



Annual Report to the Federal Department of Environment and Energy

Sugarloaf Pipeline Project

November 2017



Melbourne Water is owned by the Victorian Government. We manage Melbourne's water supply catchments, remove and treat most of Melbourne's sewage, and manage rivers and creeks and major drainage systems throughout the Port Phillip and Westernport region.





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Front cover photo showing the Matted Flax-Lily (*Dianella amoena*) in flower, one of the three EPBC Listed species.

Abbreviations

Alliance	Sugarloaf Pipeline Alliance (comprised of Melbourne Water Corporation (MW), Sinclair Knight Merz Pty Ltd (SKM), Gutheridge Haskins and Davey Pty Ltd (GHD) and John Holland Pty Ltd (JH), responsible for delivery of the Pipeline Project.)
DELWP	Department of Environment, Land, Water & Planning
DoEE	Federal Department of Environment and Energy.
DTPLI	Department of Transport, Planning and Local Infrastructure.
EMP	Environmental Management Plan
EPBC	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFG	<i>Flora and Fauna Guarantee 1988(Vic)</i>
GSM	Golden Sun Moth (<i>Synemon plana</i>)
MFL	Matted Flax-lily
MW	Melbourne Water Corporation
Project	Sugarloaf Pipeline Project
SLL	Striped Legless Lizard (<i>Delma impar</i>)

Executive Summary

Melbourne Water has complied with the conditions of the Environment Protection and Biodiversity Conservation Act 1999 approval 2008/3960 (EPBC Approval) for the current reporting period 1 July 2016 – 30 June 2017.

Three EPBC listed species were located in the construction corridor:

- Striped Legless Lizard
- Golden Sun Moth
- Matted Flax-lily

A 5-year post construction monitoring program has now been completed for all of these species. Monitoring detected large populations of both Striped Legless Lizard and Golden Sun Moth. Patches of Matted Flax-lily which were translocated are successfully established and will continue to be managed at the translocation site.

All habitat linkage monitoring in the Toolangi State Forest has now been completed. Monitoring results suggest underpasses, glider poles and course woody debris areas are used to providing a unique new habitat type. Overall, the pipeline track does not appear to form a significant barrier to the movement of most species within the Toolangi State Forest.

This monitoring meets the final requirement for flora and fauna monitoring agreed to under the EPBC Approval conditions. Future annual reports will focus on compliance with the limitations of pipeline operational volumes set out in Condition 11, in the event that the pipeline is used under conditions permitted in the *Statement of Obligations (System Management)* issued by the Victorian Minister for Water.

The status of compliance with the conditions of the EPBC Approval is summarised in Table 1. Where Melbourne Water has previously demonstrated compliance with a condition and no further action is required, this is noted in Table 1 and not included in this report. Compliance has been considered demonstrated through submission and acceptance of the EPBC annual reports. Readers can refer to earlier Annual Reports where more information is required.

Table 1: Compliance with EPBC Approval

Condition of EPBC Approval	Status
1. Implementation of EMS	Previously Compliant (action complete)
2. Implementation of Flora Mitigation Plans	Previously Compliant (action complete)
3. Implementation of Fauna Mitigation	Previously Compliant (action complete)

Condition of EPBC Approval	Status
Plans	
4. Implementation of Aquatic Fauna Mitigation Plans	Previously Compliant (action complete)
5. Management of Golden Sun Moth	Previously Compliant (action complete)
6. Management of Little Pink Spider Orchid	Previously Compliant (action complete)
7. Management of Matted Flax-lily, Clover Glycine, River Swamp Wallaby Grass and Little Pink Spider Orchid.	Previously Compliant (action complete)
8. Water Quality Monitoring	Previously Compliant (action complete)
9. Provision of Waterway Crossing Plans	Previously Compliant (action complete)
10. Approval of Water Quality Monitoring Procedure	Previously Compliant (action complete)
11. Limitation of Pipeline Operational Volumes	Ongoing-compliant to date
12. Passage of Groundwater	Previously Compliant (action complete)
13. Forest Rehabilitation Plans	Compliant (action completed in 2016/17)
14. Annual Report on Compliance with Conditions	Ongoing-compliant to date
15. Changes to documents/conditions	Previously Compliant (action complete)
16. Record Keeping	Ongoing-compliant to date
17. Commencement of Construction	Previously Compliant (action complete)

1 Introduction

Melbourne Water constructed the Sugarloaf Pipeline (now known as the North-South Pipeline) to allow transfer of water savings from the Goulburn River catchment to Melbourne's water distribution network via Sugarloaf Reservoir.

The Project received State Government approval on 6 August 2008 and Federal approval under the Environmental Protection and Biodiversity Conservation Act 1999 (the EPBC Act) on 12 September 2008, subject to conditions.

Water was transferred through the Sugarloaf Pipeline until 9 September 2010 when the receiving storage, Sugarloaf Reservoir, became full. The Sugarloaf Pipeline has not been used since 2010 in line with the current Victorian State Government policy specified in the *Statement of Obligations (System Management)* to only use the pipeline in where the volume of water in Melbourne's ten reservoirs is below 30% as at the 30 November in any year. The *Statement of Obligations* also permits up to 300 ML to be used annually to charge and test the pipeline so that is ready for fire-fighting purposes.

1.1 Purpose of this report

This report provides information on the Project's compliance with Condition 14 of the EPBC Act 1999 Approval (EPBC 2008/3960).

Condition 14 of the EPBC Approval states:

"The person taking the action must provide by August each year an annual report on the compliance with these conditions, including the results of all EPBC listed surveys and environmental monitoring undertaken, independent audited reports of water savings achieved and the amount of water allocated for extraction, any adaptive management, any remedial actions taken and the effectiveness of the measures implemented to mitigate the impact on EPBC listed species."

The Federal Department currently responsible for administering the EPBC Act is the Department of Environment and Energy (DoEE). The responsible State Department is the Department of Environment, Land, Water & Planning (DELWP).

1.2 Have the conditions been varied since approval?

A variation to Condition 14 was approved by DoEE on 28 October 2010 to alter the date in the above condition to 30 November each year. This change was made to harmonise reporting requirements to DoEE with independent annual audits on water allocations and transfers via the pipeline.

1.3 Report Structure

To address the requirements of the EPBC Approval conditions, the remainder of this report has been structured as follows:

- Section 2 - Project's compliance with the conditions of the EPBC Approval;
- Section 3 - Independent audited reports of water savings achieved;
- Section 4 - Results of monitoring of EPBC listed species undertaken; and
- Section 5 - Conclusion.

2 Summary of Compliance with DoEE Conditions

The EPBC Approval granted to the Project on 12 September 2008 is subject to 17 conditions, as listed in Table 1. This section provides a listing of the conditions, with a summary of compliance activities for the current reporting period. Where Melbourne Water met the compliance standards in an earlier reporting period, and no further action relating to this condition was required, no detail is provided, however Melbourne Water will continue to report on compliance with all conditions of EPBC Act approval (2008/3960). Readers should refer to previous Annual Reports if more information is required.

2.1 EPBC Act Listed Species

Condition 1 - Compliant

2.2 Implementation of Flora Mitigation Plans

Condition 2 - Compliant

2.3 Implementation of Fauna Mitigation Plans

Condition 3 - Compliant

2.4 Implementation of Aquatic Fauna Plans

Condition 4 - Compliant

2.5 Management of the Golden Sun Moth

Condition 5 - Compliant

2.6 Management of Little Pink Spider Orchid

Condition 6 - Compliant

2.7 Management of Matted Flax-lily, Clover Glycine, River Swamp Wallaby Grass and Little Pink Spider Orchid

Condition 7 - Compliant

2.8 Water Quality Monitoring

Condition 8 - Compliant

2.9 Provision of Waterway Crossing Plans

Condition 9 - Compliant

2.10 Approval of Water Quality Monitoring Procedure

Condition 10 - Compliant

2.11 Limitation of Pipeline Operational Volumes

*Condition 11: To protect EPBC listed fish species (Trout Cod (*Maccullochella macquariensis*), Murray Cod (*Maccullochella peelii*) and Macquarie Perch (*Macquaria australasica*)) that occur or may occur in the Goulburn River, the water extracted to the Sugarloaf Pipeline must be:*

- a) not more than 75 GL in any one year;*
- b) not more than 360 ML per day, with any variation in this daily pumping rate limited to a maximum of 200 ML to minimise the rise and fall in river levels upstream and downstream of the off-take structure.*
- c) met only through controlled, pre-ordered releases from Melbourne's share of the water savings allocated to it pursuant to any bulk entitlement issued under the Victorian Water Act 1989;*
- d) sourced from savings not allocated to the Living Murray Initiative or the Waters for Rivers; and*
- e) zero if the necessary regulated releases are for the maintenance of environmental flows or materially deplete water stored in Eildon Weir that is designated as being an environmental reserve.*

All water savings taken from the Goulburn River must be sourced from projects that comply with the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

Note that a variation to clause (a) above was approved by DoEE on 28 October 2010, to provide clarity, and now reads:

- a) not more than 75GL in any period of 12 calendar months beginning on 1 July in any year and ending on 30 June in the following year;*

In December 2008, MW, DEPI and the Goulburn-Broken Catchment Management Authority (GBCMA) negotiated the following conditions, as part of the Heritage Rivers Act 2002(Vic) approval, to ensure that rates of rise and fall of the Goulburn River in response to diversion at

the Sugarloaf Pipeline Intake are managed to within acceptable levels (as specified by State and Federal Government):

- For river passing flows below 300 ML/day, there is no diversion to the pipeline;
- For river passing flows between 300 ML/day and 799 ML/day, diversion can only be increased or decreased by up to 75 ML/day;
- For river passing flows between 800 ML/day and 1499 ML/day, diversion can only be increased or decreased by up to 120 ML/day;
- For river passing flows of 1500 ML/day or greater, diversion can only be increased or decreased by up to 180 ML/day.

These conditions were negotiated in response to the conditions placed by DoEE on the water volume and operational limitations of water extraction from the Goulburn River. Further details of these conditions are provided at the conclusion of Section 3.2.1 of this Report.

Full compliance with these conditions was achieved between 1 July 2016 and 30 June 2017. Details of compliance with conditions 11 (a) to (e) are also provided in Sections 3.1 and 3.2 of this Report.

2.12 Passage of Groundwater

Condition 12 - Compliant

2.13 Forest Rehabilitation Plans

Condition 13: Prior to construction through the Toolangi State Forest and the Sugarloaf Forest, the person taking the action must provide the Department with the Toolangi State Forest Rehabilitation Management Plan and the Sugarloaf Forest Rehabilitation Management Plan for approval. These plans, once approved, must be implemented.

Reinstatement Management Programs (RMP) were produced for each of the sections of the pipeline including the Toolangi State Forest, Tunnel Portals and Sugarloaf Forest. These Reinstatement Management Plans and the subsequent amendment to the Toolangi State Forest RMP was approved by DoEE and implemented by the Alliance.

Melbourne Water instigated a number of potential habitat linkage mechanisms within the Toolangi State Forest, including poles to assist glider movement, underpass tunnels and coarse woody debris areas to assist the movement of small ground dwelling species such as bandicoots. Monitoring of the habitat linkages has now been completed. Underpass monitoring results were included in the 2016 annual report. This 2017 annual report contains the results of coarse woody debris (see Appendix B) and glider pole monitoring (see Appendix C), with further context provided in Section 4. All requirements for Forest Rehabilitation Management Plan have now been met and Melbourne Water has demonstrated compliance with this condition.

2.14 Annual Report on Compliance with Conditions

Condition 14: The person taking the action must provide by August each year an annual report on the compliance with these conditions, including the results of all EPBC listed surveys and environmental monitoring undertaken, independent audited reports of water savings achieved and the amount of water allocated for extraction, any adaptive management, any remedial actions taken and the effectiveness of the measures implemented to mitigate the impact on EPBC listed species.

This report is the 2017 Annual Report addressing this condition. Note that the variation decision dated 28 October 2010 changed the due date to 30 November of each year to better align with timing of independent audited reports of water savings achieved and the amount of water allocated for extraction.

2.15 Changes to Documentation/Conditions

Condition 15 - Compliant

2.16 Recordkeeping

Condition 16 - Compliant

2.17 Commencement of Construction

Condition 17 - Compliant

3 Independent Audited Reports of Water Savings

As part of Condition 14, DoEE requires “independent audited reports of water savings achieved and the amount of water allocated for extraction”. The audited report of water savings for 2015/16 is included as Appendix B. This section provides currently available data for 2016/17.

The following information is also required to determine compliance with the water savings audit component of Condition 14:

- All water ‘accounts’ held in Lake Eildon from which water would be drawn to supply the Sugarloaf Pipeline;
- Source, volume and timing of any water accruing to the above accounts;
- Volume and timing of any water released from the above accounts to supply the Sugarloaf Pipeline;
- Volume and timing of any water pumped into the Sugarloaf Pipeline; and if any water savings projects are deemed to be compliant with the EPBC Act without being referred, detailed information on how that conclusion was reached.

Goulburn-Murray Water manages the Allocation Bank Accounts (ABAs) for the three metropolitan retail water corporations in Melbourne (the Melbourne Retailers).

The Melbourne Retailers’ total water allocation is managed through nine ABAs which are linked to six bulk entitlements. These bulk entitlements give the Melbourne Retailers a share of water savings achieved by the Goulburn-Murray Water Connections Project Stage 1. The Melbourne Retailers each hold one bulk entitlement in the Murray system and one in the Goulburn system. These bulk entitlements are:

- Bulk Entitlement (Goulburn System – City West Water) Conversion Order 2012
- Bulk Entitlement (River Murray – City West Water) Conversion Order 2012
- Bulk Entitlement (Goulburn System – South East Water) Conversion Order 2012
- Bulk Entitlement (River Murray – South East Water) Conversion Order 2012
- Bulk Entitlement (Goulburn System – Yarra Valley Water) Conversion Order 2012
- Bulk Entitlement (River Murray – Yarra Valley Water) Conversion Order 2012

Section 3.1 summarises the water savings allocated to the Melbourne Retailers’ accounts under their Goulburn System and Murray System bulk entitlements in 2016/17. Details on the source, volume and timing of the water to be accrued to these accounts in the current year (2017/18) cannot be provided as the Water Savings Audit Report for 2016/17 was not completed at the time of preparing this report. This will be provided in the 2018 Annual Report.

Releases for charging the Sugarloaf Pipeline to keep it in good working order and ready for fire-fighting are permitted under Melbourne Water’s Statement of Obligations (System Management). Further details are provided in Section 3.2. In 2017/18, Melbourne Water plans to arrange an order of approximately 12 ML in November 2017 for this purpose.

As per Melbourne Water's letter to the Department of Environment, Water, Heritage and the Arts dated 23 December 2009, all sources of water are considered to comply with the EPBC Act. No additional sources of water have been allocated for extraction to the Sugarloaf Pipeline, other than those achieved through the Goulburn-Murray Water Connections Project Stage 1 (formerly NVIRP) and verified by audit.

The volume of water that the Melbourne Retailers' carried over into the 2016/17 financial year is documented in Table 3.

Table 3: Water for Melbourne carried over into 2016/17

Carried over into 2016/17*	Volume (ML)
Volume brought forward for carry over at 30/06/2016	37,358
Evaporation losses at 30/06/2016 (5%)	1,868
Total volume carried over into 2016/17 at 01/07/2016	35,490

* All water carried over for Melbourne into 2016/17 was carried over in Allocation Bank Accounts associated with the six bulk entitlements held by the Melbourne Retailers and listed above.

3.1 Water Savings Audited & Allocated

The water savings allocated to the Melbourne Retailers in 2016/17 are documented in Table 4.

The volume of water savings available for allocation to the Melbourne Retailers in 2016/17 was verified by an independent audit of water savings achieved in 2015/16, a copy of which is provided in Appendix B. It reports the actual volume of water savings achieved in the 2015/16 irrigation season (referred to as Phase 3 savings) as well as the long-term average water savings that might be expected from the works completed to date (referred to as Phase 4 savings), in accordance with the Victorian Government's Water Savings Protocols.

A one-third share of the actual volume of water savings (Phase 3 savings) achieved in the Goulburn and Murray systems was allocated to the Melbourne Retailers under their bulk entitlements in these systems.

Water allocated to Melbourne Retailers in 2016/17 was derived from a number of sources. These sources are summarised in Table 4.

Table 4: Water allocated to Melbourne in 2016/17

Allocation in 2016/17 (from water savings projects in 2015/16)*	Volume (ML)
Goulburn Trading Zone 1A [†]	20,499
Murray Trading Zone 6 [§]	6,939
Murray Trading Zone 7 [£]	7,421
Total volume allocated to Melbourne Retailers in 2016/17	34,859

* Actual savings (Phase 3 savings) made in one irrigation season are not audited and allocated until the following irrigation season, in accordance with Water Savings Protocols. As such, the water allocated to Melbourne in 2016/17 consists of water savings achieved in 2015/16.

† Water savings achieved from Goulburn-Murray Water Connections Stage 1 works in Central Goulburn (CG 5-9), Rochester (RO) and Pyramid Boort (PB) contribute to the allocations from Goulburn Trading Zone 1A.

§ Water savings achieved from Goulburn-Murray Water Connections Stage 1 works in Murray Valley (MV) contribute to the allocation from Murray Trading Zone 6.

£ Water savings achieved from Goulburn-Murray Water Connections Stage 1 works in Torrumbarry (TO) contribute to the allocation from Murray Trading Zone 7.

Table 5 summarises the water available collectively to the Melbourne Retailers in 2016/17, the water used by Melbourne in 2016/17, and the water carried over into the 2017/18 year. This takes into account the volume deducted annually for evaporative losses.

Table 5: Water for Melbourne carried over into 2017/18

Carry over into 2017/18	Volume (ML)
Volume available to Melbourne in 2016/17*	70,349
Volume used by Melbourne in 2016/17 [§]	18
Volume spilled in 2016/17	0
Net volume sold in 2016/17	23,662
Volume brought forward for carry over at 30/06/2017	46,669
Evaporation losses at 30/06/2017 (5%)	2,334
Total volume carried over into 2017/18	44,335

* This is the total volume carried over into 2016/17 (35,490 ML) across the Goulburn and Murray systems, plus the total volume allocated in 2016/17 (34,859 ML).

§ Allocation account statements prepared by Goulburn-Murray Water for 2016/17 from the Victorian Water Register actually indicate the water used by Melbourne for 2 years (2015/16 and 2016/17).

This is because the 2015/16 account statement incorrectly reported no water usage by Melbourne. Actually, in 2015/16 Yarra Valley Water ordered a release from their account (ABA094501) in January 2016 prior to Melbourne Water diverting 7 ML to charge the Sugarloaf Pipeline to keep it in good working order and ready for fire-fighting.

To date, no water savings have been allocated in 2017/18. This will occur once the volume of water savings achieved in 2016/17 is verified by an independent audit.

3.2 Water Savings Released & Supplied to Melbourne

As reported in last year's Annual Report, in the 2015/16 financial year, allocation account statements prepared by Goulburn-Murray Water from the Victorian Water Register indicated that no water was used by Melbourne in 2015/16. However, Yarra Valley Water ordered a release, on Melbourne Water's behalf, from their account (ABA094501) in January 2016. This was prior to Melbourne Water diverting 7 ML to charge the Sugarloaf Pipeline to keep it in good working order and ready for fire-fighting, as permitted under Melbourne Water's Statement of Obligations (System Management).

Therefore the water usage for the 2015/16 financial year was combined with the usage for 2016/17 and reported in the 2016/17 allocation account statements prepared by Goulburn-Murray Water from the Victorian Water Register.

In the 2016/17 financial year, 11 ML was released in December 2016 for charging the Sugarloaf Pipeline, as permitted under Melbourne Water's *Statement of Obligations (System Management)*.

Condition 11 of the Environment Protection and Biodiversity Conservation Approval (EPBC Approval) specifies the rates, volumes and sources of water that can be extracted from the Goulburn River and transferred via the Sugarloaf Pipeline for Melbourne. Condition 11 states:

11. To protect EPBC listed fish species, Trout Cod (*Maccullochella macquariensis*), Murray Cod (*Maccullochella peelii*), and Macquarie Perch (*Macquaria australasica*) that occur or may occur in the Goulburn River, the Melbourne water extracted to the Sugarloaf Pipeline must be:

- a. not more than 75 GL in any period of 12 calendar months beginning on 1 July in any year and ending on 30 June in the following year;***
- b. not more than 360 ML per day, with any variation in this daily pumping rate limited to a maximum of 200 ML to minimise the rise and fall in river levels upstream and downstream of the river off-take structure;***
- c. met only through controlled, pre-ordered releases from Melbourne's share of the water savings allocated to it pursuant to any bulk entitlement issued under the Victorian Water Act 1989;***
- d. sourced from savings not allocated to the Living Murray Initiative or the Waters for Rivers; and***
- e. zero if the necessary regulated releases are for the maintenance of environmental flows or materially deplete water stored in Eildon Weir that is designated as being an environmental reserve.***

All water savings taken from the Goulburn River must be sourced from projects that comply with the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

The conditions are also replicated in clause 9 of the Retailers' Goulburn system bulk entitlements.

This section describes Melbourne Water's compliance with these conditions for the reporting period from 1 July 2016 to 30 June 2017.

3.2.1 Compliance Reporting: 1 July 2016 to 30 June 2017

Summary

Full compliance with Condition 11 was achieved for the period 1 July 2016 to 30 June 2017.

Table 6: Summary of compliance for the period 1 July 2016 to 30 June 2017

Condition	Description	DoEE Compliance
11.a	not extract more than 75 GL in any financial year	✓
11.b.i	not extract more than 360 ML in any one day	✓
11.b.ii	limit variation of extraction to not more than 200 ML/day	✓
11.c. i	only extract controlled, pre-ordered releases	✓
11.c. ii	only extract water from Melbourne's share of water savings	✓
11.d	not extract water from the <i>Living Murray Initiative</i> or the <i>Water for Rivers</i>	✓
11.e	not deplete water designated in the environmental reserve	✓
final statement	water sourced from projects that comply with the EPBC Act 1999	✓

Condition 11(a)

The water extracted to the Sugarloaf Pipeline must be not more than 75 GL in any period of 12 calendar months beginning on 1 July in any year and ending on 30 June in the following year.

Melbourne Water has complied with this condition for the period 1 July 2016 to 30 June 2017, transferring a total of 11 ML into the pipeline over this period.

Condition 11(b)

The water extracted to the Sugarloaf Pipeline must be not more than 360 ML per day, with any variation in this daily pumping rate limited to a maximum of 200 ML to minimise the rise and fall in river levels upstream and downstream of the river off-take structure.

Melbourne Water has complied with this condition for the period 1 July 2016 to 30 June 2017, transferring a total of 11 ML into the pipeline over this period.

Condition 11(c)

The water extracted to the Sugarloaf Pipeline must be met only through controlled, pre-ordered releases from Melbourne's share of the water savings allocated to it pursuant to any bulk entitlement issued under the Victorian Water Act 1989.

Melbourne Water has complied with this condition for the period 1 July 2016 to 30 June 2017, transferring a total of 11 ML into the pipeline over this period.

Goulburn-Murray Water records indicate that in total 18 ML was released from Yarra Valley Water's Allocation Bank Account from Lake Eildon (ABA088033), which including the usage of 11 ML in 2016/17, and 7 ML in 2015/16 retrospectively.

Condition 11(d)

The water extracted to the Sugarloaf Pipeline must be sourced from savings not allocated to the Living Murray Initiative or the Waters for Rivers.

Melbourne Water has complied with this condition for the period 1 July 2016 to 30 June 2017, transferring a total of 11 ML into the pipeline over this period.

This water was released from Yarra Valley Water's Allocation Bank Account from Lake Eildon containing water sourced from Goulburn-Murray Water Connections Stage 1 savings as detailed in the attached independent audit report.

Condition 11(e)

The water extracted to the Sugarloaf Pipeline must be zero if the necessary regulated releases are for the maintenance of environmental flows or materially deplete water stored in Eildon Weir that is designated as being an environmental reserve.

Melbourne Water has complied with this condition for the period 1 July 2016 to 30 June 2017, transferring a total of 11 ML into the pipeline over this period.

The daily passing flow recorded in the Goulburn River at Killingworth while pumping was 4,430 ML/day on 20/12/2016.

All water savings taken from the Goulburn River must be sourced from projects that comply with the requirements of the Environment Protection and Biodiversity Conservation Act 1999.

Melbourne Water has complied with this condition for the period 1 July 2016 to 30 June 2017, transferring a total of 11 ML into the pipeline over this period.

This water was released from Yarra Valley Water's Allocation Bank Account from Lake Eildon containing water sourced from Goulburn-Murray Water Connections Stage 1 savings as detailed in the attached independent audit report.

4 Surveys & Monitoring for Threatened Fauna & Flora

4.1 General measures for all Terrestrial Fauna

Pre-construction and construction mitigation measures for all Terrestrial Fauna have been previously described in the 2014 Annual Report to DoEE and are not repeated here. The following describes the mitigation measures undertaken post construction over the period 1 July 2016 to 30 June 2017. Site rehabilitation in line with the Reinstatement Management Programs for the EMP sections has also been undertaken to help facilitate re-colonisation of fauna species. Post construction monitoring and findings are summarised below.

4.2 Woodland Forest & Scattered Tree Habitats

Appropriate pre-construction and construction surveys were undertaken by the Alliance in accordance with the Fauna Mitigation Plan and were reported in the 2010 Annual Report to DoEE. In consultation with DELWP, the Alliance agreed to monitoring programs of habitat linkages to determine their effectiveness and use by native fauna. The habitat linkages included underpasses (culverts), glider poles and areas of coarse woody debris.

An underpass Bandicoot Monitoring Program was undertaken by the Arthur Rylah Institute (ARI) in 2015/16. This program used remote cameras to monitor the bandicoots (and other animals) use of structures installed throughout the Toolangi State Forest to facilitate crossing the Sugarloaf Pipeline vehicle access track. Over a period of 12 months, the cameras collected images of animals close to and using the underpasses, and of animals in the nearby forest. The results suggest that most species, including the Long-nosed Bandicoot, would readily cross the narrow track without the aid of underpass structures. This monitoring report was included in the 2016 Annual report.

Monitoring of the other Toolangi Habitat Linkages was undertaken by GHD using remote cameras. The results of the monitoring of areas of coarse woody debris found that some fauna preferred these areas over others, with a proportionally large number of species found only within the coarse woody debris areas. However, there was no clear evidence that these treatments provided a linkage between forest habitats. Instead it appeared that these areas represented a new habitat type which could provide opportunities for grazing and browsing, as well as potential food a refuge for smaller fauna. The monitoring report for this project is included as Appendix B.

Glider poles were established to help gliding (volant) mammals to cross the cleared pipeline area more safely. These poles were monitored for use with remote cameras and spotlighting surveys over a two year period. The results from the study suggest that gliders (Greater, Feathertail, and Sugar gliders) and other fauna groups (e.g. Antechinus and possums) are using the poles, and their establishment appears successful. The poles appeared to be more

frequently used where they connected areas of intact forest habitat and bridged the widest clearings (i.e. 60m). The monitoring report for this project is included as Appendix C.

5 Conclusion

The Sugarloaf Pipeline Alliance and Melbourne Water have implemented actions and adhered to the conditions placed on the Project by the then Federal Minister for the Environment, Heritage and the Arts.

Full compliance with pipeline operational volume conditions was achieved between 1 July 2016 and 30 June 2017 with 11 ML extracted to the Sugarloaf Pipeline during this period.

All habitat linkage monitoring in the Toolangi State Forest is now complete. Results of these monitoring projects suggest; glider poles are being used successfully; coarse woody debris areas are providing an additional habitat type; and while underpasses are being used the pipeline track does not appear to form a significant barrier to the movement of most species within the Toolangi State Forest.

This monitoring meets the final requirement for flora and fauna monitoring agreed to under the EPBC Approval conditions. Future annual reports will focus on compliance with the limitations of pipeline operational volumes set out in Condition 11.

Appendix A (Attached)

Cardno (Nov 2016) **Audit of Irrigation Modernisation Water Recovery 2015/16 Irrigation season**. Report prepared for the Victorian Department of Environment, Land, Water and Planning.

Appendix B(Attached)

GHD (May 2017) **Sugarloaf Pipeline Project Toolangi Habitat Linkages Monitoring: Effectiveness of Coarse Woody Debris Linkages**. Report prepared for Melbourne Water Corporation.

Appendix C (Attached)

GHD (May 2017) **Sugarloaf Pipeline Project Toolangi Habitat Linkages Monitoring: Effectiveness of Glider Pole Linkages**. Report prepared for Melbourne Water Corporation.