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Melbourne Water Corporation

Report for 2011 Post-construction Monitoring Striped Legless Lizard

April 2012



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Executive Summary

The Striped Legless Lizard (*Delma impar*) (SLL) is listed as a 'vulnerable' species on the *Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and as a 'threatened' species on the *Victorian Flora and Fauna Guarantee (FFG) Act 1988*. It is also listed as a Protected Species on the *Victorian Wildlife Act 1975*.

State and federal regulatory authorities approved the Sugarloaf Pipeline Project in mid-2008. Approval from both levels of government was made subject to certain conditions, some of which are relevant to the SLL. One of the approved mitigation measures was to develop and implement a two-year post-construction monitoring program for the SLL. This would be across the broader Sheoak property and at locations along the alignment where five or more SLL were captured during the course of the project.

Prior to the commencement of the construction of the pipeline, three SLLs were detected at two locations within the Sugarloaf project area and immediate surrounds. An additional 65 SLLs were detected within the project area during the construction phase. More than five SLL were detected at seven locations. These locations, and others across the broader Sheoak property, were established as monitoring sites.

The survey method and effort employed for the post-construction monitoring of the SLL was compliant with the approved mitigation plan for the species. Post-construction SLL monitoring was conducted using shelter grids, with each separate grid comprising 50 wooden-block shelters. During late 2009 / early 2010, 16 shelter grids were established, nine across broader Sheoak and seven on private properties along the alignment. Each grid was checked on four occasions between May 2010 and January 2011, representing the first year of monitoring. An additional four checks were undertaken between August 2011 and December 2011, representing the second year of monitoring. This document presents the results of this second year of the two-year monitoring program.

At least ten fauna species, including SLL, were identified during shelter checks in the second monitoring period. On one occasion, a single SLL individual was found within a shelter grid. This observation was under a shelter in the broader Sheoak property during the winter check. An incidental detection of an SLL individual was also made on the broader Sheoak property, as well as an unconfirmed SLL detection, also on broader Sheoak.

Photos of the SLL captured were compared to photos taken by Melbourne Zoo (taken while Melbourne Zoo held animals found during construction), in order to determine if the animals found during the monitoring phase of this project were the same individuals as those released post construction (i.e. recaptures). The SLL individual found during the second year of post-construction monitoring did not appear to be a recaptured animal.

The post-construction monitoring was considered an effective mitigation measure for the SLL as it was able to determine that the population of SLL in the vicinity of the shelter grids appears to be small but persisting. However there is insufficient information to determine the exact population size, or if the population size in this area has changed since the construction process. In regards to observations made over the course of the post-monitoring period, fewer SLL observations were made in the second year of monitoring when compared to the first (i.e., three observations in the first year, two in second year). The paucity of SLL detections may not necessarily reflect the population present due to a number of factors such as, survey techniques, effectiveness of grid shelters for SLL, availability of alternative natural shelter, timing of survey (i.e. time of day at each grid site), and seasonal variation in resource availability or use of shelters by SLL.



The SLL is a cryptic species and may not be detected by surveys even when present at a site (DSEWPC 2011a), and on the basis of our results we cannot make a definitive conclusion regarding impacts of the project upon the SLL population. Longer term monitoring is required to learn more about SLL on site. While this report concludes the post-construction monitoring for the SLL that was agreed to as part of the approvals process, Melbourne Water has initiated five years (including two years already completed) of SLL monitoring of the Sheoak property to be done as part of the ongoing Conservation Management Plan. Monitoring of SLL will be carried out for a further three years (complete in 2014).



1. Introduction

State and federal regulatory authorities approved the Sugarloaf Pipeline Project in mid-2008. Approval from both levels of government was made subject to certain conditions, some of which are relevant to the Striped Legless Lizard (*Delma impar*) (SLL). SLL is listed as 'vulnerable' under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and as 'threatened' on the Victorian *Flora and Fauna Guarantee (FFG) Act 1988*. It is also listed as a Protected Species on the Victorian *Wildlife Act 1975* and, although not legally binding, the SLL is also listed as 'vulnerable' on the IUCN Red List of threatened taxa (IUCN 2009) and as 'endangered' on the Department of Sustainability and Environment (DSE) advisory list of threatened vertebrate fauna in Victoria (DSE 2007).

One of the approved mitigation measures, stated within the project's Environment Management Strategy^{1,2} upon which approvals were based, was that a two-year, post-construction monitoring program for the SLL will be developed and implemented. The monitoring was to occur across the broader Sheoak property and at any location along the alignment where five or more SLL were captured during the course of the project (which included the entire construction phase and the targeted surveys for SLL that were done as part of the pre-approvals assessments). Through extensive consultation, discussion and revision, a monitoring plan for SLL³ was developed for the project and endorsed by DSE. The survey method and effort employed for the post-construction monitoring of the SLL was compliant with the approved mitigation plan for the species.

Five or more SLL were detected at seven locations during the course of the project, and those locations, in addition to the broader Sheoak property, required monitoring. In accordance with the monitoring plan, a lizard monitoring grid was established in late 2009 / early 2010 at each of the seven locations where five or more SLL were detected and an additional nine grids were established across the broader Sheoak property (i.e., outside the construction area). Results from the first year (2009/2010) of the two-year monitoring program were presented in SLPA (2010). This document presents the results of the second year of monitoring, and is the final report for post-construction monitoring of SLL.

¹ Attachment 7 of the EMS (Mitigation Plan for EPBC Act and FFG Act Listed Fauna Species): Chapter 3.6.2.

² Also stated within Fauna Management Programs (which formed part of the Environment Management Plans) relevant to project areas north of Devlin Bridge.

³ SLL detection includes live individuals, deceased individuals, sections of tails and sloughs.



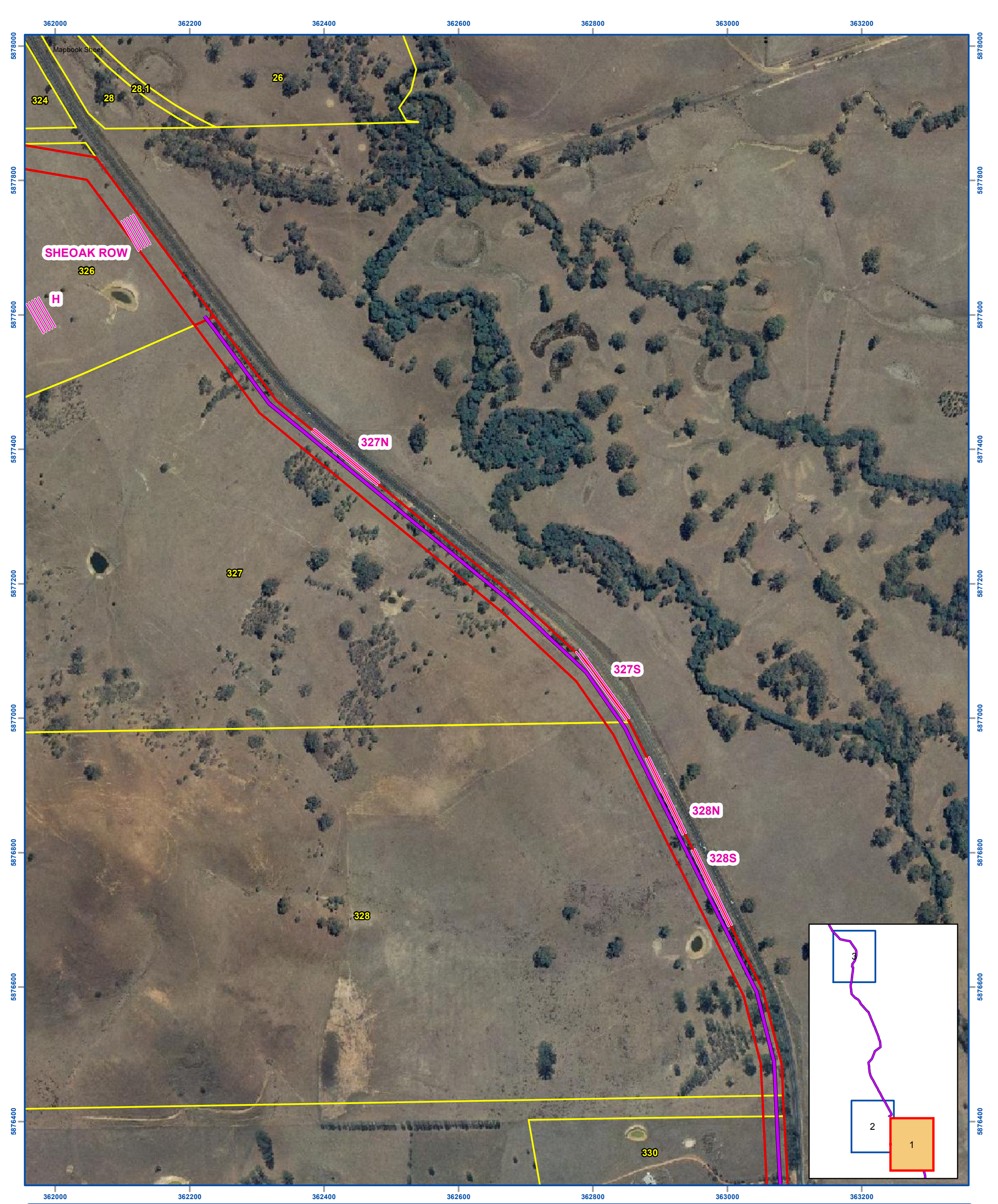
2. Methods

2.1 Set-up of Shelter Grids

SLL monitoring sites were established at nine locations within the broader Sheoak property (i.e., outside the construction corridor) and seven locations within the construction corridor where five or more SLL were captured (Table 1). For the seven locations within the construction corridor, sites were centred on the approximate location where the SLL had been released. Figure 1 shows the location of the grids on the different properties. More detail of the set up methods was provided in SLPA (2010).

Table 1 Location, formation and description of the shelter grids established for SLL monitoring

Property	Grid formation	Description
302.1	3 x 10, 1 x 20	3 lines of 10 shelters on north side of road, one line along fence on south side of road
26/28	5 x 10	5 lines of 10 shelters approximately 5 m apart
Sheoak ROW	5 x 10	5 lines of 10 shelters approximately 5 m apart
327 North	2 x 25	One line of 25 shelters in ROW, one line of 25 shelters in adjacent road reserve
327 South	2 x 25	One line of 25 shelters in ROW, one line of 25 shelters in adjacent road reserve
328 North	2 x 25	One line of 25 shelters in ROW, one line of 25 shelters in adjacent road reserve
328 South	2 x 25	One line of 25 shelters in ROW, one line of 25 shelters in adjacent road reserve
Broader Sheoak A	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak B	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak C	2 x 17 + 1 x 16	2 lines of 17 shelters and one line of 16 shelters
Broader Sheoak D	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak E	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak F	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak G	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak H	5 x 10	5 lines of 10 shelters approximately 5 m apart
Broader Sheoak I	5 x 10	5 lines of 10 shelters approximately 5 m apart



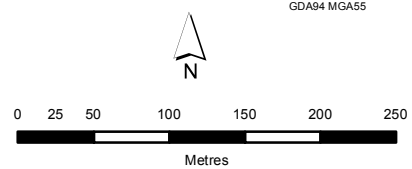
Sugarloaf Pipeline Project
Figure 1: Location of Tile Grids - Map1



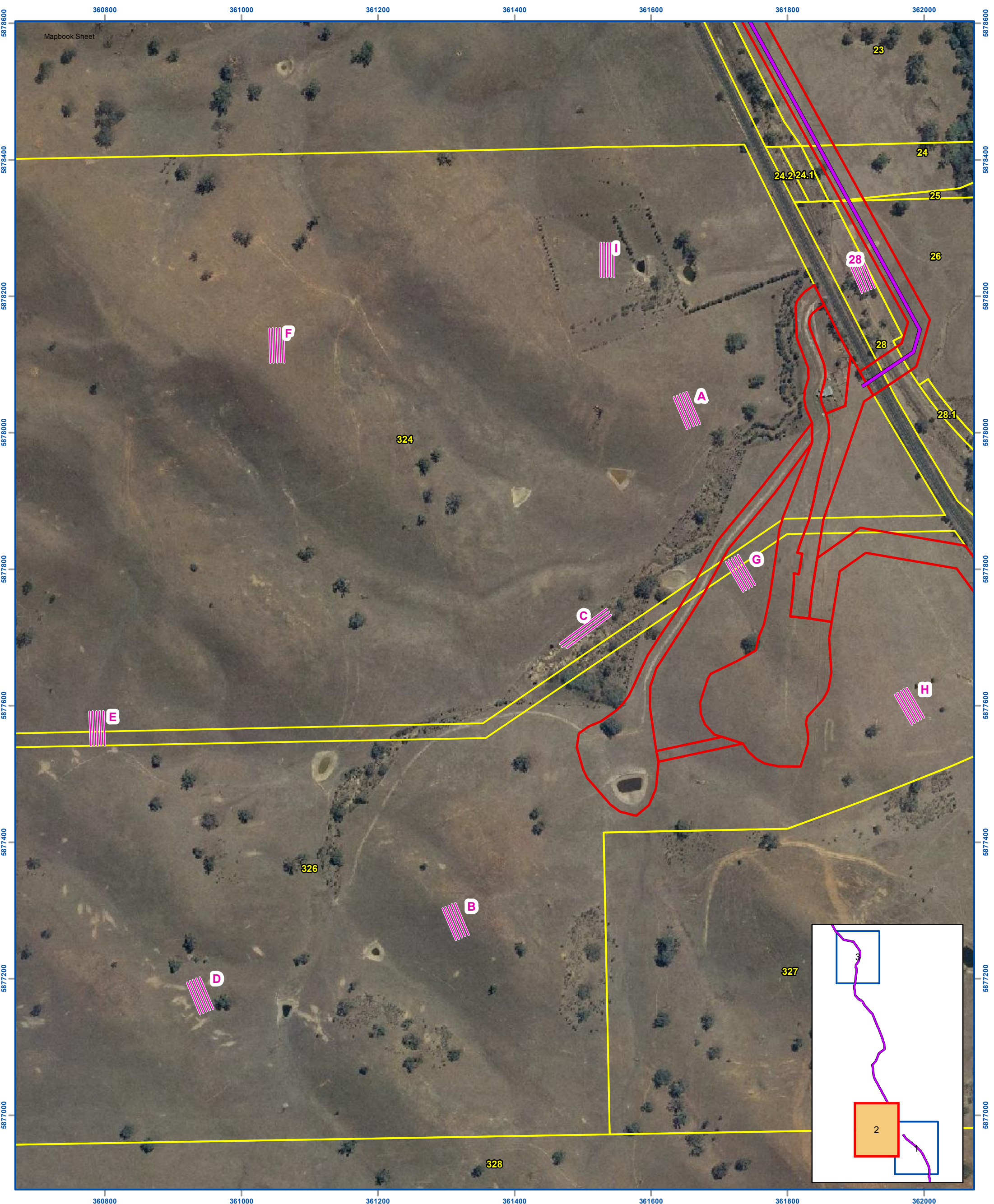
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- Legend**
- Tile Grid Lines
 - Alignment
 - Construction ROW
 - Property

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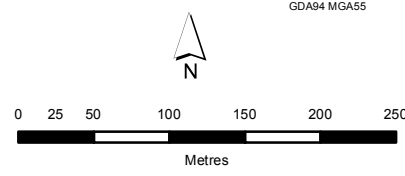


Sugarloaf Pipeline Project
Figure 1: Location of Tile Grids - Map2

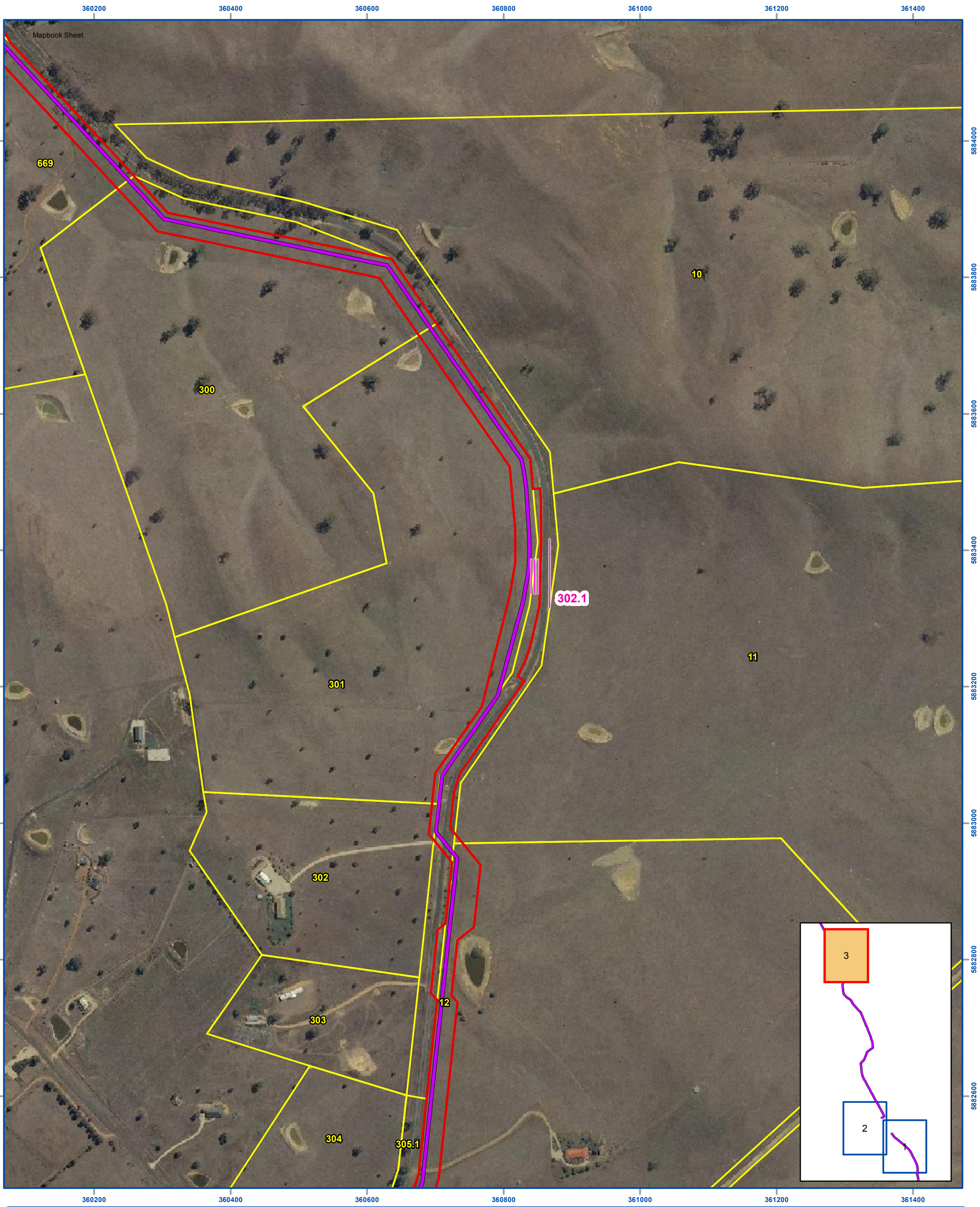


- Legend**
- ▨ Tile Grid Lines
 - Alignment
 - Construction ROW
 - Property

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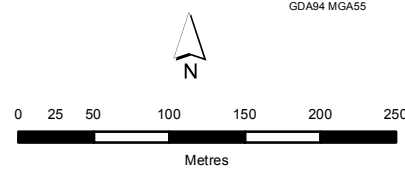


Sugarloaf Pipeline Project
Figure 1: Location of Tile Grids - Map3



- Legend**
- Tile Grid Lines
 - Alignment
 - Construction ROW
 - Property

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2.2 Undertaking a Monitoring Check

Shelter grids were established during late 2009 / early 2010 and first checked in May 2010. This allowed sufficient time for SLL to discover and adopt the shelters before checks commenced. In accordance with the endorsed monitoring plan, all shelters were checked on four occasions in the first year (results presented in SLPA 2010) and four occasions during the second year (Table 2). During the second year of monitoring, one check was undertaken in winter, two in spring, and one in summer.

Grid checks were conducted by two ecologists, and generally in the early morning (before temperatures exceeded 25°C) in order to detect individuals before they became too active and began to move away from the artificial shelters to undertake foraging and other activities within the surrounding grassy habitats. Prior to each grid check, a range of location and environmental details were recorded (Table 3). Every shelter within the grid was then carefully lifted from one end and checked for the presence of SLL or other vertebrates. Attempts were made to capture all SLL found beneath shelters for identification.

Live unharmed SLL that were captured during monitoring checks were photographed, measured and replaced under the shelter from which they were captured. Photographs were taken in a way that showed individual head-scale characteristics, so that recaptured SLL could be identified.

Table 2 Dates of Shelter Grid checks on each property during the second year of SLL monitoring

Visit No.	Date	26/28	302.1	327 South	327 North	328 South	328 North	Sheoak Construction Corridor	Broader Sheoak (Nine grids)
1	3-Aug-11							✓	✓
	4-Aug-11	✓	✓	✓	✓	✓	✓		
2	13-Oct-	✓	✓	✓	✓	✓	✓	✓	✓
3	14-Nov-	✓	✓					✓	✓
	15-Nov-			✓	✓	✓	✓		
4	14-Dec-	✓	✓					✓	✓
	22-Dec-			✓	✓	✓	✓		



Table 3 Survey Conditions for Shelter Grid Surveys during the second year of SLL monitoring

Visit No.	Date	Time start	Temperature at start of survey (C°)	Temperature at end of survey (C°)	Cloud Cover (%)	Wind speed and direction	Precipitation
1	3-Aug-11	0900	8.0	19.5	0-10	Still	None
	4-Aug-11	1030	18.0	19.0	20-30	Still	None
2	13-Oct-11	0900	10.0	21.0	0-10	Still	None
3	14-Nov-11	1130	19.9	22.7	5-10	Still-Mild, south	None
	15-Nov-11	0850	17.2	25.0	0-5	Still-Light, south	None
4	14-Dec-11	0900	13.6	19.0	0-10	Still-Mild, south	None
	22-Dec-11	0900	19.8	27.6	0-10	Still-Mild, south	None

NB: Temperatures are approximate and collected using a hand held thermometer.



3. Results

A total of 213 individuals of at least 10 species of vertebrate (six reptiles and four amphibians) were detected beneath shelters over the course of the second year of monitoring. Full survey results are presented in Appendix A and summarised below:

- **Striped Legless Lizard (*Delma impar*)** - one animal captured (Grid I, 3/8/2011), one incidental observation (250 m NNW of Grid H, 29/11/2011), and one possible detection (adjacent to Grid D, 14/12/11);
- Spotted Marsh Frog (*Limnodynastes tasmaniensis*) - 146 detections across 13 grids;
- Common Froglet (*Crinia signifera*) - nine detections across six grids;
- Southern Bullfrog (*Limnodynastes dumerilli*) - seven detections across six grids;
- Plain's Tree Frog, (*Litoria paraewingi*) - eight detections across five grids;
- Eastern Brown Snake (*Pseudonaja textilis*) - two detections (including one slough) (15/11/11, 327N; 14/12/11, 302.1);
- Common Blue-tongued Lizard (*Tiliqua scincoides*) - two detections (3 August, Grid G); and
- Small skinks (*Lampropholis guichenoti*, *Lampropholis delicata*, *Pseudemoia entrecasteauxii*) - 38 detections across four grids.

A number of small skinks were detected but rarely caught, and are likely to have been the Garden Skink (*Lampropholis guichenoti*), which is a relatively common species, but highly variable in pattern and colour, as well as Southern Grass Skink, *Pseudemoia entrecasteauxii* and another closely related litter skink, *Lampropholis delicata*.

3.1 Results for Broader Sheoak

One SLL was detected during the winter check (3 August 2011), under shelter 1.8 in Grid I. The individual appeared to be in good condition, and was approximately 200 mm in total length (snout to tail tip) (Plate 1). The grasses surrounding the grid appeared to have been grazed reasonably recently, and contained a mix of native and non-native grasses (Plate 2). Photos of the SLL captured were compared to photos taken by Melbourne Zoo (taken while Melbourne Zoo held animals found during construction), to determine if that animal had been captured and released post-construction (i.e. a recaptured individual). The SLL individual found during the post-construction monitoring did not appear to be a recaptured animal.

An incidental SLL detection was made during Golden Sun Moth (GSM) surveys on the Sheoak property, 250 m north north-west of Grid H on 29 November 2011. The individual was observed along the fenceline separating a grazed paddock and the grassland experiments (being undertaken as part of the GSM monitoring of the property). The individual fled before photos could be taken or capture could be made.

One SLL was possibly detected adjacent to Grid D on 14 December 2011. In this instance, the characteristic 'squeak' of a vocalising SLL was heard from near an ecologist's foot. This 'squeak' is made by SLL when they feel threatened, and is commonly heard while handling individuals of the species. The individual was not captured or observed, so the observation was not confirmed.

Four species of frogs were recorded under shelters on Broader Sheoak, mainly in areas near water (i.e. farm dams or inundated low-lying areas). Two juvenile Blue-tongued lizards were also recorded on broader Sheoak in Grid G on 3 August 2011. Two individual skink (one *Lampropholis* sp., one unidentified) detections were made at Grid B (14 November 2011) and Grid D (14 December 2011).



**Plate 1: SLL under shelter. Grid I.
3 August 2011**



**Plate 2: Grid I condition at the time of SLL capture.
3 August 2011**

3.2 Results for construction areas on private properties

No SLL were detected under shelters on private properties during the second year of SLL monitoring.

Four species of frog and at least two reptile species (but possibly up to four) were detected under shelters in both the former construction area and adjacent undisturbed areas during the 2011 monitoring season. Spotted Marsh Frog and small skinks were the most commonly detected fauna in construction areas on private properties, with the greatest numbers of detection in the vicinity of water [i.e. farm dams, inundations, and low-lying areas (e.g. property 26/28)]. Skinks were commonly observed basking on the shelters, but tended to retreat underneath shelters upon approach by ecologists.



4. Discussion

There is a marked difference between the number of SLL detected during construction (65) and during the two-year post-construction monitoring period (five). The main reason for this disparity is likely to be the survey techniques employed, rather than a reflection of the SLL population present (i.e. disturbing and digging large tracts of ground with heavy machinery during construction, compared to localised shelter checks for post-construction monitoring).

Wooden shelters were used for the duration of the post-construction monitoring period. This was due to the presence of cattle in the study area and the likelihood of ceramic/concrete shelters being broken (ceramic/concrete shelters are commonly used for SLL monitoring), and because wooden shelters more closely replicated the naturally available shelter in this area (i.e., fallen timber and coarse woody debris rather than surficial rocks). However, the characteristics of the wooden shelters used (e.g., thermal properties, texture and shape) may not have provided suitable SLL refuge habitat which may have influenced the use of shelters by SLL on site, and consequently, the detection of SLL during monitoring.

In regards to observations made over the course of the post-monitoring period, fewer SLL observations were made in the second year of monitoring when compared to the first (i.e., three observations in the first year, two in second year), but small sample sizes do not allow meaningful conclusions to be made from this with regard to population size. The paucity of SLL detections may not necessarily reflect the population present due to a number of factors such as, effectiveness of grid shelters for SLL, availability of alternative natural shelter, timing of survey (i.e. time of day at each grid site), and seasonal variation in resource availability or use of shelters by SLL.

Total vertebrate fauna detections were over four times greater in the second year of survey than in the first year (213 individuals and ten species in second year, 49 individuals and six species in first year). This may reflect the increased cover of grasses in the construction corridor (potentially providing better habitat for a larger range and greater abundance of fauna), or that seasonal conditions were more favourable for fauna generally in the second year following significant rainfalls. Our results for the construction corridor with undisturbed adjacent land suggest the latter is more likely - numbers of fauna detected in the construction corridor appear to be similar to those detected in adjacent land.

The SLL captured during the winter check (Grid I) of the second year of monitoring was detected under a shelter within broader Sheoak (i.e. outside the construction area). The individual did not appear to be a recaptured animal on the basis of head-scale comparisons with released individuals. This is supported by the distance between the location of the capture (Grid I) and 2009 SLL release points, which is likely to be beyond the species' typical dispersal and foraging area. SLL are thought to not move far in their daily activities and they show relatively high site fidelity i.e., they return regularly to the same area (Thompson 2006; K. Kukolic n.d., pers. comm., cited in Smith & Robertson 1999; Kutt 1992: all cited in DSEWPC 2011).

The incidental SLL detection near Grid H of the second year of monitoring was not under a shelter, and highlights the point that some individuals may become more mobile in favourable weather conditions i.e., individuals may leave shelters earlier in warmer weather and so fail to be detected during monitoring.



5. Conclusion

The post-construction monitoring was considered an effective mitigation measure for the SLL as it was able to determine that the population of SLL in the vicinity of the shelter grids appears to be small but persisting. However there is insufficient information to determine the exact population size, or if the population size in this area has changed since the construction process. In regards to observations made over the course of the post-monitoring period, fewer SLL observations were made in the second year of monitoring when compared to the first (i.e., three observations in the first year, two in second year). The paucity of SLL detections may not necessarily reflect the population present due to a number of factors such as, survey techniques, effectiveness of grid shelters for SLL, availability of alternative natural shelter, timing of survey (i.e. time of day at each grid site), and seasonal variation in resource availability or use of shelters by SLL.

The SLL is a cryptic species and may not be detected by surveys even when present at a site (DSEWPC 2011a), and on the basis of our results we cannot make a definitive conclusion regarding impacts of the project upon the SLL population. Longer term monitoring is required to learn more about SLL on site. While this report concludes the post-construction monitoring for the SLL that was agreed to as part of the approvals process, Melbourne Water has initiated five years (including two years already completed) of SLL monitoring of the Sheoak property to be done as part of the ongoing Conservation Management Plan. Monitoring of SLL will be carried out for a further three years (complete in 2014).



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Appendix A
Survey results



Table A1 Results of survey for Grid on property 302.1

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	4-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	6	4.10, 4.4, 1.2, 5.8, 1.7	Roadside
2	13-Oct-11	No	-	-	-	-
3	14-Nov-11	No	-	-	-	-
4	14-Dec-11	Yes	Eastern Brown Snake, <i>Pseudonaja textilis</i> (Slough only)	1	2.3 (shelter used to shed skin)	Roadside

Table A2 Results of survey for Grid on property 327 (Northern grid)

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	4-Aug-11	Yes	Southern Bullfrog, <i>Limnodynastes dumerilii</i>	1	1.23	Construction corridor
			Plain's Tree Frog, <i>Litoria paraewingi</i>	2	1.16, 1.19	Construction corridor
			Common Froglet, <i>Crinia signifera</i>	1	1.7	Construction corridor
2	13-Oct-11	No	-	-	-	-
3	15-Nov-11	Yes	Eastern Brown Snake, <i>Pseudonaja textilis</i> (juvenile)	1	1.16	Construction corridor
4	22-Dec-11	No	-	-	-	-

Table A3 Results of survey for Grid on property 327 (Southern grid)

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	4-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	2	1.14, 1.22	Construction corridor
2	13-Oct-11	No	-	-	-	-
3	15-Nov-11	No	-	-	-	-
4	22-Dec-11	No	-	-	-	-

Table A4 Results of survey for Grid on property 328 (Southern grid)

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	4-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	1.14	Construction corridor
2	13-Oct-11	Yes	Southern Bullfrog, <i>Limnodynastes dumerilii</i>	1	2.3	Roadside
3	15-Nov-11	No	-	-	-	-
4	22-Dec-11	No	-	-	-	-



Table A5 Results of survey for Grid on property 328 (Northern grid)

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	4-Aug-11	Yes	Southern Bullfrog, <i>Limnodynastes dumerili</i>	1	1.22	Construction corridor
			Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	2	2.21	Roadside
			Plain's Tree Frog, <i>Litoria paraewingi</i>	1	1.5, 1.7	Construction corridor
2	13-Oct-11	No	-	-	-	-
3	15-Nov-11	No	-	-	-	-
4	22-Dec-11	No	-	-	-	-

Table A6 Results of survey for Grid on property 26/28

Check #	Date	Fauna detected?	Species	Count	Shelter number	Rail reserve or construction corridor?
1	4-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	14	5.2, 5.4, 2.9, 5.3, 5.2, 4.2	Rail reserve
			Southern Bullfrog, <i>Limnodynastes dumerili</i>	1	2.9	Rail reserve
			Common Froglet, <i>Crinia signifera</i>	1	5.2	Construction corridor
			Skink sp., (Scincidae).	9	3.2, 2.5, 3.4, 5.7, 3.5, 4.7, 1.5, 5.4	Both
			Plain's Tree Frog, <i>Litoria paraewingi</i>	3	5.10, 5.2	Construction corridor
2	13-Oct-11	Yes	Common Froglet, <i>Crinia signifera</i>	1	5.3	Construction corridor
			Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	3	5.3, 5.4	Construction corridor
			Skink sp., (Scincidae)	3	4.2, 4.8, 4.5	Construction corridor
3	14-Nov	Yes	Skink sp., (Scincidae)	22	1.1, 2.2, 1.7, 2.8 (2), 2.3, 1.6, 2.7, 4.1(2), 5.2(2), 4.2, 5.4(2), 4.9, 5.7, 3.8, 5.8, 4.8, 5.9, 3.10	Both
4	14-Dec-11	Yes	Garden Skink, <i>Lampropholis guichenoti</i>	1	4.1	Construction corridor
			Plain's Tree Frog, <i>Litoria paraewingi</i>	1	5.3	Construction corridor



Table A7 Results of survey for Grid within Sheoak construction corridor

Check #	Date	Fauna detected?	Species	Count	Shelter number	Construction corridor or adjacent
1	3-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	8	5.8, 5.4, 5.3, 1.10, 1.9, 3.6, 3.4, 3.1	Construction corridor
2	13-Oct-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	3	3.7, 4.10, 5.2	Construction corridor
			Plain's Tree Frog, <i>Litoria paraewingi</i>	1	5.2	Construction corridor
3	14-Nov-11	No	-	-	-	-
4	14-Dec-11	Yes	<i>Lampropholis</i> sp.	1	2.5	Construction corridor

Table A8 Results of survey for nine grids within Broader Sheoak property

Grid ID	Check #	Date	Fauna detected?	Species	Count	Shelter number		
A	1	3-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	25	1.1, 1.3, 1.9, 2.1, 2.7, 3.10, 3.6, 3.2, 4.4, 4.2, 4.7, 5.4, 5.5, 5.10, 5.6, 5.7, 5.8, 5.9		
				Plain's Tree Frog, <i>Litoria paraewingi</i>			3	2.1, 2.6, 5.1
				Southern Bullfrog, <i>Limnodynastes dumerili</i>			1	5.8
				Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>			3	2.8, 4.10, 5.9
	3	14-Nov-11	No	-	-	-		
	4	14-Dec-11	No	-	-	-		
B	1	3-Aug-11	Yes	Southern Bullfrog, <i>Limnodynastes dumerili</i>	1	4.5		
				Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>			2	2.1
				Southern Bullfrog, <i>Limnodynastes dumerili</i>			1	4.5
				Skink sp., (Scincidae).			1	1.3
	4	14-Dec-11	No	-	-	-		
C	1	3-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	10	1.13, 1.14, 1.12, 2.1, 2.12, 3.11, 3.7		
				Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>			1	2.12
				Common Froglet, <i>Crinia signifera</i>			2	3.10, 3.11
				-			-	-
D	1	3-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	6	3.9, 2.2, 5.7		



Grid ID	Check #	Date	Fauna detected?	Species	Count	Shelter number
				Common Froglet, <i>Crinia signifera</i>	1	3.9
	2	13-Oct-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	3.10
	3	14-Nov-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	2.5
	4	14-Dec-11	Yes	<i>Lampropholis</i> sp.	1	2.3
				Possible Striped Legless Lizard, <i>Delma impar</i>	1	Adjacent to grid. Incidental, not confirmed
	1	3-Aug-11	No	-	-	-
E	2	13-Oct-11	No	-	-	-
	3	14-Nov-11	No	-	-	-
	4	14-Dec-11	No	-	-	-
	1	3-Aug-11	No	-	-	-
F	2	13-Oct-11	No	-	-	-
	3	14-Nov-11	No	-	-	-
	4	14-Dec-11	No	-	-	-
G	1	3-Aug-11	Yes	Common Blue-tongued Lizard, <i>Tiliqua scincoides</i>	2	3.5, 5.6
				Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	2	1.5, 1.8
	2	13-Oct-11	No	-	-	-
	3	14-Nov-11	No	-	-	-
	4	14-Dec-11	No	-	-	-
H	1	3-Aug-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	7	3.3, 3.1, 1.1, 1.8, 2.3
				Common Froglet, <i>Crinia signifera</i>	1	3.7
	2	13-Oct-11	No	-	-	-
	3	14-Nov-11	No	-	-	-
	4	14-Dec-11	No	-	-	-
I	1	3-Aug-11	Yes	Striped Legless Lizard, <i>Delmar impar</i>	1	1.8
				Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	36	5.4, 5.5, 5.7, 5.8, 5.9, 5.10, 1.1, 1.2, 1.10, 4.10, 5.4, 3.9, 2.2, 2.10, 4.7, 5.2, 4.4, 4.5, 3.1, 5.1
				Common Froglet, <i>Crinia signifera</i>	2	3.4, 5.1
	2	13-Oct-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	9	1.1, 1.2, 2.2, 2.3, 3.6, 3.4, 5.5, 5.10
	3	14-Nov-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	4.3
	4	14-Dec-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	3	4.1, 4.4



Appendix B
SLL captured during pre-approval and
construction phase



Table B1 Properties where SLL were captured (alive, dead or in part) during the pre-approval phase (p) and during the construction phase (c) of the Project (as of 15 October 2009)

Property #	Number of SLL captured			Project area (EMP Section)
	Live	Deceased	Tail only	
^300	2p			Killingworth
301	1c			Killingworth
^302.1	3c			Killingworth
22	1c	1c		Yea to Devlin Bridge
26/28	4c	4c		Yea to Devlin Bridge*
324	1p			Just beyond the Sheoak HLPS
326	3c		3c	Sheoak HLPS
327	13c	6c		Yea to Devlin Bridge
328	16c	4c	5c	Yea to Devlin Bridge
336	1c	1c		Yea to Devlin Bridge

* Although outside of the Sheoak EMP section, these two properties still occur within the broader 'Sheoak' property that is owned by Melbourne Water.

^At properties 300 and 302.1 (which are adjacent properties that intercept the same patch of grassland habitat), two SLL were captured prior to construction and another four were captured during the construction phase. These two properties were considered to support the minimum five SLL as they are one continuous grassland.



GHD

180 Lonsdale Street
Melbourne, Victoria 3000
T: (03) 8687 8000 F: (03) 8687 8111 E: melmail@ghd.com.au

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	N Kay	R Retallick		T Wills		23/3/12
1	N Kay	R Retallick	<i>R. Retallick</i>	T Wills	<i>T. Wills</i>	5/4/12