



**Amendment  
to the  
Environmental Impact Statement**

**Mannum Waters  
Holiday Village and Adventure Water Park**

**Response to Submissions**



**September 2021  
Tallwood Pty Ltd  
Suite 4, 166 Main South Road  
Morphett Vale SA 5162**

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## Attachments

- Attachment 1 Correspondence to SA Water
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**Amendment to the Environmental Impact Statement  
Mannum Waters  
Holiday Village and Adventure Water Park  
Response to Submissions**

**1.0 Introduction**

The Mannum Waters Residential Marina project was declared a Major Development and was subjected to the Environmental Impact Statement (EIS) process. The project was approved in 2008 with work commencing in 2010.

Approval is now sought by the proponent Tallwood Pty Ltd to modify the layout and design to incorporate a Holiday Village and Adventure Water Park. An Amendment to the EIS was required by the State Planning Commission, who provided guidelines outlining the key issues to be addressed in the Amendment.

The Amendment was made available for public consultation between 25<sup>th</sup> February and 26<sup>th</sup> March 2021. Copies were also made available online, and for viewing at the Attorney-General's Department (Planning and Land Use Services) and at the Mid Murray Council office in Mannum. A public information session was also held at Mannum, 10<sup>th</sup> March 2021. The Attorney-General's Department (Planning and Land Use Services) will make all submissions available on the Planning Portal website when the Response Document is released for public information.

All submissions received were provided to Tallwood Pty Ltd. This response document summarises and responds to all comments made in the submissions.

**2.0 Submissions Received**

Submissions from State and Local Government

The Following submissions were received:

Government Agencies:

- Mid Murray Council
- DIT Transport
- Environment Protection Authority
- Department of Environment and Water (DEW)

Submissions from Public

- Don Green
- Kristine Sims

- Neville Byrne
- Anita Marling-Bauer
- Geoff and Heather Simons
- Max and Kay Kubenk
- Tracy Davies
- Sam and Pip Linnell
- Kirsty MacGregor

The comments made in these submissions and responses are given in the following sections.

### **3 Submission Comments and Responses**

#### **3.1 Submissions from State and Local Government**

##### **3.1.1 Mid Murray Council**

In the Council's submission, it is concluded that the detailed information provided within the attachments in the amended EIS demonstrates the proposal's synergies and general accordance, or ability to meet relevant legislation and the guidelines as set out by the Minister. The proposed amendment is considered satisfactory by Council and, at this point in the process, no formal comments, other than an acknowledgment is required.

With regard to parking associated with the development, this should be subject to review at the DA stage and should not include provision for parking on Belvedere Road given the high posted speed limit.

##### **Response**

Noted

##### **3.1.2 DIT Transport**

In their submission, with regard to transport, DIT Transport responded:

- The amended EIS satisfactorily addresses the traffic and transport requirements related to the arterial road network.

##### **Response**

Noted

##### **3.1.3 Environment Protection Authority**

##### **Noise**

**EPA Comment**

The EPA does not hold the same view as the Sonus Noise Report, included in the amended EIS, on the indicative noise level criteria for the development.

After further analysis of Mid Murray Council Development Plan (consolidated 25 February 2021) in conjunction with the indicative noise levels adopted on page 7 of the Sonus Noise Assessment Report, The EPA’s interpretation of the indicative noise levels is as follows:

*Interpretation of Mid Murray Development Plan to Derive Noise EPP Indicative Noise Levels*

The subject site is located within an area that spans two different zones. These are the Mannum Marina Zone and Residential Marina Zone of the Development Plan. Sensitive receivers surrounding the site are located in different policy zones that are classified as residential, rural industry and are also located in the source zones (further explanation provided below) specified in the table below. Based on the objectives of the development plan, the source zones and receiver zones have been interpreted as the following classifications as defined in the Environment Protection (Noise) Policy 2007 (Noise EPP).

**Table 1: Source Zones**

<b>Land Classification</b>	<b>Noise Policy Zoning</b>	<b>Day Time</b>	<b>Night time</b>
Mannum Marina Zone	Commercial, Light Industry	Average of 62 & 57 = 60 dB(A)	Average of 55 and 50 = 53 dB(A)
Residential Marina Zone	Residential	52 dB(A)	45 dB(A)
	Average of Source Zone:	$(60 + 52)/2 = 56$ dB(A)	$(53 + 45 )/2 = 49$ dB(A)

Given the source mixed use zone above, the indicative noise criteria applicable in the adjacent River Murray (rural industry) zones, as well as the source zones mentioned above are:

**Table 2: Receiver Zones**

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<b>Development Plan Zone</b>	<b>Day (L<sub>Aeq,15min</sub>)</b>	<b>Night (L<sub>Aeq,15min</sub>)</b>	<b>Night (L<sub>Amax</sub>)**</b>
	Commercial, Light Industry	Average of 62 & 57 = 60 dB(A)	Average of 55 and 50 = 53 dB(A)
Residential Marina Zone (existing residences)	Average of 56 dB(A) (source zone) and 52 dB(A) (residential) = 54 dB(A) – 5 dB(A) = 49 dB(A)	Average of 49 dB(A)(source zone) and 45 dB(A) = 47 dB(A) – 5 dB(A) = 42 dB(A)	60 dB(A)
Residential Marina Zone (future residences) *	Average of 56 dB(A) (source zone) and 52 dB(A) (residential) =54 dB(A)	Average of 49 dB(A)(source zone) and 45 dB(A) = 47 dB(A)	60 dB(A)
River Murray Zone (Rural Industry)	Average of 56 dB(A) (source zone) and 57 dB(A) (rural industry) – 5 dB(A) = 52 dB(A)	Average of 49 dB(A) (source zone) and 50 dB(A) (rural industry) – 5 dB(A) = 45 dB(A)	
Mannum Marina Zone (Commercial, Light Industry)	Meet source zone: 56 dB(A) – 5 dB(A) = 51 dB(A)	Meet source zone: 49 dB(A) – 5 dB(A) = 44 dB(A)	

\*These allotments do not include the 5dB reduction associated with proposed development (Noise EPP Clause 20(3)) as they have not yet been given development approval.

\*\*Maximum noise level for a ‘quiet locality’ as defined in the Noise EPP.

The development is only anticipated to operate during the day time. Therefore, given the amended indicative noise level criteria above and the predicted noise results presented in page 10 of the Sonus Noise Assessment Report, the development is still anticipated to meet the indicative noise levels at all sensitive receivers during the daytime period.



**Response**

The interpretation of the EPA is noted and their criteria will be referred to in any monitoring undertaken.

**EPA Comment**

If the proposed waterpark expands its hours of operation into the night time hours (10pm – 7am) under the Noise EPP, noise levels at sensitive receivers may exceed the indicative noise levels. Therefore, a reassessment would be required and mitigation measures may be necessary so that sensitive receivers will meet the indicative noise levels during the night time period.

**Response**

This is agreed, and there are no plans to expand the hours of operation into the night time hours.

**EPA Comment**

Other strategies on site that can be adopted are as follows:

- All reasonable and practicable operational steps to reduce off site noise should be undertaken.
- Noise from construction, demolition and site preparation should meet the mandatory provision of part 6 Division 1 of the Noise EPP.
- All trucks and forklifts should be fitted with broadband reverse beepers.
- All strategies and measures provided in the Construction Environmental Management Plan (pages 11 & 12, S6259C3, November 2019).

**Response**

The Construction Environmental Management Plan prepared for the new developments will include the above strategies as suggested.

## Water Quality

### EPA Comment

The EIS amendment states that it will use less water than the original proposal. However, the calculated flow through the water bodies is based on an evaporation rate of 800mm per annum from the proposed water bodies. The Bureau of Meteorology evaporation data and maps indicate that the annual evaporation rate at Mannum is considerably higher than this being between 1600 – 1800mm per annum. This has implications for the flow rate through the water bodies and therefore water use, in addition to the salinity assessment which is based on the rate of flow through the water bodies.

Furthermore, the EIS amendment states that ‘this results in a salinity increase of between 1000- 1100mg/l TDS which is well within the tolerance range of most aquatic species’. However, this is not considered an insignificant increase in salinity and would affect aquatic species. Given the salinity assessment is based on a rate of flow through (and water use) at lower than expected evaporation rates, it should be reassessed based on actual evaporation rates for the area. This is to ensure that salinity levels within the water bodies, which will discharge to the River Murray can be maintained at the same level as the River Murray and will not affect aquatic species.

### Response

The calculated flow through the waterbodies is **not** based on an evaporation rate of 800mm per annum. The modelling used to determine flow requirements and use for the Aquatic Park Lake and wetlands uses 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 are from Murray Bridge. It is acknowledged that in Section 3.2.1.4 (2<sup>nd</sup> para) reference to an evaporation rate of 800 mm per year is misleading as this is a figure that is required to be used to determine the annual evaporation cost.

With regards to the wetlands and above EPA comments on salinity there are two main considerations, being:

- The salinity in the western wetland with regards the wetland ecosystem

- The salinity level in the through flow water, particularly if discharged directly to the River Murray.

### *Salinity in the western Wetland*

The western wetland will be a constructed wetland, developed in an area with saline soils and is underlain by saline groundwater. Due to the nature of the site salt tolerant flora are to be introduced, particularly aquatic species. An adequate through flow is required to freshen the root zone to prevent salinity increases in the water bodies due to evaporation. In the amended EIS (Section 3,2,1,5), a modelling output example was given for the Western Wetland, where a dilution flow through of approximately 12 ML/annum would result in a salinity increase to 1064 mg/ TDS (stated as between 1000-1100 mg/ TDS). This salinity level was not meant to indicate a management target for outflows from the wetland, which is discussed below. In the amended EIS it was suggested that this modelled salinity increase to 1064 mg/L TDS would be within the tolerance range of most aquatic species. Reference is made to Paul McEvoy & Peter Goonan (2003), and their study involving lower River Murray wetlands, which indicates that the total number of fauna species declines with salinities greater than 1000mg/L TDS, but there is a suite of saline tolerant invertebrates that flourish in saline conditions. While it is understood that higher salinities inhibits more sensitive species, this is a constructed wetland and would still develop a diverse ecosystem, particularly with the establishment of salt tolerant aquatic, riparian and terrestrial flora. However, as indicated below, outflows will have a low salinity which would result in lower salinities in the wetland.

#### Reference

Paul McEvoy & Peter Goonan (2003). Salinity is not necessarily bad for biodiversity: case studies of invertebrates from South Australian streams and River Murray wetlands. Records of the South Australian Museum No. 7: 131-134.

### *The salinity level in outflows*

EPA has expressed concern with the potential effects of the discharge of wetland through flows with elevated salinities on aquatic ecosystems of the River Murray. As indicated in the amended EIS, salinities in

outflows can be reduced by increasing the volume of through flows. For example:

Inflow salinity	Annual dilution through flow	Average daily through flows	Outflow salinity
200 mg/L	82.6 ML	0.226 ML (2.62 L/sec)	250 mg/L
200 mg/L	44.6 ML	0.122 ML (1.42 L/sec)	400 mg/L

These are not large volumes to pump, so low salinity in outflow water can be achieved relatively easily. It is likely a solar powered system will be used. Maintaining lower salinities in the western wetland has benefits in freshening the root zone of flora, By managing water levels in the wetland, in the summer months the water area is approximately 1.24 ha (4.14 ML in volume) compared with 6.92 ha in winter (30.43 ML in volume). The smaller area in summer reduces the overall volume of evaporation and through flow requirements during this period.

As indicated in the amended EIS, inflows to the wetland will be from the recreational lake or direct from the marina waterways if required, for example during lake maintenance. Water inflow volumes will be regulated and metered.

Through flows can be:

- Returned to the marina waterways.
- Discharged to the Baseby Linear Wetland, which was a preferred option in the Assessment to the EIS, having environmental benefits, including a degree of drought proofing.
- Discharged to the River Murray, which was never a real option.

A lower salinity in the outflow water is preferred. It is intended that as part of the detailed design process, that the management target be determined in consultation with relevant government agencies and also be based on monitoring data. In this regard, as part of a broader monitoring program salinity will be measured in the waterways, at the main inlet to the system to measure river salinity and salinity in the Baseby linear Wetland. At this stage, a salinity of approximately 250 mg/L would be adopted as a working target to

assist in defining culver design and operation and the pumping system.

**EPA Comment**

It is further noted that the amended EIS outlines that most of the flow through the Adventure Water Park Lake is to occur in winter months. Hence, flow through the lake in summer will be restricted. There are potential implications for poor water quality particularly during such time when flow is low when evaporation rates are generally higher. The final design will need to ensure that flow through the lake throughout the year is maintained to ensure necessary water quality in the recreational lake

**Response**

The lake will be managed to maintain to be full at RL 0.2 m AHD. Because of evaporation this will require increased input flows from the Holiday Village Waterbody in the summer and to maintain a satisfactory salinity, However, the need to control salinity levels in the western wetland will determine through flow volumes for the lake and lake salinity levels. Salinity levels in the lake will need to be similar to the marina waterways,

**EPA Comment**

Section 3.3.3 states that water quality in the Mannum Waters waterways is essentially that of the River Murray. However, as outlined above, at a TDS of 1000mg/l it is considerably higher than River Murray water and the detailed design and flow through the waterbodies and wetlands will need to ensure the water quality in all components of the development is essentially that of the River Murray. In particular, the design will need to ensure salinity in all water bodies has a similar range to the source water (River Murray).

**Response**

The statement regarding water quality in the waterways, refers to the navigable waterways, and not to the Aquatic Park Lake or wetlands which are yet to be developed. As indicated in Table 5 in Section 3.3.3, salinity monitoring indicates minimal variation between various locations in the navigable waterways compared to same day monitoring of salinity in the river at Mannum. As outlined above, the detailed design will allow for the management of salinity in the wetlands and recreational lake. The

design/management intent will be to achieve low salinity in through flow water and be similar to the source water.

### **EPA Comment**

The proposed projects will allow completion of the wetlands at Mannum Waters. From Section 3.3.2 it is understood that outflows from the lake at the Adventure Water Park would flow into the western wetland. The wetland can also receive additional water from the Holiday Village waterbody. In reference to the wetlands, Section 3.3.2 states 'the annual water requirement is for approximately 40 ML, but to maintain salinity between 1000-1100 mg/L TDS requires a total inflow of approximately 52 ML'. This statement and all of Section 3.3.2 is unclear as to how the waterbodies in the Adventure Park, Holiday Village and wetlands are to operate in a connected way. Furthermore, the figure of 1000-1100mg/l TDS is imprecise and if it is 1000mg/l it is significantly higher than River Murray concentrations and would impact on aquatic species as outlined above.

### **Response**

In response, the following points are made:

- The Holiday Village Waterbody, which is navigable for small boats, is the source of water to the Aquatic Park Lake and western wetland, as shown on Figure 8 in the amended EIS.
- Most water to the western wetland will flow from the holiday Village Waterbody to the Aquatic Park Lake (culvert C) and then into the wetland (culvert D).
- Provision will also be made for water to be directed more directly from the Holiday Village Waterbody to the western wetland (via Culvert B). This may be required, for example, during periods of lake maintenance.
- Water flows to the recreational lake will be regulated and metered to control the volume diverted by gravity flow from the Holiday Village Waterbody. Outflows from the Recreational Lake to the Western Wetland will also be metered. The difference between the inflow and outflow volumes is the volume lost largely due to evaporation and is a cost to the Aquatic Park.
- Water flows to the western wetland will be metered. Outflows from the western wetland will be metered. The difference between the inflow and outflow volumes is the volume lost largely due to evaporation and is a cost to Mannum Waters.
- The recreation lake will be kept at full level. To compensate for evaporation losses inflows are required. Similarly, for the western

wetland, to maintain the wetland at the desired seasonal water levels requires water inflow to also compensate for evaporation, otherwise the wetland would dry out too quickly. Approximately 40 ML is required for the wetland. However, just providing inflows to compensate for evaporation would result in gradual salinity increases, so an additional through flow volume is required to prevent this. As indicated above, to maintain low salinities of say 250mg/L TDS in the wetland and through flows similar to the source water of 200mg/L TDS will require an through flow volume of approximately 82.6 ML/annum (2.62L/sec), which is a low flow rate and easily achievable, likely using a solar powered pump system.

### **EPA Comment**

In the Adventure Water Park, is understood that, with exception of the main lake, other activities will use 'public swimming pool water'. Pool water will be treated through chlorination and filtered. It is not specified where the backwash or other by products from filtration activities will be disposed to. It is a requirement of the Environment Protection (Water Quality) Policy 2015 that this is not discharged into waters. Provided it is acceptable to the operators and it has the capacity, it is possible this could be treated by the Mannum wastewater treatment plant (WWTP). This will need to be verified with the operators of the WWTP. It is not acceptable for backwash water to be discharged into the proposed lake, wetlands or River Murray.

Treatment of all wastewater from both proposals will be at Mannum WWTP. This is acceptable provided it has the capacity to accept the wastewater.

### **Response**

Swimming pool water backwash will be disposed of via the mains sewer connection to the Mannum WWTP. During other negotiations with the developer, SA Water has indicated the plant has ample capacity and have previously advised the plant is satisfactory until 2045 with capacity to handle an additional 2000 connections. Documentation is included as Attachment 2.

### **EPA Comment**

The document describes some water sensitive urban design (WSUD) measures that may be adopted in detailed design to manage and treat

stormwater at both sites. These are to include rainwater tanks, grassed swales and the use of gross pollutant traps (GPTs). There are potentially other components of WSUD that could be considered in the development and incorporated in the final design. The final design should incorporate a range of WSUD features to ensure impacts from stormwater runoff are minimised

**Response**

As stated in the amended EIS, the final designs for the water park and holiday village will document those WSUD measures to minimise the potential impacts of stormwater runoff to the waterways.

**EPA Comment**

The sizing of the rainwater tanks and use of the harvested water have not been described. Use of harvested water from rainwater tanks will need to be considered during detailed design to ensure full utilisation of captured water.

**Response**

Noted

**EPA Comment**

The amended EIS outlines in section 4.1.3, that the practices and principles for soil erosion and dust control are outlined in the current Construction Environmental Management and Monitoring Plan (CEMMP) that will be followed during the construction for the proposal. However, in Section 5.3.5 it is stated that there will be amendments to the CEMMP prepared for the proposed development including incorporation of a soil erosion and drainage management plan (SEDMP). Section 5.3.14 also suggested that an updated CEMMP will be prepared. These sections are somewhat contradictory in that it is not clear if the CEMMP including the SEDMP will be fully updated for the current proposal. Development and implementation of an updated CEMMP and SEDMP specific to the projects is warranted and will assist in preventing soil sediment and pollutants leaving the site or entering waterbodies during its development

**Response**

As required the existing CEMMP and SEDMP will be updated to be specific for both developments



### 3.1.4 Department of Environment and Water (DEW)

DEW has provided comments with regards section 3.2.2 in the, as follows:

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

The text provided does not adequately address the criteria (Guideline 2.2).

#### **DEW Comment**

The text states that under the joint agreement between the Mid Murray Council and Tallwood Pty Ltd that Mid Murray Council is responsible for the evaporative water losses of the wetlands. This amendment will result in a new liability for Mid Murray Council of 28.8ML/year (calculated by the proponent). No evidence has been provided from Mid Murray Council that it accepts this new liability.

#### **Response**

The proposed redesign of the wetlands has decreased the water use requirement from the water use proposed under the original approval. In this regard, the new proposals have a positive impact on the River Murray water use. Tallwood Pty Ltd and Mid Murray Council established a Development Deed in 2012 covering ongoing and future requirements. Tallwood will continue to work with the Mid Murray Council to obtain mutually acceptable outcomes.

#### **DEW Comment**

The letter of acknowledgement that LANDN Pty Ltd understands its obligation to purchase water if the park proceeds was not attached (page 35) so it was not possible to confirm the company understands the obligation to secure water to fill the Adventure Water Park Lake, the annual evaporative losses from the Lake and the volume of water required to maintain the salinity of the Lake.

#### **Response**

A copy of letter is included as Attachment 2.

#### **DEW Comment**

Please note 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 ELMA allocation will not be more than 54.3169 ML (12.1 ha x 4.489 ML/ha). According to the proponent's calculations on page 26 this is insufficient to fill the revised waterbody and additional water will need to be purchased.

**Response**

Tallwood currently has an annual ELMA allocation of 127.356ML. This was based on an irrigation rate of 6.44L/ha. The newly proposed optimised rate of 4.49L/ha would reduce the ELMA allocation at Mannum Waters to 88.793ML.

**3.2 Submissions from Public**

**3.2.1 Don Green**

**Comment**

Holiday village will be a great asset to Mannum and surrounding area.

**Response**

Noted

**Comment**

Development will help a lot to attract visitors. This has been a goal of the Progress Association.

**Response**

Noted

**3.2.2 Kristine Sims**

**Comment**

Fantastic idea, bringing tourists, benefitting business, infrastructure and jobs.

**Response**

Noted

**3.2.3 Neville Byrne**

### **Comment**

- Should be an 80km limit on Belvedere Road for a sale turn into the holiday village and water park.

### **Response**

It is agreed that the speed limits on Belvedere Road may require review. Road speed limits are outside of the developers.

### **Comment**

- Tallwood have failed to consider the loss of amenity in converting the permanent wetland to ephemeral wetland on enjoyment and residential land values.
- A change from a fully functional constructed wetland to an ephemeral wetland will have detrimental effects on the amenity of any residential property adjacent the constructed wetland.
- Tallwood created three wetlands as a positive environmental offset. Since they were filled, a wide range of aquatic birds and aquatic species have become residents and are a key aspect of riverside living and are promoted as feature. The wetlands and the roles ecological they play are an important addition to the Baseby and are part of the amenity for land owners and residents of Mannum Waters.
- Waters are 8 meters from residences and there is a concern with anaerobic conditions, mosquitoes, with exposed mud with an ephemeral wetland.

### **Response**

There is no change in the overall marina design with regards to the general configuration of the water bodies, as shown on Figure 8 of the amended EIS. The main waterbody, houseboat marina, holiday village water body and the area identified as 'permanent wetland' are the same. They are open to the river water levels will be the same as the river.

There are two wetland systems, the western wetland and the eastern wetland. As shown in Figure 8, the concept designs include multiple basins, with four in the western wetland and three in the eastern wetland. The concept design outlined in the amended EIS for the wetlands is essentially the same as that outlined in the original EIS for Mannum Waters, and was approved.

As stated in the amended EIS (Section 3.2.15), both wetland systems will have a range of depths, with shallows and deeper pool areas. The intention is to develop wetland systems which have a diverse habitat structure, with a range of depths, a range of planted aquatic, riparian and terrestrial flora. The configuration and plantings are also important to have a landscape of high amenity as well as habitat diversity. The wetlands will be complimentary to the adjacent habitat of the Baseby Linear Wetland. With increased habitat diversity it can be expected that the number of bird species will increase.

A major constraint, affecting the size and operation of the wetland is water availability. It was always intended that both the eastern and western wetlands would be maintained by ELMA water. As part of the natural cycle in wetlands, there is 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. In this case, it would always be limited in extent as water levels are set by adjustable outlet structures. The draw down would result in a reduction in the water surface area of the wetland in the summer months, reducing the higher rates of evaporative loss, as well as providing shallows around the margins, important for feeding and breeding. It is also important to note:

- The banks and shallows will be vegetated. There should be no bare mud areas.
- There will always be permanent water in the wetlands, with draw down progressive over the warmer months.
- Experience with all other constructed wetlands, which are similarly managed, is that mosquitoes will not be a problem as in wetlands with a diverse habitat and biota there is sufficient predation to control numbers.

#### **Comment**

- Tallwood has taken pre-emptive action and has already removed at least one pipe, ensuring two thirds of the constructed wetlands do not receive River Murray flows. Tallwood should have waited.

#### **Response**

No pre-emptive action has been taken. Approval has already been obtained for the wetlands and works undertaken are for maintenance, management of the current wetland area while the concept is finalised.

**Comment**

- There is a problem with the levee bank in the eastern wetlands. It is good for walking and some cycling. However, there is deterioration due to flooding and excessive wave action in the westernmost area. Reconstruction should include substantial asset protection for pipes above river pool level to minimise flood damage.

**Response**

Tallwood is aware of these remedial work requirements and it is intended that this and any other work be taken. The consulting engineers engaged by Tallwood design asset protection for flood events, including the 1956 flood.

**3.2.4 Anita Marling-Bauer**

**Comment**

Has no issue with having the holiday village

**Response**

Noted

**Comment**

Want to keep the eastern wetland as is. It is assumed the abundant wildlife, including the range of birds seen, is due to the existing water levels. If the wetland is drained the bird habitat will be lost. It is also assumed that draining to leave just pools will result in a mosquito problem, noting that they can also be a source of disease.

**Response**

It should not be assumed that birds present in the eastern wetland are due to the existing water levels. The wetland could be at a lower level and would still have birds. AS outlined above in response to comments by Neville Byrne, the design intent is to have a more diverse habitat structure for increased fauna, including

birds. Also as mentioned that mosquitoes should not be an issue, as is the case with other constructed wetlands. Invariably there is adequate predation, including fish and other insects, to control numbers.

**Comment**

The existing conditions should remain and water purchased to meet the requirements of the holiday and water parks.

**Response**

The proposed modifications to existing wetlands are as a consequence of planned reductions in the amount of environmental water available. The proposed reductions (to ELMA water) are not controlled by the developer.

**Comment**

One of the reasons for moving to Mannum Waters Marina was the view over water.

**Response**

With the final development of the village waterbody and western wetlands, there will be a substantial increase in water area.

**3.2.5 Geoff and Heather Simons**

**Comments**

Concerned for adjoining landowners to not impede their ongoing operation of farm. The Boulderstones have been on their farm for 60 years and the Simons for 40 years. There are a number of concerns, as follows:

- Traffic and Safety
- Security and amenity, needing clarification about a fence to be erected for security and as a noise barrier?
- The report looked at nearby residences but did not consider stock.
- Their farm is EPA compliant, but there may be noise/odours at times. They do not want this to be an issue with the water park.
- Disappointed that the idea of a stock culvert (under Belvedere Road) has not been taken up.

They note that they have not been contacted (by Mannum Waters)

### **Response**

A meeting was held on 11<sup>th</sup> August 2021 with Geoff & Heather Simons, who are our neighbouring dairy farmer owners, to discuss the points they raised in their submission. In summary:

- They are in favour of our proposal in general. They are mainly concerned that the water park operator does not make complaint about smell and noise sometimes coming from the dairy.
- They are strongly in favour of the total length of Belvedere Road being an 80 kph speed limit due to anticipated dangers with stock crossing, vehicle crossing, the manoeuvrability of milk trucks and hay trucks, the undulating nature of Belvedere Road, the many bends in the road and the fact that the road is double lined for most of its length. We should support them with this issue particularly from their main access on Belvedere Road towards Mannum township.
- They are aware of the stock crossing grant funds that are available and are investigating.
- They ask that the operators of the water park respect their use. We will set up an ongoing meeting structure to between neighbours parties.
- They are supportive of a vegetative buffer on our common boundary which is proposed.

### **3.2.6 Max and Kay Kubenk**

Many of the comments from Max and Kay Kubenk have already been addressed in responses in previous submissions, and are cross referenced as appropriate.

#### **Comment**

The holiday village should comply with all relevant legislative requirements, noting that:

- It is within the environmental zone of the River Murray and short-term and long-term activities, planning policies and procedures and documentation must be in place to protect riverbanks, vegetation, birdlife, waterways and neighbours.
- Buildings should be of environmentally sustainable materials.

- The plan needs to be of a high standard of presentation and appeal, noting that the Mannum Waters residential area is not well cared for and needs attention in presentation area, and has been like this for a long time.

### **Comment**

It will be a condition of approval that both developments will comply with all relevant legislative requirements. The Long-term Operational Environmental Maintenance and Monitoring Plan (OEMMP) aims to ensure that high standards of environmental management are maintained. It is important to note that the residential areas are now private. The commercial areas are a work in progress with the riverfront treatments being largely done, with the rest completed as commercial development proceeds.

Needs;

- Water licenses
- Noise to be tested (monitored) for impact on birds, cows, neighbours during hours of operation. Also night lighting.

### **Response**

For noise, refer Section 3.1.3. Tallwood has all approvals for water needs. The proponent of the Adventure Water Park, all non mains water requirements is aware of license requirements and the liability for evaporation losses.

### **Comment**

Belvedere Road

- Speed limit needs attention
- Dairy farmers need to be consulted so they can be informed of departmental reports that may impact them, noting that dairy farms are employers and generate lots of income to the area.

### **Response**

Refer section 3.1.2 re speed. The whole purpose of the consultation process is to inform all groups, including dairy farmers, also refer Section 3.2.5 (response to Geoff and Heather Simons).

### **Comment**



Should be regular testing of salinity from holiday village and water park to the wetlands and then to 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 to river.
- The Sewage treatment works should be monitored and wastewater treated to a level where it can be used hopefully on public areas.

### **Response**

As outlined in the amended EIS, a main objective of the western wetland will be to receive all runoff from the water park, via the water park lake, to provide a water quality safeguard protecting the river. Its ecological design, particularly providing shallows for the extensive growth of aquatic vegetation and a relatively long residence time will ensure effective treatment of runoff. Runoff is minimised by the inclusion of water sensitive design features, such as swales, which will be defined in the final design.

The WWTP is operated by SA Water, and these systems are monitored by SA Water. Approval for the use of reclaimed water is outside of the control of the developer.

### **3.2.7 Tracy Davies**

#### **Comment**

Suggestions for the holiday village and water park:

- Further greening is required and a bike track linking the village/water park/Mannum waters to Mannum would be great.
- Mini golf
- Partnership with BBQ buoys, similar to R Torrens to allow holiday ..... to be on river, in a zoned area.

#### **Response**

Noted

### **3.2.8 Sam and Pip Linnell**

#### **Comment**

Not in opposition but wish due consideration be given to the following in construction and operation:

#### Village

- Prevention of wind-blown dust, smoke and odour, impacting on lives and property of occupants.
- A suitable curfew for noise construction and operation, especially loud music, to be comparable with conditions of marina residences.

#### Water Park

- Prevention of wind-blown dust, smoke and odour, impacting on lives and property of occupants.
- A suitable curfew for noise construction and operation, especially loud music, to be comparable with conditions of marina residences.

#### **Response**

A Construction Environmental Management and Monitoring Plan (CEMMP) will be prepared for the developments, which will outline measures to control wind-blown dust. Smoke and odours are unlikely, as was the case during the construction of the existing marina and residential areas. However, activities that could result in a smoke problem, such as burning of vegetation waste would be strictly controlled.

#### **Comment**

Also, the currently inadequate 15 amp supply to individual berths at Mannum Waters Marina should not be impacted by increased power requirements.

#### **Response**

Network power infrastructure is the responsibility of SAPN (South Australian Power Networks)

### **3.2.9 Kirsty MacGregor**

Many of the comments from Kirsty MacGregor have already been addressed in responses in previous submissions, and are cross referenced as appropriate.

**Comment**

The proposed development is a good idea.

**Comment**

Speed on Belvedere Road should be 80kms. There are bends and blind spots. Extra traffic on corners near town, North Terrace, showgrounds has been an issue. Marina will increase traffic and increase pressure

**Response**

Refer to comment by Neville Byrne (Section 3.2.3)

**Comment**

There is a dairy close by, and;

- Cows cross the road twice per day.
- There is a need for better fencing
- Potential issue with noise affecting those who live in marina

**Response**

Refer to comments from Geoff and Heather Simons (Section 3.2.5)

**Comment**

Risks are:

- Water license
- Possible contaminated water from park.
- Additional traffic on Belvedere Road

**Response**

With regard to the risks:

- (license) Both temporary and permanent water is available is available for purchase on the water market.
- Possible contaminated water from park.

There is minimal risk of water contamination from the park, either to the marina waterways or River Murray, as a result of all effluents going to the Mannum Waste Water Treatment Plant, interception of most stormwater in a range of water sensitive measures (eg swales) and the western wetland receiving any flows from the park.

- With regards traffic on Belvedere Road, refer to Section 3.2.3

**Comment**

Concerned for water use in wetland. Not sure whether ELMA is OK, Marina may have to buy more water.

**Response**

The proposed use of ELMA water for the wetlands has been approved. As indicated above in Section 3.2.3, the available water will be a constraint on the size of the wetland.

**Comment**

What happens in a flood

**Response**

The village and water park facilities will be above 1956 flood levels. There is a flood management plan for Mannum Waters as part of the overall Operational Management Plan, and this will be updated as necessary to include the new developments.

**Comment**

Impact on cows

**Response**

The aquatic park will only operate during daylight hours, and at night only minimal security lighting will be used. Noise levels for River Murray Zone (Rural Industry) will be met, as indicated by EPA, refer Section 3.1.3 above. Fencing will prevent access to adjacent properties. Consequently, it is anticipated that there will not be any impact on cows in adjacent properties.

**Comment**

## OFFICIAL

For the wetland, wetting and drying is important, but some may not like it due to appearance (mud) and smell. Where pipes sit for filling and draining need to be considered carefully.

### **Response**

Refer Section 3.2.3

## **Attachment 2**

Correspondence with SA Water



Tallwood Pty Ltd  
ABN 15 078 109 396  
PO Box 897  
Morphett Vale SA 5162  
Phone (08) 8322 0500  
Fax (08) 8219 0173

17<sup>th</sup> May 2018

Mr Roch Cheroux  
Chief Executive Officer  
SA Water Corporation  
250 Victoria Square  
Adelaide SA 5000

Dear Mr Cheroux,

**Re: Mannum Waters Major Development – Relocation of the Mannum Wastewater Treatment Plant.**

Yesterday, representatives of Tallwood Pty Ltd met with Debbie Snoswell, Jadyne Harvey and Jane Wilson, representatives of SA Water, to discuss the way forward for the relocation of the Mannum Wastewater Treatment Plant. This was a frank and open discussion time which hopefully will lead to more positive outcomes.

Tallwood has had a difficult eleven years dealing with SA Water, which, if fully documented, would suggest that SA Water is an organisation deficient in integrity, accountability and fair negotiation. At the commencement of those negotiations and as part of the Major Development proposal for Mannum Waters, Tallwood offered to build a replacement wastewater treatment plant away from the River Murray, on the basis that this would allow a natural extension and consolidation of the town and would remove environmental issues associated with the existing treatment plant. Mannum Waters, when fully developed, will increase the size of Mannum by approximately 70%.

In the beginning, Tallwood did not realise the true condition of the existing plant and the uncertain future of the reclaimed water distribution. It is now our opinion that planning to replace the existing plant should have been initiated by SA Water much earlier.

On the 22<sup>nd</sup> March 2018, the Murray Valley Standard printed an article concerning the Mannum Wastewater Treatment Plant in which you are quoted as making a number of statements during a meeting with the Mid Murray Council CEO, Russell Peate, and Mayor David Burgess. As we outlined to Debbie, some of the contents of the quotations are inaccurate and it appears that you do not have a correct understanding of the current condition of the plant and the distribution of the reclaimed water.

The relevant statements in the MV Standard were:

“The Mannum plant is in good working order with capacity for future growth. Our staff perform regular inspections of the treatment plant site to ensure it continues to meet all safety, operational and environmental requirements, and the Environment Protection Authority (EPA) also undertakes routine checks.”

While there is no evidence the plant is adversely impacting the local environment...we understand the developer’s motivation behind the relocation, to create economic growth in the area.

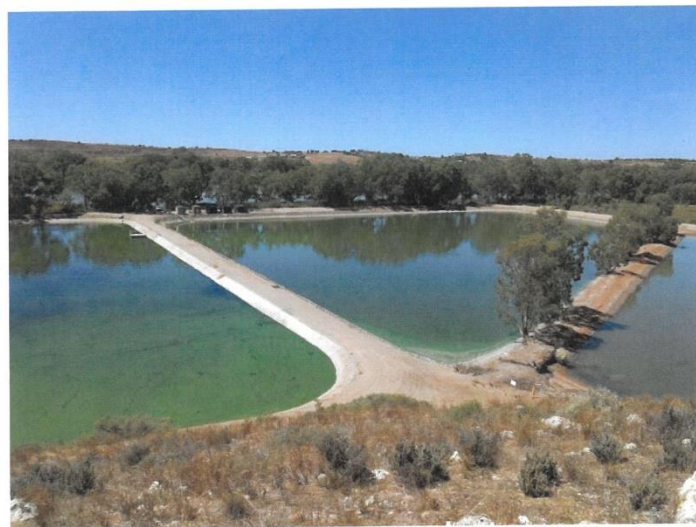
We are therefore willing to work with them to facilitate moving the plant to an appropriate location, granted they can meet all relevant conditions.”

The following comments address these remarks.

**Reclaimed Water Quality**

Tallwood’s observations and limited testing indicate that the plant does not always deliver reclaimed water within the required specifications. Recent independent spot tests taken by Tallwood at the golf course indicated a high level of suspended solids and pH at levels not consistent with the design guidelines. Earlier observations, just prior to SA Water operators adopting shandyng tactics, also confirmed this was the case.

Currently there is a high level of toxins present in the reclaimed water due to blue-green algae as detailed by SA Water’s advice to the Golf Club (see information appended) and as shown in the following photo.



SA Water Wastewater Treatment Lagoons (taken 6/02/2018)



SA Water, following a report from the Department of Health, advised Mid Murray Council that the incident was Type 1 and that all watering at the golf course should be restricted to night time only. At a meeting with representatives from the Golf Club, Mid Murray Council and Tallwood on 10<sup>th</sup> May, SA Water operational staff indicated that surplus reclaimed water was being applied to adjacent land during the day and Golf Club representatives indicated that they often experienced spray drift from the adjacent land. The SA Water representative also stated that it was unlikely that the toxic algae could be removed from the lagoons.

This is not a plant in good working order.

#### **Environmental Impacts**

In regard to environmental impacts. The following is the reality:

The overflow outlet from the lagoons is to the river. A recent SA Water document to our office identifying the draft guidelines for a new wastewater treatment plant, when referring to the existing plant, states:

- “The Mannum WWTP is located next to the River Murray in the floodplain, its location on the floodplain is not consistent with land use and zoning and presents a risk to the environment in the event of floods overtopping the lagoon embankments. Treated Effluent is discharged from the storage lagoon through a dedicated outlet to the river, as necessary, to prevent lagoon overflow.” Underlining is our emphasis.

In the past, local persons have seen the results of discharge to the river and also witnessed rapid overnight falls within the lagoons when the lagoons have been in danger of being topped. This is a concern to us, as the entrance to the main waterways of Mannum Waters is approximately 300 metres downstream of the overflow.

Groundwater seepage from the lagoons to the river has also been detected during soil and groundwater studies of the SA Water site. In Section 5 - Groundwater Results in Environmental Site Assessment – Phase 2, Proposed Mannum Waters Development – SA Water Site report by Soil and Groundwater Consulting, the Executive Summary makes the following point:

- “Based on the laboratory results and field parameters, it appears that leachate from the SA Water ponds has impacted on local groundwater in the form of elevated ammonia and potential zinc concentrations. However, this would require confirmation by future groundwater sampling rounds.”

#### **Capacity**

Over the eleven years that Tallwood has been dealing with SA Water, Tallwood has been told conflicting details on the plants future capacity by SA Water. They are:

- The plant was scheduled for replacement in 10 years (late 2008)
  - The plant could only cope with a small number of extra connections (10<sup>th</sup> Feb 2009)
  - The plant could cope with the whole of the southern section of the Mannum Waters Development (approx. 350 allotments) but not the northern section (Aug 2012).
-



- The plant is satisfactory until the year 2035 (17<sup>th</sup> Feb 2017).
- The plant is satisfactory until the year 2045 with current connections at 2000 and capable of handling an additional 2000 connections for a total of 4000 connections (26<sup>th</sup> September 2017). Tallwood believes this latter point was in error and that connections was probably meant to be persons as the current population served is around 2200. The new specification guidelines confirm this as the design flow is given as 810,000 litres/day (approximately 4000 Equivalent Persons) which is the proposed replacement capacity.

### Project Current Status

Ignoring the previous years of difficulties associated with misinformation, staff changes and non-transparent negotiations within SA Water, we believe Debbie is pursuing a more certain opportunity for Tallwood to resolve matters.

What then is the current status of the project to relocate the Mannum Wastewater Treatment Plant? This is Tallwood's understanding:

1. The current wastewater treatment plant is unsound as follows:
    - At present there are high levels of toxic algae within the treatment lagoons.
    - Seepage from the existing lagoons appears to impact groundwater and move towards the River Murray;
    - At times, lagoon contents are discharged to the River Murray;
    - Reclaimed water quality does not always meet specification;
    - Recently, shandyng treated effluent with river water, to reduce salinity and leach phosphorous, has been introduced at the golf course. However, it is understood that alternate irrigation with reclaimed water and river water is preferred to a shandy mix. Whichever is adopted, this reduces the quantity of treated effluent which can be discharged to the golf course and increases the discharge to the vacant land.
    - Phosphorous, a component of the reclaimed water, is at high levels in the golf course soils and could limit future distribution;
    - Surplus reclaimed water is wasted to vacant land;
    - Vacant land is insufficient to absorb surplus water in winter months and overflows to neighbouring land owned by Tallwood;
    - Additional areas for distributing reclaimed water are immediately required.
    - Significant quantities of water evaporate from the large surface area of the existing lagoons;
    - Its location is inconsistent with current land use and zoning and does not meet the EPA guidelines for separation distances.
  2. SA Water and the State Coordinator-General have indicated that any development must be on the basis of a neutral Net Present Value to SA Water. Recently, it has been indicated that SA water will gift the existing site to Tallwood once a new plant has been developed and that SA Water will meet cost differences between a new plant with equivalent capacity of the existing plant and a new plant where it exceeds the provisions of the existing plant.
-

3. Following a meeting on 26<sup>th</sup> September 2017 of State Government representatives from SA Water, DEWNR, DPTI with Tallwood and initiated by the State Coordinator General, a series of steps were outlined to facilitate progress. The first two steps are shown in italics:

- *SA Water to provide Tallwood with specifications for a new Mannum Waste Water treatment plant, which will be at the same 4,000-person capacity as the existing plant (SA Water to advise when specifications will be available once tenders for the Murray Bridge Plant are finalised).*

An initial preliminary draft technical Specification was received on 5<sup>th</sup> December 2017. Tallwood responded with comments on 10<sup>th</sup> December 2017.

A further draft was received on 9<sup>th</sup> March 2018 and response forwarded from Tallwood on 11<sup>th</sup> April 2018.

- *Tallwood to review specifications and determine if it wants to proceed with the proposal including its agreement to build a replacement wastewater treatment plant at its cost on a suitable site (to meet SA Water, EPA and SA Health specifications).*

A final draft document is yet to be finalised. At this stage, the draft contains no directions in regard to winter storage (if required) of the reclaimed water. This must be identified before any recommendations in regard to siting can be finalised.

Whether or not Tallwood will wish to proceed with the project remains undecided.

#### **Future Development**

Development of the existing treatment plant site and other land below the golf course and north-west of the existing treatment plant depends on a number of factors. They are:

1. The relocation of the existing wastewater treatment plant, entailing,
  - A determination of the proposed plant specifications including winter storage;
  - A review of reclaimed water disposal practices;
  - Land transfer;
  - Financials including NPV assessment.
2. Rezoning
  - Completion of soil contamination audit
  - Demarcation of boundaries - golf course, residential, treatment plant, Mannum Cemetery and reserves.
3. Land Sales at Mannum Waters

Land sales are unpredictable and slow at Mannum. On present trends, Mannum Waters has sufficient potential, in land already zoned, to satisfy the waterfront allotment market for

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## OFFICIAL

approximately three to five years. However, it is understood that a three-year period is required to develop a new plant, from agreement to proceed to the completion of the acceptance period.

Frankly, we are tired of pursuing negotiations which have taken over 11 years for what appeared to be a relatively straightforward matter. For the moment, Tallwood will continue with our assessment of the specification guidelines as required and in accordance with the Coordinator General's outline notes, but someone other than Tallwood will need to drive this project if it is to succeed.

There are currently five interested parties. They are Mid Murray Council, Mannum Golf Club, The Office of the Coordinator General, SA Water and Tallwood. Meetings are being pursued between various members of each party, independently of others, leading to a very fragmented result. We suggest that SA Water should recognise the true state of the existing treatment plant for which it has immediate obligations and recommend that a dedicated officer be appointed to coordinate all parties as a matter of urgency in pursuit of a satisfactory long-term outcome.

We would welcome the opportunity to meet with you to discuss the project in more detail.

Yours faithfully,

David Potter  
Project Manager  
Mob: 0409 701 099

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**Attachment**

Cc The Mayor – Mr David Burgess  
**SA Water Notification of Blue Green Algal Incident**

On Fri, 23 Mar. 2018, 12:34 pm Faulkner, Martin, <[Martin.Faulkner@sawater.com.au](mailto:Martin.Faulkner@sawater.com.au)> wrote:

Good Morning/Afternoon

Martin Faulkner here again, I hope this email finds you keeping well.

I have just been informed by the AWQC of an update to the analytical results available for the ongoing Blue Green Algal Incident, 41477, at the Mannum WWTP Lagoon #2 Effluent sampling location.

Results to hand indicate that:

☐ 19/03/2018: Grade: Type 1 DH and EPA Algae/Toxins, *Microcystis aeruginosa* 1100000 cells/mL

☐ 19/03/2018: Microcystin toxins - Total (as m-LR eq) 132 ug/L

In continuation from previous results:

☐ 09/03/2018: Grade: Type 1 DH and EPA Algae/Toxins, *Microcystis aeruginosa* 3530000 cells/mL

☐ 09/03/2018: Microcystin toxins - Total (as m-LR eq) 283 ug/L

☐ 26/02/2018: Grade: Type 1 DH and EPA Algae/Toxins, *Microcystis aeruginosa* 120000 cells/mL

☐ 06/03/2018: Microcystin toxins - Total (as m-LR eq) 378 ug/L

As the Incident is still Type 1 in nature, as discussed, repeat sampling for both algal count and toxin assessment has been scheduled for April 4<sup>th</sup>, with the intention that algal results will be available on April 6<sup>th</sup>, and toxin results as soon as practicable ... the results of which will be forwarded to you as soon as they are available.

As per previous emails and phone calls, The Department of Health were also keen to ensure that irrigation was conducted within existing restricted guidelines, ie irrigation at night, until further judgements can be made.

Regards, and many thanks in advance

---

Martin

**MARTIN FAULKNER**

TECHNICAL SUPPORT OFFICER WASTEWATER TREATMENT

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SA Water Northern Region

Eyre Road, Crystal Brook

South Australia, 5523

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SA Water Web site 27/10/2021

https://www.sawater.com.au/news/positive-discussions-on-mannum-wastewater-plant



21-03-2018

## Positive discussions on Mannum wastewater plant

SA Water is delivering on its commitment to work together with developer Tallwood and the Mid Murray Council on the proposed relocation of the Mannum Wastewater Treatment Plant, with recent discussions clarifying the key requirements for a future site and a path for ongoing collaboration.

In a recent meeting with the council, SA Water's Chief Executive Roch Cheroux reiterated his support for relocating the plant to facilitate property development on the existing site - but stated as there are currently no operational reasons to move the plant, the full cost needs to be borne by the developer instead of SA Water customers.

"The Mannum plant is in good working order with capacity for future growth," Roch said.

"Our staff perform regular inspections of the treatment plant site to ensure it continues to meet all safety, operational and environmental requirements, and the Environment Protection Authority (EPA) also undertakes routine checks," Roch said.

"While there is no evidence the plant is adversely impacting the local environment, and 100 per cent of what it treats is supplied to a local golf club for irrigation, we understand the developer's motivation behind the relocation, to create economic growth in the area.

"We are therefore willing to work with them to facilitate moving the plant to an appropriate location, granted they can meet all relevant conditions."

This includes criteria relating to design, operational handover, Aboriginal heritage, native vegetation and other environmental requirements. There must also be a full remediation of the existing wastewater treatment plant site following decommissioning, and the project must not negatively impact SA Water's existing customer base.

"The developer has been provided this information and is assessing the related financial costs to determine a way forward," Roch said.

During the meeting earlier this month between SA Water and the local council, the need to have more open dialogue between stakeholders was also recognised.

"We will continue to liaise with the Mid Murray Council as needed, and have allocated a dedicated contact within SA Water to answer further questions from the council or developer," Roch said.

"We acknowledge discussions on the proposed treatment plant move have been ongoing for some time, and it's clear all parties involved, including SA Water, would like to see a plan in place for the developer to action when they're ready."

Mid Murray Council Mayor Dave Burgess said he looks forward to working together with SA Water and Tallwood to come to an agreeable outcome on the location of the Mannum Wastewater Treatment Plant.

"We want this result to be in the best interests of the community. Moving the plant from its current location will reduce the risk of discharge entering the nearby river or surrounding environment, during the rare occasion of flooding in the area."

Call us

1300 SA WATER  
(1300 729 283)

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250 Victoria Square, Adelaide SA 5000

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**Attachment 2**

LANDN Pty Ltd Letter

Landn parks pty ltd

Mannum Waters Residential Marina – amendment to EIS

In relation to guideline 3.2.2

Landn parks Pty Ltd Acknowledges its obligation to purchase water if the park proceeds and while the waterpark is an operating business, the company understands the obligation to secure water to fill the Adventure Water Park Lake, the annual evaporative losses from the lake and the volume of water required to maintain the salinity of the lake.

The lake size being determined at a further stage due to site construction (will not be bigger than initial submission)

Landn Pty Ltd also advises that Lake size may change as popularity of park is realised in the future.

Leonard Millstead

Director

Landn parks Pty Ltd