



## 2010 Post Construction Monitoring Report

### Striped Legless Lizard

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#### Document History and Status

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# Table of Contents

ABBREVIATIONS.....	i
EXECUTIVE SUMMARY.....	ii
1 INTRODUCTION.....	1
2 METHODS.....	3
2.1 Set-up of Shelter Grids.....	3
2.2 Undertaking a monitoring check.....	7
2.3 Unscheduled grid check due to resowing.....	8
3 RESULTS.....	9
3.1 Fauna detected.....	9
3.2 Non-construction areas on Broader Sheoak.....	9
3.3 Construction areas on private properties.....	10
4 CONCLUSIONS.....	11
5 REFERENCES.....	12
APPENDIX - SURVEY RESULTS	

# Abbreviations

Term	Description
Alliance	Sugarloaf Pipeline Alliance
CMP	Conservation Management Plan
DEWHA	Commonwealth Department of the Environment, Water, Heritage and the Arts (now DSEWPC)
DSE	Victorian Department of Sustainability and Environment
EMP	Environmental Management Plan
EPBC	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
FFG	Victorian <i>Flora and Fauna Guarantee Act 1988</i>
GSM	Golden Sun Moth ( <i>Synemon plana</i> )
HLPS	High-lift Pump Station
DSEWPC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities (previously known as DEWHA)
SLL	Striped Legless Lizard ( <i>Delma impar</i> )
SLPA	Sugarloaf Pipeline Alliance (the 'Alliance')

# Executive Summary

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*). The Striped Legless Lizard (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*.

One condition of approval involved the post-construction monitoring actions taken by the Alliance for the SLL. In particular, the need to develop and implement a SLL monitoring program across the broader Sheoak property and at locations along the alignment where five or more SLL were captured during the course of the project. Three SLLs were detected at two locations within the Sugarloaf project area and immediate surrounds prior to the commencement of construction. An additional 65 SLLs were detected within the project area during the construction phase. At seven locations, more than five SLL were detected. These locations were monitored accordingly, and this document presents the results of the first year of the two-year monitoring program.

SLL monitoring was conducted using *Shelter Gridding*, with each separate grid comprising 50 wooden shelters. During late 2009/early 2010, 16 shelter grids were established; nine across broader Sheoak and seven on private properties along the alignment. Each of these grids was checked on four occasions between May 2010 and January 2011. An additional four checks are scheduled across the remainder of 2011, to complete the second year of monitoring.

Six fauna species, including SLL, were identified during shelter checks in the first year of monitoring. On three occasions, SLL individuals or evidence of probable SLL individuals (slough, decaying specimen) were found. Two of these observations were in shelter grids in the broader Sheoak property; one during June 2010 and the other during December 2010. The other observation (a live SLL) was detected during an unscheduled grid check at property 328 (north), which was prompted by an unanticipated need to undertake re-sowing on a number of properties where post-construction reinstatement of vegetation had been less successful.

Photographs of SLL or evidence of SLL captured during monitoring were compared to photographs of individuals taken by Melbourne Zoo (while Melbourne Zoo held animals found during construction), to determine whether or not the animals found during monitoring were the same individuals as those released post-construction (i.e. recaptures). No SLL individuals appeared to be recaptures.

# 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 Striped Legless Lizard 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 condition, stated within the project's Environment Management Strategy<sup>1,2</sup> upon which approvals were based, is that the Alliance will develop and implement a SLL monitoring program across the broader Sheoak property and at particular locations along the alignment where five or more SLL were captured during the course of the project. 'The course of the project' includes the entire construction phase and the targeted surveys for SLL that were done by the Alliance ecologists as part of the pre-approvals assessment. There are seven locations where five or more lizards were detected during the course of the project, and that therefore require monitoring.

Through extensive consultation, discussion and revision, a monitoring plan for SLL was developed by the Alliance and endorsed by DSE. In accordance with this monitoring plan, lizard monitoring grids were established within and immediately adjacent to the seven parts of the former construction area where five or more SLL had been detected. The seven locations where five or more SLL were captured are listed below and in summarised in Table 1:

- 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.
- At property 26/28 (in the Sheoak property on the east side of the Melba Hwy), eight SLL were captured during the construction phase.
- At property 326, five SLL were captured along the eastern boundary during the construction phase.
- At property 327, six SLL were captured along the central part of the eastern boundary.
- At property 327, seven SLL were captured along the southern part of the eastern boundary.
- At property 328:
  - Ten SLL were captured along the northern part of the eastern boundary
  - Six SLL were captured along the central part of the eastern boundary.

Fewer than five SLL individuals were captured at all other location where SLL were found to be present (i.e., central section of property 326, property 22, property 336 and the southern part of the eastern boundary on property 328).

As discussed earlier, 'capture' includes (a) live individuals captured, (b) deceased individuals collected, and (c) sections of tails collected. 'Capture' also includes any other individuals detected using other techniques during the construction phase (e.g. observation, sloughed skins).

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

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

**Table 1 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 15th 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.

Live unharmed SLL that were captured during the SLL active season (mid September to mid May) were photographed, measured and immediately released in the nearest suitable habitat outside the construction area. Live unharmed SLL that were captured outside the SLL active season, and live injured SLL that were captured at any time, were transported to the Royal Melbourne Zoological Gardens, where the animals were cared for until they could be released (during the SLL active season *and* i) after construction and/or ii) when they had recovered from their injuries). As for the SLL that were released immediately after capture, SLL that spent time at the Melbourne Zoo were released in the nearest suitable habitat outside the construction area. While at the Melbourne Zoo, SLL were photographed and measured. Photographs of all animals were taken in such a way that individual head-scale characteristics could be identified, so that recapture success could be determined if SLL were captured again during the monitoring program.

Also in accordance with the approved monitoring plan, an additional nine lizard monitoring grids were established across the broader Sheoak property (i.e., outside the construction area). The Alliance committed to developing a Conservation Management Plan (CMP) for the property within the 12 months of the date of approval of the Sheoak HLPS EMP, which would be implemented over the next ten years. Chapter 8.1.1 of the Sheoak FMP stated that there will be '*an ongoing management and monitoring program for the Striped Legless Lizard within the Sheoak property. It is proposed that the monitoring program will be developed as part of the CMP*'.

However, as the SLL monitoring was to commence on the Sheoak property prior to the completion and approval of the CMP, so the monitoring program developed for the Sugarloaf project as a whole has been used as a substitute until the development and approval of the CMP. It is understood that this program will be included within the CMP when the CMP is prepared.

This document presents the results of the first year of the two-year SLL monitoring program. Additional checks are scheduled across the remainder of 2011, to complete the second year of monitoring, and will be reported separately.

## 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<sup>3</sup>. For the seven locations within the construction corridor, sites were placed at the approximate location where the SLL had been released.

At each monitoring site, a Shelter Grid comprising 50 wooden shelters was installed. Each shelter comprised a piece of wood that had a basal area covering at least 20 cm by 30 cm, and a height of at least 8 cm. A wooden spacer (a strip of wood, approximately 20 cm long and 2 cm high) was attached to the underside of one edge to elevate part of the shelter off the substrate and create more habitat opportunities for fauna beneath the shelter.

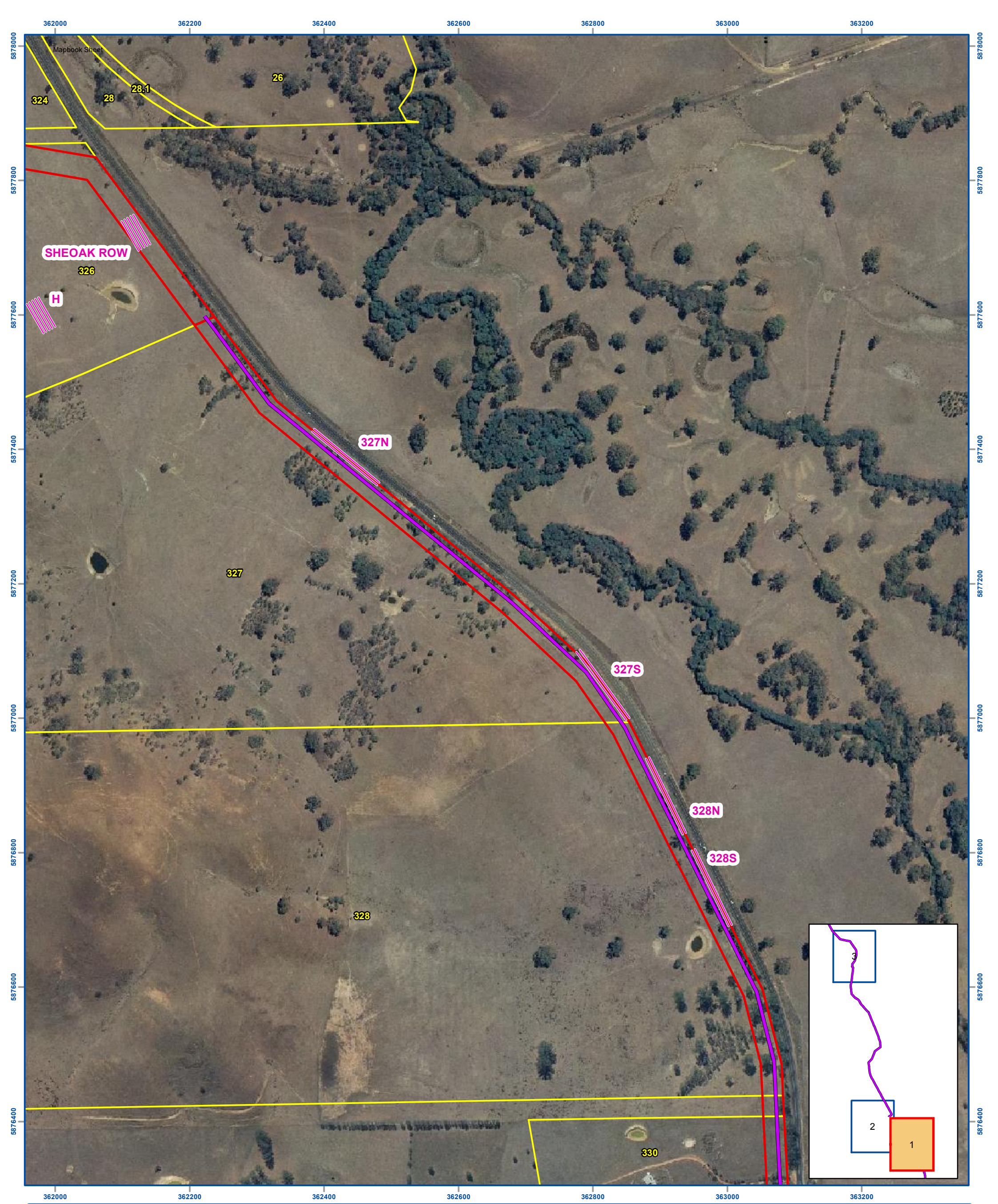
Where space permitted, the 50 shelters were set out in a rectangular 5 x 10 formation with 5 m spacing between shelters (i.e., the grid covered a 20 m x 45 m area). However, where the available space did not allow a 5 x 10 grid formation, the 50 shelters were placed in an alternative configuration that fitted the available area but still had 5 m spacing between shelters (Table 2). All grids were established in late 2009 and each shelter was uniquely labelled. Figure 1 shows the location of the grids on the different properties.

**Table 2 Grid formation of the shelters on the different properties**

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 5m apart
Sheoak ROW	5 x 10	5 lines of 10 shelters approximately 5m 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 5m apart
Broader Sheoak B	5 x 10	5 lines of 10 shelters approximately 5m 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 5m apart
Broader Sheoak E	5 x 10	5 lines of 10 shelters approximately 5m apart
Broader Sheoak F	5 x 10	5 lines of 10 shelters approximately 5m apart
Broader Sheoak G	5 x 10	5 lines of 10 shelters approximately 5m apart
Broader Sheoak H	5 x 10	5 lines of 10 shelters approximately 5m apart
Broader Sheoak I	5 x 10	5 lines of 10 shelters approximately 5m apart

<sup>3</sup> Two of which are within the Sheoak property.





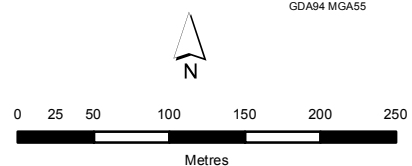
**Sugarloaf Pipeline Project**  
**Figure 1: Location of Tile Grids - Map1**



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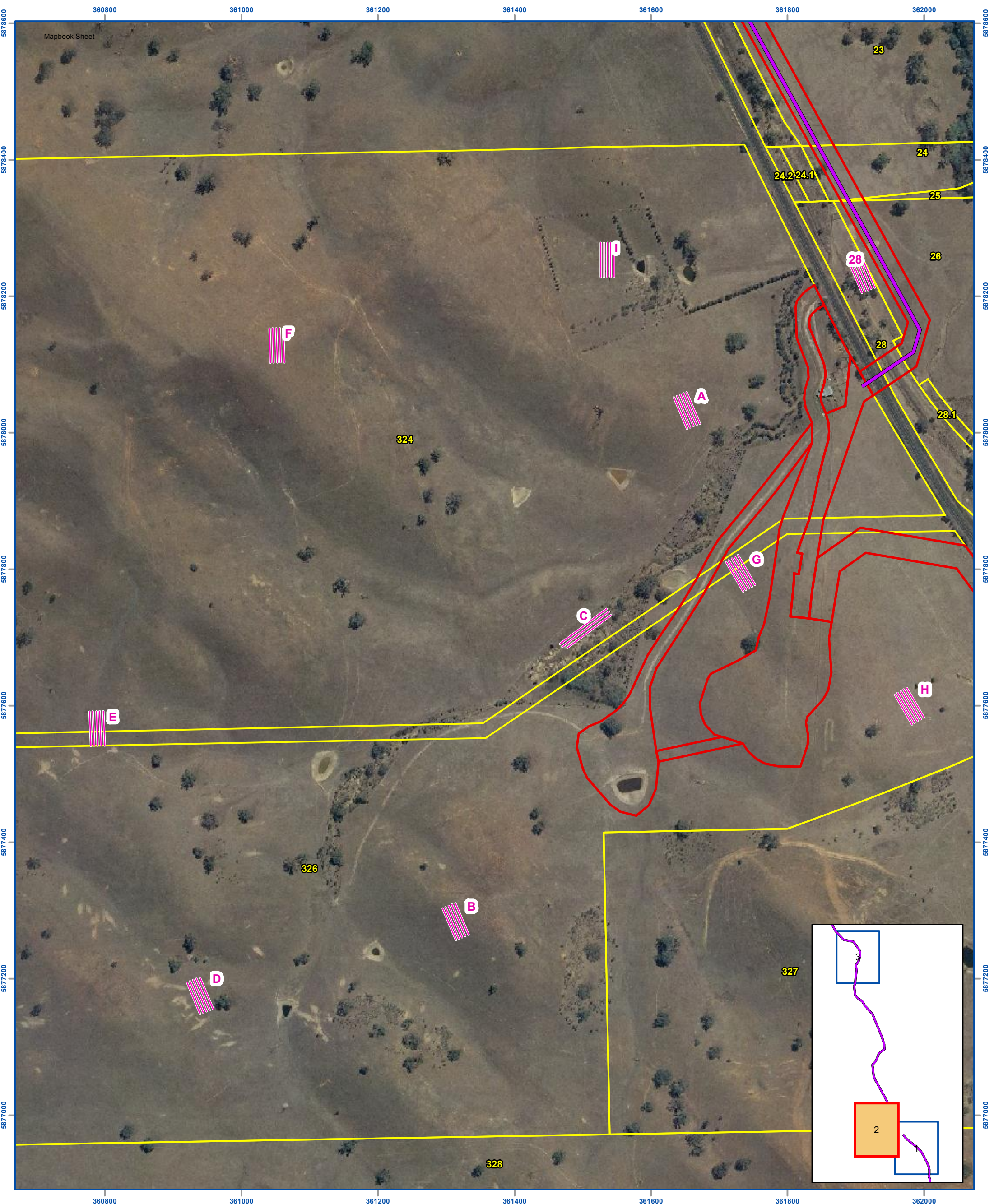
- Legend**
- Tile Grid Lines
  - Alignment
  - Construction ROW
  - Property

*The layer named "Property Boundary" contains property boundaries that have been modified firstly to match surveyed fences and then modified to interpreted fence boundaries based on the latest imagery. Property boundaries are based on "occupation", i.e. fences and imagery and are not to be adopted as "TITLE BOUNDARIES". Where appropriate property boundaries contained within this file may be modified as a result of further surveying of fences.*



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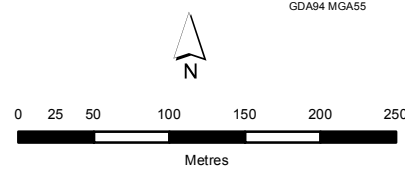


**Sugarloaf Pipeline Project**  
**Figure 1: Location of Tile Grids - Map2**



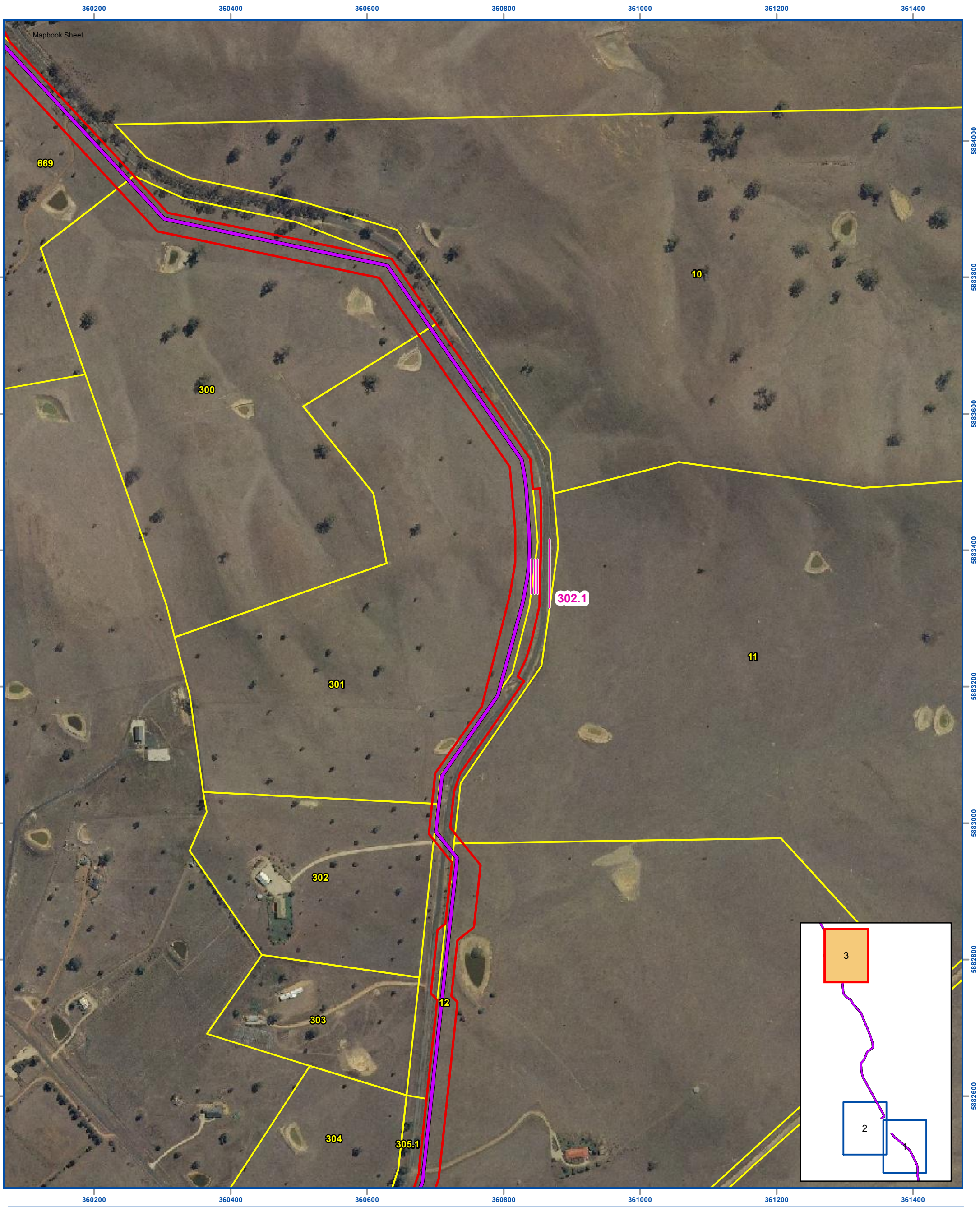
- Legend**
- ▨ Tile Grid Lines
  - Alignment
  - ▭ Construction ROW
  - ▭ Property

*The layer named "Property Boundary" contains property boundaries that have been modified firstly to match surveyed fences and then modified to interpreted fence boundaries based on the latest imagery. Property boundaries are based on "occupation", i.e. fences and imagery and are not to be adopted as "TITLE BOUNDARIES". Where appropriate property boundaries contained within this file may be modified as a result of further surveying of fences.*



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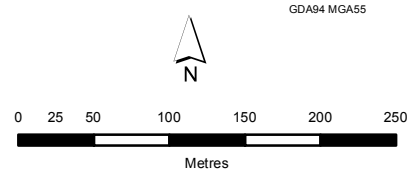




**Sugarloaf Pipeline Project**  
**Figure 1: Location of Tile Grids - Map3**

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

The layer named "Property Boundary" contains property boundaries that have been modified firstly to match surveyed fences and then modified to interpreted fence boundaries based on the latest imagery. Property boundaries are based on "occupation", i.e. fences and imagery and are not to be adopted as "TITLE BOUNDARIES". Where appropriate property boundaries contained within this file may be modified as a result of further surveying of fences.



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## 2.2 UNDERTAKING A MONITORING CHECK

Shelter grids were set up during late 2009. This allowed sufficient time for SLL to discover and adopt the shelters before the commencement of the checking schedule in May 2010.

In accordance with the endorsed monitoring plan, all shelters were checked on four occasions in the first year. Of the four checks one occurred in each autumn and spring and the remaining two during summer (Table 3).

**Table 3 Dates of Visits (1 – 4) for Shelter Grid Surveys on each property**

Date	26/28	302.1	327 South	327 North	328 South	328 North	Sheoak Construction Corridor	*Broader Sheoak (Nine grids)
25-May-10	1	1	1	1	1	1	1	1 (part)
8-June-10								1 (part)
14-Oct-10	2		2	2	2	2		
22-Oct-10		2					2	2
12-Nov-10	3							
16-Nov-10		3	3	3	3	3	3	3
16-Dec-10	4	4					4	4 (part)
17-Jan-11			4	4				4 (part)
18-Jan-11					4	4		

\*Some visits were made over two trips

Grid checks were mostly conducted by two Alliance Ecologists 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 (Table 4). The exception to this was on 12 November when one grid was checked in the afternoon in accordance with other threatened fauna surveys that were undertaken on the same day.

**Table 4 Survey Conditions for Shelter Grid Surveys**

Date	Property	Time start	Temperature at start of survey (C°)	Temperature at end of survey (C°)	Cloud Cover (%)	Wind speed and direction	Other
25-May-10	Sheoak	0820	12.1	Not recorded	100	Light breeze	~ 10 mm rain over past 24 hours
8-June-10	Sheoak	0915	8	14	70-100	None	Light showers for part of day
14-Oct-10	327 North, 327 South, 328 South, 328 North, 26/28	1120	15.5	16.6	80	Light breeze	No precipitation during survey
22-Oct-10	302.1, Sheoak	0942	19	26.9	0	None to moderate breeze	No precipitation during survey



Date	Property	Time start	Temperature at start of survey (C°)	Temperature at end of survey (C°)	Cloud Cover (%)	Wind speed and direction	Other
12-Nov-10	26/28	1430	26.5	Not recorded	100	Moderate breeze	-
16-Nov-10	302.1, Sheoak	0850	15	24	80-90	Light breeze	No precipitation during survey. Cloud cover high
16-Dec-10	302.1, Sheoak	0735	11.4	16	0	Light breeze	No precipitation during survey
17-Jan-11	Sheoak	0815	18	23	0	Light breeze	No precipitation during survey
18-Jan-11	328 South, 328 North	0720	13.7	14.6	100	Light breeze	No precipitation during survey

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

Upon reaching a Shelter Grid during a monitoring check, one Alliance Ecologist recorded a range of relevant location and environmental details (e.g., start time, GPS location, weather conditions, time of day, location, etc.). Then, both ecologists systematically checked under each shelter and attempted to capture any vertebrate fauna present. All data were recorded on an appropriate datasheet, which had been developed for the SLL monitoring procedure.

Fauna captured during the monitoring surveys were temporarily held while the following information was collected:

- Species identification, using an up-to-date key (e.g. Cogger 2000 for reptiles, Menkhorst and Knight 2004 for mammals).
- Shelter Grid reference number where the animal was found.
- Relevant morphometric measurements (e.g., including length, width, weight, presence of tail etc) for any threatened species.

Photographs were taken of any threatened species, focussing on key anatomical features that would differentiate between threatened and non-threatened species, and between individuals where possible, thereby potentially allowing re-captured SLL individuals to be identified during the monitoring phase. As explained in the Introduction, Melbourne Zoo obtained high resolution photos of all SLL that they held during the construction phase of the project.

## 2.3 UNSCHEDULED GRID CHECK DUE TO RESOWING

In September 2010, as part of post-construction re-instatement, there was a need to re-sow small patches of land where standard reinstatement had been less successful. This included some areas on property 328 that were adjacent to some of the shelters. In anticipation of the shelters needing to be temporarily moved for the resowing, an ecologist checked the north and south shelters on property 328 prior to the commencement of resowing.

## 3 RESULTS

### 3.1 FAUNA DETECTED

A total of 49 individuals of at least six species (four reptiles and two amphibians) were detected beneath shelters over the course of the grid checks (Table 5 -Table 12).

Many of the small reptiles (mainly skinks) that were detected escaped into the dense grass before they could be identified or captured, particularly during shelter checks done when conditions were warmer. However, all of those individuals were observed fairly well before their escape and are considered unlikely to have been confused with SLL (i.e., at least one limb was seen). A number of small unidentified reptiles were recorded as 'skink sp.' At least some of these are likely to have been the Garden Skink (*Lampropholis guichenoti*), which is a relatively common species, but highly variable in pattern and colour and could be confused with other species (e.g., Southern Grass Skink, *Pseudemoia entrecasteauxii*), if a fleeting glimpse is all that is obtained. Some individual vertebrates were seen well enough to determine genus but were not captured and identification to species level could not be obtained.

Overall results were as follows:

- Striped Legless Lizard (*Delma impar*) (3 detections);
- Spotted Marsh Frog (*Limnodynastes tasmaniensis*) (14 detections);
- Southern Bullfrog (*Limnodynastes dumerilli*) (1 detection);
- Garden Skink (*Lampropholis guichenoti*) (17 detections);
- Eastern Brown Snake (*Pseudonaja textilis*) (4 detections);
- Common Blue-tongued Lizard (*Tiliqua scincoides*) (1 detection);
- Unidentified skink (8 detections); and
- Unidentified snake (1 detection).

### 3.2 NON-CONSTRUCTION AREAS ON BROADER SHEOAK

No SLL were detected during the first check (25 May 2010 and 8 June 2010), although one sloughed skin in poor condition was detected under a shelter (Grid C, shelter 1.16) (Table 12). On the basis of size and scales this slough is likely to have been from a SLL. Underneath five of the shelters, Spotted Marsh Frogs (*Limnodynastes tasmaniensis*) were also detected.

No SLL or other vertebrate fauna species were detected underneath the shelters on 22 October 2010 (Table 12).

No SLL were detected underneath the shelters on 12 November 2010. However, two small skinks were observed basking on top of two separate shelters but disappeared into grassy cover when approached by the ecologists (Table 12).

One dead (squashed) reptile was detected under one shelter (Grid H, shelter 4.1) on 17 December 2010. This individual was very degraded however it is likely to have been a SLL due to the animals size, scale configuration, colour and lack of pectoral girdle. It is possible that cattle trod on the shelter. Three other vertebrate species were detected under shelters during this fourth check (Table 12).

### 3.3 CONSTRUCTION AREAS ON PRIVATE PROPERTIES

In summary:

- Four fauna species were identified during all the shelter checks (Table 5 - Table 10).
- No SLL were detected under shelters during the four scheduled grid checks. However, during the unscheduled check before resowing, one SLL was captured beneath a shelter in the grid associated with property 328 North. This animal was beneath a shelter in the undisturbed adjacent roadside area (shelter 2.18). Appropriate details were documented for the lizard (while on site), and it was then released at the point of capture.
- Only frogs (2 species) were detected under shelters in both the former construction area and adjacent undisturbed areas during the May 2010 check of the shelters.
- Small numbers of skinks (mostly Garden Skink *Lampropholis guichenoti*) were detected underneath numerous shelters across most properties during the October 2010 check of the shelters. An Eastern Brown Snake (*Pseudonaja textilis*) was also detected at property 327 North during this check.
- During the November check, two species were detected (Garden Skinks and an unidentified snake species) within one shelter grid only (property 26/28).
- Common species of skink (Garden Skink *Lampropholis guichenoti*) and frog (Spotted Marsh Frog *Limnodynates tasmaniensis*) were detected during the fourth check (December 2010/January 2011).

In addition:

- Following heavy rainfall and flooding, 14 of the shelters from one grid at property 26/28 were found to have washed away prior to the October 2010 check, and were not recovered. Another 10 shelters had been washed out of position but were found nearby. Following the November 2010 checks of the remaining shelters at this location, all of the shelters within this grid were moved nearby to slightly higher ground, and new shelters were installed to replace those that had been lost.
- Slashing of grasses along roadsides resulted in the loss of ten shelters at 302.1 and 1-2 shelters elsewhere. Shelters were replaced, with new shelters being placed in nearby locations less likely to be disturbed by future roadside slashing.

Further checks of all of shelters are planned for four occasions through 2011 (May-June, October, November, December), in accordance with the endorsed monitoring plan. A full report will be prepared at the conclusion of the two years monitoring.



## 4 CONCLUSIONS

It is difficult to draw any conclusions from the results of this first year of monitoring. The population in the vicinity of the shelter grids appears to be small, but there is insufficient information to determine the exact population size, or if the population size in this area has changed since the construction process. Much fewer SLL were detected under shelters within the construction corridor than were released in these locations following completion of construction. This may be due to the lack of suitable habitat within the construction corridor due to the sparser paddock vegetation which has been recently disturbed.

All SLL detected during the first four checks were detected under shelters in the undisturbed roadside vegetation or within broader Sheoak (outside of construction area). This pattern is not surprising, given that these areas provide denser and less disturbed habitat for small fauna than the habitats in the adjacent paddocks.

Photos of SLL or evidence of SLL (sloughs and animal remains) 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). No SLL individual found during the post-construction monitoring appeared to be a recaptured animal.

Monitoring of grids will continue through 2011, and results of that monitoring will be included in a separate report.

## 5 References

- Cogger H. G. 2000. *Reptiles and Amphibians of Australia - 6th edition*. Sydney: Reed New Holland
- DEWHA 2009 EPBC Act Policy Statement 1.1 – Significant Impact Guidelines, Matters of National Environmental Significance, Department of the Environment, Water, Heritage and the Arts, Canberra.
- DSEWPC 2009 *Delma impar* in Species Profile and Threats Database, Department of Sustainability, Environment, Populations and Communities, Canberra. Available Online from: [http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon\\_id=1649#sprat\\_profile](http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1649#sprat_profile) Accessed 14 April 2011.
- IUCN, 2009, *IUCN Red List of Threatened Species. Version 2009.1*. <  
<http://www.iucnredlist.org/apps/redlist/details/6315/0> >. Downloaded on 14 April 2011.
- Menkhorst P. W. and Knight F. 2004 *A Field Guide to the Mammals of Australia* Second Edition, Melbourne: Oxford University Press.
- Webster, A., R. Fallu & K. Preece 2003. *Action Statement No. 17 Striped Legless Lizard Delma impar*. [Online]. [http://www.dse.vic.gov.au/CA256F310024B628/0/733E0C562109F08CCA257092001E7C50/\\$File/017+Striped+Legless+Lizard+1992.pdf](http://www.dse.vic.gov.au/CA256F310024B628/0/733E0C562109F08CCA257092001E7C50/$File/017+Striped+Legless+Lizard+1992.pdf) Downloaded 14 April 2011

## Appendix – Survey results

**Table 5 Results of survey for Grid on property 302.1**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	25-May-10	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	3.3	Roadside
2	22-Oct-10	None	-	-	-	-
3	16-Nov-10	None	-	-	-	-
4	16-Dec-10	None	-	-	-	-

**Table 6 Results of survey for Grid on property 327 (Northern grid)**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	25-May-10	Yes	Southern Bullfrog, <i>Limnodynastes dumerillii</i>	1	1.3	construction corridor
2	14-Oct-10	Yes	Skink sp., <i>Lampropholis sp.</i>	1	1.23	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	1	1.16	construction corridor
			Skink sp., <i>Lampropholis sp.</i>	1	2.18	Roadside
			Eastern Brown Snake, <i>Pseudonaja textilis</i>	1	2.3	Roadside
3	16-Nov-10	None	-	-	-	-
4	17-Jan-11	None	-	-	-	-

**Table 7 Results of survey for Grid on property 327 (Southern grid)**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	25-May-10	None	-	-	-	-
2	14-Oct-10	None	-	-	-	-
3	16-Nov-10	None	-	-	-	-
4	17-Jan-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	1.16	construction corridor



**Table 8 Results of survey for Grid on property 328 (Southern grid)**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	25-May-10	None	-	-	-	-
2	14-Oct-10	Yes	Garden Skink, <i>Lampropholis guichenoti</i>	2	1.1	construction corridor
			Skink sp., <i>Lampropholis sp.</i>	1	1.16	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	1	1.17	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	1	1.18	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	2	1.23	construction corridor
3	16-Nov-10	None	-	-	-	-
4	18-Jan-11	None	-	-	-	-

**Table 9 Results of survey for Grid on property 328 (Northern grid)**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	25-May-10	None	-	-	-	-
Re-sowing	23-Sep-10	Yes	Striped Legless Lizard, <i>Delma impar</i>	1	2.18	Roadside
2	14-Oct-10	Yes	Garden Skink, <i>Lampropholis guichenoti</i>	1	1.16	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	1	2.18	Roadside
3	16-Nov-10	None	-	-	-	-
4	18-Jan-11	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	1.3	construction corridor

**Table 10 Results of survey for Grid on property 26/28**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Rail reserve or construction corridor?
1	25-May-10	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	4.9	construction corridor
2	14-Oct-10	Yes	Skink sp., (Scincidae).	1	4.2	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	2	3.4	Fence line between paddock and rail reserve
			Garden Skink, <i>Lampropholis guichenoti</i>	1	3.5	construction corridor
3	12-Nov-10	Yes	Garden Skink, <i>Lampropholis guichenoti</i>	1	2.3	Rail Reserve
			Garden Skink, <i>Lampropholis guichenoti</i>	1	4.5	construction corridor
			Garden Skink, <i>Lampropholis guichenoti</i>	1	4.3	<b>construction corridor</b>
			Snake sp., (Elapidae).	1	4.2	construction corridor
4	16-Dec-10	Yes	Skink sp., (Scincidae).	1	1.10	Rail Reserve
			Garden Skink, <i>Lampropholis guichenoti</i>	1	3.5	Fence line between paddock and rail reserve
			Garden Skink, <i>Lampropholis guichenoti</i>	1	4.6	construction corridor
			Skink sp., (Scincidae).	1	4.4	construction corridor

**Table 11 Results of survey for Grid within Sheoak construction corridor**

Check #	Date	Fauna detected?	Species	Count	Shelter number	Roadside or construction corridor?
1	25-May-10	None	-	-	-	-
2	22-Oct-10	None	-	-	-	-
3	16-Nov-10	None	-	-	-	-
4	16-Dec-10	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	2.6	Construction corridor
			Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	3.2	Construction corridor
			Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	4.6	Construction corridor

**Table 12 Results of survey for nine grids within Broader Sheoak property**

Check #	Date	Grid ID	Fauna detected?	Species	Count	Shelter number		
1	25-May-10	A	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	2	4.3		
				Marsh Frog sp., <i>Limnodynastes sp.</i>	1	5.1		
	8-June-10	B	None	-	-	-	-	
				<b>C</b>	<b>Yes</b>	<b>Slough (shed skin) of unidentified reptile (probable <i>Delma impar</i>)</b>	<b>1</b>	<b>1.16</b>
				D	None	-	-	-
				E	None	-	-	-
				F	None	-	-	-
				G	None	-	-	-
				H	None	-	-	-
				I	Yes	Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	3.4
2	22-Oct-10	A	None	-	-	-		
				B	None	-	-	
				C	None	-	-	
D				None	-	-		
E				None	-	-		
F				None	-	-		
G				None	-	-		
H				None	-	-		
I				None	-	-		
3	16-Nov-10	A	None	-	-	-		
				B	None	-	-	
				C	Yes	Skink sp., (Scincidae).	1	1.14
						Skink sp., (Scincidae).	1	3.6
				D	None	-	-	
				E	None	-	-	
				F	None	-	-	
				G	None	-	-	



Check #	Date	Grid ID	Fauna detected?	Species	Count	Shelter number
		H	None	-	-	-
		I	None	-	-	-
4	17-Dec-10	A	None	-	-	-
		B	Yes	Eastern Brown Snake, <i>Pseudonaja textilis</i>	1	1.4
		C	None	-	-	-
		D	None	-	-	-
		E	None	-	-	-
		F	None	-	-	-
		G	None	-	-	-
		<b>H</b>	<b>Yes</b>	<b>Dead reptile (probable <i>Delma impar</i>)</b>	<b>1</b>	<b>4.1</b>
		I	Yes	Eastern Brown Snake, <i>Pseudonaja textilis</i>	1	1.9
				Spotted Marsh Frog, <i>Limnodynastes tasmaniensis</i>	1	2.2
				Eastern Brown Snake, <i>Pseudonaja textilis</i>	1	2.8
				Blue Tongue sp., <i>Tiliqua sp.</i>	1	2.10