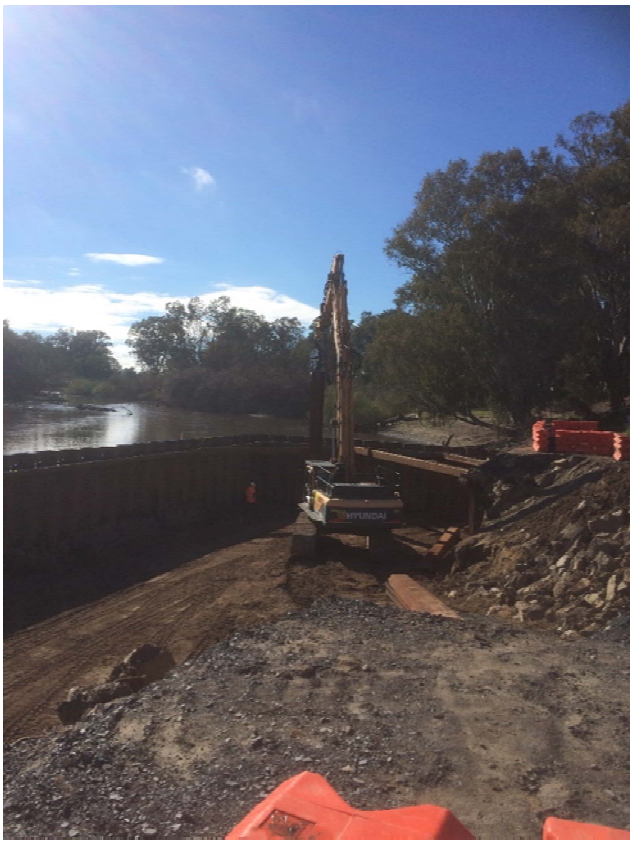
UGL

Modification Application

WATER TREATMENT PLANT PUMP INFRASTRUCTURE



AUGUST 2017

ngh environmental

Document Verification

Project Title: Water Treatment Plant Pump Infrastructure

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Revision	Date	Prepared by (name)	Reviewed by (name)	Approved by (name)
Final	31/08/17	J Murphy	Erwin Budde	Erwin Budde
Final v2	07/09/17	J Murphy	Erwin Budde	Erwin Budde

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CONTENTS

FIGURES

ACRONYMS AND ABBREVIATIONS

dB(A).	A measure of A-weighted *(c.f.)* sound levels
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Cwth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
LGA	Local Government Area
m	Metres
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water
SSD	State Significant Development, as defined by section 89C of the EP&A Act *(c.f.)*

1 INTRODUCTION

1.1 BACKGROUND

Development Consent for the Wagga Wagga Water Treatment Plant Upgrade was issued by the NSW Department of Planning and Environment (DPE) on 15 July 2015. The approval allows for the upgrade of the water treatment plant with a 55 megalitre (ML) per day clarification and dual media filtration process. This will increase the capacity of the plant and secure this capacity under conditions when the raw water has higher turbidity levels. The Wagga Wagga Water Treatment Plant is located along the Murrumbidgee River, around 1.5 kilometres (km) east of central Wagga Wagga in the City of Wagga Wagga Local Government Area (LGA).

The Wagga Wagga Water Treatment Plant Upgrade Environmental Impact Statement (EIS) was prepared by Hunter Water Australia Pty Ltd in December 2014. The EIS included consideration of the potential for the construction of the new river intake to impact on a colony of the Grey-headed Flying Fox *Pteropus poliocephalus*, a threatened species, around 100 metres (m) upstream (Figure 1) of the site. It was concluded that the project was not likely to significantly impact this colony if the construction of the pump intake was undertaken outside the breeding season (November – March). Based on this, DPE included Condition B11 in the Approval stating that "*No construction of the pump infrastructure within the Murrumbidgee River is to occur between November and March in order to minimise impacts to the Grey-headed Flying Fox.*"

Figure 1 Location of Grey-headed Flying Fox colony roost sites (outlined in yellow). From project EIS by Hunter Water Australia Pty Ltd.

UGL are seeking a modification to Condition B11 to allow construction activities on the pump infrastructure between November and March 2017. The work is required to complete the project within the existing time constraints. Work on the pump infrastructure during autumn and winter of 2017 was held back by problems with the coffer dam, which was not able to maintain a safe work environment within the river. Given the likely duration of work on the pump infrastructure, it is likely to construction work will need to continue into summer.

1.2 AIM AND SCOPE OF THIS MODIFICATION REPORT

This modification report:

- Describes the proposed modification, its justification, and benefits.
- Identifies the planning context of the proposed modification, including any conditions of consent with which the modified project cannot comply.
- Describes consultation undertaken with reference to the proposed modification.
- Identifies and assesses any changes to the nature and level of impacts that would occur as a consequence of the proposed modification.
- Considers whether additional mitigation strategies would be required to manage the impacts of the proposed modification.
- Concludes that, on balance, the modified project would result in minor additional impacts which can be managed, and is therefore considered justified.

2 MODIFICATION DESCRIPTION

2.1 PROPOSED MODIFICATION

It is proposed to modify Condition B11 to read:

*No construction of the pump infrastructure within the Murrumbidgee River is to occur between November and March in order to minimise impacts to the Grey-headed Flying Fox**, unless otherwise agreed to by the Department in consultation with OEH**.*

It is proposed that this modification would allow construction to take place between November and March with the approval of the NSW Department of Planning and Environment (DPE), and following consultation with the NSW Office of Environment and Heritage (OEH).

Typical work activities that would be required during this time include:

- Detailed earthworks and minor excavation
- Concrete formwork
- Concrete pouring
- Revetment rock placement and landscaping
- Installation of pipes and mechanical infrastructure
- Removing scaffolding
- Removal of sheet piling

From the beginning of November, additional monitoring by a qualified ecologist would be undertaken to ensure disturbance of the colony is minimised or avoided. This would include:

- Monitoring for maternity behaviour in late October 2017.
    - If maternity behaviour is observed, additional monitoring would be undertaken during noisy works, and construction would cease if signs of parental abandonment observed. If no distressing behaviour is observed, work would continue.
    - If no maternity behaviour is observed, monitoring would occur on the first day of noisy works such as removal of piles, and construction would cease if signs of parental abandonment observed. If no distressing behaviour is observed, work would continue.
- Monitoring during hot weather.
    - If the temperature is over 40°C and/or relative humidity is over 40%, monitoring would occur, and construction to cease if signs of distress observed.

All monitoring activities would be reported to the Department.

2.2 JUSTIFICATION FOR THE MODIFICATION

The proposed works would involve low level noise generating activities that, as detailed in the project EIS, could lead to adult flying foxes abandoning the colony. At the time of the EIS, it was not known whether this colonies was breeding. It was also not known how much disturbance the colony was adapted to and whether the work would disturb the colony.

Since obtaining Development Consent, UGL has commissioned monitoring of the impact of construction noise on the colony. This has included looking for signs of the colony being a breeding colony and for signs that construction impacts were causing flying foxes to abandon their young. The surveys were undertaken

by an ecologist in October 2015, November 2015, January 2017, February 2017, March 2017, and August 2017, and found that:

- The population of the colony fluctuated between surveys (from around 50 to over 1000), but no evidence was found of the flying foxes abandoning the site.
- Some flying foxes were disturbed by construction noise, such as the intrusive noise of pile driving, but were observed to become accustomed to this noise within a few hours.
- There was no evidence of breeding in the area, and while some juveniles were observed in the March 2017 survey, these were independent of the adults.
- The colony is subjected to high noise levels in the existing environment (including the nearby Main Southern Railway bridge crossing, and urban and industrial activities immediately adjacent to the colony), and are likely to have adapted to the noisy environment.

The reports from these surveys are provided in Appendix A.

The results of the monitoring suggests that the colony may not be breeding at this location, and that flying foxes are unlikely to abandon the colony as they are accustomed to the noise and activity at the site.

The monitoring results suggest that construction of the pump infrastructure within the Murrumbidgee River between November to March would not have a significant impact on the Grey-headed Flying Fox. Consultation with OEH and DPE, as well as monitoring for maternity behaviour and during hot weather, would further reduce the risk of disturbance to the colony.

2.3 PROJECT BENEFITS

The benefits of the Wagga Wagga Water Treatment Plant Upgrade would remain unchanged. The proposed modification would allow construction of the intake pump to continue into summer, and for the project to be completed within the existing time constraints, without disturbing the flying fox colony. This would result in cost savings, and by reducing the duration of the construction period would reduce the duration of impacts on the flying foxes.

3 PLANNING CONTEXT

3.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Under Section 96 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), a State Significant Development (SSD) can be modified. This can be done where the modified development remains 'substantially the same' as the original approved development. An applicant can apply to the Minister for Planning to modify an SSD approval and lodge a request for assessment of a modification with the Department of Planning and Environment.

Clause 96 (1A) refers to modifications involving minimal environmental impact. It states that;

> *A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if:*
>
> > *(a) it is satisfied that the proposed modification is of minimal environmental impact, and*
> >
> > *(b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all).*

This modification report addresses these requirements. Section 2 sets out the description of the modified proposal, which can be seen to be substantially the same as the development for which the consent was originally granted. Section 5 addresses the nature and level of environmental impact that would result from the modification and finds that the additional impacts would be minimal.

3.2 CONDITIONS OF CONSENT

Condition B11 of the Development Consent states that *No construction of the pump infrastructure within the Murrumbidgee River is to occur between November and March in order to minimise impacts to the Grey-headed Flying Fox.* Given the proposed change to allow construction within the Murrumbidgee River in November and December with approval by OEH and DPE, the proposed modification does not comply with this condition of consent.

All other conditions of consent can be met by the modified project.

4 CONSULTATION

Consultation regarding the proposed modification has been undertaken with relevant government agencies.

NGH Environmental consulted with representatives from DPE. An email was sent on 8th August 2017 outlining the proposed modification and seeking comment.

A meeting was held on 21st August 2017 on site involving DPE, OEH, UGL, Riverina Water, the project ER and NGH Environmental to discuss the proposed modification. The meeting included discussion of the need for the modification, justification for it, and to understand additional requirements should the modification be approved.

5 NOISE IMPACT ASSESSMENT

NGH Environmental conducted noise monitoring on 23/24 August 2017 to coincide with sheet pile driving activities. This included observations of bat activity during the work (Appendix A). The table below provides a summary of this and includes assessment against the Interim Construction Noise Guidelines. Background noise levels were obtained from the EIS. Noise from the removal of piles through vibration is estimated.

Activity	Noise Level @ the Bat Colony (about 120m from source)	Observations of Bat Activity	NML for Receiver 1 (caravan park)	Highly Affected Noise Level
Pile Driving (through sand)	61 dBA	Low level of disturbance. 10-15 bats making short flights	54 dBA	75dBA
Pile Driving (through cobbles)	70 dBA	High level of disturbance initially. Low level of disturbance during same activity later in the day	54 dBA	75 dBA
Pile removal through vibration (estimated)	50-60dBA	N/A	54 dBA	75 dBA

The analysis above shows that pile driving would likely exceed both the NML at the nearest receiver and the Highly Affected Noise Level. It should be noted however that the project approval allows for pile driving and this was assessed in the EIS.

The analysis indicates that the removal of piles through vibration is unlikely to significantly exceed the NML at the nearest receiver. It would not exceed the Highly Affected Noise Level. It should be noted that the project approval allows for the removal of piles and this was assessed in the EIS.

The concurrent observations further suggest that pile removal is unlikely to result in a high level of disturbance to the colony. As demonstrated, the bats adjusted to the noise environment within a few hours of the first noisy activity.

6 CONCLUSION

This modification report outlines UGL's proposal to allow construction of the pump infrastructure within the Murrumbidgee River between November and March with the consent of OEH and DPE. The project EIS suggested that this could impact on the Grey-headed Flying Fox colony, but subsequent monitoring has shown that there is not likely to be any significant impact. It is proposed that further monitoring be undertaken during this construction period to determine whether there is any maternity behaviour, or whether the colony shows any signs of stress.

The modification would allow construction of the intake pump to continue into summer, and for the project to be completed within the existing time constraints, without disturbing the flying fox colony. With the proposed mitigation measure of further monitoring and with the proposed requirement for consent to be given by OEH and DPE prior to construction commencing, it is considered that the risk of disturbing the flying fox colony or causing flying foxes to abandon their young is minimal. The proposed modification is therefore considered to be justified.

7 REFERENCES

Hunter Water Australia Pty Ltd, 2014, Wagga Wagga Water Treatment Plant Replacement Environmental Impact Statement (final). Report prepared for Riverina Water County Council.

APPENDIX A MONITORING REPORTS

13 October 2015

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Dear David,

RE – Monitoring of Grey-headed Flying Fox at the Riverina Water WTP (October 2015)

One NGH Environmental ecologist undertook Grey Headed Flying Fox monitoring at Bat Island on the 7/10/2015. The objective of the survey was to undertake a baseline count of the number of individuals present to assist in determining impacts upon the flying foxes from construction works at the WTP.

Methodology included:

1. A population count on Bat Island. This was completed by visual inspection from the ground at three locations: (A) Top of bank perpendicular to the island, (B) at water level downstream of the island and (C) at water level upstream of the island (see Figure 1). Location A provided the best vantage point to observe the population of GHFF, with locations B and C obscured by vegetation (Figure 2). An average of the three counts was used to estimate the number of individuals present.
2. A walking inspection of the southern bank of the river from the WTP for 500m east to search for any individuals not present on Bat Island.
3. Collect noise data during the survey, and determine what the contribution to the noise environment is likely to be from the construction works occurring at the time of the survey.
4. Noise modelling was conducted to determine the predicted construction noise from the WTP at the time of the survey, which was then compared with the noise actually recorded.

Results

The population counts on Bat Island are shown in Table 1. No bats were observed during the survey of the river bank.

Table 1 Population counts

Location	Count
A) Top of bank perpendicular to the island	400
B) At water level downstream of the island	380
C) At water level upstream of the island	330
AVERAGE	**370**

Noise monitoring results are detailed in Table 2. During the population survey a number of noise sources were heard originating from the WPT, including an excavator with reversing alarm and concrete pump. External audible noise sources included visitors to the caravan park in a large campervan and a bus and the continual noise of vehicles from the Sturt Highway. None of these noise sources appeared to noticeably disturb the colony during the survey.

Table 2 Background count data (dBA)

	LAeq	LAmax	LAmin	LA90
Session 1	50.7	65.1	40.4	46.2
Session 2	47.9	63.0	38.4	48.0

Based upon the standard noise outputs from the construction plant observed operating at the WTP during the noise monitoring, including a concrete pump and excavator with reversing alarm, a LAeq of 61dBA was predicted, however this was above the recorded values shown in Table 2. Therefore, the actual noise levels from the site are below the noise levels predicted.

If you have any questions or comments please don't hesitate to contact me on the details below.

Yours sincerely,

Bryson Lashbrook

Environmental Consultant

Ph 02 6923 1503

NGH Environmental

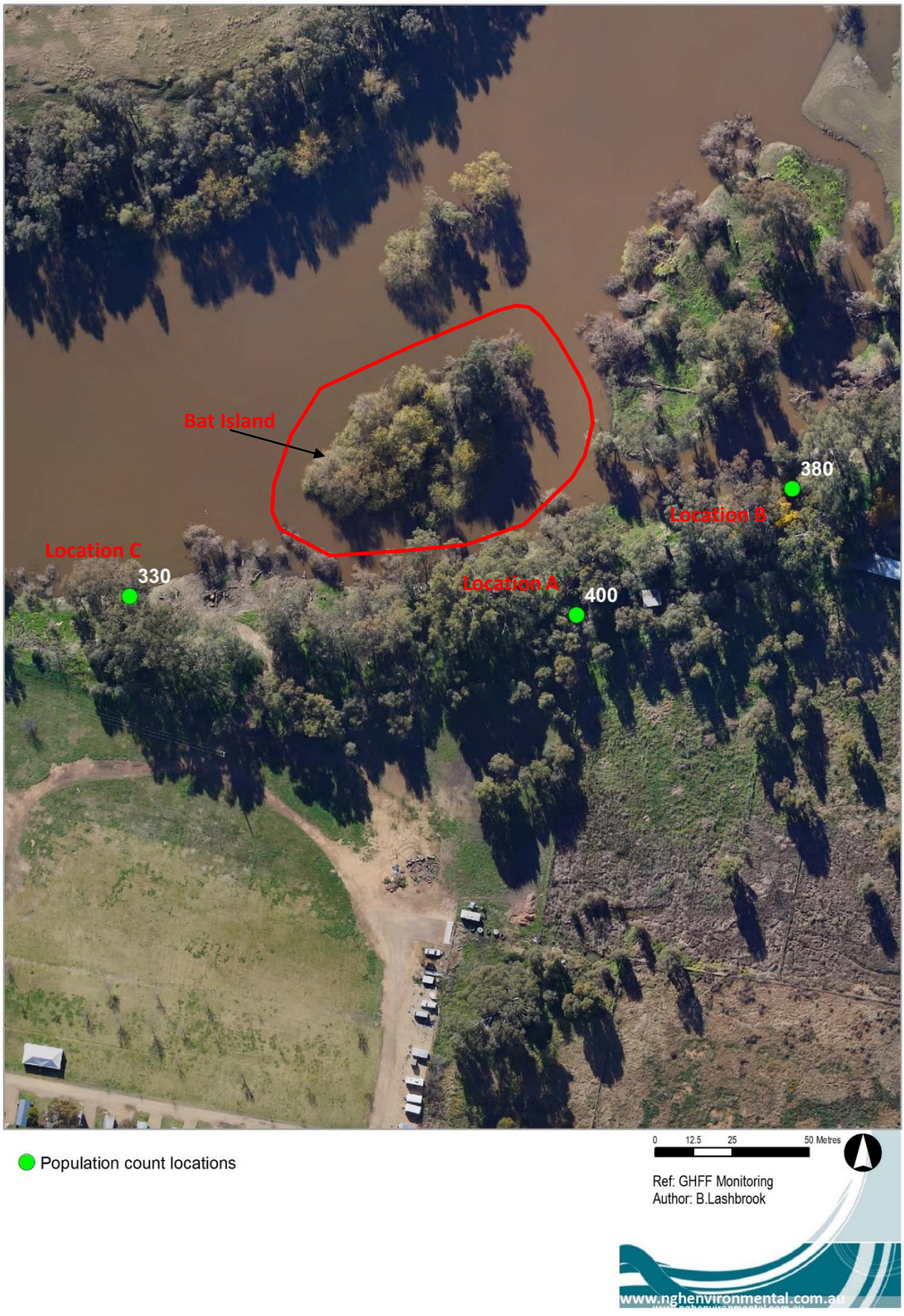

Figure 1 Location of the monitoring points

Site Pictures

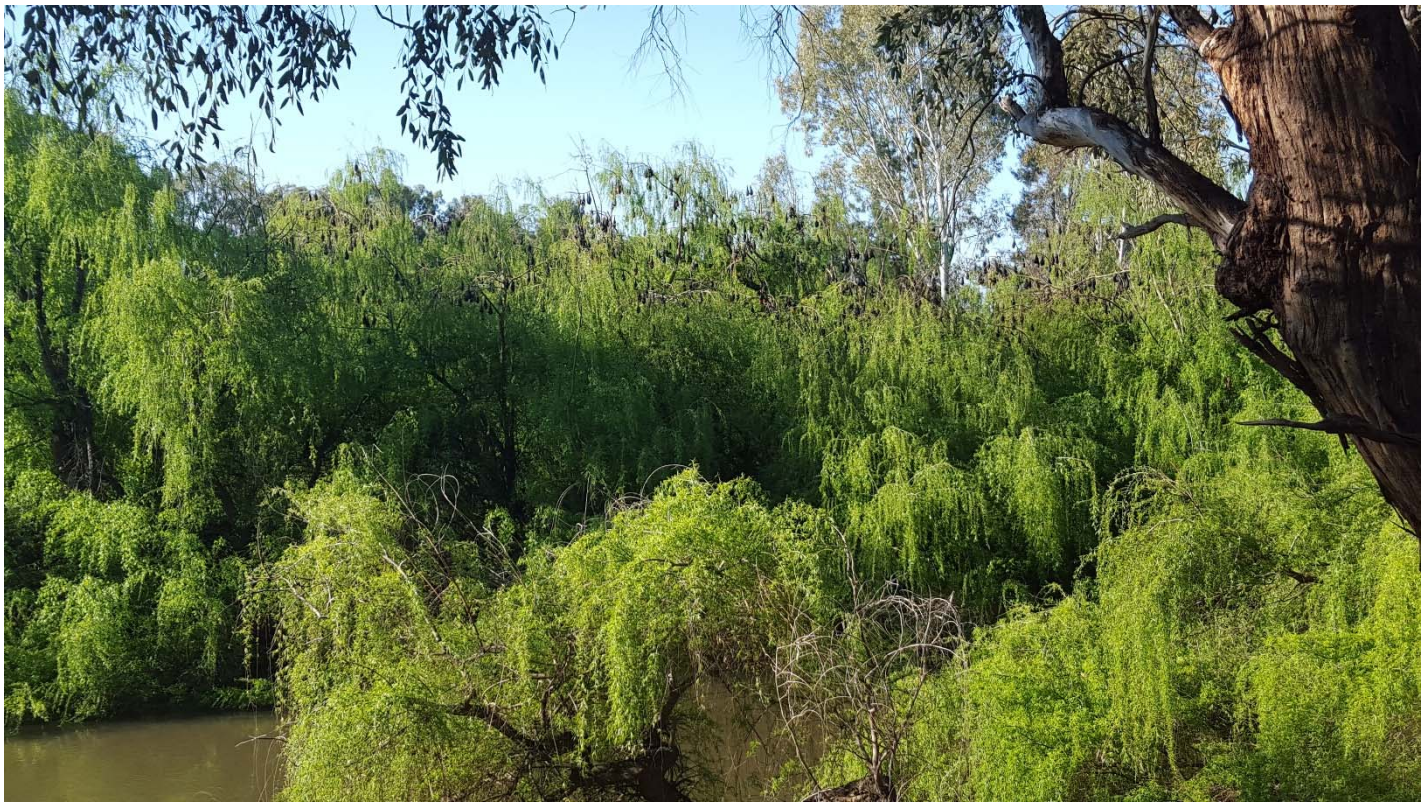

Figure 2 View from the location of population count Location A

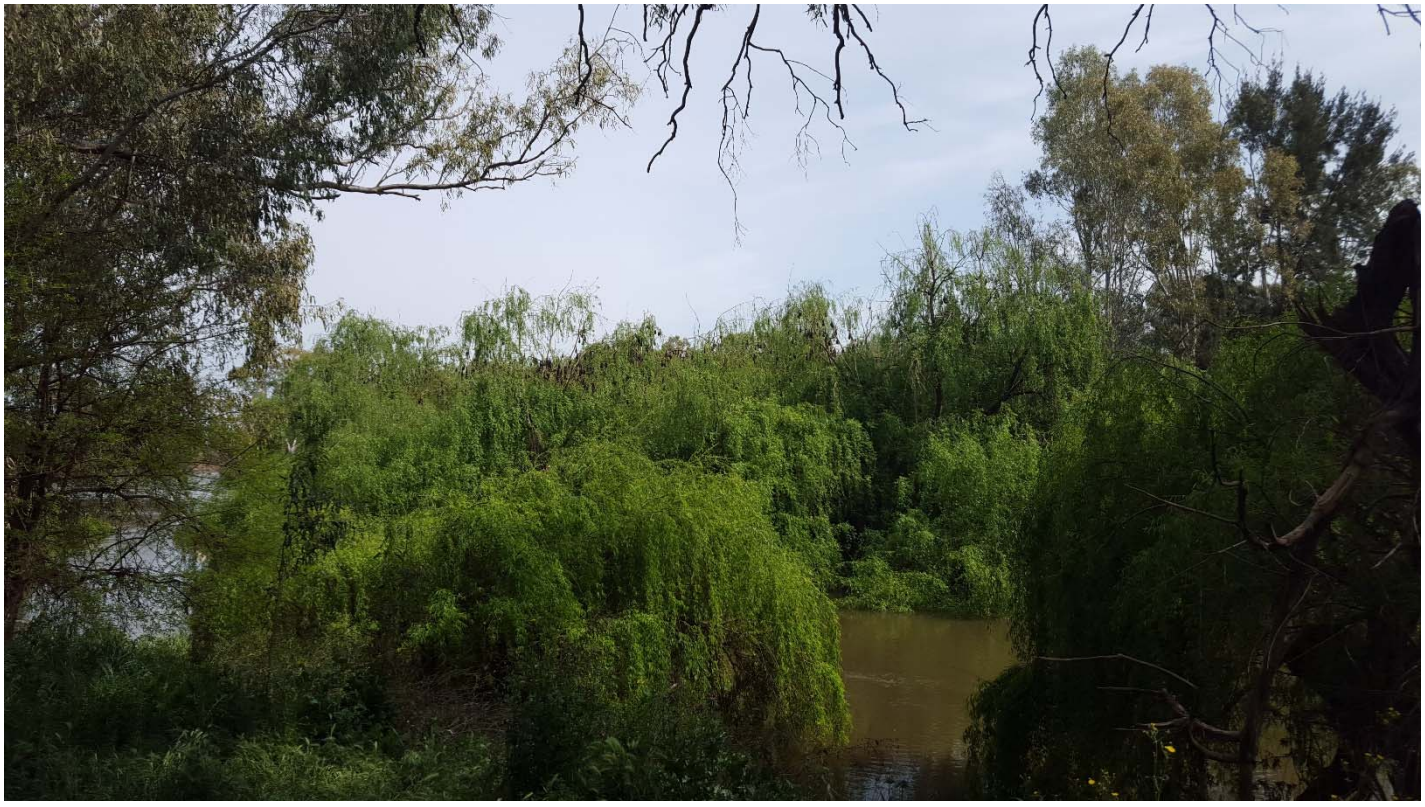

Figure 3 View from the location of population count Location B

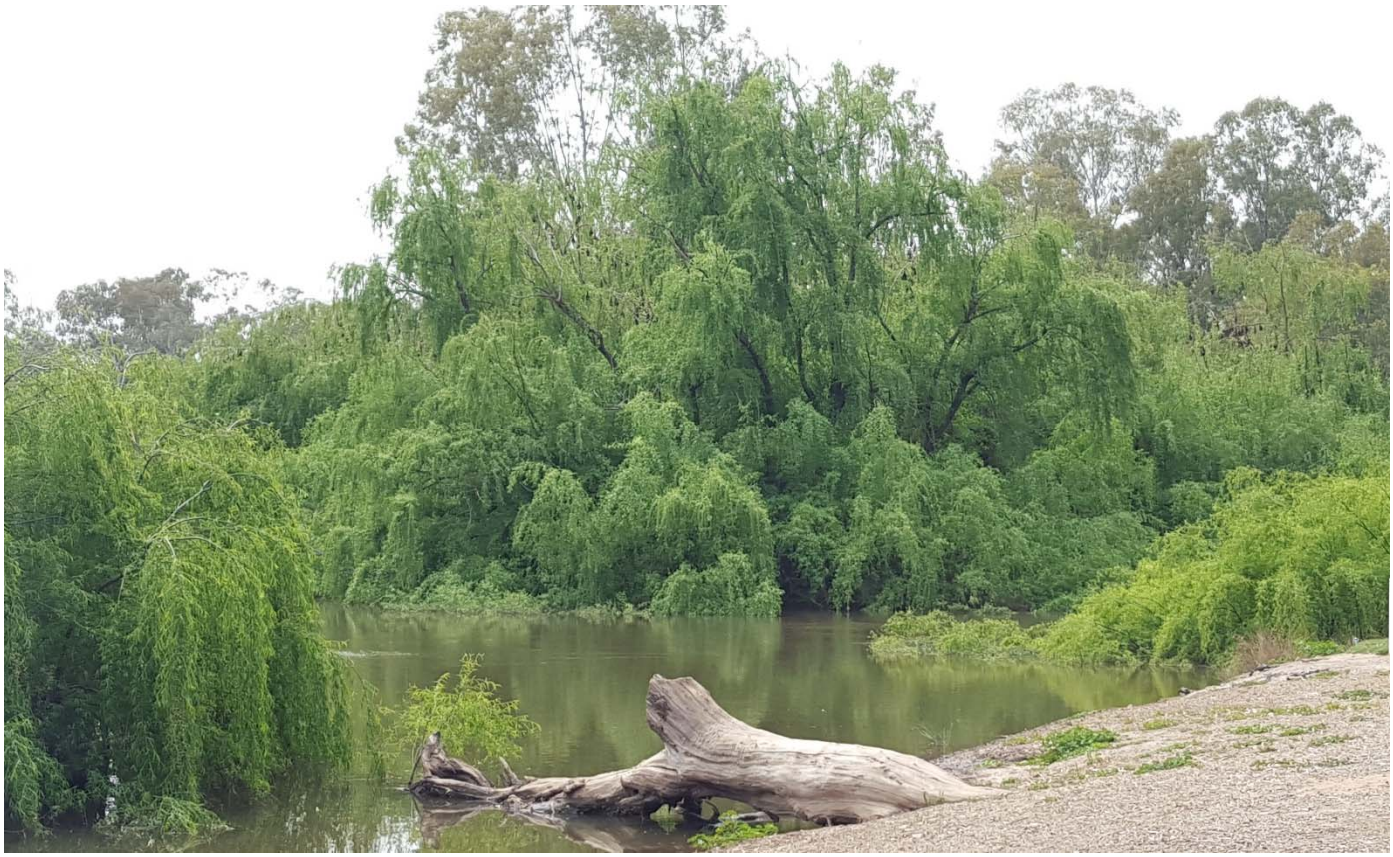

Figure 4 View from the location of population count Location C

Figure 5 Grey headed flying fox

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Dear David,

RE – Monitoring of Grey-headed Flying Fox at the Riverina Water WTP (October 2015)

One NGH Environmental ecologist undertook repeat Grey Headed Flying Fox monitoring at Bat Island on the 12/11/2015 (Survey 2). The objective of the survey was to undertake a follow-up count of the number of individuals present to assist in determining impacts upon the flying foxes from construction works at the WTP. The previous survey was conducted on 7/10/15 (Survey 1). It was not possible to undertake Survey 1 late September due to access issues and ecologist availability. Similarly Survey 2 was slightly delayed due to storm and rain events. These delays are not considered to have materially affected the survey's integrity.

Additional surveying was completed on 24/11/15 to specifically determine whether there was any evidence of young being abandoned in the colony.

Methodology included:

1. A population count on Bat Island. This was completed by visual inspection from the ground at three locations (the same as Survey 1), see Figure 1. Location A provided the best vantage point to observe the population of GHFF, with locations B and C obscured by vegetation (Figure 2). An average of the three counts was used to estimate the number of individuals present.
2. A walking inspection of the southern bank of the river from the WTP for 500m east to search for any individuals not present on Bat Island.
3. Collect noise data during the survey, and determine what the contribution to the noise environment is likely to be from the construction works occurring at the time of the survey.
4. Noise modelling was conducted to determine the predicted construction noise from the WTP at the time of the survey, which was then compared with the noise actually recorded.
5. A survey on bat island, by foot, to determine whether there was any evidence of young being abandoned.

Results

The population counts on Bat Island are shown in Table 1. No bats were observed at other locations during the survey of the river bank. The results show a significant decline in the number of individuals present.

Table 1 Population counts

Location	September 2015 Survey (Survey 1)	October 2015 Survey (Survey 2)	Additional Survey
A) Top of bank perpendicular to the island	400	75	
B) At water level downstream of the island	380	25	
C) At water level upstream of the island	330	50	
AVERAGE	**370**	**53**	**~60**

No evidence of any abandoned young were observed during the additional November surveys.

Noise monitoring results are detailed in Table 2. During the population survey a number of noise sources were heard originating from the WPT, including manual tools and vehicles. External audible noise sources included visitors to the caravan park in a large campervan and a bus and the continual noise of vehicles from the Sturt Highway. None of these noise sources appeared to noticeably disturb the colony during the survey.

Table 2 Background count data (dBA)

	LAeq	LAmax	LAmin
Session 1 (Survey 1)	50.7	65.1	40.4
Session 2 (Survey 1)	47.9	63.0	38.4
Survey 2	48.9	73.2	40.0

Based upon the standard noise outputs from the construction plant observed operating at the WTP during the noise monitoring, including a concrete pump and general construction equipment, a LAeq of 55dBA was predicted, however this was slightly above the recorded values shown in Table 2. Therefore, the actual noise levels from the site are below the noise levels predicted.

Discussion

Populations of the Grey-headed Flying Fox are known to include sedentary individuals which form the core population of continuously occupied camps. However, the majority are highly nomadic and are known to move several hundred kilometres in largely unpredictable patterns (Australian Government 2010). The initial survey identified approximately 370 individuals at Bat Island, with the follow-up survey only identifying for approximately 53. Both surveys were conducted during fine and

sunny weather, however in the morning of Survey 2 and a number of weeks preceding there were a number of spring storm events. Storm events may affect flying fox movements which may account for the reduced numbers observed.

It is unclear at this stage as to the cause of the reduction in numbers of the GHFF colony at Bat Island. During the additional November surveys, a train was heard passing over the river. This did not appear to disturb the bat colony. Noise from this train was not measured, however it is likely that this noise is greater than noise currently coming from the construction site.

There is no evidence that young bats are being abandoned by the colony.

If you have any questions or comments please don't hesitate to contact me on the details below.

Yours sincerely,

Bryson Lashbrook

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References

Australian Government, 2010. Survey guidelines for Australia's threatened bats.

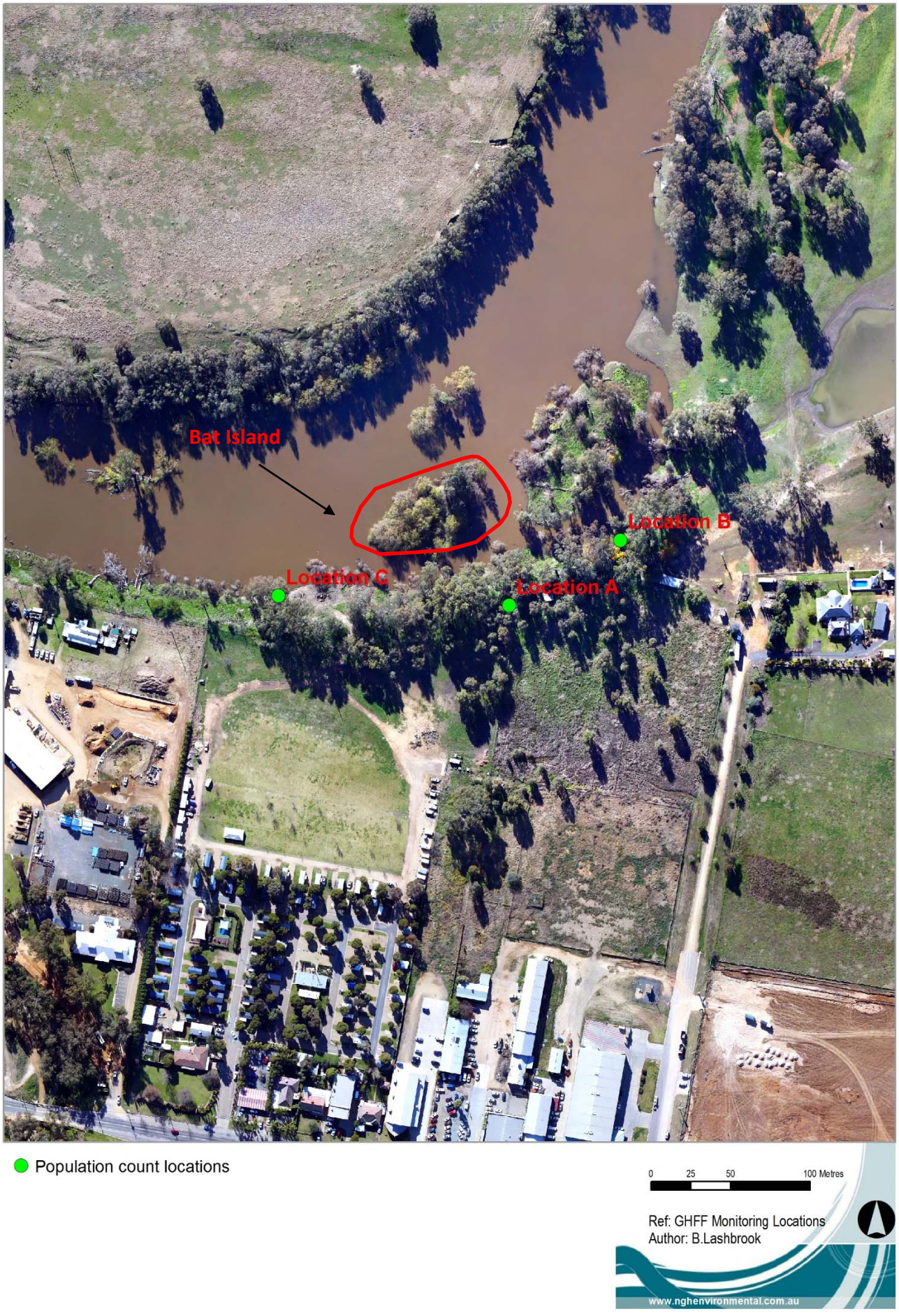

Figure 1 Location of the monitoring points

Site Pictures

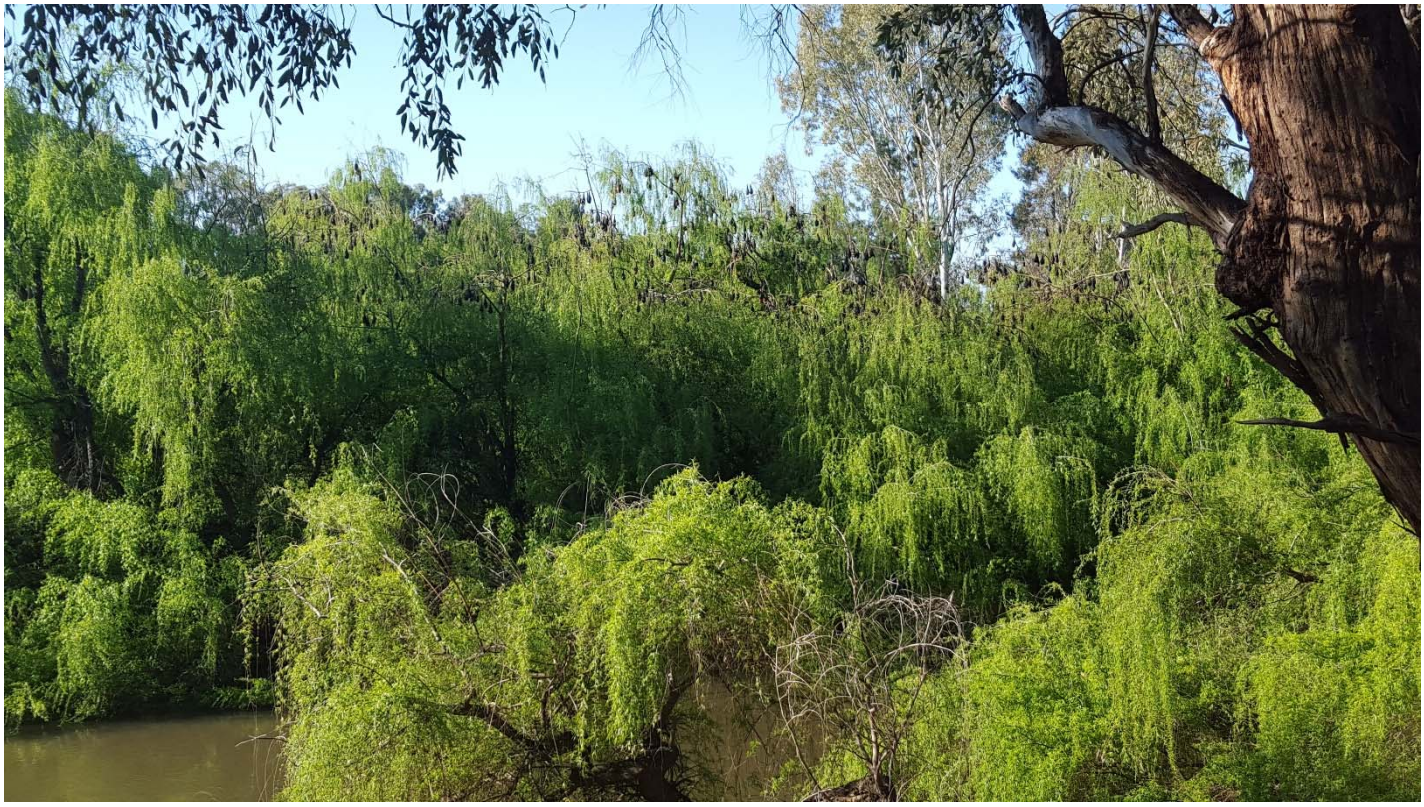

Figure 2 View from the location of population count Location A during the Survey 1

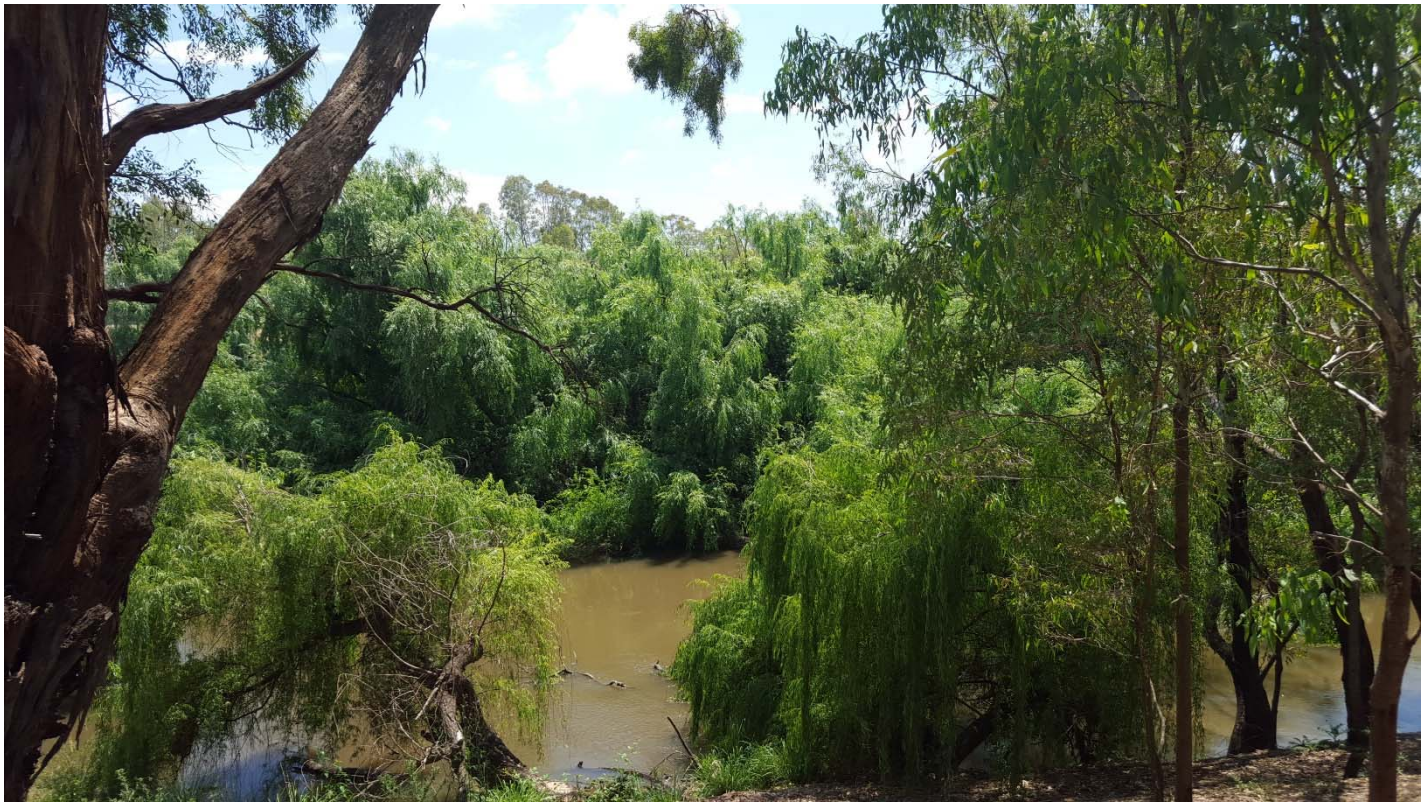

Figure 3 View from the location of population count Location A during the Survey 2

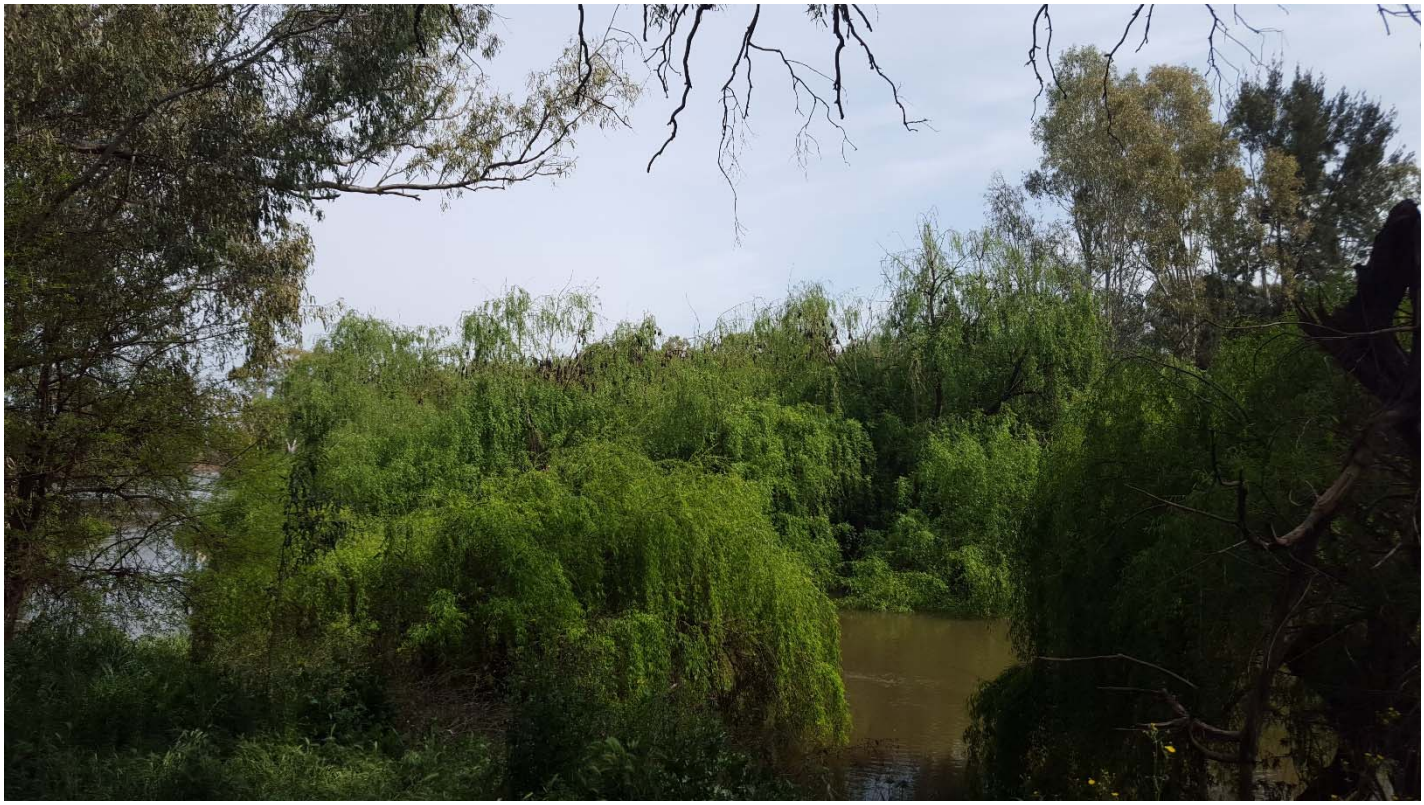

Figure 4 View from the location of population count Location C during survey 1

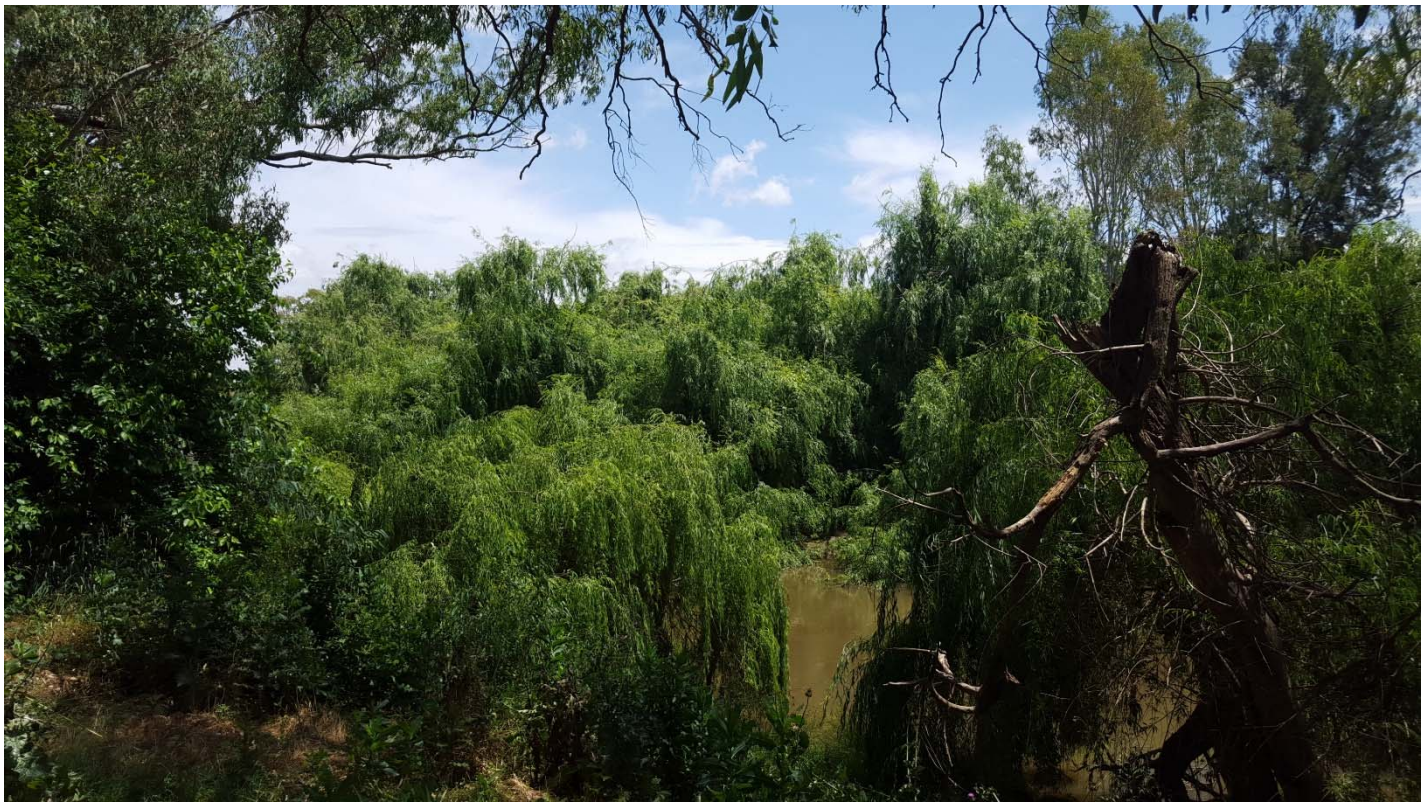

Figure 5 View from the location of population count Location C during survey 2

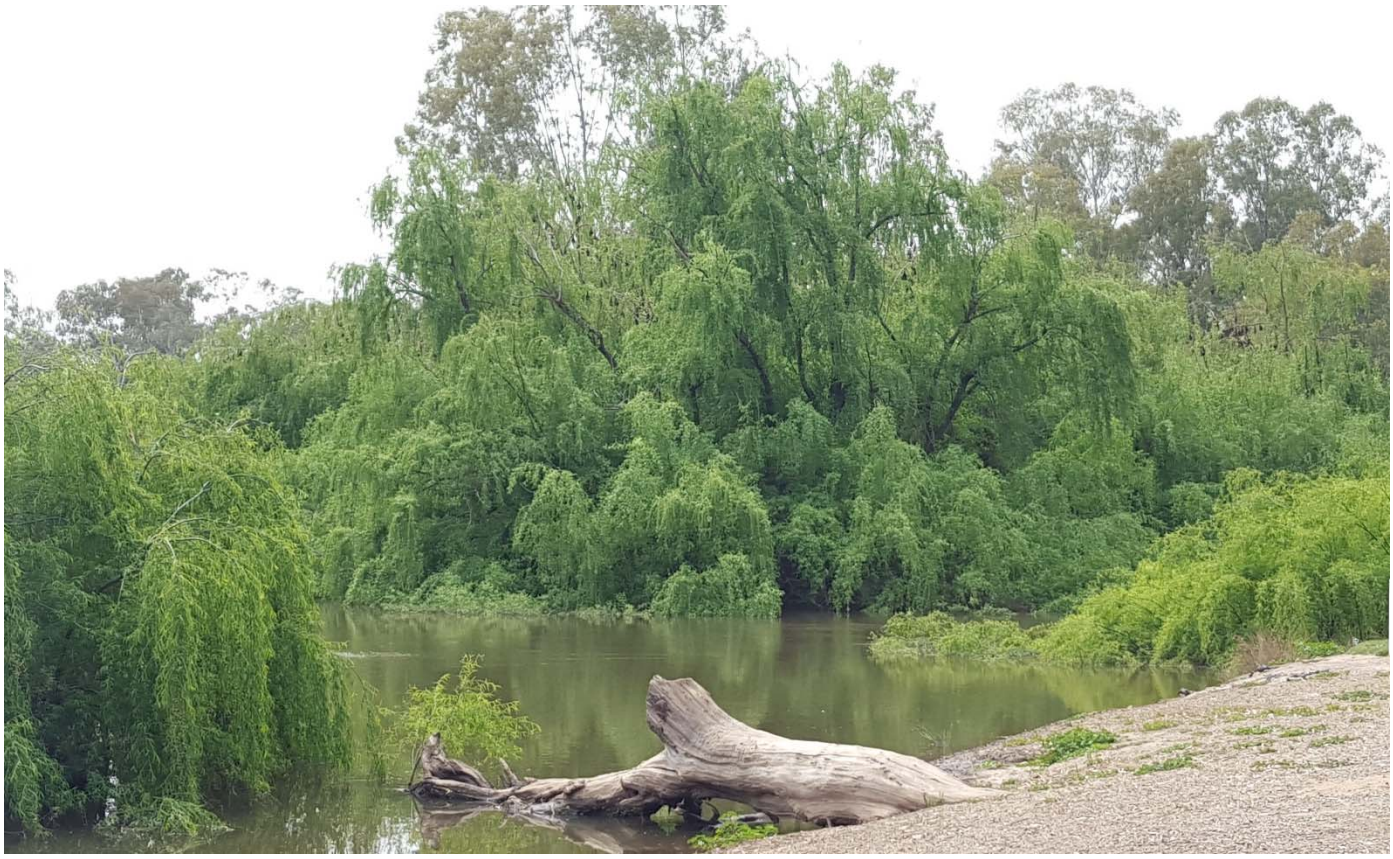

Figure 6 View from the location of population count Location C during survey 1

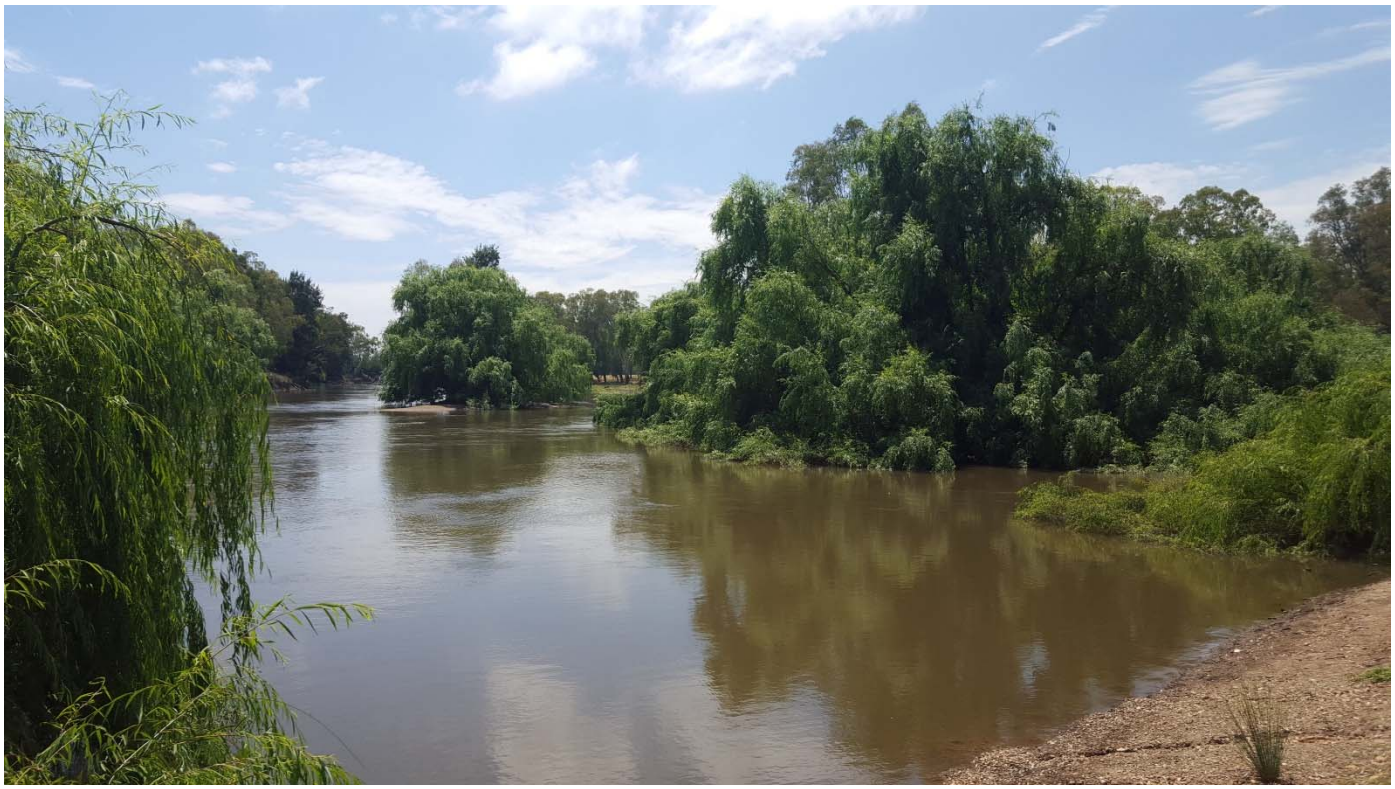

Figure 7 View from the location of population count Location C during survey 2

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17 March 2017

David Murphy
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Dear David,

RE – Monitoring of Grey-headed Flying Fox at the Riverina Water WTP (March 2017)

One NGH Environmental ecologist undertook Grey Headed Flying Fox monitoring at Bat Island on the 08/03/2017. The objective of the survey was to undertake a follow-up count of the number of individuals present to assist in determining impacts upon the flying foxes from construction works at the WTP.

A population count on Bat Island was completed by visual inspection from the ground at three locations (the same as previous surveys), see Figure 1. Location A provided the best vantage point to observe the population of GHFF, with locations B and C obscured by vegetation (**Error! Reference source not found.**). An average of the three counts was used to estimate the number of individuals present.

Results

The population counts on Bat Island are shown in **Error! Reference source not found.**. No bats were observed at other locations during the survey of the river bank.

Table 1 Population counts

Location	September 2015 Survey	October 2015 Survey	January 2017 Survey	March 2017 Survey
A) Top of bank perpendicular to the island	400	75	80	185
B) At water level downstream of the island	380	25	60	90
C) At water level upstream of the island	330	50	100	190
AVERAGE	**370**	**53**	**80**	**155**

Discussion

Populations of the Grey-headed Flying Fox are known to include sedentary individuals which form the core population of continuously occupied camps. However, the majority are highly nomadic and are known to move several hundred kilometres in largely unpredictable patterns (Australian Government 2010).

There was no evidence that young bats are being abandoned by the colony, although there were numerous juveniles observed within the colony. These juvenile GHFF were observed on their own and not reliant on an adult.

If you have any questions or comments, please don't hesitate to contact me on the details below.

Yours sincerely,

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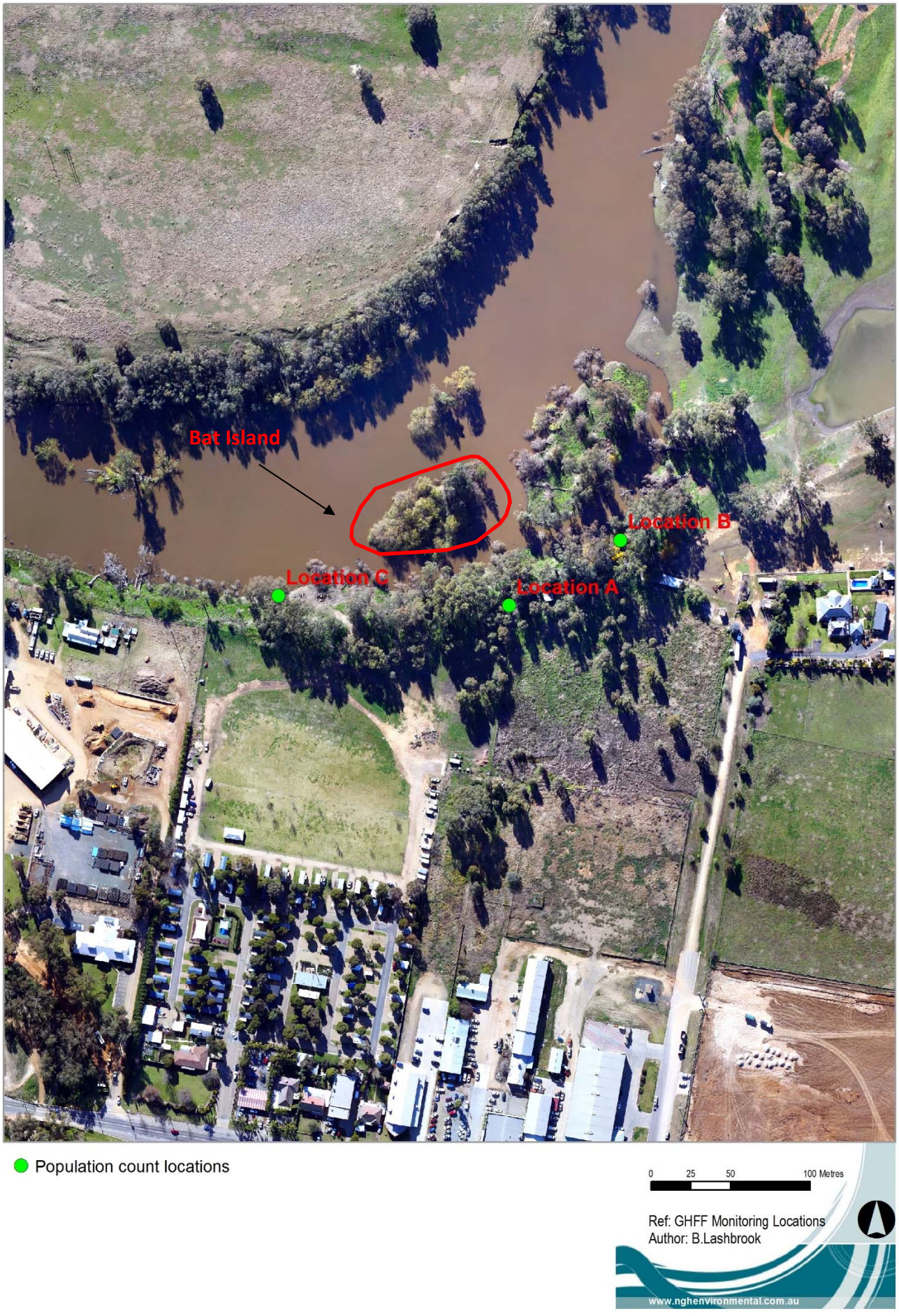

Figure 1 Location of the monitoring points

14 February 2017

David Murphy
Project Manager
UGL Limited

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Dear David,

RE – Wagga Wagga WTP Grey Headed Flying Fox

It is understood RWCC are seeking permission from the NSW Department of Planning and Environment to modify the Conditions of Approval (CoA) for the Wagga Wagga WTP project to enable in-stream works in the Murrumbidgee River to re-commence in February/March 2017. The CoA currently restricts the construction of pump infrastructure within the River between November and March in order to minimise impacts on the Grey-headed Flying-fox.

DPE have requested the following information in order to consider this request:

1. Details of the proposed works to be undertaken prior to April including an assessment of potential impacts on the Grey-headed Flying-fox and Platypus
2. Updated CEMP containing proposed mitigation measures and safeguards to minimise impacts on these species.

This letter provides supporting information for item 1 above.

The works that are proposed to occur in March include;

- Establish an all-weather access track down to the structure via the caravan park. This will involve laying out a geotextile layer and placing a layer of gravel
- Install the remaining steel support members across the inside of the coffer dam and bolt these in place
- Pump out the water that is currently inside the coffer dam, using silenced pumps over 2-3 days
- Set up the long term dewatering equipment which is expected to be a couple of smaller submersible electric pumps
- Remove the temporary ballast and sheet piles placed inside the coffer dam to form a working platform. This will likely be during late March/early April.

For a period of up to 5 weeks after birth (generally end of November/early December), juvenile GHFFs cling on tightly to the mother's fur and is carried everywhere. At about one month the juvenile is left in the roost at night while the mother forages. Juveniles learn to fly at about 12 weeks of age and are fully independent after a further month.

During the period immediately after birth, juveniles are at risk of death from being abandoned should the colony be significantly disturbed or other events lead to adults abandoning the colony. This risk diminishes as juveniles learn to fly.

Populations of the Grey-headed Flying Fox are known to include sedentary individuals which form the core population of continuously occupied camps. However, the majority are highly nomadic and are known to move several hundred kilometres in largely unpredictable patterns (Australian Government 2010).

NGH Environmental were engaged to inspect the population of Grey Headed Flying Fox at Bat Island. An inspection was undertaken on Monday 30th January 2017, where very few individuals were observed due to the high temperatures at the time of the inspection. An additional survey was undertaken at 10am Wednesday 1st February 2017 when the weather was cooler. During that survey approximately 80-100 individuals were observed. No juveniles were observed although they may still be present and obscured by foliage.

The initial survey in October 2015 identified approximately 370 individuals at Bat Island, with the follow-up surveys (7th and 24th November 2015) only identifying approximately 53 and 60 individuals.

The proposed works would involve low level noise-generating activities that, as detailed in the EIS, could lead to adults abandoning the colony. Our observations of the colony over recent and past surveys, however, suggest that this is unlikely to occur. We suggest this may be because the local environment is already subjected to high noise levels from the nearby Main Southern Railway bridge crossing over the River and the urban and industrial activities immediately adjacent to the colony, including the caravan park (which recently hosted an outdoor music event). The colony is likely to have adapted to these noisy environments. The noise from the proposal is unlikely to be significantly different to, or add to, existing noise sources.

Further, the real impact of abandonment is to the unfledged juveniles. It is highly likely that by the end of February/early March, all juveniles are fledged and able to take to wing. This means they can follow the colony to alternative destinations if they were to move on.

In relation to the Platypus, impacts to this species is unlikely to increase further to what was identified in the EIS as the in-stream works are now contained within the existing Coffer dam and as such no additional mitigation measures are considered necessary.

The following construction mitigation measure is proposed to ensure the protection and sustainability of all flora and fauna and their ecosystems occurring within the study area:

- The population of Grey Headed Flying Fox will be monitored by a qualified ecologist again prior to commencement of works and regularly during February / March when works are occurring. Should there be any evidence of juveniles being abandoned, or other significant changes in the colony's behaviour which could lead to fatalities in the colony, the ecologist would advise the Contractor that work is to be stopped.

If you have any questions or comments, please don't hesitate to contact me on the details below.

Yours sincerely,

Bryson Lashbrook

Environmental Consultant

Ph 02 6923 1503

NGH Environmental

25 August 2017

Doug Anderson
Project Manager
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Dear Doug,

RE – Monitoring impacts of pile driving on flying fox colony

Our consultant Jess Murphy from NGH Environmental attended the Riverina Water project site on Wednesday 23 and Thursday 24 August 2017. The aim of the site visit was to monitor the adjacent Grey-headed Flying Fox colony on the first day of sheet pile installation (driving) for the internal coffer dam. Site familiarisation occurred on Wednesday.

The purpose of the monitoring was to assess the impact of the pile driving on the Grey-headed Flying Fox colony on Bat Island. Bat island is around 100 metres upstream of the coffer dam. Monitoring was completed over two monitoring periods. The first monitoring period commenced before the pile driving took place and then during the first hour of pile driving. The second monitoring period occurred for an hour in the early afternoon.

Flying foxes were monitored visually from the bank of the river. A spotting scope (Kowa TSN-661) on a tripod was used to count and observe behaviour. Sound levels were monitored with a digital sound level meter Q1362. This meter is designed for noise monitoring for occupational health and safety purposes and provides only approximate values.

First monitoring period

Monitoring began at 7:06 a.m. Sound levels at this time ranged between 40 and 55 dB(A), with a peak of around 60 dB(A) from bird calls overhead. There was some audible vehicle noise from the construction site and surrounding area. These sounds included excavators being warmed up and local road noise but no pile driving. At this time, the flying fox camp was overall relatively quiet. Most were hanging quietly, with only a few individuals chattering (Figure 1). The flying fox camp was estimated to be around 1500 – 2000 individuals (Figure 2).

Pile driving began at 8:15 a.m. Sound levels were typically around 58 to 61 dB(A), and could be characterised as audible but not loud or intrusive. There was a low level of disturbance, with around 10 to 15 flying foxes making short flights to another branch and a higher level of movement and chatter. Higher sound levels of 60 – 70 dB(A) occurred when the end of piles reached cobbles in the river bed. A sharp, metallic noises up to 76 dB(A) was produced when sledgehammer strikes were used to align piles. Several hundred of the flying foxes were disturbed by such events, taking flight and circling the island for several minutes before landing (Figure 3). Most returned to Bat Island, but between 50 and 100 moved to eucalypts on the adjacent river bank. The flying foxes which did not take flight were observed to have a higher level of movement than earlier, including jostling with neighbours for position on

the same branch (Figure 4). The first monitoring period concluded at 9:15 a.m.

Second monitoring period

Monitoring began at 1:21 p.m. The flying foxes had settled noticeably since the conclusion of the first monitoring period at 9:15 a.m. during the first monitoring period. At 1:21 p.m. there was relatively low overall noise and movement. There was no apparent change in the size of the colony from the count at 7:06 a.m.

Pile driving recommenced at 1:34 p.m. and was similar in terms of activity and noise levels. Compared to the previous monitoring period, there was very little disturbance of the colony. Each interval of pile driving resulted in less than 5 short flights between branches by individuals. Also, the noise and movement levels of the flying foxes that did not take flight were considerably less than the morning period (Figure 5). Even during the intrusive sounds of piling through river cobbles and sledgehammer strikes, flying fox activity was low.

The second monitoring period concluded at around 2:00 p.m.

Conclusions

At the outset of piling, a large proportion of the colony were disturbed to flight by intrusive noise such as piling through river cobbles and sledgehammer strikes on the sheet piles. The intrusive noise unsettled the remaining flying foxes that did not take flight. It was also apparent during the second monitoring period that the flying foxes were only minimally disturbed by pile driving, including intrusive noise. This suggests that the flying foxes became accustomed to the noise of pile driving within the 4 hours between monitoring periods. It also suggests that short-term (5 days) noise of this activity is not likely to have an ongoing impact on the flying fox colony.

When the piles are withdrawn, they do not need push through coarse sediments such as river cobbles. Instead, they are vibrated out resulting in significantly lower noise levels. As a result, the withdrawal of piles is a much quieter process than installing the piles. This was demonstrated on Thursday several times when piles needed to be withdrawn and repositioned. The pile removal does not produce intrusive noise and as such is unlikely to significantly disturb the flying fox colony.

Please contact me if you have any questions or wish to discuss further.

Yours sincerely,

Erwin Budde

Director

NGH Environmental

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PHOTOS

Figure 1 Grey-headed Flying Foxes roosting quietly before pile driving began (7:55 a.m.).

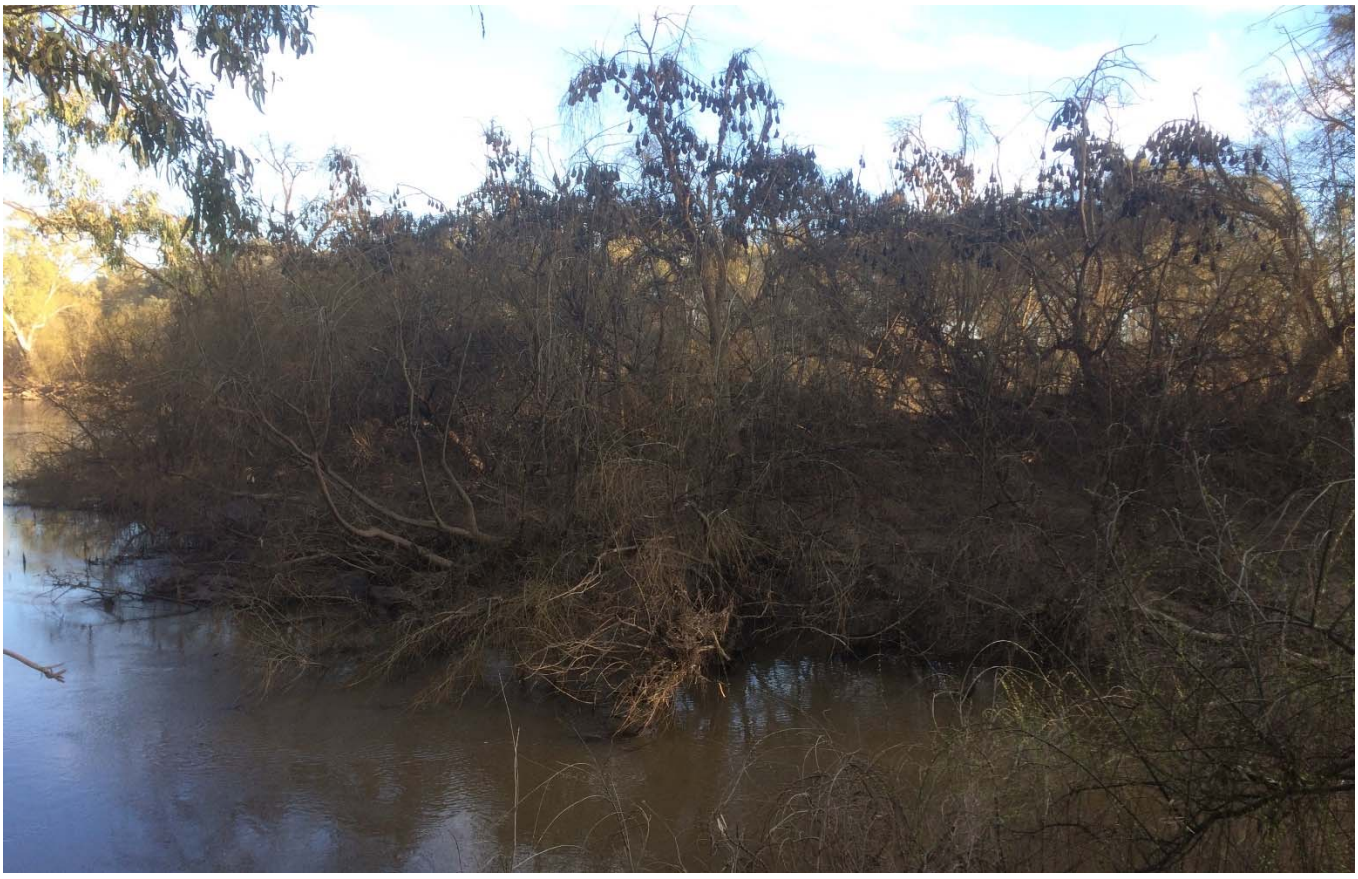

Figure 2 Grey-headed Flying Fox colony on Bat Island roosting quietly before pile driving began (7:38 a.m.).

Figure 3 Grey-headed Flying Foxes disturbed and taking flight during early pile driving (8:36 a.m.).

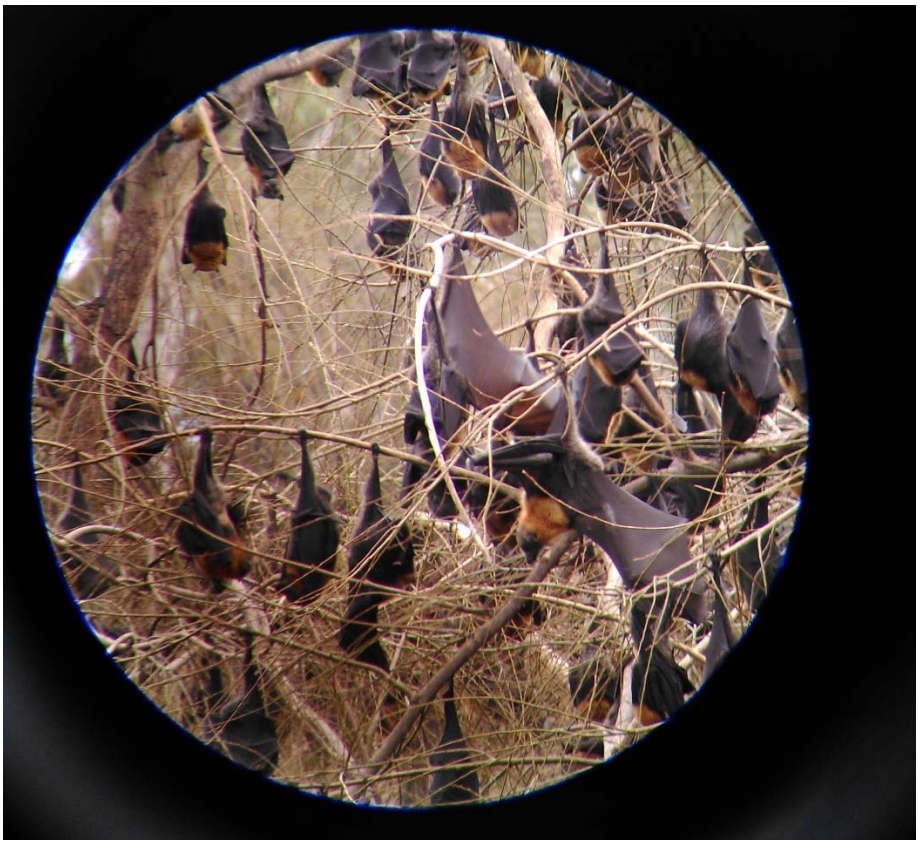

Figure 4 Grey-headed Flying Foxes roosting but visibly disturbed by pile driving, with higher movement levels (8:18 a.m.).

Figure 5 Grey-headed Flying Foxes roosting quietly during pile driving after becoming accustomed to noise (1:33 p.m.).

APPENDIX B CONSISTENCY REVIEW CHECKLIST

This checklist assesses whether the conditions of consent can be met by the modified layout.

Condition ID		Condition of Consent	Do proposed changes affect ability to meet condition?
Administrative Conditions			
Terms of Consent			
A1		The Applicant shall carry out the development generally in accordance with the: (a) State Significant Development Application SSD 6284; (b) *Wagga Wagga Water Treatment Plant Replacement - Environmental Impact Statement* (Hunter Water Australia Pty Ltd, December 2014); (c) *Wagga Wagga Water Treatment Plant: Response to Submissions Report* (Hunter Water Australia Pty Ltd, May 2015); and (d) conditions of this consent.	Consistent
A2		If there is any inconsistency between the documents in condition A2, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency with any plan or documents referred to in condition A2 or prepared as a result of this consent except where this consent explicitly allows it.	Consistent
A3		The Applicant shall comply with any reasonable requirement(s) of the Secretary arising from the Department's assessment of: (a) any reports, strategies, plans or correspondence that are submitted in accordance with this consent; and (b) the implementation of any actions or measures contained in these documents.	Consistent
Limits of Approval			
A4		This development consent shall lapse five (5) years after the date on which it is granted, unless construction, the subject of this Development consent, has physically commenced on or before that date.	Consistent
Staging			
A5		Construction of the development may be undertaken in discrete work packages or stages. Where that	Consistent

		occurs, these conditions of consent need only be complied with to the extent that they are relevant to that discrete work package or stage. Prior to the commencement of relevant construction or operation activities, the Applicant shall submit a Staging Report to the Secretary which: (a) describes the stages;and (b) identifies the relevant conditions of approval for each stage and how these will be addressed across and between the stages of the development.	
A6		With the approval of the Secretary, the Applicant may submit any strategy, plan or program required by this consent on a progressive basis.	Consistent
Statutory Requirements			
A7		The Applicant shall ensure that all licences, permits, consents and approvals are obtained and maintained as required throughout the life of the development. No condition of this consent removes the obligation of the Applicant to obtain, renew or comply with such licences, permits or approvals. The Applicant shall ensure that a copy of this consent and all relevant environmental licences, permits, consents and approvals are available on the site at all times during the development.	Consistent
Compliance			
A8		The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities.	Consistent
A9		The Applicant shall be responsible for environmental impacts resulting from the actions of all persons that it invites onto the site, including contractors, sub-contractors and visitors.	
Publicly Available Information			
A10		Subject to confidentiality, the Applicant shall make all documents required under this consent available for public inspection on request.	Consistent
Detailed Design			
A11		The detailed design and construction of the development shall be undertaken in consultation with Council and include consideration of Councils' requirements in relation, but not limited, to: (a) development staging, easements and certification, (b) site access, parking and servicing, (c) safety, security, facilities and amenities,	Consistent

		(d) site and infrastructure maintenance, and (e) design and development specifications, including relevant Australian and Council codes, standards and specifications.	
Structural Adequacy			
A12		The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA. *Notes:* *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works; and* *Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.*	Consistent
Community Information, Consultation and Involvement			
A13	Community Information Plan	Prior to the commencement of construction, the Applicant shall prepare and implement a **Community Information Plan** which sets out the community communication and consultation processes to be implemented during construction and operation of the development. The Plan shall be prepared in consultation with Wagga Wagga City Council and to the satisfaction of the Secretary, and include, but not be limited to: (a) procedures to inform the local community of planned investigations and construction activities, including blasting works (if any); (b) procedures to inform the relevant community of construction traffic routes and any potential disruptions to traffic flows and amenity impacts; (c) procedures to inform the community where work outside the construction hours specified in condition ca, in particular noisy activities, has been approved; (d) procedures to inform and consult with affected landowners to rehabilitate impacted land; (e) procedures to inform the community of operational activities, including results of monitoring undertaken in accordance with condition D2; and (f) procedures to inform the community of their rights, including those relevant to the management of visual and noise	Consistent

		amenity and the process for lodgement of complaints, as identified under this Approval.	
A14	Complaints Procedure	Prior to the commencement of construction, the Applicant shall ensure that the following are available for community complaints for the life of the development (including construction and operation), or as otherwise agreed by the Secretary: (a) a 24-hour telephone number on which complaints about construction and operational activities at the site may be registered; (b) a postal address to which written complaints may be sent; and (c) an email address to which electronic complaints may be transmitted. The telephone number, postal address and email address shall be advertised in a newspaper circulating in the area of the proposal, on at least one occasion prior to the commencement of construction; and at six-monthly intervals during construction and for a period of two years following commencement of operation of the development. These details shall also be provided on the Applicant's internet site. The telephone number, the postal address and the email address shall be displayed on a sign near the entrance to the construction site(s), in a position that is clearly visible to the public.	Consistent
A15	Complaints Procedure	The Applicant shall record details of all complaints received through the means listed in condition A16 of this approval in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to: (a) the date and time of the complaint; (b) the means by which the complaint was made (telephone, mail or email); (c) any personal details of the complainant that were provided, or if no details were provided, a note to that effect; (d) the nature of the complaint; (e) any action(s) taken by the Applicant in relation to the complaint, including timeframes for implementing the action; and (f) if no action was taken by the Applicant in relation to the complaint, the reason(s) why no action was taken.	Consistent

		The Complaints Register shall be made available for inspection by the Secretary upon request.	
A16	Complaints Procedure	The Applicant shall provide an initial response to any complaints made in relation to the development during construction or operation within 48 hours of the complaint being made. The response and any subsequent action taken shall be recorded in accordance with condition A15. Any subsequent detailed response or action is to be provided within two weeks, or as otherwise agreed by the complainant/secretary.	Consistent
A17	Compliance Tracking Program	Prior to the commencement of construction, the Applicant shall develop and implement a **Compliance Tracking Program,** to track compliance with the requirements of this consent during the construction and operation of the development and shall include, but not necessarily be limited to: (a) provisions for periodic reporting of compliance status to the Secretary including at least prior to the commencement of construction of the development, prior to the commencement of operation of the development and within two years of operation commencement; (b) a program for independent environmental auditing in accordance with AS/NZ ISO 19011:2011 - Guidelines for Quality and/or Environmental Management Systems Auditing (c) procedures for rectifying any non-compliance identified during environmental auditing or review of compliance; (d) mechanisms for recording environmental incidents and actions taken in response to those incidents; (e) provisions for reporting environmental incidents to the Secretary during construction and operation; and (f) provisions for ensuring all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.	Consistent
Specific Environmental Conditions			
Operation of Plant and Equipment			

B1		The Applicant shall ensure that all the plant and equipment used on site is: a) maintained in a proper and efficient condition; and b) operated in a proper and efficient manner.	Consistent
Soil and Water			
B2	Water Discharges	Except as may be expressly provided by an Environment Protection Licence for the development, the Applicant shall comply with section 120 of the *Protection of the Environment Operations Act 1997.*	Consistent
B3	Sediment and Erosion Control	Erosion and Sediment controls consistent with *Managing Urban Stormwater: Soils and Construction Manual* (Landcom, 2004, or its latest version) are to be installed prior to the commencement of soil disturbance and maintained until such time as the disturbed area has been rehabilitated.	Consistent
B4	Rehabilitation	The Applicant shall carry out rehabilitation progressively, and as soon as reasonably practicable following disturbance.	Consistent
Air Quality			
B5	Odour	The Applicant shall ensure no offensive odours are emitted from the development site, as defined under the *Protection of the Environment Operations Act 1997.*	Consistent
Waste Management			
B6		The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal on the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997,* if such a licence is required in relation to that waste.	Consistent
B7		The Applicant shall maximise the reuse and/or recycling of waste materials generated on site, to minimise the need for treatment or disposal of those materials outside the site.	Consistent
B8		The Applicant shall ensure that all liquid and/or non-liquid waste generated by the development is assessed and classified in accordance with *Waste Classification Guidelines* (DECC 2008, or any future guideline that may supersede that document) and where removed from the site is only directed to a waste management facility lawfully permitted to accept those materials.	Consistent

B9		The Applicant shall ensure that no waste is burned on site during the life of the development.	
Biodiversity			
B10	Vegetation Clearing	The Applicant shall limit the clearing of native vegetation to the minimum extent practicable Details regarding the procedures for clearing vegetation, minimising the extent of clearing and the extent and location of these reductions shall be included in the Flora and Fauna Management Plans prepared in accordance with conditions C21 and D2.	Consistent
B11	Grey-headed Flying Fox	No construction of the pump infrastructure within the Murrumbidgee River is to occur between November and March in order to minimise impacts to the Grey-headed Flying-fox.	Not Consistent
Safety, Hazards and Risk			
B12	Flood Management and Evacuation Plan	Prior to the commencement of construction, the Applicant shall prepare and submit to the Secretary a Flood Management and Evacuation Plan to outline procedures to be followed in the event of flooding on the site during construction and operation of the development. The Plan shall be prepared in consultation with Council, and should include, but not necessarily be limited to: (a) details on the operation of the site in times of flood, including the need for any access to the site and how this would be achieved; (b) measures for the safe evacuation of personne;l (c) the management of stockpiles and other loose material during flood events; (d) the management of machinery during flood events; and (e) measures for the safe storage of chemicals/liquids.	Consistent
B13	Hazard Management	The Applicant shall store and handle all dangerous goods, as defined by the Australian Dangerous Goods Code, strictly in accordance with: (a) all relevant Australian Standards; (b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and *(c)* DECC's *Environment Protection Manual Technical Bulletin - Bunding and Spill Management.* In the event of an inconsistency between the requirements listed from (a) to (c) above, the most stringent requirement shall prevail to the extent of the inconsistency.	Consistent

Visual Amenity			
B14	Landscape Management Plan	The Applicant shall prepare and implement a Landscape Management Plan for the development. The Plan shall be prepared in consultation with Council and include, but not necessarily be limited to: (a) an identification of the development elements which may impact on the visual amenity of the area and potential sensitive receiver locations, including to users of the Murrumbidgee River and residents and guests of the Easts Riverview Holiday Park; (b) measures to minimise and/or avoid visual amenity impacts to sensitive receiver locations, including: (i) landscape design, including a schedule of species to be used in landscaping and revegetation; (ii) built elements, including proposed treatments, finishes and materials of exposed surfaces (including colour specifications and samples); and *(iii)* lighting design, ensuring that all external lighting associated with the development complies with *Australian Standard AS4282 - 1997 - Control of the Obtrusive Effects of Outdoor Lighting*.; (c) details of the timing and progressive implementation of the visual mitigation works; and (d) procedures and methods to monitor and maintain landscaped or rehabilitated areas. The Plan shall be prepared and submitted to the Secretary prior to construction, unless otherwise agreed by the Secretary.	Consistent
Prior to and During Construction			
Work Areas			
C1		Prior to the commencement of construction of the development, the Applicant shall clearly define work areas (including access routes) using the measures outlined in the CEMP under condition C21. All on-site construction movements shall be restricted to these areas to prevent uncontrolled or inadvertent access by vehicles or construction personnel.	Consistent

Soil Contamination			
C2		Prior to commencing construction of the development, the Applicant shall investigate the presence and extent of any soil contamination on the site, including but not limited to the sites identified in the EIS.	Consistent
C3		The Applicant shall ensure any areas affected by the development that are potentially contaminated are remediated to a standard appropriate for proposed future use prior to commencing construction in those areas. All remediation work shall be conducted in accordance with the requirements of the *Contaminated Land Management Act 1997* and *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 1997).	Consistent
Heritage			
C4		The Applicant shall not impact items of Aboriginal heritage or undertake any structural changes to buildings identified in the EIS as having non-Indigenous heritage significance.	Consistent
C5		In the event of uncovering previously unidentified Aboriginal objects or relics, work shall cease immediately in the vicinity of the work area and the work area secured. Finding of the object or relic shall be reported within 24 hours to OEH and the Department. Works shall not recommence in the secured area until written authorisation from the Secretary, following consultation with the OEH, has been received.	Consistent
C6		If, during the course of construction, the Applicant becomes aware of any previously unidentified non-Indigenous heritage object(s), all works likely to affect the object(s) shall cease immediately and the Heritage Council of New South Wales and the Department shall be notified as soon as practicable in accordance with section 146 of the *NSW Heritage Act 1977.* Relevant works shall not recommence until written authorisation from the Secretary, in consultation with the Heritage Council, to proceed in those areas has been received.	Consistent
Noise			
C7		The Applicant shall implement best practice approaches described in the *Interim Construction Noise Guideline* (DECC) to minimise noise impacts during the construction phase.	Consistent
C8	Construction Hours	Subject to conditions C10, construction that would generate audible noise at any sensitive receiver shall only be undertaken during the following hours: (a) 7:00 am to 6:00 pm, Mondays to Fridays, inclusive;	Consistent

		(b) 8:00 am to 1:00 pm onSaturdays; and (c) at no time on Sundays or public holidays. *Note: this condition does not apply in the event of a direction from police or other relevant authority for safety reasons.*	
C9	Construction Hours	The hours of construction specified under condition C7 may be varied with the prior written approval of the Secretary. Any request to alter the hours of construction shall be: (a) considered on a case-by-case basis; (b) accompanied by details of the nature and need for activities to be conducted during the varied construction hours and any other information necessary to reasonably determine that activities undertaken during the varied construction hours will not adversely impact on the acoustic amenity of receptors in the vicinity of the site; and (c) require that affected residential receivers are informed of the timing and duration of any construction activities approved under this condition at least 48 hours before that work commences.	Consistent
C10	Construction Hours	Any work generating high noise that has impulsive, intermi ttent, low frequency or tonal characteristics, including jack hammering, line drilling, pile driving, rock hammering, rock breaking, saw cutting, sheet piling, vibratory rolling but excluding blasting, shall only be undertaken: (a) between 8.00 am and 6.00 pm Monday to Friday; (b) between 8.00 am and 1.00 pm Saturday; and (c) in continuous blocks of no more than three hours, with at least one hour respite between each block of work generating high noise impact, where the location of the work is likely to impact the samereceivers; except as otherwise approved by the Secretary. *Note: For the purposes of this condition "continuous"includes any period during which there is less than a one hour respite between ceasing and recommencing any of the work the subject of this condition.*	Consistent
Traffic and Transport			

C11	Dilapidation Survey	Prior to the commencement of construction of the development, the Applicant shall assess the condition of roads and footpaths which may be potentially impacted by construction of the development (including over-mass or over-dimensional vehicles), to inform any works required in accordance with condition D3. The assessment shall be undertaken in consultation with the relevant roads authorities.	Consistent
C12	Driveway Access	The access driveway shall be designed and constructed to accommodate the swept path of the largest vehicle likely to access the subject site in accordance with AS 2890.2-2002 "Off-street commercial vehicle facilities". For road safety reasons, the layout of the development and any access driveway shall be designed to allow all vehicles to enter and exit the subject site in a forward direction and not be required to reverse onto the adjoining road reserve. Where this requirement cannot be met, details of measures to be implemented to maintain the standard and safety of the road network shall be submitted for the approval of the Secretary following consultation with the relevant road authority.	Consistent
C13	Driveway Access	Egress from the site shall be left out only. The driveway shall be designed and appropriate signage installed to provide for legal enforcement of this requirement.	Consistent
C14	Driveway Access	The driveway to the Sturt Highway (Hammond Avenue) shall ensure the safe ingress and egress of vehicles into and out of the site. Associated directional marking and signage is to be installed and maintained in accordance with Australian Standards.	Consistent
C15	Change in Traffic Conditions	The Applicant shall ensure that adequate signage is provided to inform road users of any change in traffic conditions resulting from construction works.	Consistent
Air Quality			
C16		The Applicant shall: (a) minimise any visible air pollution generated by the development; and (b) regularly assess the meteorological forecasting data, and relocate, modify and/or stop activities on site to ensure compliance with the relevant conditions of this consent.	Consistent
Incident Reporting			
C17		The Applicant shall notify the Secretary and any other relevant agencies of any incident associated with the development as soon as practicable after the Applicant becomes aware of the incident. Within 7 days of becoming aware of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident.	Consistent

C18		The Applicant shall meet the requirements of the Secretary to address the cause or impact of any incident, as it relates to this approval, reported in accordance with condition C1 of this approval, within such period as the Secretary may require.	Consistent
Environmental Management			
C19	Environmental Representative	Prior to the commencement of construction, or as otherwise agreed by the Secretary, the Applicant shall engage a suitably qualified and experienced Environmental Representative(s) whose appointment has been endorsed by the Secretary. The Environmental Representative(s) shall: (a) be independent of the design, construction and operation personnel; (b) oversee the implementation of all environmental management plans and monitoring programs required under this consent and advise the Applicant upon the achievement of all development environmental outcomes; (c) consider and advise the Applicant on its compliance obligations against all matters specified in the conditions of this consent; and (d) have the authority and independence to: (i) recommend to the Applicant reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts; and (ii) failing the effectiveness of such steps, to recommend to the Applicant that relevant activities are to be ceased as soon as reasonably practicable if there is likely to be a significant risk of an adverse impact on the environment, until reasonable steps are implemented to avoid such impact.	Consistent
C20	Environmental Representative	The Applicant shall act on all recommendations made by the Environmental Representative(s) as soon as practicable, unless otherwise agreed by the Secretary. If the Applicant chooses not to implement recommendations of the Environmental Representative(s), it shall provide written justification of the alternate course of action to the satisfaction of the Secretary within 7 days of receiving the recommendation from the Environmental Representative(s).	Consistent

C21	Construction Environmental Management Plan	The Applicant shall prepare and implement a Construction Environmental Management Plan for the Development in accordance with the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources, 2004). No construction associated with the development shall commence until written approval of this plan has been received from the Secretary or her delegate. The Plan must: (a) be prepared in consultation with Council and relevant authorities, and be submitted to the Secretary for approval no later than one (1) month prior to the commencement of construction or demolition or within such period otherwise agreed by the Secretary; (b) Include measures to manage the following environmental issues and impacts to levels consistent with any commitments made in the EIS and industry best practice: (i) Noise and Vibration; (ii) Traffic and transportation; (iii) Soil and Water; (iv) Hazards, Risk and Safety; (v) Flora and Fauna; and (vi) Heritage	Consistent
Operation			
Noise			
D1		Noise emitted from the operation of the development shall not exceed the levels specified in Section 6.9.4 of the EIS at any residence on privately-owned land. *Note: Noise generated by the development is to be measured in accordance with the relevant requirements, and exemptions (including certain meteorological conditions), of the NSW Industrial Noise Policy.*	Consistent
Environmental Management			
D2	Operational Environmental Management Plan	The Applicant shall prepare and implement an Operation Environmental Management Plan for the Development in accordance with the *Guideline for the Preparation of Environmental Management* Plans (Department of Infrastructure, Planning and Natural Resources 2004). No activities associated with the operation of the development shall commence until written approval of this plan has been received from the Secretary or her nominee. The Plan must: (a) be prepared in consultation with Council and relevant authorities, and	Consistent

		be submitted to the Secretary for approval no later than one (1) month prior to the commencement of construction or demolition or within such period otherwise agreed by the Secretary; (b) identify measures to maintain landscaping undertaken in accordance with condition B14; and (c) include measures to manage the following environmental issues and impacts to levels consistent with any commitments made in the EIS; this consent and industry best practice: (i) Soil and Water Quality; (ii) Noise and Vibration; (iii) Hazards, Risks and Safety;and (iv) Fauna;	
Traffic and Transport			
D3		Prior to the commencement of operation of the project, the Applicant shall assess the condition of all public roads and footpaths traversed by construction traffic associated with the project (including over-mass or over-dimensional vehicles) in consultation with the relevant road authorities. Should this assessment identify any damage to roads or footpaths attributable to the project, the Applicant shall repair the damage to the satisfaction of the relevant road authority.	Consistent