverine habitat would not be affected. Local fauna would be disturbed by human activity, especially when the water park is in use.	The proponent would need to calculate the amount and type of native vegetation clearance. The level of human disturbance to fauna (especially from noise) would need to be determined.	During construction and operation.	Local	Whilst the receiving environment can be sensitive to change, the issue is well understood, but more specific information is required = **MEDIUM**
6	Effect on Cultural Heritage.	The proposed development has the potential to impact on sites / locations of Indigenous heritage through disturbance during construction.	The proposed development may have impacts on recorded and unrecorded Aboriginal heritage sites, objects and remains, which may be located on the site.	The 2006 EIS provided a detailed description on existing Aboriginal heritage matters. During construction of the existing marina, several identifies sites of significance had to be managed in accordance with the requirements of the Aboriginal Heritage Act.	During construction	State	Issue is well understood, but more specific information is required = **MEDIUM**
7	Hazard Risk	The construction and operation of the proposed development involves a range general and specific risks.	Associated risks include: • Erosion and land contamination. • Acid Sulphate soils. • Public health and safety associated with waterbodies. • Contamination of waterbodies (including algal blooms). • Flood protection. • Road safety.	The proponent will need to provide a detailed risk assessment.	During construction and operation.	Local	Issue is well understood, but more specific information is required on level of risk. = **MEDIUM**
8	Traffic Effects	The proposal requires temporary site access during construction and a permanent access point during operation.	During construction local traffic may be affected, especially for the delivery of materials and infrastructure. During operation local traffic may be affected by increased traffic volumes, especially during peak visitation periods.	The proponent will need to provide a detailed description of traffic impacts and how they would be managed.	During construction and operation.	Locall	More information is required, but impacts would be manageable. **= STANDARD**
9	Introduction/spread of exotic plant and animal species	The proposed development has the potential for the spread of introduced or nuisance plants and animals.	Construction activities could increase the abundance of pest plants or animals (especially weeds). During operation the pest or nuisance species could be attracted (especially scavengers).	The proponent will need to provide a detailed description of the risk and effect of introduced or nuisance plant and animal species to terrestrial and aquatic environments.	During construction and operation.	Local	More information is required, but impacts would be manageable. **= STANDARD**

			Risk		Scale		Level of assessment
			The waterbodies would need to be managed to minimise pest species populations (especially aquatic weeds and European Carp).				
10	Construction, Operation and Maintenance Effects	The construction and operation of the proposal would require a range of impacts to be minimised, mitigated and monitored through an environmental management plan framework.	A range of standard and specific impacts would need to be adequately addressed (including consultation with stakeholders and the adoption of a risk analysis approach and relevant industry standards).	The proponent will need to outline the proposed construction and operational management techniques and measures.	During construction and ongoing.	Local and Regional	More information is required, but impacts would be manageable. = **STANDARD**
11	Legislation, Policies and Strategies	A range of planning, environmental and energy related statutory requirements would need to be met for the construction and operation of the proposed development.	The proposal will need to comply with relevant State and Australian government legal requirements, policy directions and strategic objectives.	The proponent will need to provide a detailed description of all relevant requirements.	During construction and ongoing.	N/A	Issue is well understood, but more specific information is required. **= STANDARD**

CRITICAL ASSESSMENT

Land Use and Economic Effects

Assessment Requirement 1: The proposal will have an impact on the local and regional economy during construction and operation and may result in immediate and long term effects on marina residents and surrounding uses.

1.1 *Identify the main land uses in the area and the level of impact on residents / landowners and land uses in the immediate and surrounding environs during construction and operation.*

1.2 *Describe the proximity of the proposal to existing and future dwellings and any potential impacts of the proposal on quality of lifestyle*

1.3 *Outline any mitigation measures to alleviate or avoid impacts on surrounding residents / landowners and land uses.*

1.4 *Provide a full economic analysis of the proposal including details on the economic effects in terms of the benefits to the existing marina development, the Mannum township and the broader region during the construction and operational phases of the proposed development (including the 'multiplier effect').*

1.5 *Describe potential employment opportunities and the expected impacts on communities.*

1.6 *Identify potential economic effects on tourism and recreation.*

1.7 *Identify any economic implications for the region if the proposal does not proceed.*

1.8 *Describe the visual effect on the amenity of the local communities, tourism values / experiences and landscape quality (especially the River Murray).*

Effect on the River Murray

Assessment Requirement 2: The proposed development is located on the floodplain within close proximity of the River Murray, which is an important water resource.

2.1 *Calculate the amount of water that would be taken from the river to initially fill the constructed waterbodies and on an annual basis to maintain them (i.e. due to evaporation).*

2.2 *Outline the arrangements for securing a water allocation for the filling and maintenance of water levels in the waterbodies, including the location where the allocation could be sourced from.*

2.3 *Describe how the development could affect the water resource values and users of the River Murray, particularly downstream water supply intakes.*

2.4 *Outline the visual effects from the River Murray and environs of the proposed development in this locality, especially the appearance and built form of buildings and structures.*

2.5 *Describe the effect of the proposed development on riverine environment, especially as a result of any discharges from the waterbodies and by increased human activity.*

2.6 *Describe any effects of the proposed development on the biological diversity and conservation significance of the Baseby Levee Wetland system.*

2.7 *Describe the general impact of increased recreational activities, including pollutant loads and noise.*

2.8 *Describe how the constructed water bodies would be managed during times of manipulated high and low river levels.*

2.9 *Detail the measures to protect the river and wetlands during and after construction.*

2.10 *Describe how public access to the river front would be managed.*

Water Quality

Assessment Requirement 3: Suitable water quality maintained within the constructed waterbodies for recreational uses and to protect the environment.

3.1 *Outline measures to protect and maintain suitable water quality in the proposed water bodies, particularly the management of run-off and salinity and the control of sediment, micro-organism and pollutant sources (including nutrients, herbicides, pesticides and any chemical treatments).*

3.2 *Detail how sufficient water turn-over rates and flushing will be achieved for the waterbodies, especially through the use of modelling for the main recreational lake. Integration with the current management of waterbodies and wetlands should also be detailed.*

3.3 *Outline measures to protect and maintain suitable water quality in the existing waterways and constructed wetlands (including current management and monitoring).*

3.4 *Describe the impact that water discharged from the waterbodies may have on water quality and the health of the river.*

3.5 *Describe water sensitive urban design measures that could be adopted.*

3.6 *Describe the approach to water sustainability, including ways in which mains water supply use can be minimised or supplemented and opportunities for recycling water (particularly stormwater).*

MEDIUM ASSESSMENT

Effect on the Physical Environment

Assessment Requirement 4: The proposed development has the potential to disturb landforms, soils, groundwater and to affect surface water run-off.

4.1 *Describe the existing groundwater and land related environmental conditions, especially salinity.*

4.2 *Describe the short and long term effects of fill placement and the construction of waterbodies on land and/or groundwater quality and movement, including measures to manage salinity.*

4.3 *Identify any risks and implications of causing or exacerbating land degradation (especially soil erosion) and the impacts of dust emissions during construction.*

4.4 *Describe potential changes to hydrology (e.g. drainage patterns or groundwater characteristics), including the implications of these changes on aquatic and terrestrial environments.*

4.5 *Outline mitigation measures and their likely effectiveness in minimising or avoiding disturbance to the physical environment (including surface waters and groundwater) during construction and operation.*

4.6 *Describe stormwater and wastewater management and the potential impact on land and/or groundwater.*

Effect on Native Vegetation and Fauna (Terrestrial and Aquatic)

Assessment Requirement 5: Construction would require limited clearance of native vegetation (and reduction of fauna habitat) and disturbance to fauna species.

5.1 *Describe the location, extent, condition, habitat value and significance of native vegetation species and communities that may need to be cleared or affected during construction.*

5.2 *Describe the location, extent, condition and significance of native fauna species and populations that may be affected during both construction and operation (especially disturbance due to noise or human activities).*

5.3 *Outline measures to mitigate the effects on native vegetation and fauna.*

5.4 *Describe the establishment and management of aquatic and fringing vegetation (natural, planted or introduced) associated with the constructed waterbodies.*

Effect on Cultural Heritage

Assessment Requirement 6: The proposed development has the potential to impact on sites / locations of Aboriginal heritage through disturbance during construction.

6.1 *Identify any effects on Aboriginal sites of archaeological or anthropological significance (including but not limited to those listed in the Register of the National Estate and the SA Register of Aboriginal Sites and Objects). Indicate any consultation with local Aboriginal organisations that have an in interest in the area.*

6.2 *Outline measures adopted to avoid or minimise impacts on Aboriginal sites of archaeological or anthropological significance.*

Hazard Risk

Assessment Requirement 7: The construction and operation of the proposal involves a range general and specific risks.

7.1 *Detail procedures to be adopted to identify whether acid sulphate soils are present and management measures that would be required during construction and operation.*

7.2 *Detail procedures to be adopted to identify whether the land is contaminated and management measures that would be required during construction and operation.*

7.3 *Describe strategies for ensuring public safety during construction and operation, including the management of boats and jet skis.*

7.4 *Describe any hazardous materials, with reference to storage, use, handling and disposal of these materials during construction and operation.*

7.5 *Describe procedures and strategies to prevent, manage and mitigate pollutant spills, sewage leaks or algal blooms, including the ability to isolate the water bodies from the river and constructed wetlands.*

7.6 *Detail the relevant requirements of the flood protection policies in the Development Plan and how compliance would be achieved.*

7.7 *Describe strategies to ensure public safety on and around the water bodies, especially the recreational use of water bodies in accordance with relevant health standards.*

STANDARD ASSESSMENT

Traffic Effects

Assessment Requirement 8: The proposal requires access for the transportation of construction materials and infrastructure to site and a permanent access point for ongoing operation.

8.1 *Describe all traffic types and volumes during the construction and operational phases (especially during peak periods) and traffic management measures.*

8.2 *Identify any potential effects of traffic on communities, including, road safety, convenience, noise and dust.*

8.3 *Describe any requirements where traffic infrastructure requires temporary or permanent modifications and access requirements that may be needed for local and /or arterial roads during construction and for ongoing traffic volumes.*

Introduced Plant and Animal Species

Assessment Requirement 9: The proposed development has the potential for the spread of introduced or nuisance plants and animals

9.1 *Identify the potential for the introduction or dispersal of new pest or nuisance plant and animal species, and the associated implications for native species, habitat and agricultural land.*

9.2 *Identify the potential for increased distribution and abundance of existing pest or nuisance plant and the associated implications for terrestrial and aquatic environments.*

9.3 *Outline mitigation measures and their effectiveness in reducing or avoiding the introduction or spread of pest or nuisance plant and animal species.*

Construction, Operation and Maintenance Effects

Assessment Requirement 10: The construction and operation of the proposal would require a range of impacts to be minimised, mitigated and monitored through an environmental management plan framework.

10.1 *Provide a site construction plan (including construction techniques and the timing of construction activities) and outline strategies to minimise effects on residents, the community and the local environment. The plan should also outline any on site infrastructure required during construction (e.g. site compounds, storage areas etc.), including the management and decommissioning of these sites.*

10.2 *Describe the proposed methodology and frequency for floodplain excavation (or dredging), earthworks drainage, the disposal of excavated material, maintenance activities and the impacts on the environment (particularly turbidity and water quality).*

10.3 *Identify the source and origin of any construction materials, including revetments and fill for land forming.*

10.4 *Describe the implications of placing a large amount of fill on the floodplain, particularly contamination and implications for natural drainage, water circulation and flood management.*

10.5 *Identify measures for the control of stormwater run-off, mud (including drag out onto public roads), vibration, litter, dust, noise, odour (including from rotting aquatic vegetation, algal blooms and organic soils) and other emissions during construction.*

10.6 *Outline waste management strategies and the potential for incorporating recycling and resource recovery.*

10.7 *Describe the impact the proposed development will have on any gas, electricity, water, sewerage, stormwater management and telecommunication systems infrastructure.*

10.8 *Describe the use of amenity/landscape plantings (including lawn areas) and broad scale revegetation, especially the opportunities for the use of locally endemic species. The effectiveness of existing revegetation works around the marina should be considered.*

10.9 *Identify the implications for maintenance dredging or removal of aquatic plant growth, including disposal options and impacts on the environment and community.*

10.10 *Provide information on the expected levels of noise associated with the operation of the facility, identifying all potential noise sources, and describe the extent to which these noise emissions could be reduced and contained to minimise the effects upon the environment, the residential community and the wider locality.*

10.11 *Outline measures to be adopted to control nuisance insects, particularly mosquito populations and other potential disease vectors that could pose a risk to human health.*

10.12 *Detail measures to ensure that residential, recreational and commercial activities would be conducted in an environmentally sustainable manner, particularly to protect water quality.*

10.13 *Identify opportunities for energy and water conservation.*

10.14 *Outline the proposed environmental management measures that would be adopted to deal with the identified construction, operational and maintenance effects. Include reference to any baseline studies, monitoring programmes, training programmes and reporting mechanisms (internally and to public authorities). Outline the effectiveness of mitigation measures for perceived and recognised impacts. Include consideration of previously demonstrated best practice or approaches which may have been used for similar works in similar habitats, which may be of benefit and/or have been endorsed for their proven low impact effects.*

10.15 *Describe the proposed monitoring of impacts during and after construction, particularly water quality (including consideration of the existing data collection).*

Planning and Environmental Legislation and Policies

Assessment Requirement 11: A range of planning and environmental related statutory requirements would need to be met for the construction and operation of the proposed development.

11.1 *Describe the proposed development in terms of its consistency with the relevant Development Plans, Planning and Design Code, the Planning Strategy and the State Planning Policies.*

11.2 *Describe the proposed development in terms of its consistency with relevant State and Commonwealth legislation, including the River Murray Act 2003 and the Murray Darling Basin Agreement.*

APPENDIX 1 – USEFUL DOCUMENTS

Legislation

- *Development Act 1993*
- *Development Regulations 2008*
- *Public Health Act 2011*
- *Environment Protection Act 1993*
- *Native Vegetation Act 1991*
- *River Murray Act 2003*
- *Natural Resources Management Act 2004*
- *Native Title Act 1994*
- *Aboriginal Heritage Act 1988*
- *National Parks and Wildlife Act 1972*
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.*

Strategy & Policy

- Development Plans and Planning and Design Code
    - Mid Murray Council
- Region Plans
    - Murray and Mallee Region Plan
- State Planning Policies, 2019
- Water Allocation Plan for the River Murray Prescribed Watercourse, 2019.
- Natural Resources South Australia Murray-Darling Basin Strategic Plan, 2014.
- Environment Protection (Noise) Policy, 2007
- Environment Protection (Water Quality) Policy, 2015
- Environment Protection (Air Quality) Policy, 2016
- Environment Protection (Waste to Resources) Policy, 2010
- South Australia's Waste Strategy 2015 – 2020, Office of Green Industries SA
- Building Code of Australia

Guidelines

- NHMRC Guidelines for Managing Risks in Recreational Water, 2008
- EPA Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry, 1999
- EPA Construction Environmental Management Plans Guidelines, 2018
- Guide for Applications to Clear Native Vegetation, 2017

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