Western Highway Project
Section 2: Beaufort to Ararat, Victoria

Threatened Species Management Plan

for

Spiny Rice-flower *(Pimelea spinescens),* Golden Sun Moth *(Synemon plana)*

Button Wrinklewort (Rutidosis leptorhynchoides) and *Brown* Toadlet *(Pseudophryne bibronii)*

May 2014

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Contents

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1. INTRODUCTION

1.1 Project Description

The Western Highway (A8) is being progressively upgraded to a four lane divided highway for 110 kilometres (km) between Ballarat and Stawell, referred to as the Western Highway Project. As the principal road link between Melbourne and Adelaide, the Western Highway serves interstate trade between Victoria and South Australia and is the key corridor through Victoria's west, supporting farming, grain production, tourism and a range of manufacturing and service activities. Currently, more than 5500 vehicles travel on the highway west of Ballarat each day, including 1500 trucks.

As shown in Appendix A, Section 2 of the Western Highway Project consists of up to four sub sections:

- Beaufort to Buangor
- Buangor Bypass
- Buangor to Warrayatkin Road
- Warrayatkin Road to Ararat

During the development of the Environment Effects Statement multiple options were developed with two options investigated in detail. Following assessment under the *Environmental Effects Act 1978,* Option 1 was recommended by the Planning Panel and approved by the Minister for Planning for implementation in accordance with the Inquiry Report dated May 2013.

1.2 Description of the environment

The project is located between Beaufort and Ararat and consists primarily of road reserve and private properties on either side of the Western Highway. It is situated 170 kilometres west of Melbourne, Victoria and according to the DSE Biodiversity Interactive Map (DSE 2012), is located partly within the Central Victorian Uplands (CVU) bioregion and partly within the Victorian Volcanic Plains (VVP) bioregion.

The CVU bioregion extends from Stawell in the west to Bright in the east and from Glenrowan in the north east to Meredith in the south. The VVP bioregion extends from Portland in the west to Craigieburn in the east and from Clunes in the north to Colac in the south. The western section of the project area is located within the City of Ararat and

the eastern section within the Shire of Pyrenees. The entire project area is located within the Glenelg - Hopkins Catchment Management Authority area.

The project area is characterised by native and exotic grassland vegetation, with scattered areas of remnant indigenous vegetation consisting of forest, grassland and wetland communities. The existing highway intersects Cemetery Creek, Green Hill Creek, Hopkins River, Billy Billy Creek, Middle Creek, Fiery Creek and several smaller drainage lines along its length.

1.3 Species

Previous assessments have recorded one flora species listed under the Federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Spiny Rice-flower), two ecological communities listed under the EPBC Act Natural Temperate Grassland of the Victorian Volcanic Plain (NTGVVP) and Grassy Eucalypt Woodland of the Victorian Volcanic Plain (GEWVVP) and two flora species listed under the Victorian Department of Sustainability and Environment (DSE) Advisory List (Emerald-lip Greenhood and Golden Cowslips0 present within the construction footprint.

Also present within the construction footprint are two fauna species listed under the EPBC Act (Dwarf Galaxias and Golden Sun Moth) and one species listed under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) (Brown Toadlet).

1.4 Consultation process

This Threatened Species Management Plan has been developed by VicRoads, based on information provided by Clio Gates Foale (Senior Ecologist), Robyn Giles (Senior Botanist) from Ecology and Heritage Partners. These suitably qualified practitioners have been extensively involved with all aspects of the Western Highway Project Section 2 including all field assessments, reporting and EES preparation.

1.5 Purpose of Document

The Threatened Species Management Plan forms part of the EPBC Approval Notice (EPBC/5741) issued by Department of Environment to VicRoads on 17 April 2014.

This plan has also been endorsed by Department of Environment and Primary Industries.

The purpose of the Threatened Species Management Plan is to outline the mitigation and preservation measures which will be undertaken throughout the Project. It also provides guidelines for the removal and relocation of threatened flora and fauna where required.

Implementation of this management plan will minimise the potential impact on Spiny Rice-flower, Golden Sun Moth, Button Wrinklewort and Brown Toadlet individuals, and should be considered in conjunction with the following documents:

- WHP Section 2 Dwarf Galaxias Threatened Species Management Plan
- WHP Section 2 PEPS document
- WHP Section 2 Construction Environmental Management Plan
- WHP Section 2 Weed Management Plan

1.6 Roles and responsibilities

Table 1 - Roles and responsibilities

Role	Responsibility	Contact detail if relevant
Superintendent (or Representative)	Responsible for ensuring the contractor complies with the specification, requirements of this plan and satisfying reporting requirements of the EPBC Approval Notice 2010/5741	VicRoads Project Director Western Highway 03 5309 1050
The Department of the Environment	Responsible for Environment Protection and Biodiversity Conservation Act 1999 matters	02 6274 1299
The Department of Environment and Primary Industries	Responsible for Flora and Fauna Guarantee Act 1988 matters	03 5336 6756
Suitably qualified ecologist	Responsible for providing expert advice to the Superintendent and / or Contractor including: • implementing threatened species no-go zones • translocation of Spiny Rice-Flower • Golden Sun Moth revegetation plan • water quality monitoring	Will vary depending on contract sections
Contractor (including Project Manager and Personnel)	Responsible for the implementation of this plan (including maintaining no-go zones and implementing the Weed Management Plan)	Section 2A - Lend Lease 9828 5000 Other Sections - TBA

Note: The above information must be reviewed and modified at contract award of individual subsections

1.7 Definitions and Acronyms

Table 2 - Definitions

Terminology	Definition
Brown Toadlet	the native frog species *Pseudophryne bibronii*, protected under the FFG Act
Button Wrinklewort	the native plant species *Rutidosis leptorhynchoides*, protected under the EPBC Act.
Button Wrinklewort patch(s)	the patch(s) of approximately 1.7ha[1] of habitat for the Button Wrinklewort located adjacent to the project area, as defined in Appendix B (Map 2, 3 & 13), for the ongoing in situ management of the population of Button Wrinklewort.
Construction activities	all works associated with changes within the project area; including impacting native vegetation the erection of any onsite temporary structures, the use of heavy duty equipment for the purpose of breaking the ground for buildings or infrastructure, grading land for flood mitigation and ancillary works. Construction activities do not include the maintenance and use of existing access tracks or works to prepare the land for revegetation
Construction Environment Management Plan (CEMP)	the document(s) to be developed to ensure that appropriate environmental management practices are followed during the construction phase of the project. CEMPs will be developed specifically for each stage of construction
Construction footprint	the footprint area where the proposed action and impact will occur, as defined in Appendix B.
Department of Environment and Primary Industries (DEPI)	The Department responsible for the *Flora and Fauna Guarantee Act 1988* (Victoria),
Department of Environment (DoE)	The department responsible for the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
Department of Transport, Planning and Local Infrastructure- (DTPLI)	The Department responsible for Victorian State planning
Dwarf Galaxias	the native fish species *Galaxiella pusilla*, protected under the EPBC Act
EPBC Act	the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

[1] Based on survey data obtained in April 2014

Terminology	Definition
FFG Act	the Flora and Fauna Guarantee Act 1988 (Victoria)
Golden Sun Moth	the native moth species *Synemon plana*, protected under the EPBC Act
Golden Sun Moth habitat	the patches of approximately 70.6ha[2] of habitat for the Golden Sun Moth located adjacent to the project area, as defined in Appendix B (Map 3, 5 to 10, 14 & 16), for the ongoing in situ management of the population of Golden Sun Moth.
Impact(ing)	adverse impact by cutting down, felling, thinning, logging, removing, killing, destroying, smothering, poisoning, ringbarking, uprooting or burning.
No-go zone(s)	clearly delineated area(s) of conservation value, to be avoided by construction related activities, including machinery, vehicles and personnel.
Project area	This includes all existing road reserve and areas subject to a Public Acquisition overlay, as defined within Appendix B
Project location	the location of the project as defined in Appendix A.
Spiny Rice-flower	the native flora species *Pimelea spinescens* subsp. *spinescens*, protected under the EPBC Act
Spiny Rice-flower patch(s)	the patch(s) of approximately 3.8ha[3] of habitat for the Spiny Rice flower located adjacent to the project area, as defined in Appendix B (Map 2 & 3), for the ongoing in situ management of the population of Spiny Rice Flower.
Suitably qualified ecologist	practicing ecologist with tertiary qualifications from a recognised institute with at least three years of field experience undertaking flora and fauna surveys.
Threatened Species Management Plan	this document entitled Western Highway Project Section 2: Beaufort to Ararat, Victoria, Threatened Species Management Plan, prepared in compliance with the Victorian condition of approval for this proposal.
Weed Management Plan	the document titled final report Weed Management Plan, Western Highway Duplication Project , Section 2, Beaufort to Ararat, Victoria, dated June 2013.

[2] Based on survey data obtained in April 2014
[3] Based on survey data obtained in April 2014

Table 3 - Acronyms

Acronym	Explanation
CVU	Central Victorians Uplands Bioregion
CFA	Country Fire Authority (Victoria)
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EES	Environment Effects Statement
DoE	Department of Environment
DEPI	Department of Environment and Primary Industries (formerly Department of Sustainability and Environment)
DSE	Department of Sustainability and Environment (currently Department of Environment and Primary Industries)
DTPLI	Department of Transport, Planning and Local Infrastructure
EPA	Environment Protection Authority
EPBC Act	Environment and Protection Biodiversity Conservation Act 1999
FIS	Flora Information System
FFG Act	Flora and Fauna Guarantee Act 1988 (Victoria)
GIS	Geographical Information System
GPS	Global Positioning System
KPI	Key Performance Indicator
PEPS	Project Environmental Protection Strategy
ROW	Right of Way
TSMP	Threatened Species Management Plan
VPP	Victorian Volcanic Plains Bioregion
WHP	Western Highway Project

1.8 Relevant Documentation

A comparative study of habitats of the Golden Sun Moth Synemon plana Walker (Lepidoptera: Castniidae) (O'Dwyer & Attiwill, 1999)

Bundling Guidelines (EPA Publication No. 347, 1992)

Commonwealth Conservation Advice for Synemon plana (Golden Sun Moth) (Threatened Species Scientific Committee, 2013);

Dangerous Goods (Storage and Handling) Regulations 2012 S.R. No. 132/2012

Department of Sustainability and Environment (2006) Native Vegetation Revegetation planting standards – Guidelines for establishing native vegetation for net gain accounting.

EPBC Act Policy Statement 3.11 - Significant Impact Guidelines for the Critically Endangered Spiny Rice-flower (Pimelea spinescens subsp. spinescens) (Australian Government,2009);

EPBC Act Policy Statement 3.12 - Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana) (Department of the Environment, Water, Heritage and the Arts (DEWHA), 2009);

Flora & Fauna Action Statement #28 - Button Wrinklewort - Rutidosis leptorrhynchoides

Flora and Fauna Guarantee Action Statement 132 Revised 2008 - Spiny Rice-flower Pimelea spinescens subsp. spinescens (DSE, 2003)

Genetic variability and population structure of the endangered golden sun moth, Synemon plana (Clark & O'Dwyer, 2000)

Golden Sun Moth Synemon plana, Action Statement No 106

Golden Sun Moth Synemon plana; discovery of new populations around Melbourne (Endersby & Koehler, 2006)

Guidelines for the translocation of threatened plants in Australia. Second edition (Australian Network for Plant Conservation, Canberra) (Vallee et al, 2004)

Hygiene protocol for the control of disease in frogs (NSW National Parks and Wildlife Service, 2001)

National Recovery Plan for Button Wrinklewort (Rutidosis leptorhynchoides) (NSW Office of Environment and Heritage, 2012);

National Recovery Plan for the Spiny Rice-flower (Pimelea spinescens subsp. spinescens) (Carter, O. & N. Walsh, 2006);

Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006)

Significant impact guidelines for the critically endangered spiny rice-flower (Pimelea spinescens subsp. Spinescens)- Nationally threatened species and ecology communities EPBC Act policy statement 3.11.

State Environment Protection Policy (Waters of Victoria)

Synemon plana - A grassland case history (Edwards, 1991)

Western Highway Project: Section 2: Beaufort to Ararat Environment Effects Statement and Draft Planning Scheme Amendment (VicRoads, 2012)

2. BASELINE INFORMATION

Appendix C outlines the preliminary assessments and targeted surveys that have been undertaken by Ecology and Heritage Partners to provide baseline data for threatened species present within the project area. All surveys were undertaken by suitably qualified ecologists. Additional information relating to survey methodology, additional targeted surveys undertaken, limitations and site conditions can be found in the EES and supporting technical appendices.

Further baseline information for the Spiny Rice-Flower, Button Wrinklewort and known populations of Golden Sun Moth will be undertaken prior to construction works commencing within 500m of the species. This will be submitted to DEPI and DoE within 14 calendar days of commencing works and used as a basis for monitoring the species during construction.

3. SPINY RICE-FLOWER

Critically Endangered (EPBC Act)

Listed (FFG Act)

Endangered (DSE Advisory List)

3.1 Description

Spiny Rice-flower Pimelea spinescens subsp. spinescens is listed as critically endangered under the EPBC Act. In Victoria, Spiny Rice-flower is listed under the FFG Act and is considered endangered on the DSE Advisory List (DSE 2005; FIS 2011).

Spiny Rice-flower is a small spreading shrub growing to 30cm in height, with partly herbaceous stems. It has narrow, green, hairless, oval-shaped leaves 2-10mm long and 1-3mm wide, that grow from spine-tipped stems. Up to 12 small, unisexual, hairless pale yellow flowers form the inflorescences. Flowering occurs from April to August (Carter & Walsh 2006).

Spiny Rice-flower is endemic to Victoria where it occurs in grassland or open shrub land on basalt-derived soils in the central west of the State. Most populations occur within the EPBC Act listed Natural Temperate Grassland of the Victorian Volcanic Plain vegetation community.

Baseline Condition

Plants recorded within high quality vegetation (vegetation quality as per Habitat Hectare Assessment from EES Technical Appendices). Cohorts from multiple age classes were recorded and plants were actively reproducing.

Further baseline information for the Spiny Rice-Flower will be undertaken prior to construction works commencing within 500m of the species. This will be submitted to DEPI and DoE within 14 calendar days of commencing works and used as a basis for monitoring the species during construction and 6 months post-construction. The base line information will include information on the total number plants, total hectare of Spiny Rice-flower within the area and KPIs (% weed cover and % bio mass), which maybe potentially directly or indirectly impacted by the proposed action. Baseline information will include a description of the starting performance indicators values, such as percentage of weed cover and of native vegetation etc.

Management Approach

VicRoads currently manages the Spiny Rice-Flower patches in accordance with *Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006)*. This plan covers the management of weeds, fire regimes, slashing, land use, community education and signage. This plan is developed and maintained in consultation with DEPI, CFA and Ararat Rural City Council.

Extending on current management practises, this plan aims to insure:

1. Continue to control Weed Invasion, particularly perennial introduced grasses and most at risk are small, heavily disturbed sites.
2. Continue to manage grazing - particularly additional pressure from domestic stock.
3. Continue to manage fire regimes - lack of fire or similar biomass reduction strategy may lead to plants being crowded out.
4. Continue to protect the population from changing land use, and impacts of road maintenance works.
5. Ensure construction activities avoid impact to the Spiny Rice-Flower patches

Table 4: Spiny Rice Flower Management

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
SRF 1.1	Preclearance surveys	Project Area and existing road/rail reserve containing Spiny Rice-Flower to be surveyed 500m either side of existing patches. Baseline condition to be determined (including no. of individuals, % weed cover & % bio mass)	Prior to commencing construction within 500m of Spiny Rice-Flower patches.	N/A	DEPI and DOE to be notified to determine best course of action if additional SRF patches are located within the project area
SRF 1.2	Translocation	Refer Section 3.2.3	Prior to commencing construction within 500m of Spiny Rice-Flower patches.	Refer Section 3.5- Monitoring	Refer Section 3.5- Corrective Action
SRF 1.3	Control weed invasion	Implement spraying as per WHP Section 2 Weed Management Plan	Performance indicator as per WHP Section 2 Weed Management Plan	Monitoring timing as per WHP Section 2 Weed Management Plan	Additional spraying as per WHP Section 2 Weed Management Plan

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
SRF 1.4a	Restrict access[4]	Install permanent signage to identify the sensitive area	Prior to commencing construction within 500m of Spiny Rice-Flower patches.	Monitoring of signage to occur monthly during construction of Section 2B West	Repair fallen signs within 24 hours of being identified. Replace damaged signs within 2 months of being identified
SRF 1.4b		Install no-go zones in accordance with Section 13	Prior to commencing construction within 500m of Spiny Rice-Flower patches.	Monitoring of no-go zones to occur weekly	Repair incorrectly installed or damaged no-go zones within 24 hours

[4] The installation of permanent fencing was considered however was ruled out due to highly likelihood of damage due to fire regimes outlined in SRF 1.7

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
SRF 1.5	Ongoing Health Monitoring	Qualified personnel to document the health of Spiny Rice-flower populations retained in-situ within Road Reserves and undertake appropriate management techniques (i.e. weed control, burning, maintenance of fencing) to ensure survival. Monitoring of the effectiveness will be conducted concurrently with weed control program.	Maintenance of current population numbers within retained areas and a reduction in exotic biomass to help reduce competition and create open space for Spiny Rice-flower populations to survive and reproduce. Ensure translocation is undertaken based on actions and protocols outlined Section 3.2.3.	Annually for the first ten years of this Plan (between April and August).	If a qualified ecologist determines that the exotic biomass and weed cover is not maintained or improved then these DoE and DEPI must be consulted with to determine corrective action
SRF 1.6	Manage Grazing	Restrict access to domestic stock	No stock to access the road reserve containing Spiny-Rice Flower. Ensure ROW boundaries within 100m of Spiny Rice-Flower patches are secure	Existing ROW fencing to be monitored annually for 10 years post-construction	ROW fences to be repaired within 1 month of defect being identified
SRF 1.7	Manage Fire Regimes	Refer to Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006).			

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
SRF 1.8	Rubbish	Ensure rubbish or litter in and around retained Spiny Rice-flower populations is managed within VicRoads road reserve	Rubbish and litter removed to ensure species survival	At least once per year for the first ten years of the TSMP	Rubbish removal must be undertaken regardless of success of the translocation.

Note: a schedule of implementation of actions and monitoring is at Appendix D

Impacts

An important population of Spiny Rice-flower plants were recorded adjacent to the project area with a total of 574 plants identified during targeted surveys completed during the EES development. During targeted survey, a single Spiny-Rice flower was indentified within the Project Area that will be impacted (identified in Appendix B- Map 2-3). All plants were recorded within Plains Grassland within the road reserve between the Ararat Airport entrance/Service Centre and Warrayatkin Road. All plants were recorded on the north side of the Western Highway between the road and rail reserve, except for one impacted plant which was recorded on the south side of the Western Highway.

Where possible, the road alignment has been designed to avoid the important population of Spiny Rice-flowers located between Ararat and Warrayatkin Road. It is expected that only a single Spiny Rice-flower plant will be directly impacted by the proposed alignment, located between Green Hill Lake Road and Warrayatkin Road.

3.2 Mitigation measures

3.2.1 Pre-clearance surveys

Prior to undertaking construction activities within 500m of the Spiny Rice-flower patchs, a suitably qualified ecologist must undertake a pre-clearance survey in accordance with *Significant impact guidelines for the critically endangered spiny rice-flower (Pimelea spinescens subsp. Spinescens)- Nationally threatened species and ecology communities EPBC Act policy statement 3.11.*

3.2.2 No-go Zones

Prior to undertaking construction activities within 100m of the Spiny Rice-flower patch, the suitably qualified ecologist must establish no-go zone(s) as per Section 13 around the Spiny Rice-flower plants identified in Appendix B, Maps 2-3.

3.2.3 Salvage and translocation procedures

Salvage and translocation of the Spiny Rice Flower does not form part of EBPC Approval Notice (EPBC 2010/5741). Section 3.3.2 has been endorsed by DEPI and DTPLI in accordance with Project Environment Protection Strategy: Western Highway Project-Beaufort to Ararat Section 2.

Timing

The proposed removal of the single impacted plant is to occur prior to construction. If the removal is undertaken during winter or spring, the translocated plants will be placed into the recipient site immediately after salvage, as the timing should allow sufficient rains to provide adequate soil moisture leading into summer. If the removal is undertaken outside of this period, the plant will need to be held by an indigenous nursery until such time as rainfall increases to water in the plant at the recipient site. As per the WHP Section 2 Weed Management plan, weed control of all high threat/high impact weeds will have been undertaken at the recipient site.

Removal Technique

The removal will be supervised by a qualified botanist. All vegetative material from patches proposed to be disturbed will be removed from the impact site.

The procedure for removal will be:

1. The patch to be removed will be identified with marker paint, and the plant will be recorded against the GIS layer
2. The plant will be watered the day before the proposed removal to loosen the soil and to ensure the plants are not drought stressed during salvage and movement
3. Material will be dug from the ground by hand using spades clean of dirt
4. During excavation, soil will be maintained around the root system, however plants will survive if exposed to air for short periods.

The plant will be marked and uniquely labelled before excavation. During removal, the plant will be labelled according to the patch number and segment to ensure once it arrives at the recipient site and/or nursery it is easily identifiable as to which patch it was removed from.

Once the plant is lifted from the ground and placed into the polystyrene boxes, it will be immediately taken to the recipient site and placed into a pre-excavated hole. If part of the plant is to be taken to an experienced nursery for propagation then desired amounts (i.e. one third, two thirds etc) will need to be decided.

Direct Translocation

The direct translocation from the impact site to the recipient site will take place on the same day as the material is removed from the impact site, to minimise stress on the material. The translocation site is directly adjacent to the impact site on the north side of Western Highway. Material will be removed as discussed in the removal technique section and transported directly to the recipient site.

1. Soil from around the salvaged material will be kept in place as a sod, to help the plants establish within the recipient site, this also helps with moisture retention around the root zone;
2. Holes at the recipient site will be prepared before the salvage of plants at the impact site, to minimise the time out of the ground for the salvaged material;
3. Holes will be dug deeper than the clod of soil from the impact site, soil will also be broken up at the base of the hole to allow quick penetration of the soil by the roots of the salvaged material;
4. Holes will be filled with water before the translocation to soften and loosen the surrounding soil, also helping to remove air pockets in the soil;
5. A weed free medium will be placed in the hole to allow an easy fit and manoeuvrability for the clod of soil;
6. The sod containing the material will be placed into the medium in the hole, ensuring the medium is tightly packed around the sod, removing air pockets and binding the medium together to prevent erosion of the medium;
7. The area around the plant will be mulched with certified weed free mulch, consisting of either wood chips or pea straw; and,
8. The plant will then be watered by hand until the sod containing the material is wet enough for water to no longer penetrate the soil.

The placement of the salvaged material will be recorded with a GPS. It is proposed the holes will be systematically lined up to allow for ease of monitoring, and the recipient sites pre-existing vegetation will also be considered when choosing sites to dig holes.

Delayed Translocation

If translocation is delayed, plants will need to be established within a nursery until site conditions at the recipient site are favourable e.g. soil moisture, climatic conditions, weed control, and fencing.

The ideal time to plant the salvaged material into the recipient site is during late autumn or winter, when rainfall is highest and conditions are cool. Adequate rainfall will reduce the potential requirement for supplementary watering of replanted material. Planting the material at the earliest stage before summer will also maximise the allowance for growth of the material, and allow for a higher rate of establishment, therefore maximising the potential for long-term survival within the recipient site.

The delayed translocation planting is similar to that of the direct translocation:

1. Holes need to be pre dug systematically and filled with water the day before material from the pots is removed;
2. Holes need to be dug 100 millimetres wider and 50 millimetres deeper than the pot in which the material is grown in, this allows the soil to be loosened and increases the soils permeability and allows moisture to penetrate the soil to a deeper level;
3. Pots containing material will be well watered before planting into the hole;
4. Plants from the nursery will be 'hardened' and trimmed before they are planted;
5. Care will be taken when removing the material from the pot to keep the medium intact around the root system before placing into the hole;
6. Extra medium may need to be placed into the hole to ensure the material is tightly packed into the hole;
7. The material and medium will then be covered in certified weed free mulch, consisting of either wood chips or pea straw;
8. Watering by hand will then be undertaken; care will be undertaken not to wash medium away.

The plant will be labelled according to the nursery number and a waypoint taken with a GPS.

Management of Salvaged Material within the Recipient Site

The main management issues that arise from translocation usually are drought, grazing, competition from weeds and accidental disturbances. Management of these issues is discussed in greater detail below.

These management actions also apply to the remaining population of Spiny Rice-flower which includes the recipient site for the translocated individual, with exception of watering and monitoring.

Watering

Supplementary watering at the recipient site will be dependant primarily on rainfall, although mulching, site aspect and soil type will also be considered when determining if supplementary watering is required. Monitoring of the plant will be undertaken regularly to assist plant establishment and long-term survival. A basic watering guide is provided in Table 5.

Table 5 - Required watering regime for replanted salvaged material Spiny Rice-flower

Months after planting	Period between significant rainfall events that will trigger watering	Watering Required (if no rainfall with defined periods)
0 - 3	1 weeks	Weekly
3 - 9	2 weeks	Weekly
9 - 21	2 Months	Monthly

Grazing

The grazing potential by pest and native animals needs to be monitored before the recipient site is chosen and measures such as fencing may need to be undertaken to reduce grazing pressure upon replanted salvaged material. Caging or using tree guards is the most economically efficient option to protect individual plants because of the small number of plants being translocated.

Fencing of the entire recipient site would be the best outcome to protect the areas biodiversity. If the entire recipient site is fenced, this will protect existing Spiny Rice-flower populations as well. Fencing, along with signage, will also protect the site from accidental and potentially intentional disturbances. Care must be taken when fencing to avoid any other Spiny Rice-flower plants.

Pest Plant Management

As part of the management plan for the recipient site, weed control will be undertaken in accordance with the Weed Management Plan (refer to Final Report prepared by Ecology and Heritage Partners dated June 2013) before and after the replanting of the salvaged material. The use of herbicides to control weeds at the recipient site will be applied with great care as Spiny Rice-flower plants are sensitive to herbicide (DSE 2003). Skilled contractors familiar with Spiny Rice-flower plants must always be used to conduct weed control around the recipient site. Spot-spraying will be undertaken using a fine nozzle, and in low wind conditions to ensure only weeds are targeted. Weeds will be managed in accordance with the *WHP Section 2 Weed Management Plan* which will be implemented prior to staged construction.

Biomass Reduction

As Spiny Rice-flowers are generally found in grassy habitats, it can be self maintaining in areas of high ground storey biomass e.g. dense grassy swords. However, the closure of inter- tussock space from a lack of fire or grazing may reduce the areas of available occupancy within the recipient site. The grass length will be monitored around replanted salvaged material to ensure both native and exotic grass species are not limiting the growth of the salvaged material.

Site burning will be undertaken in accordance with Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006). All measures to lower biomass must be done in consultation with a suitably qualified ecologist, to limit potential impacts on replanted salvaged material. Slashing or burning may also be used as forms of weed control.

Monitoring

Monitoring of the translocated plant within the recipient site is crucial to ensuring ongoing survival (Vallee *et al.* 2004). Monitoring must be conducted by a qualified botanist familiar with the ecology and growth habits of Spiny Rice-flower and regular reports will be made to the relevant approval authorities. Along with direct measurements of the translocated plant, monitoring will assess drought stress, pest plant and animal impacts, biomass accumulation and site disturbance. Monitoring will be undertaken weekly for the month and then monthly for the next six months and then on a six month basis for up to three years from translocation. After the requirements for watering has ceased, monitoring must be undertaken on at least one occasion each year between April and August for a 3 year period.

A report will be prepared 12 months after replanting the salvaged material, then ongoing at each 12 month stages after the planting. The reporting will detail the growth level of the plants and include information on disturbances, deaths, further plantings and conditions at the recipient site.

Although only one plant is to be translocated as part of this project, the data obtained from the long-term monitoring of the plant will be incorporated with findings from other translocation sites. Information from a range of projects will aid adaptive management decisions for current and future translocation efforts.

Performance Targets

The ultimate aim of translocation is to ensure the conservation of the genetic diversity of a species. The conservation of genetics is especially critical for endangered species and the loss of genetics from even a single plant can be seen as a failure of the translocation process.

The translocation of any species can be inherently difficult and may put excessive stress on material which is disturbed, resulting in the death of plants in extreme cases. This is especially true for Spiny Rice-flower plants due their habit of producing a large tap root that may grow greater than a metre into the soil. If this tap root is damaged during salvage, plants may have little chance of surviving the translocation process. Vallee *et al.* (2004) detailed stringent criteria for determining the success of translocated plant species. The outlined criteria are broken into segments for short and long term success, and also the success of management of material in an *ex-situ* situation.

In the short term biological success can be determined through:

- Survival of greater than 70% of transplants, with representatives from the range of genetic individuals planted (a benchmark which is less relevant in this circumstance);
- The new or enhanced populations have similar characteristics to the natural population(s), such as the survival and growth of translocated individuals;
- Survival of transplants to reproductive stage (producing flowers and fruit); and,
- The reproduction of translocated individuals, including the production of flowers and fruit at levels consistent with naturally occurring plants; and seed viability is consistent with naturally occurring plants.

Long Term Criteria includes:

- New seedlings are established;
- The number of individuals within the population is being sustained or increased by natural recruitment; and,
- Adequate levels of biodiversity, particularly genetic variation, are maintained through generations.

Criteria for determining successful establishment and maintenance of the *ex situ* collection:

- The required number of transplants were available for the translocation proposal (which may not be relevant in this circumstance);
- Correct labelling and documentation maintained through cultivation;
- Techniques for successful propagation of the taxon are understood; and,
- A genetically representative collection was maintained.

As recruitment of Spiny Rice-flowers in natural settings is currently poorly known, the measurement of success through recruitment is not possible. Conserving the genetics of all individual plants must therefore be kept as a higher goal in determining translocation success.

The ideal goal is to preserve the genetics of the plant proposed to be translocation through the successful establishment of the plant in the recipient site. However, the difficulty and inherent dangers of translocation means that it is likely that the plant may die as a result of disturbance, especially given the plant is likely to have to travel a significant distance to be re-established with an existing viable population. Following the criteria outlined by Vallee *et al.* (2004), the survival of the single plant is crucial for the translocation to be judged as successful in the short-term.

3.3 Access control

Access to sites containing Spiny Rice-Flower patches will be protected by the use of no-go zones during the construction period. Signage will be permanently installed at the various patches to detour members of the public from entering these sites.

3.4 Monitoring

No-go Zones must be regularly monitored and maintained throughout the construction phase to ensure compliance with this plan. Table 4 below also outlines the monitoring actions required for the retained and translocated populations of Spiny Rice-flower adjacent to the project area including the responsible agents and reporting requirements.

Qualified personnel to document the health of Spiny Rice-flower populations retained in-situ within Road Reserves and undertake appropriate management techniques (i.e. weed control, burning, maintenance of fencing) to ensure survival.

Monitoring of the effectiveness will be conducted concurrently with weed control program.

3.5 Corrective Action

The protected Spiny Rice-Flower population is located in an existing rail and road reserve which is outside of the project area and will not be impacted by construction. No-Go Zone will be installed prior to construction, ensuring the risk of impact is negligible.

On-going management of the Spiny Rice-flower individuals and the area containing the populations are outlined in Table 4, including adaptive management actions required during the management period.

4. DWARF GALAXIAS

Endangered (EPBC Act)

Listed (FFG Act)

Near threatened (DSE Advisory List)

Please refer to Western Highway Project Section 2: Beaufort to Ararat, Victoria- Dwarf Galaxias Threatened Species Management Plan.

This Dwarf Galaxias Threatened Species Management Plan must be implemented for the following stages of work (as identified in Appendix A):

- Buangor Bypass
- Section 2B (Pope Road to Warrayatkin Road)

5. BUTTON WRINKLEWORT

Endangered (EPBC Act)

Listed (FFG Act)

Endangered (DSE Advisory List)

5.1 Description

Button Wrinklewort *Rutidosis leptorhynchoides* is listed as endangered under the EPBC Act. In Victoria, it is listed under the FFG Act, and is considered endangered on the DSE Advisory List (DSE 2005; FIS 2011).

Button Wrinklewort is a perennial forb which produces multiple flowering stems 15 to 30cm high during spring and summer. Stems are hairless in the upper part, becoming woolly towards the base. Leaves are mostly stem-clasping at their base, linear, usually 1.5-3.5cm long, 0.5-1.5mm wide, hairless and have their edges slightly rolled under. In Victorian the species flowers from October to February (NSW Office of Environment and Heritage 2012)

Button Wrinklewort occurs in south-eastern Australia, from Goulburn in the Southern Tablelands of NSW to Wickliffe on the plains west of Melbourne. In Victoria the species occurred across the Victorian Volcanic Plain but is now restricted to tiny populations in the south-west and is generally growing in Plains Grassland and Grassy Woodland vegetation (Walsh and Entwistle 1994).

Distribution

There are 233 documented records of Button Wrinklewort in Victoria, with several records located close to the alignment around the Hopkins River at Dobie and within the Woodnaggerak Reserve at Middle Creek

Baseline Condition

Eighty-eight Button Wrinklewort plants were recorded within the study area during the targeted surveys (Figure 3b, 3c and 3m). Most plants (83 in total) were recorded within Alluvial Terraces Herb-rich Woodland within the road reserve east of Warrayatkin Road on the north side of the Western Highway. Five additional plants were recorded within the Woodnaggerak Reserve west of Woodnaggerak Road on the south side of the Western Highway. Plants recorded within high quality vegetation (vegetation quality as per Habitat Hectare Assessment from EES Technical Appendices). Cohorts from multiple age classes were recorded and plants were actively reproducing.

Further baseline information for the Button Wrinklewort will be undertaken prior to construction works commencing within 500m of the species. This will be submitted to DEPI and DoE within 14 calendar days of commencing works and used as a basis for monitoring the species during construction. This base line information will include information on the total number plants and/or total hectare of Spiny Rice-flower within the area, which maybe potentially directly or indirectly impacted by the proposed action. Baseline information will include a description of the starting performance indicators values, such as percentage of weed cover and of native vegetation etc.

Management Approach

In accordance with the National Recovery Plan for the Button Wrinklewort (NSW Office of Environment and Heritage 2012) this management plan aims to:

- Protect known populations within the road reserve from changes to land use.
- Do not undertake road works, pasture modification or other changes in land use that may affect populations.
- Limit grazing on sites where populations within the road reserve occur.
- Do not undertake domestic stock grazing on sites where populations persist within the road reserve.
- Undertake weed control in and adjacent to populations in accordance with the *WHP Section 2 Weed Management Plan*.
- Mark sites and potential habitat on to maps used for planning road works.
- Install and maintain signage onsite to alert maintenance staff to the habitat.
- Search for new populations in potential habitat.
- Avoid physical alteration to Button Wrinklewort habitat
- Restore and protect damaged or depleted habitat caused by construction, through revegetation and habitat maintenance.
- Control use of nutrients, biocides and other chemicals for any vegetation clearing adjacent to Button Wrinklewort habitat.

Table 6: Button Wrinklewort Management

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
BW 1.1	Preclearance surveys	Project Area and existing road/rail reserve containing Button Wrinklewort to be surveyed 500m either side of existing patches. Baseline condition to be determined (including no. of individuals, % weed cover & % bio mass)	Prior to commencing construction within 500m of Button Wrinklewort patches.	N/A	DEPI and DOE to be notified to determine best course of action if additional Button Wrinklewort patches are located within the project area
BW 1.2	Control weed invasion	Implement spraying as per WHP Section 2 Weed Management Plan	Performance indicator as per WHP Section 2 Weed Management Plan	Monitoring timing as per WHP Section 2 Weed Management Plan	Additional spraying as per WHP Section 2 Weed Management Plan
BW 1.3a	Restrict access	Install permanent fencing[5] and signage to identify the sensitive area	Prior to commencing construction within 500m of Button Wrinklewort patches.	Monitoring of signage to occur monthly during construction of Section 2A, Section 2B East and Section 2B West	Repair fallen signs within 24 hours of being identified. Replace damaged signs within 2 months of being identified
BW 1.3b		Install no-go zones in accordance with Section 13	Prior to commencing construction within 500m of Button Wrinklewort	Monitoring of no-go zones to occur weekly	Repair incorrectly installed or damaged no-go zones within 24

[5] For patches identified in Appendix B, Maps 3, 13 only. Not applicable for patches contained within areas of Spiny Rice-Flower fire regime.

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
			patches.		hours
BW 1.4	Ongoing Health Monitoring[6]	Qualified personnel to document the health of Button Wrinklewort populations retained in-situ within Road Reserves and undertake appropriate management techniques (i.e. weed control, burning, maintenance of fencing) to ensure survival. Monitoring of the effectiveness will be conducted concurrently with weed control program.	Maintenance of current population numbers within retained areas and a reduction in exotic biomass to help reduce competition and create open space for Button Wrinklewort populations to survive and reproduce. Ensure translocation is undertaken based on actions and protocols outlined Section 3.2.3.	Annually for the first ten years of this Plan (between October and February)	If a qualified ecologist determines that the exotic biomass and weed cover is not maintained or improved then these DoE and DEPI must be consulted with to determine corrective action
BW 1.5	Manage Grazing	Restrict access to domestic stock	No stock to access the road reserve containing Button Wrinklewort. Ensure ROW boundaries within 100m of Button Wrinklewort patches are secure	Existing ROW fencing to be monitored annually for 10 years post-construction	ROW fences to be repaired within 1 month of defect being identified

[6] Not required for population located within Woodnaggerak Bushland Reserve (Appendix B- Map 13) as it is sufficiently outside the Project Area and not within VicRoads' Road Reserve

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
BW 1.6	Rubbish	Ensure rubbish or litter in and around retained Button Wrinklewort populations is managed within VicRoads road reserve	Rubbish and litter removed to ensure species survival	At least once per year for the first ten years of the TSMP	Rubbish removal must be undertaken regardless of success of the translocation.

5.2 Impacts

Button Wrinklewort is not located within the project area. It is contained in adjacent areas to the project area within Woodnaggerak Reserve, Middle Creek and the rail/road reserve west of Warrayatkin Road, Ararat. During the Environment Effects Statement development process the alignment was adjusted to avoid impact to the species.

5.3 Mitigation measures

5.3.1 Pre-clearance surveys

Prior to undertaking construction activities within 500m of the Button Wrinkewort patches, a suitably qualified ecologist will undertake a pre-clearance survey to identify any unknown individuals.

5.3.2 No-go Zones

Prior to undertaking construction activities within 100m of the Button Wrinklewort patches, the suitably qualified ecologist must establish no-go zone(s) as per Section 13 around the Button Wrinklewort patches identified Appendix B, Maps 2-3, 13.

Prior to construction works occurring within 500m, permanent fencing will constructed around the population immediately east of Warrayatkin Road (Appendix B, Map 3) and the population within Woodnaggerak Reserve at Middle Creek (Appendix B, Map 13). The permanent fencing must be monitored every 6 months after erection with any noted damaged repaired within 4 weeks. This must be undertaken for a period of 10 years post-construction.

5.3.3 Salvage and translocation

Salvage and translocation for Button Wrinklewort is not required as the current alignment avoids all impacts on the species. Further survey undertaken in April 2014 did not identify any Button Wrinklewort individuals within the project area. In the event that further Button Wrinklewort is identified prior to or during construction VicRoads must consult with DEPI and DoE to determine the most appropriate course of action.

5.4 Monitoring

No-go Zones must be regularly monitored to ensure compliance with this plan.

The areas containing the populations of Button Wrinklewort are known to and monitored by regional DEPI and VicRoads staff and any changes to population health or removal of individuals that may potentially occur to these populations will be identified during construction.

Qualified personnel to document the health of Spiny Rice-flower populations retained in-situ within Road Reserves and undertake appropriate management techniques (i.e. weed control, burning, maintenance of fencing) to ensure survival.

Monitoring of the effectiveness will be conducted concurrently with weed control program.

5.5 Corrective Action

Prior to construction works occurring within 500m, permanent fencing will constructed around the population immediately east of Warrayatkin Road (Appendix B, Map 3) and the population within Woodnaggerak Reserve at Middle Creek (Appendix B, Map 13) . The permanent fencing must be monitored every 6 months after erection with any noted damaged repaired within 4 weeks. This must be undertaken for a period of 10 years post-construction.

6. GOLDEN SUN MOTH

Critically Endangered (EPBC Act)

Listed (FFG Act)

Critically Endangered (DSE Advisory List)

6.1 Description

The Golden Sun Moth is a medium-sized, day-flying moth. The wingspan of females and males is about 3.1 cm and 3.4 cm respectively. The smaller wingspan of the female is unique within the *Synemon* genus (Edwards 1991). The upper-side of the forewing is dark grey with patterns of paler grey scales on female moths, and the hindwing is golden yellow with black spots along the edges of the wings. The underside of both wings is white with small black spots along the edge of the wings. In the male, the upper-side of the forewing is dark brown with patterns of pale grey scales and the hindwing is bronze/brown with dark brown patches. The underside of both wings is pale grey with dark brown spots. Both males and females have clubbed antennae. The female has a long extensible ovipositor, which is an elongated organ extending from the posterior abdomen, used to lay eggs.

Adult moths survive between one and four days after pupal emergence and are unable to feed because they lack functional mouthparts (Clarke & O'Dwyer 2000; O'Dwyer & Attiwill 1999). Males spend their adult life patrolling approximately 1 m above the grass in search of females for breeding. Females have reduced hind wings and are reluctant to fly and will only do so when disturbed (Edwards 1991).

The Golden Sun Moth typically occurs in native grassland, grassy woodland, dominated by greater than 40% cover of wallaby-grass *Austrodanthonia* spp. (DSE 2004), but is also known to inhabit areas dominated by Kangaroo Grass (Endersby & Koehler 2006) and introduced species such as Chilean Needle-grass (A. Organ pers. obs.).

Distribution

There are six previous records of Golden Sun Moth from the local area, the most recent in 1906 (DSE 2010). Based on the current range of habitats and their relative condition, there is the potential for Golden Sun Moth to occur within grassland remnants within the project area with confirmed presence between Hillside Road and Pope Road (Appendix B, Map

7 & 8). Other sites that have the potential to have Golden Sun Moth presence include Hopkins River (Appendix B, Map 3), Langi Ghiran Picnic Ground Road (Appendix B, Map 5), Billy Billy Creek (Appendix B, Map 9 & 10), Middle Creek (Appendix B, Map 14) and Fiery Creek (Appendix B, Map 16).

Baseline Condition

The majority of Golden Sun Moth habitat within and surrounding the project area comprises grassland areas that do not qualify as a remnant patch due to a native species cover of less than 25%, and with a high cover of weed species. These areas do, however, support scattered tussocks of wallaby grass *Rytidosperma* spp., a preferred food source for Golden Sun Moth.

Approximately 70.6ha habitat for the Golden Sun Moth is located adjacent to the project area, as defined in Appendix B (Map 3, 5-10, 14 & 16). VicRoads will ensure construction activities do not compromise the quality of this habitat however it is possible these areas may be compromised due to existing land use by private landowners.

Completed surveys on 16, 22, 29 December 2011 and 13 January 2012 identified 145 individuals within or adjacent to the project area west of Pope Road (Appendix B, Map 8). No other individuals were located within the Project Area however potential habitat exists at Fiery Creek, Middle Creek, Billy Billy Creek and Hopkins River.

Further baseline information for known populations of Golden Sun Moth will be undertaken prior to construction works commencing within 500m of the species. This will be submitted to DEPI and DoE within 14 calendar days of commencing works and used as a basis for monitoring the species during construction. This base line information will include survey data containing the number of identified individuals and information on the total hectares of Golden Sun Moth habitat within the area, which maybe potentially directly or indirectly impacted by the proposed action. Baseline information will include a description of the starting performance indicators values, such as percentage of weed cover and of native vegetation etc.

Management Approach

In accordance with EPBC Act Policy Statement 3.12 - Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana) and Golden Sun Moth Synemon plana, Action Statement No 106, this management plan aims to:

- the loss and degradation of Wallaby Grass-dominated native temperate grasslands within the species historical range
- the loss and degradation of open grassy woodlands where the ground layer is dominated by Wallaby Grass
- soil disturbance at extant Golden Sun Moth sites.

Table 7: Golden Sun Moth Management

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
GSM 1.1	Implement Offset Management Plan	Refer to EPBC Approval Notice 2010/5741			
GSM 1.2	Refine detailed design	Where possible, refine detailed design of Section 2B East to further avoid GSM population at Pope Road	N/A	N/A	N/A
GSM 1.3	Preclearance surveys	This base line information will include survey data containing the number of identified individuals and information on the total hectares of Golden Sun Moth habitat within the area.	Prior to commencing construction within 500m of know Golden Sun Moth populations.	N/A	Baseline data submitted to DEPI and DoE within 14 days of commencing works
GSM 1.4	Control weed invasion	Implement spraying as per WHP Section 2 Weed Management Plan	Performance indicator as per WHP Section 2 Weed Management Plan	Monitoring timing as per WHP Section 2 Weed Management Plan	Additional spraying as per WHP Section 2 Weed Management Plan
GSM 1.5	Restrict access	Install no-go zones in accordance with Section 13	Prior to commencing construction within 500m of Golden Sun Moth population.	Monitoring of no-go zones to occur weekly	Repair incorrectly installed or damaged no-go zones within 24 hours
GSM	Revegetation	Refer to Section 6.3.2			

Ref	Management Approach	Management Actions	Performance Indicator	Monitoring Timing	Corrective action
1.6	area				
GSM 1.7	Ongoing Health Monitoring	Refer to Section 6.4			

6.2 Impacts

Golden Sun Moth was recorded during targeted surveys at several sites spread between Buangor-Ben Nevis Road and Langi Ghiran Picnic Ground Road, with numerous individuals recorded in paddocks to the east and west of Pope Road (Appendix B, Maps 7-9). Surveys were undertaken on 16, 22 and 29 December 2011 and 13 January 2012 with 40, 17, 86 and 2 Golden Sun Moth individuals recorded respectively.

Detailed Net Gain analysis has estimated the construction footprint of the project will impact 27.4 hectares of potential Golden Sun Moth habit. VicRoads have committed to ensuring no more than 31.56 hectares will be removed within the project area.

6.3 Mitigation measures

6.3.1 No-go Zones

Prior to undertaking construction activities within 100m of Golden Sun-Moth habitat, the suitably qualified ecologist must establish no-go zone(s) as per Section 13 around the Golden Sun-Moth habitat identified Appendix B

6.3.2 Broad Revegetation Plan

The Golden Sun Moth revegetation area is 5.6 hectares and a preliminary location is marked on Appendix B; Map 8. Topsoil excavated during construction must be replaced over the disturbed zone after construction.

If native vegetation recolonisation is not successful by returning the retained topsoil, revegetation will be undertaken using a suite of flora species appropriate to the Natural Temperate Grasslands of the Victorian Volcanic Plain.

Revegetation of the disturbed areas and rehabilitation of redundant sections of the existing Western Highway where Golden Sun Moth populations are known to be present will proceed with grassland species favoured as a food source by Golden Sun Moth. VicRoads will submit a detailed revegetation plan to DoE 3 months prior to undertaking any revegetation works in this area for their comment and approval.

Pest Plant Management

Areas of retained remnant native vegetation following construction will face increased pressures from weed invasion, increased disturbance and edge effects from the newly constructed areas. Consequently, a management procedure must be implemented in order to ensure the long-term survival of these remnants. A Weed Management Plan will be implemented prior to commencement of construction within the project area. Weed management procedures and monitoring will continue for at least three years after

completion of construction.

Site Preparation

The following actions will be proposed prior to undertaking any revegetation works on site, in order of implementation:

Eliminate all woody weeds from the site;

Control grassy and herbaceous weed species to <5% cover prior to revegetation works;

Control high threat weed species to <5% cover prior to revegetation works;

Fence off the revegetation site and/or provide individual plant guards for all tube stock; and,

Proceed with revegetation work.

Plant Species

Species suitable for revegetation from a variety of life forms appropriate to the re-establishment of Golden Sun Moth habitat (e.g. Plains Grassland EVC) will be selected. This EVC is indigenous to the local area, and will provide the preferred habitat for this species. In areas proposed for revegetation and rehabilitation, landscape plantings must include:

- Flora species appropriate to the local grassland EVC including a suite of understorey and ground cover species, to be used in all revegetation and landscape plantings; and,
- Grassland species favoured as a food source by Golden Sun Moth where Golden Sun Moth populations are known to be present.

Species must be in line with the yet to be prepared Landscape Planting Plans prepared by VicRoads for the 'Native Grass Mix and Grassland Restoration Mix). Implementation and Performance requirements from this Plan must also be adopted as part of the revegetation works for this area.

Existing vegetation retention

Where practical, existing remnant vegetation (predominantly indigenous grasses) within the proposed revegetation area will be retained. The retention of existing remnant vegetation will add structural complexity to the revegetation area, and maintain some level of habitat value during both the construction and revegetation works.

Planting Design

The planting design for the proposed revegetation area will be designed in accordance with the Department of Sustainability and Environment (2006) *Native Vegetation Revegetation planting standards – Guidelines for establishing native vegetation for net gain accounting.* The aim of the revegetation works is to maintain and improve existing habitat for Golden Sun Moth as well as other native fauna species within the local area.

Tube stock and direct seeding methods can be used for revegetation. The former must be adopted in the initial revegetation phase due to the existing cover of remnant vegetation

currently present within the revegetation area. Tubestock planting must be undertaken by hand to reduce disturbance to native vegetation and to provide more reliable and immediate results. Tube stock also tends to be more robust and have a higher likelihood of survival, particularly where there is competition from exotic perennial grasses.

Provenance

Plant and seed stock used for revegetation works must be sourced from within the local area (if available) to ensure that the genetic integrity and species mix is representative of surrounding intact areas of native vegetation.

Planting schedule

Revegetation works will be undertaken in late winter to early spring after completion of construction. It is important that revegetation occurs within this period in order to increase the seedling survival; due to the optimal growth conditions (i.e. optimal rainfall, sunlight) associated with spring.

Budget Estimate

Preparation and planting of the revegetation site will be the most costly part of the revegetation plan and this is likely to occur within the first three years of establishment. It is estimated that the total revegetation project will cost $145,000 with the first three years of implementation requiring $25,000 per year, and the following seven years of management requiring $10,000 per year for monitoring and supplementary planting.

Monitoring

An ongoing monitoring program detailing the progress of revegetation works must be undertaken over a 10 year management period. Monitoring will commence one year after the revegetation works and be undertaken every two years henceforth. Monitoring must include the following measures:

- Regularly monitor survival rates of planted individuals. This will be gauged by counting the number of plants at the time of monitoring and comparing it to the initial number of individuals planted. If the survival rate drops below 50%, supplementary planting must occur.
- Regularly monitor weeds and pest abundance to ensure that weed cover is decreasing and pests are not hindering plant growth and survival.
- Monitoring and auditing will be completed at the conclusion of the 10 year period by a suitably qualified ecologist.

Measurable outcomes for the revegetation project:

- Achieving control and eradication of key (noxious) weed species (over the 10 year management period);
- No new infestations of additional environmental weed species;
- No damage or harm to existing and regenerating native vegetation within the site;
- Fencing is maintained in good order; and,
- Survival rate is maintained above 50%.

6.4 Monitoring

As described below, all monitoring undertaken must be in accordance with Golden Sun-Moth survey guidelines EPBC Act Policy Statement 3.12 - Significant Impact Guidelines for the Critically Endangered Golden Sun Moth (Synemon plana) (Australian Government, 2009).

Monitoring is required for all sites of a known Golden Sun Moth population to determine if Golden Sun Moth has persisted in grassland areas within the roadside reserve or adjacent to construction activities to determine reproductive success and to ensure that management actions and habitats are suitable for a viable Golden Sun Moth population in the future. Specific survey procedures will follow those used to monitor the species elsewhere (i.e. timed surveys, generally along transect). Monitoring for at least three years after the road is operational will be used to guide decisions upon the success of habitat reservation and management within the roadside reserve. There is a high likelihood the species will persist in this area in the future (the species has been recorded along other linear corridors such as railway reserves north of Melbourne), particularly given that the roadside reserve will be contiguous with larger area of suitable grassland habitat on private properties which are also known to contain the species.

At least four days of survey over the flight season (i.e. typically between October and early January) of Golden Sun Moth will be conducted to collect data on habitat variables, and to ensure that the grassland areas along the roadside remain suitable for the species. This is particularly pertinent given that the roadside reserve will experience high levels of disturbance from traffic and other threats such as increased water, nutrient and gross pollutant run-off, accumulation of rubbish, and inappropriate slashing or mowing regimes (i.e. season and frequency).

The following will be undertaken as part of population monitoring and habitat monitoring of suitable grassland habitats proposed to be retained for Golden Sun Moth:

- Survey will be carried out by qualified zoologists in areas of suitable habitat within the project area. The survey will focus in areas of indigenous grassland (namely those areas dominated by wallaby-grass *Rytidosperma* spp., but also in areas of Needle Grass *Nassella* spp. which is a known food source for the species) and areas where the species has previously been recorded;
- The surveys will be undertaken during optimal conditions suitable for detecting species. The male of this species generally flies between 11am and 3pm on calm, warm (over 20°C), sunny days, emerging between October and early January; and,

- All transects and Golden Sun Moths observed during the surveys will be marked with a hand held GPS (accuracy of +/- 5 meters).

Several site-specific habitat variables will also be assessed during the monitoring period, specifically:

- Vegetation diversity, structure, composition and percentage of cover (percentage cover of particular grassland species such as wallaby grass and/or Kangaroo Grass);
- Density of grass and height (providing an indication of when it was last slashed or potentially grazed);
- Presence of other natural features such exposed rock;
- The suitability of adjoining grassland habitats which are also known to support Golden Sun Moth; and
- Presence of pollutants, rubbish and other threatening processes as outlined above.

6.5 Corrective Action

VicRoads is securing 100ha of Golden Sun Moth habit to offset against the impacts of Western Highway Project, Section 2- Beaufort to Ararat.

Any reduction in Golden Sun Moth population for adjacent properties to the road reserve is likely to be related to deteriorating habitat conditions. As such, corrective actions will be associated with ongoing weed management, informed by the Weed Management Plan.

7. BROWN TOADLET

Listed (FFG Act)Endangered (DSE Advisory List)

7.1 Description

The Brown Toadlet is a small brownish coloured toadlet endemic to south-eastern Australia including Tasmania and is found in a variety of habitats not necessarily associated with permanent water. The Brown Toadlet is brown to black on its back, with a scattering of darker flecks and red spots. Its underbelly is marbled black and red spots. Its underbelly is marbled black and white and there is a bright yellow patch around its cloaca. In Victoria, the Brown Toadlet is distributed from the north-east through to central and western Victoria with scattered records in Gippsland. In the South West region it is recorded from all bioregions except the Otway Ranges bioregions, although most records are grouped on the Volcanic Plains bioregion north of Werribee, the Greater Grampians bioregion and the Lowan Malle bioregion in the Little Desert.

There are five previous records of Brown Toadlet from the local area, the most recent in 1963. There is suitable habitat for this species in the Hopkins River, Billy Billy Creek, Charliecombe Creek, Middle Creek and Fiery Creek, as well as several smaller, unnamed drainage lines.

Over 28 records of Brown Toadlet were collected within the project area during targeted Brown Toadlet surveys and throughout the duration of the project. Individuals were detected during the targeted nocturnal surveys and incidentally whilst undertaking other surveys (e.g. whilst collecting hair tubes and infra-red cameras etc.). Records of Brown Toadlet collected during the targeted surveys and incidentally are presented in Figure 2 however this species is widespread throughout the project area in many of the drainage lines, seeps, road ditches and culverts located within or adjacent to woodland vegetation.

7.2 Impact

Habitat for Brown Toadlet is widespread throughout the project area in many of the wetlands, drainage lines, seeps, road ditches and culverts located within or adjacent to woodland vegetation.

7.3 Mitigation measures

7.3.1 No-go Zones

There are no No-Go Zones specifically for the Brown Toadlet. However all areas of vegetation that can be protected through refined detailed design will form part of additional No-Go Zones not outlined in this plan.

7.3.2 Salvage and translocation

Salvage and translocation (Pre-construction)
Active season (late March -June)

- Pre-construction salvage will take place prior to site disturbance, but as close as possible to proposed construction periods, i.e. one to three days (a longer intervening period may mean frogs have moved back into the area);
- Two observers will spend a minimum two nights surveying, by spotlighting and call playback, in identified areas of habitat (to be identified during targeted surveys prior to commencement of construction) within the project area prior to the commencement of works in their vicinity. Any individuals detected will be relocated to the nearest suitable habitat at least 200 metres, but no greater than 500 metres, from the construction zone;
- Frog and tadpole salvage will be undertaken during the drainage/pumping of any dams identified as known habitat by the species within the project area;
- Footwear will be washed in disinfectant at the beginning and end of each salvage period to prevent the introduction and/or spread of any diseases. All salvage procedures will be conducted in accordance with the hygiene protocol for the control of disease in frogs (NPWS 2001).

Inactive season (July - February)

As any Brown Toadlet that may be present will be inactive during these months, nocturnal surveys prior to construction activities will not be required.

Salvage and translocation (During construction)

- After completion of pre-construction surveys and salvage, the draining of wetlands, dams and drainage lines will proceed as detailed above (Salvage and Translocation of Aquatic Fauna);
- For the removal of any vegetation or refuge in and around the waterbody, zoologists are to communicate how to best undertake removal to avoid injury to native fauna.

8. EROSION AND SEDIMENT CONTROL

8.1 General

All sediment erosion and pollution control protocols are implemented, in accordance with Construction Techniques for Sediment Pollution Control (EPA Publication No. 275, 1991); and Environmental Guidelines for Major Construction Sites (EPA Publication No. 480, February 1996).

All exposed surfaces shall be free of or treated to minimise erosion.

Erosion and sediment controls shall include but are not limited to:

- minimising the amount of exposed erodible surfaces during construction including the staging of works;
- prompt temporary and/or permanent progressive revegetation of the site as work proceeds;
- prompt covering of exposed surfaces (including batters and stockpiles) that would otherwise remain bare for more than 28 days. Cover may include mulch, erosion control mat or seeding with sterile grass;
- installation, stabilisation and maintenance of catch and diversion drains that segregate water runoff from catchments outside of the construction site from water exposed to the construction site;
- installation and maintenance of erosion and sedimentation controls, established in accordance with EPA best practice guidelines for the treatment of sediment laden run-off resulting from construction activities;
- adequately control and route runoff within the construction site to the appropriate sedimentation controls; and
- where trees are required to be removed more than two months in advance of any construction works, remove only that part of the tree that is above ground level and where possible allow the roots to remain intact beneath the ground surface to assist with erosion control.

8.2 Works in/near Waters

Works shall be programmed and managed to avoid work in waters. Where work in waters is unavoidable, procedures shall be developed and implemented to satisfy the requirements of the specification and as required by any permits from the responsible authority(s).

Where construction activities are undertaken in, near or over waters, EMPs shall be prepared to protect beneficial uses in accordance with any permit, the *State Environmental Planning Policy (Waters of Victoria)* its schedules and best practice guidelines.

8.3 Sedimentation Basins

Sedimentation basins shall be utilised as the primary sediment control for the works unless the Contractor can demonstrate to the Superintendent's satisfaction that the implementation of a sedimentation basin is not technically feasible for the works.

Where sedimentation basins are proposed as control measures, basins shall be designed to contain flows from a rainfall event having an Average Recurrence Interval of not less than two years and six hour duration when allowing for a 30% reduction in capacity as a result of sediment accumulation.

Sedimentation basins shall be modelled and sized to manage rainfall intensities and soil characteristics specific to the region. The sizing and modelling of sedimentation basin(s) shall consider the expected works and associated area of disturbance within catchment area(s) within the site.

The sizing and modelling of temporary sedimentation basins shall be undertaken using recognised 'best practice' modelling techniques or '*VicRoads Temporary Sedimentation Basin Sizing Tool*'.

Spillways or bypass systems (installations that divert all clean surface flows around a works site) shall be designed for an event having an Average Recurrence Interval of five years.

An independent hydraulic consultant who has demonstrated competence and suitable experience in the design of temporary sedimentation basins shall complete and sign a declaration. The declaration shall accompany submission of the sedimentation basin designs to the Superintendent.

The Contractor shall submit to the Superintendent the sedimentation designs and the associated independent verification declarations not less than two weeks prior to the commencement of construction of the temporary sedimentation basin.

Sedimentation basins shall be cleaned out whenever the accumulated sediment has reduced the capacity of the basin by 30% or more, or whenever the sediment has built up to a point where it is less than 500 mm below the spillway crest, whichever occurs earlier.

8.4 Stockpiles

Where soil or granular material is stockpiled on site, such stockpiles shall be located to provide a clearance of not less than 100m from waterways.

8.5 Monitoring

The Contractor shall inspect the whole site for instances of soil erosion or scour and the effectiveness of erosion and sedimentation controls in accordance with the following:

- at intervals not more than seven calendar days;
- within one hour of the commencement of any runoff resulting from rain events during working hours;
- every four hours during periods of continuous rain during working hours;
- within 12 hours of a rain event outside working hours.

Any defects and/or deficiencies in control measures identified by monitoring undertaken shall be rectified immediately and these control measures shall be cleaned, repaired and augmented as required to ensure effective control.

9. FUELS AND CHEMICALS

9.1 General

Any leakage or spillage of any fuels or chemicals shall not have a detrimental environmental impact.

EMPs shall include specific procedures to mitigate the effect on the environment from fuels and chemicals, including herbicides and pesticides. Such procedures shall include but not be limited to:

- nominated fuel and chemical storage areas that comply with Dangerous Goods (Storage and Handling) Regulations 2000 and EPA Bunding Guidelines (EPA Publication 347) including the placarding of compounds and bulk storage containers;
- nominated points for the refuelling and fluid top up of vehicles and plant which shall be undertaken in a designated area, at least 100 m from any drainage point or waterways;
- provision of readily accessible and maintained spill kits for the purpose of cleaning up chemical, oil and fuel spillages on the site at all times;
- ensuring that personnel trained in the efficient deployment of the spill kits are readily available in the event of spillages; and
- a contingency plan that shall address the containment, treatment and disposal of any spill.

9.2 Monitoring

Fuel and chemical storages and equipment fill areas shall be monitored by the contractor for compliance at intervals of not more than 7 calendar days.

10. AIR QUALITY

10.1 General

All work under the Contract shall comply with the following requirements:

- emissions of odorous substances or particulates shall not create or be likely to create objectionable conditions for the public;
- materials of any type shall not be disposed of through burning;
- material that may create a hazard or nuisance dust shall be covered during transport; and
- dust generated from road construction activities shall not create a hazard or nuisance to the public, shall not disperse from the site or across roadways, nor interfere with crops, stock or dust-sensitive receptors.

10.2 Plant and Equipment

All work under the Contract shall comply with the following requirements:

- emissions of visible smoke to the atmosphere from construction plant and equipment shall not be for periods greater than 10 consecutive seconds;
- where practicable all heavy duty diesel engines must be fitted with Selective Catalytic Reduction (SCR) and diesel particulate filters.

10.3 Mitigation measures

10.3.1 General

Monitoring shall comply with the following requirements:

- insoluble solids from any air quality monitoring station, as measured by a dust deposit gauge in accordance with the requirements of AS 3580.10.1, shall not exceed 4 g/m2/month or 2 g/m2/month above the background measurement, whichever is the lesser
- directional dust gauges that comply with the equipment requirements of AS 2724.5 shall be installed alongside each air quality monitoring station. Directional dust gauges shall be orientated such that one of the collecting cylinders is directed towards the construction activities;
- directional dust shall be measured as insoluble solids in accordance with AS 3580.10.1 for each of the four collecting cylinders. Directional dust gravimetric results shall be expressed as the percentage of the total directional dust gauge catch for each cylinder;
- dust deposition and directional dust monitoring shall be supplemented with continuous monitoring using a portable laser light scattering instrument, or equivalent, to allow changes to dust control measures if the PM10 1 hour average concentration exceeds 120 µg/m3;
- no less than one portable laser light scattering instruments shall be operational daily while undertaking construction activities;

- portable laser light scattering instrument(s) shall provide a visible and logged alarm and SMS notification if the 1 hour average criterion of 120 µg/m3 is exceeded;
- the portable light scattering instrument shall be calibrated and maintained in accordance with manufacturer's instructions with calibration and maintenance records retained and made available to the Superintendent upon request. Daily records shall include checks of instrument zero and flow rate.

10.3.2 Location of Monitoring Equipment

Dust deposit gauges and directional dust gauges shall be established in accordance with the requirements of AS 3580.1.1.

One dust deposit gauge shall be installed and maintained as a background reference station. The reference station shall be in close proximity to the site, but unaffected by works under the Contract.

No less six other monitoring stations shall be located where roadworks are likely to have the greatest impact on adjacent properties or create nuisance/inconvenience to the public.

The location of portable laser light scattering instrument(s) shall be adaptive to changes in wind direction or construction activity.

Portable laser light scattering instrument(s) shall be located downwind of road construction activities or adjacent to a sensitive receptor when in proximity to the works.

All monitoring stations to be located such that they are secure from vandalism and tampering at all times.

10.3.3 Results

Results of dust deposition and directional dust monitoring shall be submitted to the Superintendent within 24 hours of receipt from the laboratory.

Daily results of continuous monitoring including the location(s) of the instrument shall be made available upon request.

A daily visual assessment of the site for airborne dust and vehicle emissions shall be undertaken at locations where works are being carried out and records maintained of these inspections.

Hourly wind speed and wind direction data that correlates to the site location shall be obtained and maintained in the Contractor's records and made available to the Superintendent upon request.

10.3.4 Timing

Sampling frequency for dust deposition and directional dust is based on the risk of generation of nuisance dust and is season dependent. Dust deposition and directional dust sampling frequency shall have a sample frequency of:

- 14 day consecutive period between November and March
- 30 day consecutive period between April and October

11. CONTAMINATED SOILS AND MATERIALS

11.1 General

All work under the Contract shall comply with the following requirements:

- soils or materials shall not be contaminated as a consequence of work under the Contract;
- materials imported to the site shall be free from contamination;
- contaminated materials shall only be reused on site following approval from the Superintendent and EPA;
- contaminated materials to be reused on site as part of the Contract shall be temporarily stored and managed to minimise any impact on the site or surrounding environment;
- the transport and disposal of contaminated soils or materials offsite shall be undertaken in accordance with relevant legislation and State Environment Protection Policies.

11.2 Discovery of Contaminated Material

The discovery of contaminated material on the site during works shall be managed in accordance with VicRoads and EPA Guidelines. In the event that contaminated material is encountered on the site, the Contractor shall:

- notify the Superintendent and where applicable EPA;
- undertake comprehensive sampling and analysis to determine the type levels and extent of contamination in accordance with VicRoads and EPA guidelines
- investigate the opportunity to reuse the contaminated soil and/or material as a fill material on site;
- ensure that any proposed reuse and/or disposal methods are acceptable to the Superintendent and EPA.

11.3 Monitoring

The Contractor shall undertake a visual assessment of the site for contaminated soils and materials daily when stripping, during excavations and when importing filling material.

12. WASTE AND RESOURCE USE

12.1 General

The generation of waste materials shall be managed in accordance with the hierarchy, to avoid, reuse, recycle or dispose of waste material. The Contractor shall be responsible for the management of any waste produced in performing the work under the Contract.

All work under the Contract shall comply with the following requirements:

- the nature of wastes generated as a consequence of works under the Contract shall be identified;
- wastes shall be stored prior to reuse or disposal to minimise any impact on the site or surrounding environment;
- where approval is granted to incorporate recycled materials into the works, the Contractor shall maintain appropriate records of the type of material and its location. In particular, records shall include the tonnage of recycled crumbed rubber used in asphalt pavements and chip seal works and all recycled crushed concrete used in pavement construction;
- vehicles transporting waste shall be covered and appropriately licensed.

Unless otherwise approved by the Superintendent and where recycling facilities are available, the materials shall be managed in accordance with Table 5 below.

Table 8 - Resource Management Requirements

Material	Waste Management Approach
Asbestos	EPA licensed landfill
Asphalt	Recycle or reuse - not to landfill
Concrete and concrete washings	Recycle or reuse - not to landfill
Contaminated soil	Recycle or reuse on site if opportunity exists. If removed from site, transported by an EPA licensed contractor and disposed in accordance with EPA regulations
Felled woody vegetation (except fragments of noxious or environmental weeds capable	Mulched for reuse, or used for habitat logs
Woody weed fragments capable of regeneration	Burial on site (deeper than 500 mm and not in fill, pavement or other critical areas), composting, or disposal
Formwork	Reuse or dispose to landfill
Plastics (Recycle Nos. 1, 2, 3, 4, 5,	Recycling facility - not to landfill
Metal	Recycle or reuse - not to landfill
Oil containers and lead acid	Recycling facility - not to landfill
Packaging materials	Recycle where possible or dispose to landfill
Empty paint tins	Recycling facility - not to landfill

Petroleum products from spills (absorbed in spill kit material or contaminated soil)	Recycle or reuse with rehabilitation of contaminated soils if opportunity exists. Transported by an EPA licensed contractor and disposed in accordance with EPA
Timber (untreated)	Recycle - not to landfill
Litter	Recycle or dispose to landfill
Office waste	Recycle where possible or dispose to landfill
Other waste excluding the above wastes	Recycle or reuse if opportunity exists

12.2 Monitoring

The Contractor shall monitor the whole site for instances of inappropriate waste management or disposal at intervals of not more than 7 calendar days.

13. PROCEDURE FOR ESTABLISHING AND MAINTAINING NO-GO ZONES

No work will occur outside the project area. As per the Western Highway Project Section 2 EES, additional areas of vegetation will be protected within the project area to protect Threatened Species as described in this plan and shown in Appendix B. In addition to No-Go Zones identified in the plan, No-Go Zones will be implemented where vegetation can be protected through refined detailed design.

All fencing of 'No Go Zones' must as a minimum be:

- erected 3 metres beyond the boundary of the threatened species habitat to be protected
- constructed of star picket or timber posts with a minimum of one wire support
- have a high visibility component (i.e paraweb or flags)
- communicated by signage installed on the temporary fencing at intervals no more than 20 metres apart with appropriate wording (e.g 'Protected Area- No Unauthorised Access'); and,
- retained in place for the duration of the construction period (until Practical Completion).

All No-Go Zone fencing must be checked on a weekly basis to ensure that they are effective. In the event that the fencing has been damaged, repairs must be undertaken immediately, where possible, or as soon as practicable once the fault has been reported to the Contractor.

The no-go zones are to be installed using and GPS device and the vegetation GIS layer provided by VicRoads in accordance with additional pre-clearance survey data (if applicable).

Where No-Go Zones compromise Road Safety (i.e appear in a clear zone) then star pickets will be replaced with sand bagged bollards or suitable frangible posts and monitored daily. This will be at the discretion of VicRoads.

14. PROCEDURE FOR REPORTING

An annual summary statement or report will be prepared to inform DEPI and DoE of relevant ecological issues, milestones and threats. The annual report will report on compliance for the financial year and must be provided by 30 September each year

This statement/report will include:

- The progress of development;
- Any measures implemented in accordance with this plan
- Any incidents which may have impacted any matters of NES or other listed species
- Any mitigation measures implemented
- Progress of management actions (e.g. weed removal, salvage and translocation works)
- Any significant findings resulting from monitoring activities

A template for the annual reporting requirements can be found in Appendix E.

15. ENVIRONMENTAL AUDITS AND SURVEILLANCE

In addition to regular monitoring and maintenance of environmental protection measures in accordance with this Plan the Contractor shall arrange an audit of the Construction Environmental Management Plan (CEMP) prior to the commencement of Works

The environmental audit shall be undertaken by an environmental auditor that:

- is listed on VicRoads 'Register for Pre-qualified Contractors and Consultants' for the level 'Environmental Auditing (Construction)'
- is independent of the Contractor (a specialist in the employ of the Contractor is not acceptable); and
- has no involvement in the development of the Contractor's EMP for the works under this Contract.

The Contractor's CEMP shall be independently audited to ensure compliance with the Contract Specification and to verify that the CEMP will be sufficient to protect the beneficial uses.

Non-conformances will be reported to DoE as per EPBC approval conditions.

VicRoads surveillance and audits during Construction

VicRoads will arrange surveillance and audits to verify the effectiveness of the TSMP and CEMP and compliance with the Contract Specification. All non-conformances will be logged in VicRoads 'EnviroTracker' database and captured in the annual compliance report submitted to DoE. Any non-conformance relating to the EPBC Approval Notice 2010/5741 will be reported to DoE within 2 business days.

The Contractor shall co-operate with any reasonable requests by VicRoads or from relevant environmental agencies to undertake environmental audits and or surveillance activities of the Contract.

All non-conformances arising from an audit shall be addressed by the Contractor. The contractor shall take immediate action to address any significant environmental non-conformance identified by an audit.

If the Contractor does not take action to address a non-conformance, the Superintendent may act to resolve the non-conformance and the cost of such action shall be deducted from moneys due or becoming due to the Contractor.

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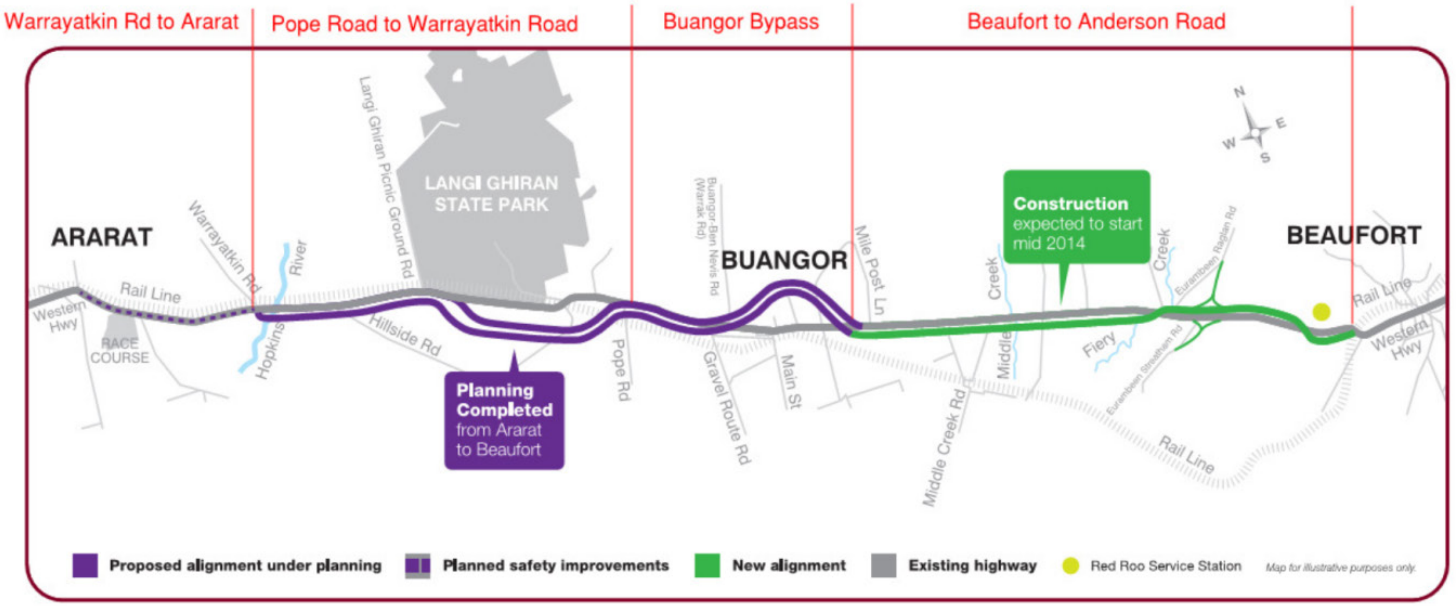
16. APPENDIX A- PROJECT LOCATION

Western Highway Project
Beaufort to Ararat



17. APPENDIX B- MATTERS OF NES MAPS

Legend

Option 1 Footprint (Project Area)

Mitigation Actions

No Go Zone

Salvage

Map 1

Matters of NES

Western Highway Duplication - Section 2, Beaufort to Ararat

Issue Date: 30/04/2014

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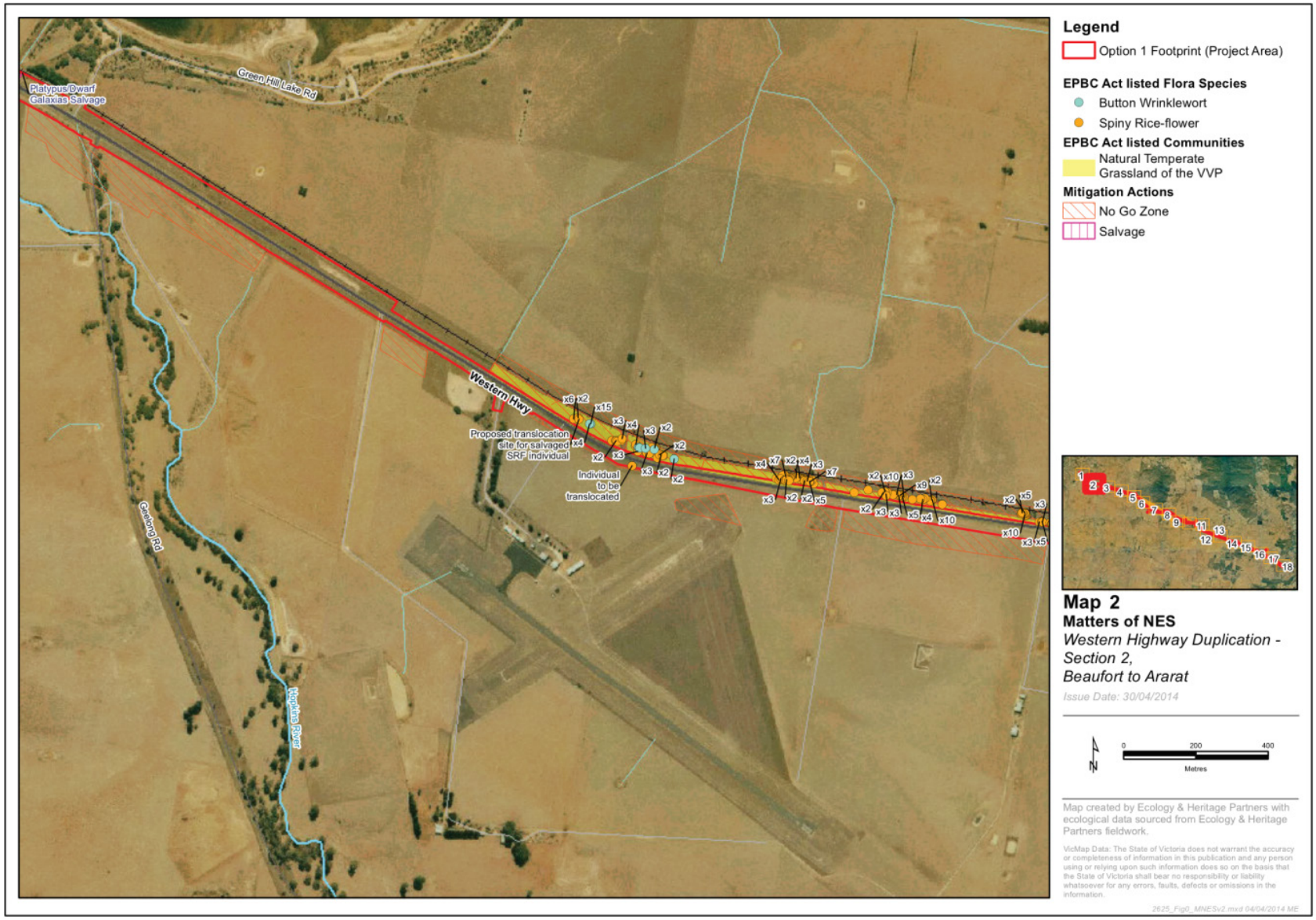
Metres

Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.


Green Hill Lake Rd
Platypus/Dwarf Galaxias Salvage
Western Hwy
Proposed translocation site for salvaged SRF individual
Individual to be translocated
Geelong Rd
Hopkins River
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Flora Species
Button Wrinklewort
Spiny Rice-flower
EPBC Act listed Communities
Natural Temperate Grassland of the VVP
Mitigation Actions
No Go Zone
Salvage
Map 2
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
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Metres
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Legend

- Option 1 Footprint (Project Area)

EPBC Act listed Fauna Species

- Golden Sun Moth
- Golden Sun Moth habitat

EPBC Act listed Flora Species

- Button Wrinklewort
- Spiny Rice-flower

EPBC Act listed Communities

- Grassy Eucalypt Woodland of the VVP
- Natural Temperate Grassland of the VVP

Mitigation Actions

- No Go Zone
- Salvage
- Water Quality Monitoring: Three upstream and four downstreamsites will be established prior to construction and clearly marked for on-going monitoring.

Map 3

Matters of NES

Western Highway Duplication - Section 2, Beaufort to Ararat

Issue Date: 30/04/2014

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Metres

Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.

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Hopkins River
Brady Rd
Western Hwy
Hillside Rd
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Communities
Grassy Eucalypt Woodland of the VVP
Mitigation Actions
No Go Zone
1 2 3 4 5 6 7 8 9 11 12 13 14 15 16 17 18
Map 4
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
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Metres
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Legend

Option 1 Footprint (Project Area)

EPBC Act listed Fauna Species

Golden Sun Moth

Golden Sun Moth habitat

EPBC Act listed Communities

Grassy Eucalypt Woodland of the VVP

Mitigation Actions

No Go Zone

Map 5

Matters of NES

Western Highway Duplication - Section 2, Beaufort to Ararat

Issue Date: 30/04/2014

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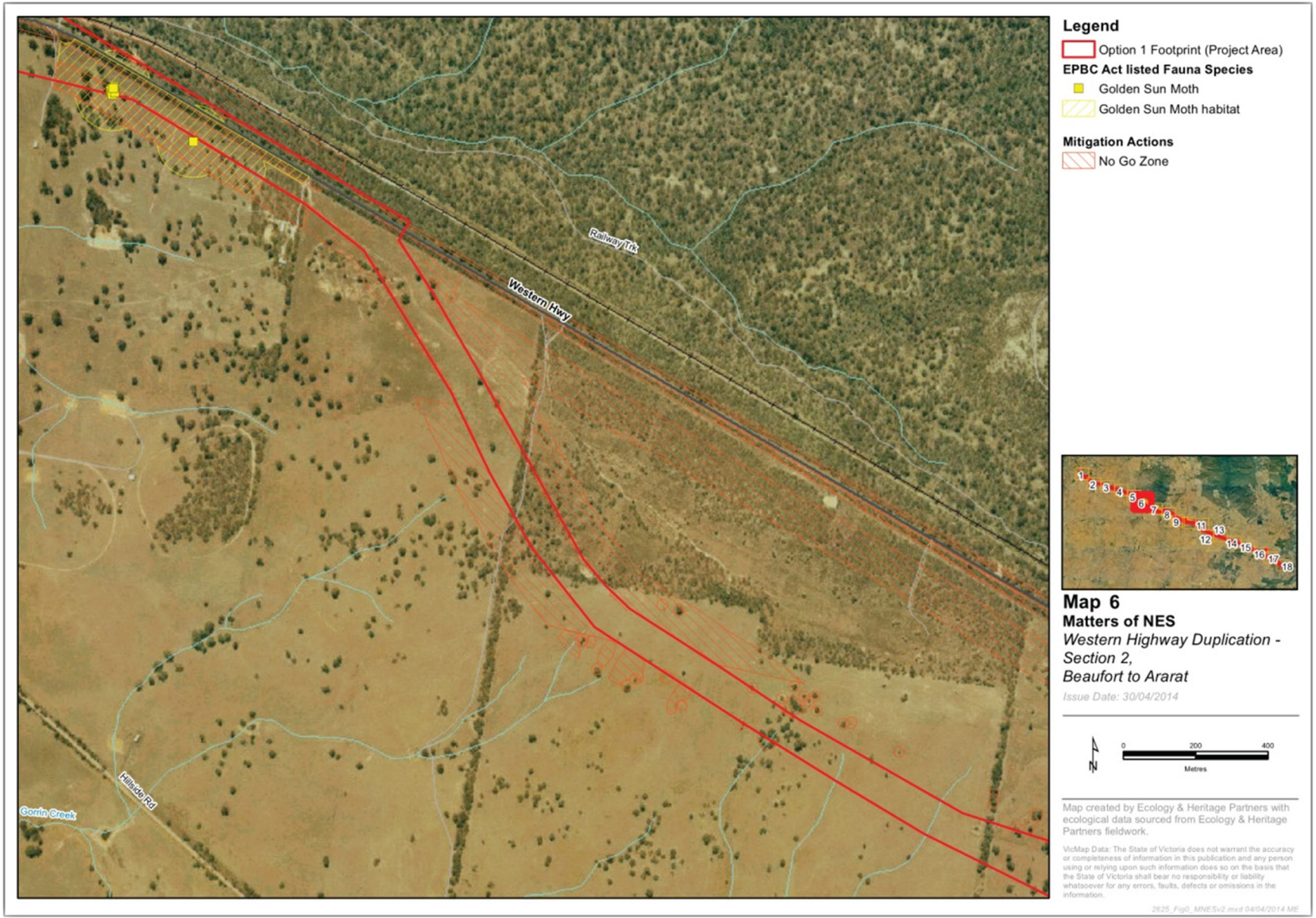
Metres

Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.


Railway Trk
Western Hwy
Hillside Rd
Gorrin Creek
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Fauna Species
Golden Sun Moth
Golden Sun Moth habitat
Mitigation Actions
No Go Zone
1
2
3
4
5
6
7
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9
11
12
13
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17
18
Map 6
Matters of NES
Western Highway Duplication - Section 2,
Beaufort to Ararat
Issue Date: 30/04/2014
N
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Metres
Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.
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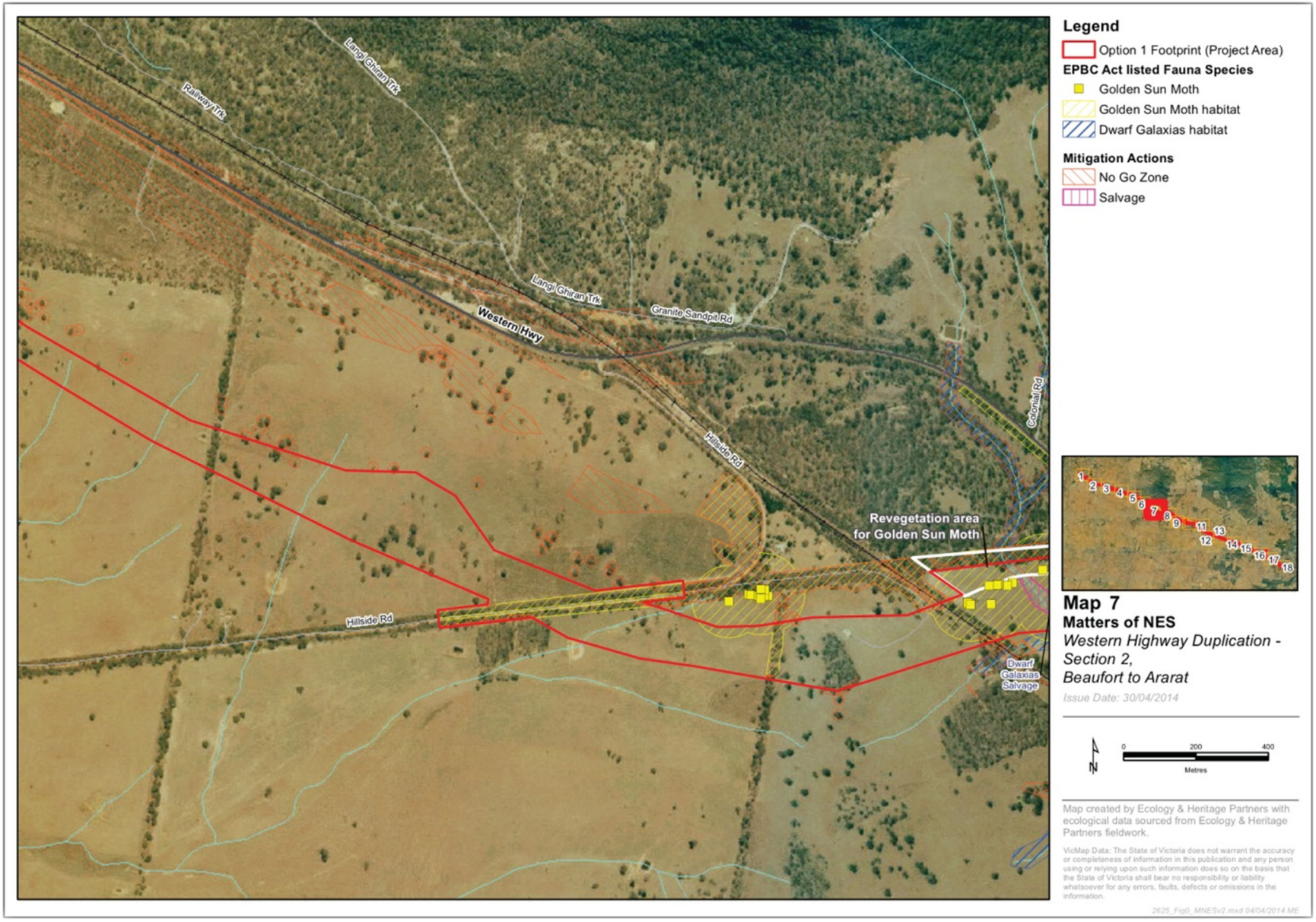
Langi Ghiran Trk
Railway Trk
Langi Ghiran Trk
Western Hwy
Granite Sandpit Rd
Colombo Rd
Hillside Rd
Revegetation area for Golden Sun Moth
Hillside Rd
Dwarf Galaxias Salvage
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Fauna Species
Golden Sun Moth
Golden Sun Moth habitat
Dwarf Galaxias habitat
Mitigation Actions
No Go Zone
Salvage
1 2 3 4 5 6 7 8 9 11 12 13 14 15 16 17 18
Map 7
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
N
0 200 400
Metres
Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.
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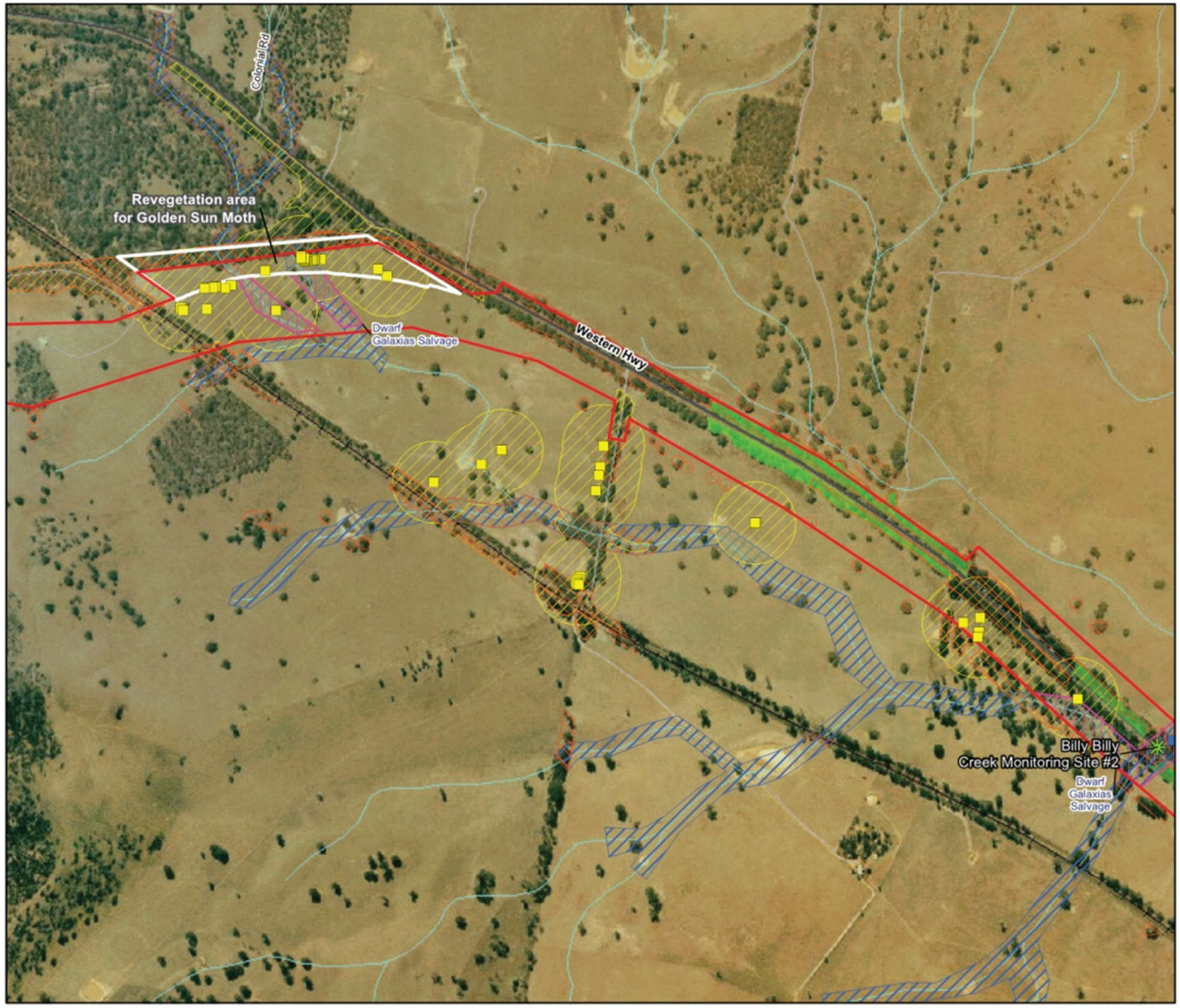
Colonial Rd
Revegetation area
for Golden Sun Moth
Dwarf
Galaxias Salvage
Western Hwy
Billy Billy
Creek Monitoring Site #2
Dwarf
Galaxias
Salvage
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Fauna Species
Dwarf Galaxias
Golden Sun Moth
Golden Sun Moth habitat
Dwarf Galaxias habitat
EPBC Act listed Communities
Grassy Eucalypt
Woodland of the VVP
Mitigation Actions
No Go Zone
Salvage
Water Quality Monitoring:
Three upstream and four
downstreamsites will be
established prior to construction
and clearly marked for
on-going monitoring.
1
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Map 8
Matters of NES
Western Highway Duplication -
Section 2,
Beaufort to Ararat
Issue Date: 30/04/2014
N
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Metres
Map created by Ecology & Heritage Partners with
ecological data sourced from Ecology & Heritage
Partners fieldwork.
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or completeness of information in this publication and any person
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the State of Victoria shall bear no responsibility or liability
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information.
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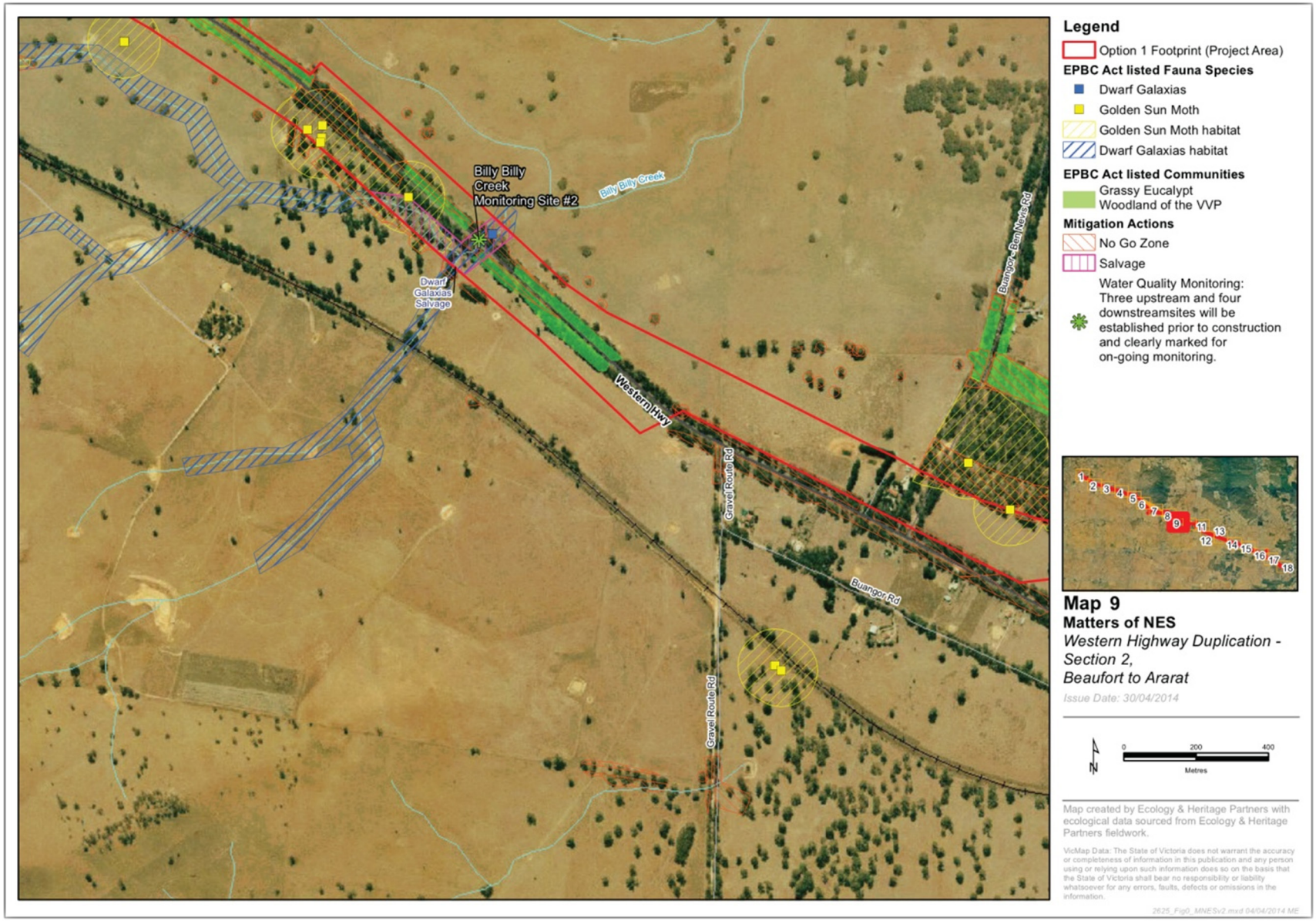
Billy Billy Creek Monitoring Site #2
Billy Billy Creek
Dwarf Galaxias Salvage
Western Hwy
Gravel Route Rd
Gravel Route Rd
Buangor Rd
Buangor - Ben Nevis Rd
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Fauna Species
Dwarf Galaxias
Golden Sun Moth
Golden Sun Moth habitat
Dwarf Galaxias habitat
EPBC Act listed Communities
Grassy Eucalypt Woodland of the VVP
Mitigation Actions
No Go Zone
Salvage
Water Quality Monitoring: Three upstream and four downstreamsites will be established prior to construction and clearly marked for on-going monitoring.
1 2 3 4 5 6 7 8 9 11 13 12 14 15 16 17 18
Map 9
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
N
0 200 400
Metres
Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.
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Legend

- Option 1 Footprint (Project Area)

EPBC Act listed Fauna Species

- Dwarf Galaxias
- Golden Sun Moth
- Golden Sun Moth habitat
- Dwarf Galaxias habitat

EPBC Act listed Communities

- Grassy Eucalypt Woodland of the VVP

Mitigation Actions

- No Go Zone
- Salvage
- Water Quality Monitoring: Three upstream and four downstreamsites will be established prior to construction and clearly marked for on-going monitoring.

Map 10

Matters of NES

Western Highway Duplication - Section 2, Beaufort to Ararat

Issue Date: 30/04/2014

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Metres

Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.

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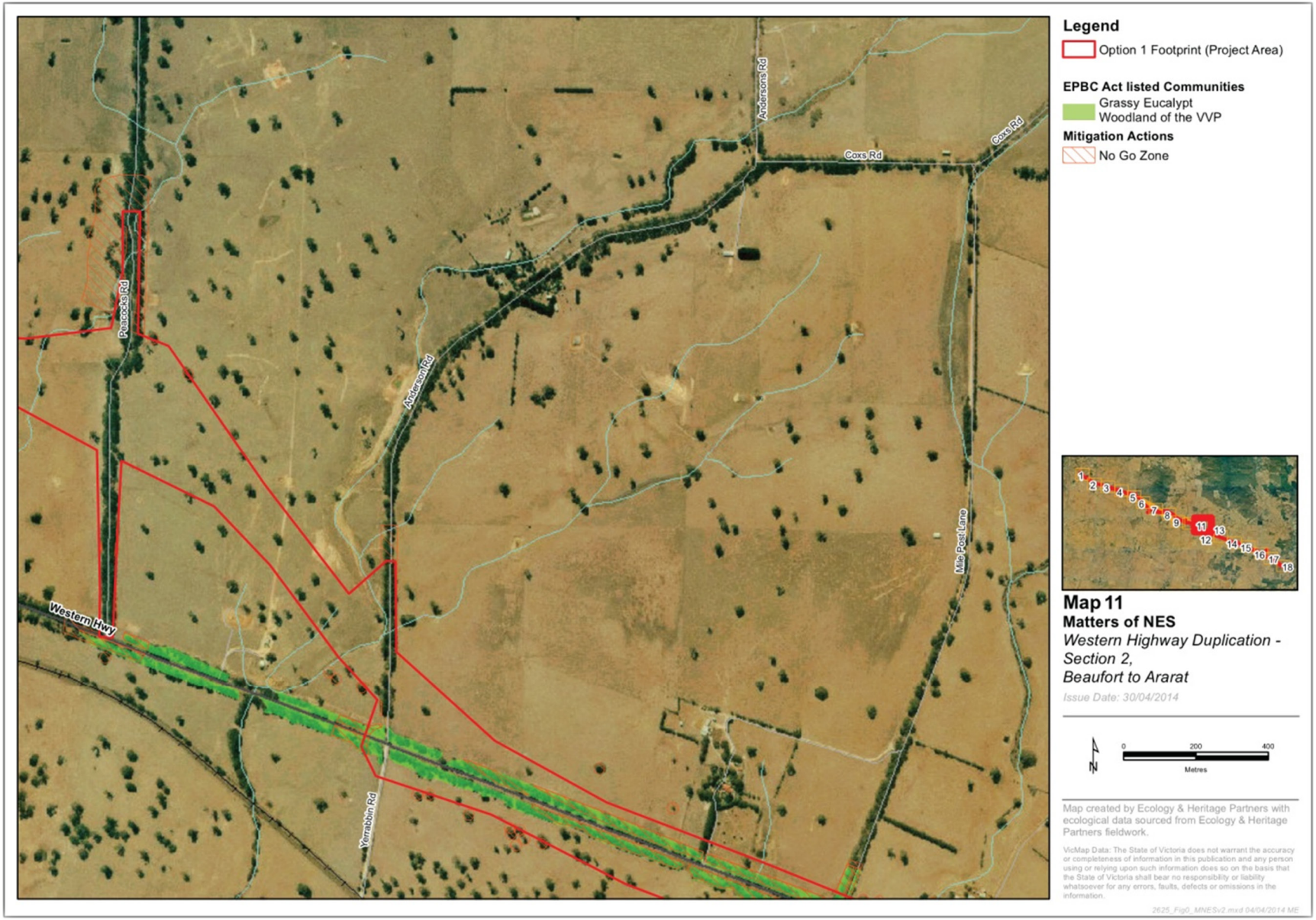
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Communities
Grassy Eucalypt Woodland of the VVP
Mitigation Actions
No Go Zone
Western Hwy
Pomonda Rd
Anderson Rd
Coxs Rd
Mile Post Lane
Yarrabbin Rd
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Map 11
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
0 200 400
Metres
Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.
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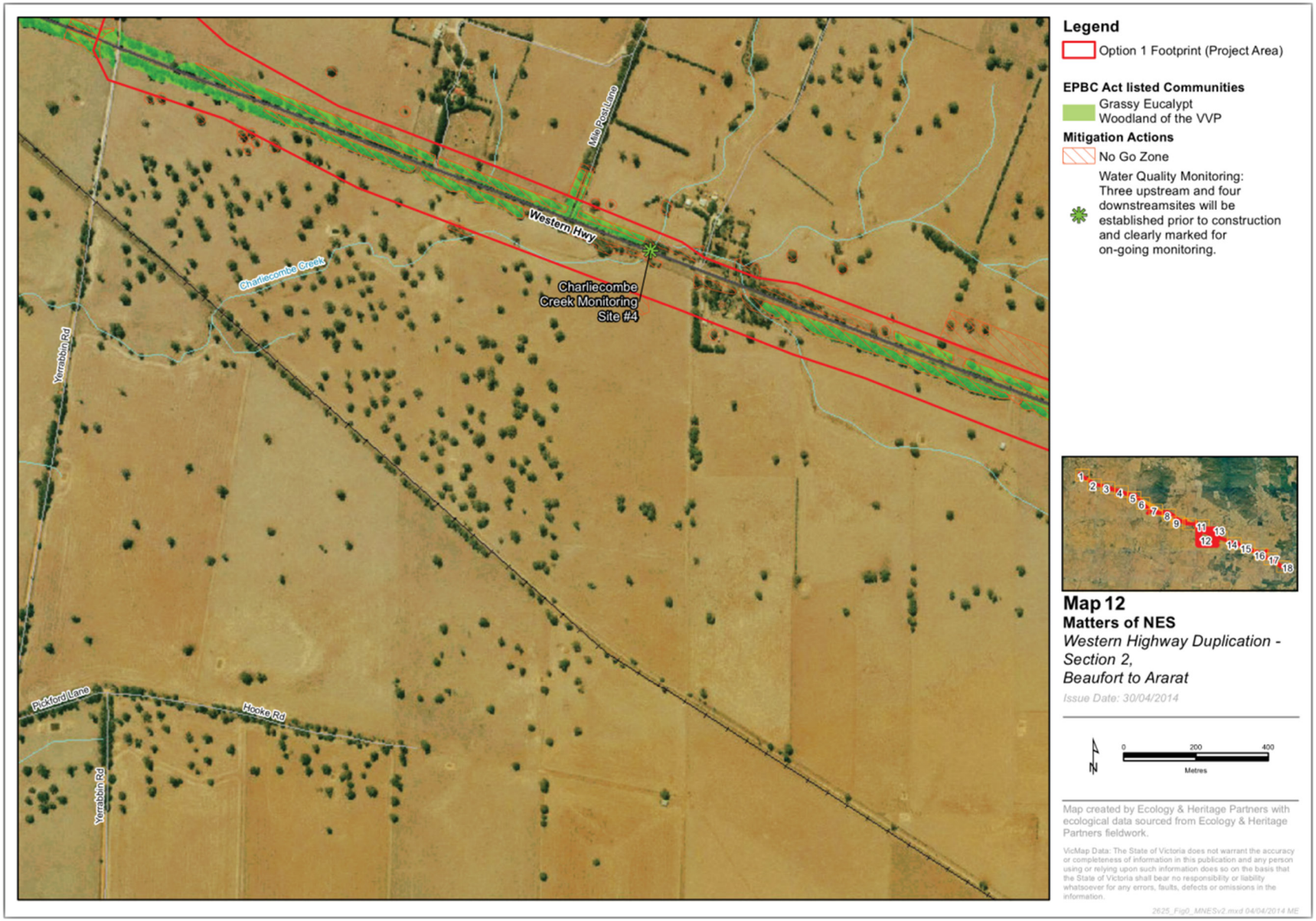
Western Hwy
Mile Post Lane
Charliecombe Creek
Charliecombe Creek Monitoring Site #4
Yerrabbin Rd
Pickford Lane
Hooke Rd
Yerrabbin Rd
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Communities
Grassy Eucalypt Woodland of the VVP
Mitigation Actions
No Go Zone
Water Quality Monitoring: Three upstream and four downstreamsites will be established prior to construction and clearly marked for on-going monitoring.
1 2 3 4 5 6 7 8 9 11 13 12 14 15 16 17 18
Map 12
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
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0 200 400
Metres
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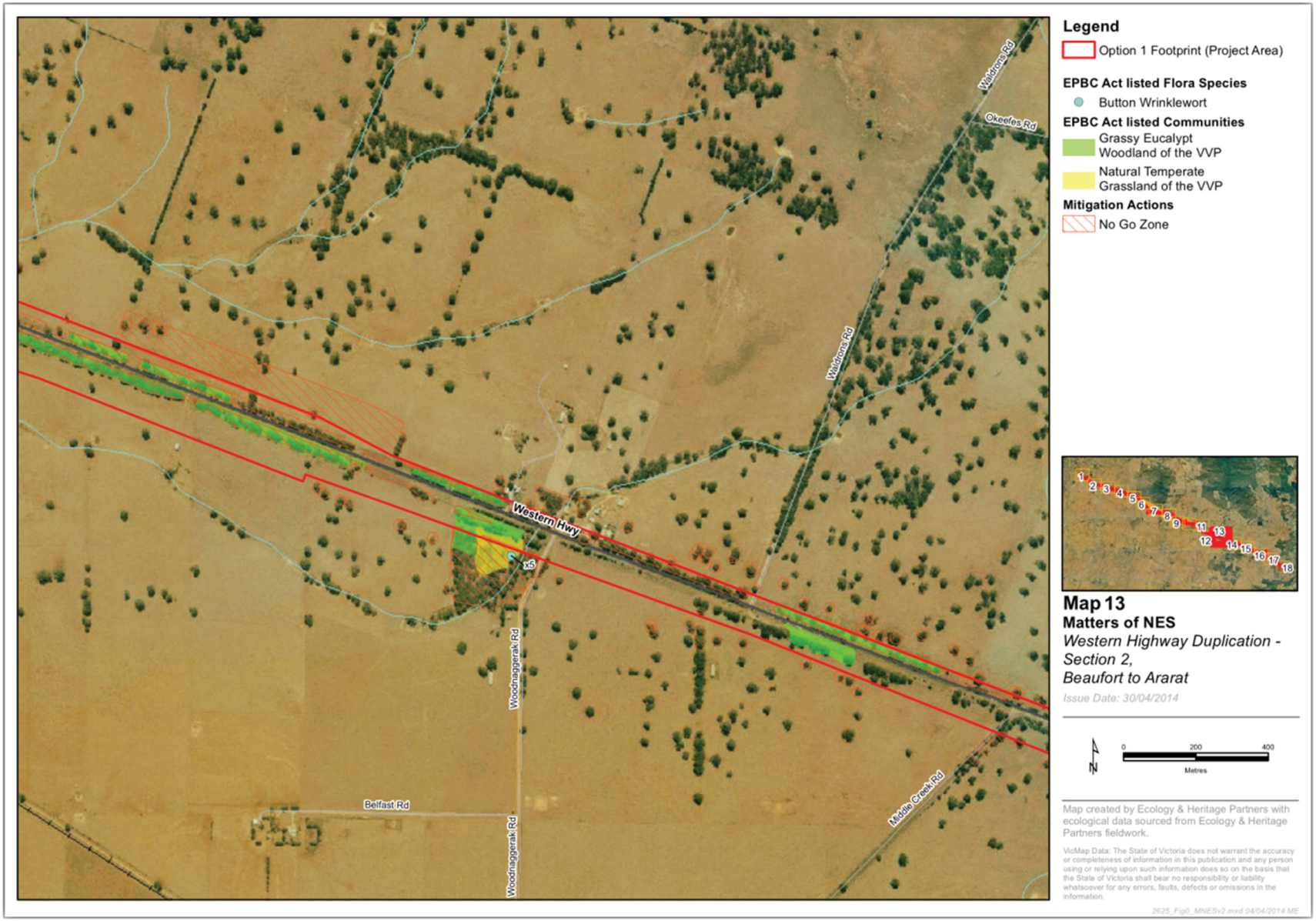
Legend
Option 1 Footprint (Project Area)
EPBC Act listed Flora Species
Button Wrinklewort
EPBC Act listed Communities
Grassy Eucalypt Woodland of the VVP
Natural Temperate Grassland of the VVP
Mitigation Actions
No Go Zone
Western Hwy
Woodnaggerak Rd
Belfast Rd
Middle Creek Rd
Okeefes Rd
Weldrons Rd
Map 13
Matters of NES
Western Highway Duplication - Section 2, Beaufort to Ararat
Issue Date: 30/04/2014
0
200
400
Metres
Map created by Ecology & Heritage Partners with ecological data sourced from Ecology & Heritage Partners fieldwork.
VicMap Data: The State of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omissions in the information.
2625_Fig0_MNESv2.mxd 04/04/2014 ME

18. APPENDIX C- SURVEYS

Table 8 - Surveys undertaken for Matters of National Environmental Significance

Survey	Survey area	Date(s) Completed	Season	Result	Habitat Description
Preliminary flora assessment	The Project area	20-22 October, 26-30 October, 3-5 November 2010	Spring	As per EES Technical Appendices	NA
Preliminary fauna assessment	The Project area	20-22 October 2010	Spring	As per EES Technical Appendices	NA
Targeted flora and fauna surveys	The Project area				
Langi Ghiran Grevillea	Areas within the Project area that support suitable habitat for this species	14 February 2011	Summer	No plants recorded	NA
Spiny Rice-flower	Areas within the Project area that support suitable habitat for this species	2 August, 29-31 August 2010	Winter	575 plants recorded, one plant to be impacted	Plants recorded within high quality vegetation (vegetation quality as per Habitat Hectare Assessment from EES Technical Appendices). Cohorts from multiple age classes were recorded and plants were actively reproducing.
Button Wrinklewort	Areas within the Project area that support suitable habitat for this species	8-11 November 2011	Spring	88 plants recorded, no plants to be impacted	Plants recorded within high quality vegetation (vegetation quality as per Habitat Hectare Assessment from EES Technical Appendices). Cohorts from multiple age classes were recorded and plants were actively reproducing.

Survey	Survey area	Date(s) Completed	Season	Result	Habitat Description
Large-headed Fireweed	Areas within the Project area that support suitable habitat for this species	8-11 November 2011	Spring	No plants recorded	NA
Tawny Spider Orchid	Areas within the Project area that support suitable habitat for this species	8-11 November 2011	Spring	No plants recorded	NA
Golden Sun Moth surveys	All remnant patches of Plains Grassland and areas of Modified Treeless Vegetation that supported >25% cover of wallaby grass spp.	16, 22, 29 December 2011 13 January 2012	Summer	145 individuals recorded, up to 31.56 ha of Golden Sun Moth habitat to be impacted	The majority of Golden Sun Moth habitat within and surrounding the project area comprises grassland areas that do not qualify as a remnant patch due to a native species cover of less than 25%, and with a high cover of weed species. These areas do, however, support scattered tussocks of wallaby grass *Rytidosperma* spp., a preferred food source for Golden Sun Moth.
Targeted Growling Grass Frog surveys	21 sites within the Project area that support suitable habitat for the species	16 and 17 February 2011 3 March 2011	Summer Autumn	No individuals recorded	NA
Targeted Southern Brown Bandicoot surveys	Areas within the Project area that support suitable habitat for Southern Brown	15 February to 2 March 2010	Summer Autumn	No individuals recorded	NA

Survey	Survey area	Date(s) Completed	Season	Result	Habitat Description
	Bandicoot				
Targeted Dwarf Galaxias surveys	All suitable creeks and drainage lines in the Project area	16 to 22 June 2011	Winter	156 individuals recorded	Much of the riparian vegetation has been cleared around Billy Billy Creek. The percentage of macrophyte cover is high (20-40%), providing a good source of habitat for small native fish species.
General Aquatic habitat survey	The Project area	20-22 October 2010	Spring	As per EES Technical Appendices	NA
Macro Invertebrate survey, water quality and riparian vegetation assessment	The Project area	19-20 January 2012	Summer	As per EES Technical Appendices	NA

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19. APPENDIX D- SCHEDULE OF MANAGEMENT ACTIONS (EPBC Matters)

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
PRE-CONSTRUCTION										
0		Y	Y	Y	Y	EPBC Approval Notice and Threatened Species Management Plan	Prior to commencing construction	VicRoads	VicRoads to issue contractor a copy of the TSMP and relevant EPBC approval conditions	
0		Y	Y	Y	Y	Construction Environment Management Plan (CEMP)	To be developed and approved in the pre-construction phase, and implemented in the construction phase.	Contractor	Approval of CEMP by DTPLI	
0		Y	Y	Y	Y	Audit of CEMP	Prior to construction	Contractor	Audit submitted to VicRoads	
0	SRF 1.3, BW 1.2, GSM 1.4	Y	Y	Y	Y	Weed Management Plan (WMP)	Implement prior to commencing construction	Contractor	Refer to WMP	
0	SRF 1.1				Y	Preclearance surveys- Spiny Rice-Flower	Prior to commencing construction within 500m of BW patches	VicRoads	Baseline data submitted to DEPI and DoE within 14 days of commencing works	
0	SRF 1.2				Y	Translocation- Spiny Rice-Flower	Prior to commencing construction within 500m of SPF patches	VicRoads	SPF translocation complete	
0	SRF 1.4a				Y	Restrict Access- Spiny Rice-Flower	Prior to commencing construction within 500m of SPF patches	VicRoads	Signage installed	
0	SRF 1.4b				Y	No-go Zones- Spiny Rice-Flower	Prior to commencing construction within 500m of SPF patches	Contractor	No-go zones complete	
0	BW 1.1	Y		Y	Y	Preclearance surveys- Button Wrinklewort	Prior to commencing construction within 500m of BW patches	VicRoads	Baseline data submitted to DEPI and DoE within 14 days of commencing works	
0	BW 1.3a	Y		Y		Permanent Fencing- Button Wrinklewort	Prior to commencing construction within 500m of BW patches	VicRoads	Fencing installed	

[7] Year 'X' refers to 'X' years from commencement of construction for relevant section

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
0	SRF 1.3b	Y		Y	Y	No-go Zones- Button Wrinklewort	Prior to commencing construction within 500m of BW patches	Contractor	No-go zones complete	
0	GSM 1.1	Y	Y	Y		Implement Offset Management Plan	Refer to EPBC Approval Notice 2010/5741	VicRoads	Refer to EPBC Approval Notice 2010/5741	
0	GSM 1.2			Y		Refine detailed design	Prior to commencement of construction for Section 2B East	VicRoads	N/A (may not be possible)	
0	GSM 1.6			Y		Golden Sun Moth Revegetation Area	Finalised and submitted to DoE 3 months prior to construction	VicRoads	DoE approval	
0	GSM 1.3			Y		Preclearance surveys- Golden Sun Moth	Prior to commencing construction within 500m of known Golden Sun Moth populations	VicRoads	Baseline data submitted to DEPI and DoE within 14 days of commencing works	
0	GSM 1.5	Y	Y	Y		No-go Zones- Golden Sun Moth	Prior to commencing construction within 500m of GSM habitat	Contractor	No-go zones complete	
CONSTRUCTION										
1	SRF 1.4b	Y	Y	Y	Y	Maintain no-go zones- Spiny Rice-Flower	Ongoing until practical completion for relevant sections	Contractor	Maintain No-go Zones	
1	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
1	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
1	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
1	SRF 1.3b	Y		Y	Y	Maintain no-go zones- Button Wrinklewort	Prior to commencing construction within 500m of BW patches	Contractor	No-go zones complete	
1	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
1	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
1	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
1	GSM 1.5	Y	Y	Y		Maintain no-go zones- Golden Sun Moth	Prior to commencing construction within 500m of GSM patches	Contractor	No-go zones complete	
2	SRF 1.4b				Y	Maintain no-go zones- Spiny Rice Flower	Ongoing until practical completion for relevant sections	Contractor	Maintain No-go Zones	
2	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
2	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
2	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
2	BW 1.3b	Y		Y	Y	Maintain no-go zones- Button Wrinklewort	Prior to commencing construction within 500m of BW patches	Contractor	No-go zones complete	
2	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
2	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
2	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
2	GSM 1.7	Y	Y	Y		Maintain no-go zones- Golden Sun Moth	Prior to commencing construction within 500m of GSM patches	Contractor	No-go zones complete	
POST-CONSTRUCTION										
3	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
3	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
3[8]	SRT 1.7				Y	Manage Fire Regime- Spiny Rice-Flower	In consultation with CFA	VicRoads	Burn to be undertaken in accordance with Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006).	
3	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
3	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
3	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	

[8] Timing may vary in consultation with DEPI, CFA and Ararat Rural City Council

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
3	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
3	GSM 1.7			Y		Golden Sun Moth Survey	Between October and January	VicRoads	Golden Sun Moth population retained	
4	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
4	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
4	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
4	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
4	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
4	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
4	GSM 1.7			Y		Golden Sun Moth Survey	Between October and January	VicRoads	Golden Sun Moth population retained	
5	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
5	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
5	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
5	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
5	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
5	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
5	GSM 1.7			Y		Golden Sun Moth Survey	Between October and January	VicRoads	Golden Sun Moth population retained	
6	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
6	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
6[9]	SRT 1.7				Y	Manage Fire Regime- Spiny Rice-Flower	In consultation with CFA	VicRoads	Burn to be undertaken in accordance with Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006).	
6	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
6	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	

[9] Timing may vary in consultation with DEPI, CFA and Ararat Rural City Council

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
6	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
6	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
7	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
7	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
7	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
7	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
7	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
7	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
8	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
8	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
8	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
8	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
8	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
8	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	
9	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
9	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
9[10]	SRT 1.7				Y	Manage Fire Regime- Spiny Rice-Flower	In consultation with CFA	VicRoads	Burn to be undertaken in accordance with Roadside Conservation Management Plan: Western Highway, East of Ararat (Hopkins River to the 196.0 km post). (University Ballarat, 2006).	
9	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
9	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
9	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
9	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	

[10] Timing may vary in consultation with DEPI, CFA and Ararat Rural City Council

Year[7]	Ref No.	Section 2A	Buangor Bypass	Section 2B East	Section 2B West	Management Actions	Timing	Responsible Agent	Performance Indicators	Date completed; Completion supervised by Relevant documentation
10	SRF 1.5				Y	Ongoing Health Monitoring- Spiny Rice-Flower	Between April and August	VicRoads	Ongoing monitoring completed as per Section 3.4. No additional loss of individuals has occurred.	
10	SRF 1.6				Y	Manage Grazing- Spiny Rice-Flower	Between April and August	VicRoads	Fencing repaired (if required)	
10	SRT 1.8				Y	Manage Rubbish- Spiny Rice-Flower	Between April and August	VicRoads	Rubbish removed	
10	BW 1.4			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Ongoing monitoring completed as per Section 5.4. No additional loss of individuals has occurred.	
10	BW 1.5			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Fencing repaired (if required)	
10	BW 1.6			Y	Y	Ongoing Health Monitoring- Button Wrinklewort	Between October and February	VicRoads	Rubbish removed	

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20. APPENDIX E- ANNUAL REPORT TEMPLATE

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Project name:			
EPBC Act ref. no. :		Date:	
Person preparing report	Name:	Position:	Organisation:
Completed *Management Action Table* (Appendix D) provided? Yes / No			
Current stage of development			
Measures implemented in accordance with TSMP			
Monitoring activities undertaken (summarise significant findings)			
Salvage and translocation activities undertaken (summarise significant findings)			
Incidents which may have impacted any matters of NES or other listed species			
Mitigation measures or corrective actions implemented			
Relevant reports attached	e.g. Golden Sun Moth monitoring report, 2014 Water quality monitoring report, 2014 Salvage and translocation activities, 2014 Copy of schedule of management actions with completion dates column filled in		