Revegetation Plan

Coolgardie-Esperance Highway Intersection Realignment Projects

Circle Valley Rd (SLK 273.51) & Logan Rd (281.90)

Circle Valley Rd

Logan Rd

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Main Roads Goldfields-Esperance Region

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1. PROJECT BACKGROUND

1.1 Introduction

Main Roads Goldfields-Esperance Region is proposing to realign two sections of Coolgardie-Esperance Highway (CEH) at the junctions of Circle Valley Rd (SLK 273.51) and Logan Rd (SLK 281.90) in the Shire of Esperance. The works have been deemed necessary as both intersections do not currently provide sufficient stacking distances for 36.5m road trains to safely enter or exit the highway. This is because a railway line running parallel to CEH intersects the two local government roads too close to the highway.

In order to complete the proposed works, several areas of native vegetation will need to be cleared. It is currently uncertain as to how much clearing will actually be required (including its location) so an area totalling 20.53ha was assessed as part of the project's specific Preliminary Environmental Impact Assessment (PEIA). Importantly, the PEIA reported no likely variance with any of the 10 clearing principles for the project.

The purpose of this report is to provide a detailed plan as to how the project's revegetation works will need to be carried out for a successful result. Given that the project involves temporary works (e.g. for the proposed borrow pit), this report also intends to fulfil the requirements of Main Roads State-wide Purpose Clearing Permit CPS 818/4 in regards to revegetation works. It should be noted that additional revegetation work beyond that required by CPS 818/4 is also proposed for the project. This extra work is proposed for a section of the road reserve north of Circle Valley Rd, as well as the two areas of old road pavement made redundant by the new realigned intersections.

1.2 Project Location

The two intersections to be realigned are located near the small town of Grass Patch within the Shire of Esperance. For detailed mapping showing the location of each intersection and the associated borrow pit, please see Appendix A. Site photos are provided in Appendix C.

2. REVEGETATION WORKS

2.1 Clearing & Site Preparation

During clearing, vegetative material is to be stockpiled and mulched in preparation for respreading. Top soil is to be stripped to a depth of approximately 100mm and heaped in windrows no greater than 1.5m in height. Any weed infested material is to be cleared and stockpiled separately in order to prevent contamination.

Once the proposed borrow pit is exhausted, the stockpiled weed infested material is to be buried in the pit underneath a minimum of 500mm in overburden. Following completion of these works, the borrow pit is to be returned to its natural profile as far as is possible, and the surface ripped to a minimum depth of 100mm to encourage root growth.

Note: Ripping beyond 100mm in depth is not to be carried out in the area of borrow pit which buries the weed infested material.

2.2 Hygiene Management

2.2.1 Dieback

Since the project area receives less than 400mm of average annual rainfall (nearest meteorological station is Salmon Gums with an average annual rainfall of 349.2mm), dieback (*Phytophthora cinnamomi*) is not considered to be an issue. No dieback management measures are therefore considered necessary.

2.2.2 Weed Control

Management procedures to be employed to reduce the risk of weed spread include:

- All machinery, plant and equipment to be free of soil and vegetative material prior to entering and leaving the project area.
- All machinery, plant and equipment to be free of soil and vegetative material prior to traversing areas of changing weed infestation status.
- No entry is to be permitted to vegetated areas outside of the required work areas.

2.3 Revegetation Method

Proposed borrow pit near Circle Valley Rd: Given that this pit is relatively small in size and surrounded by remnant native vegetation, a revegetation method of natural regeneration (i.e. respread of stockpiled topsoil and vegetative material) is considered more than adequate for this area. The short turnaround period involved between clearing and rehabilitation (no greater than 10 weeks) means that any seed stored in the stockpiled topsoil and vegetative material is not likely to be significantly compromised. Furthermore, the low prevalence of weeds in the area means that conditions are considered more than favourable for delivering a successful revegetation outcome using this method.

Road reserve north of Circle Valley Rd: Given that this portion of road reserve is highly infested with weeds (predominantly African lovegrass - *Eragrostis curvula*), the area is to be scalped (vegetation and topsoil removed to a depth of approximately 100mm) with all scalped material then disposed of at the proposed borrow pit as outlined in Section 2.1. Once scalped, the area is then to be ripped to a depth of approximately 100mm and then re-spread with weed-free topsoil and vegetative material that has been stockpiled from the clearing works for the new Circle Valley Rd intersection. This material may be re-spread slightly thinner than originally removed in order to cover a greater area than that cleared but this will depend on the type of machinery available at the time. It is hoped that the provision of a new soil layer for this area will help to combat the current weed problems and therefore deliver a much more successful revegetation outcome than most other potential methods. To help prevent future weed spread, a minimum buffer of 5m is to be applied between the edge of the new soil layer and the uncleared road reserve.

Redundant road pavement at Circle Valley Rd: The revegetation method to be employed at this site is dependent upon the amount of clean topsoil and vegetative material remaining from the proposed revegetation works to the north (the area of revegetation work to be carried out in the road reserve to the north of Circle Valley Rd has yet to be determined). This is because the redundant road pavement in this area has a lower priority for re-use of clean topsoil and vegetative material given that it is virtually weed-free. The actual revegetation method will therefore need to be decided upon once the availability of topsoil and vegetative material is known. The works could as a result involve some level of direct seeding with safety considerations (e.g. sight lines, presence of large trees close to the edge of the road) needing to be taken into account when choosing species to be included. Regardless of the method employed (i.e. direct seeding, natural regeneration, or a combination of both) the pavement, including seal will need to be broken up and mixed into the soil profile as part of the works.

Redundant road pavement at Logan Rd: This area is to be revegetated using a method of natural regeneration. This is because ample clean topsoil and vegetative material should be available from the nearby clearing works associated with the new Logan Rd intersection. The road pavement, including seal will need to be broken up and mixed into the soil profile before stockpiled topsoil and vegetative material is re-spread over the area. Given the low prevalence of weeds in the area and the large stands of surrounding remnant native vegetation, this method should be more than adequate for delivering a successful revegetation outcome.

2.4 Vegetation Establishment Period

The vegetation establishment period for these works is to be a minimum of two years. This period will begin upon completion of the revegetation works.

2.5 Monitoring and Maintenance

Photographic records are to be maintained for each site at 6 monthly intervals for a minimum of two years. On ground species identification is also to be carried out at similar intervals in order to evaluate the biological diversity of any new recruits.

In accordance with Main Roads State-wide Purpose Clearing Permit (CPS 818/4), weed monitoring and control is to be carried out at 12 month intervals as a minimum and for the duration of the permit.

The targeted revegetation success criteria for each site are as follows:

Revegetation Area

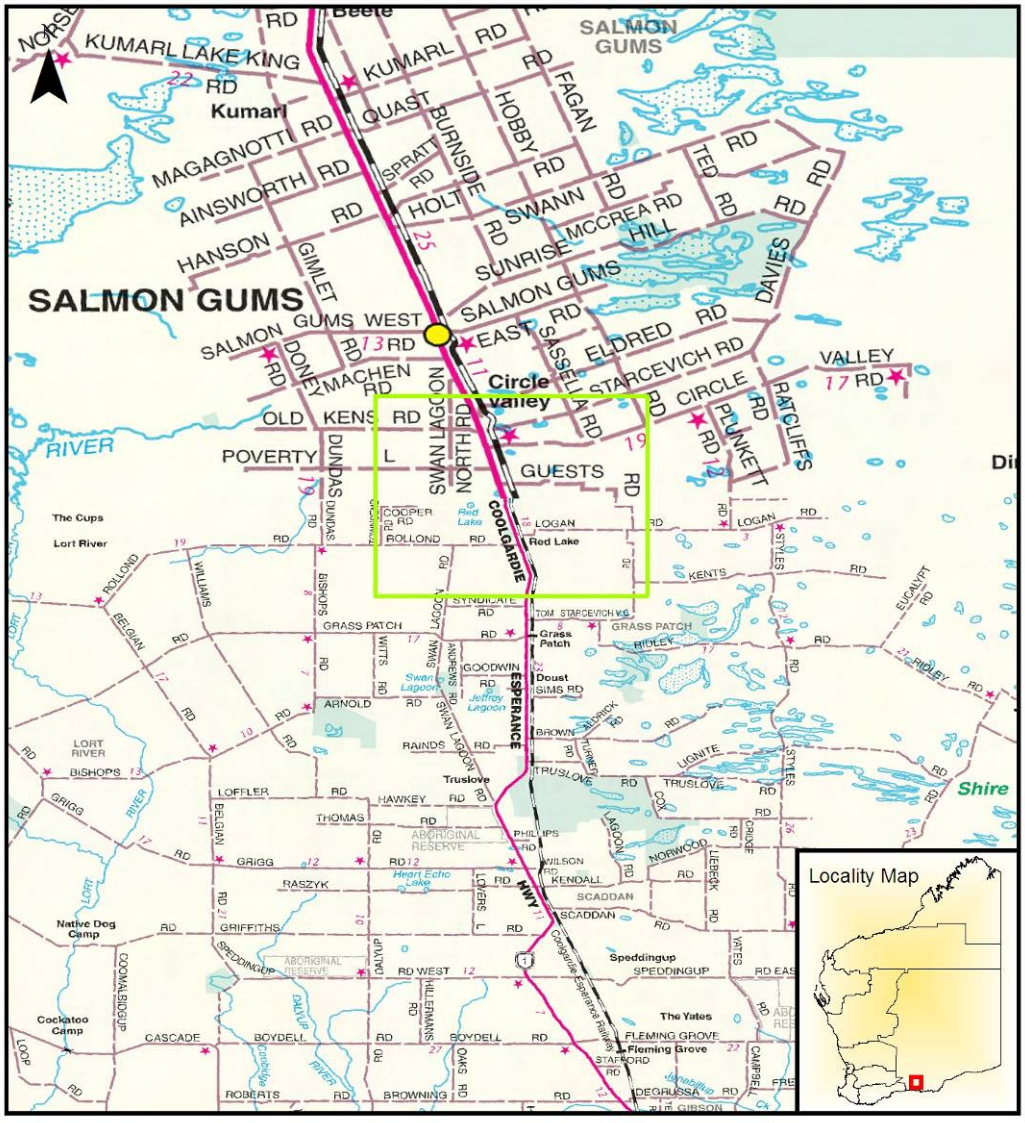
Revegetation Success Criteria	*Borrow Pit*	*Road Reserve north of Circle Valley Rd*	*Circle Valley Rd Redundant Pavement*	*Logan Rd Redundant Pavement*
Weed Cover after 6mths (%)	<5%	<10%	<10%	<5%
Weed Cover after 12mths (%)	<10%	<20%	<20%	<10%
Recruitment Cover after 12mths (%)	>25%	>20%	>20%	>25%
Weed Cover after 24mths (%)	<10%	<20%	<20%	<10%
Recruitment Cover after 24mths (%)	>50%	>40%	>40%	>50%

All monitoring is to be carried out by the Main Roads Goldfields-Esperance Region Environment Officer. In their absence, monitoring is to be carried out by the relevant regional Project Manager.

Where the success of revegetation at any site is deemed to be unsatisfactory, the necessary corrective works are to be carried out as a matter of priority.

APPENDICES

APPENDIX A – Project Location



LEGEND

= Approximate Project Area

0 5 10 20 Km

mainroads WESTERN AUSTRALIA

MAP INFORMATION
Geographic Coordinate System: Geocentric Datum of Australia 1994 - Projection MGA Zone 51

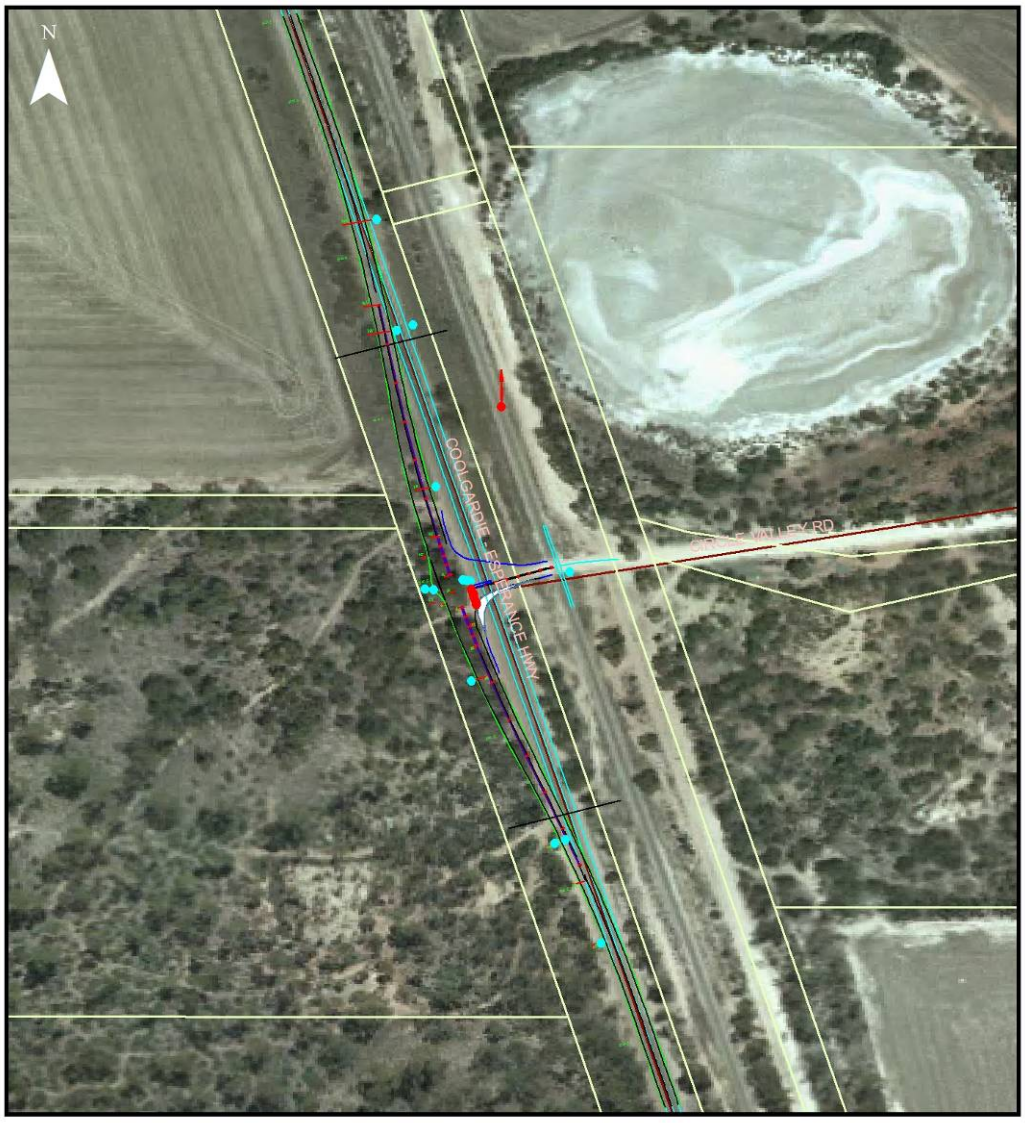
PUBLISHER DETAILS

Directorate: Regional Services
Branch: Goldfields Esperance Region
Author: Simon Weighell (GEnv)
Data Currency: As Supplied

Project: Projects:\H010-Coolgardie Esperance HWY\Grasspatch Intersections\Logan Rd\Environment\Circle Valley & Logan Project Location - Figure 1.mxd

Figure 1 - Circle Valley & Logan Project Location

APPENDIX B – Environmental Constraints Mapping



LEGEND

- THFL - WA Herb
- THFL- DEFL
- DEC Lands
- Bores
- Watercourses
- Watercourse Areas
- PDWSAs
- ESAs
- Threatened Fauna
- TEC / PEC Sites
- TEC / PEC Buffers
- Aboriginal Heritage
- European Heritage
- SLK Network
- GER Cad MGA 51

0 25 50 100 Meters

mainroads WESTERN AUSTRALIA

MAP INFORMATION
Geographic Coordinate System: Geocentric Datum of Australia 1994 - Projection MGA Zone 51

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Directorate: Regional Services
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Author: Simon Weighell (GEnv)
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Project: Projects:\H010-Coolgardie Esperance HWY\Grasspatch Intersections\Circle Valley Rd\Environment\Circle Valley Environmental Constraints Map - Figure 2c.mxd

Figure 2c - Circle Valley Proposed Realignment

Figure 2d - Clearing Boundaries for Circle Valley & Proposed Borrow Pit

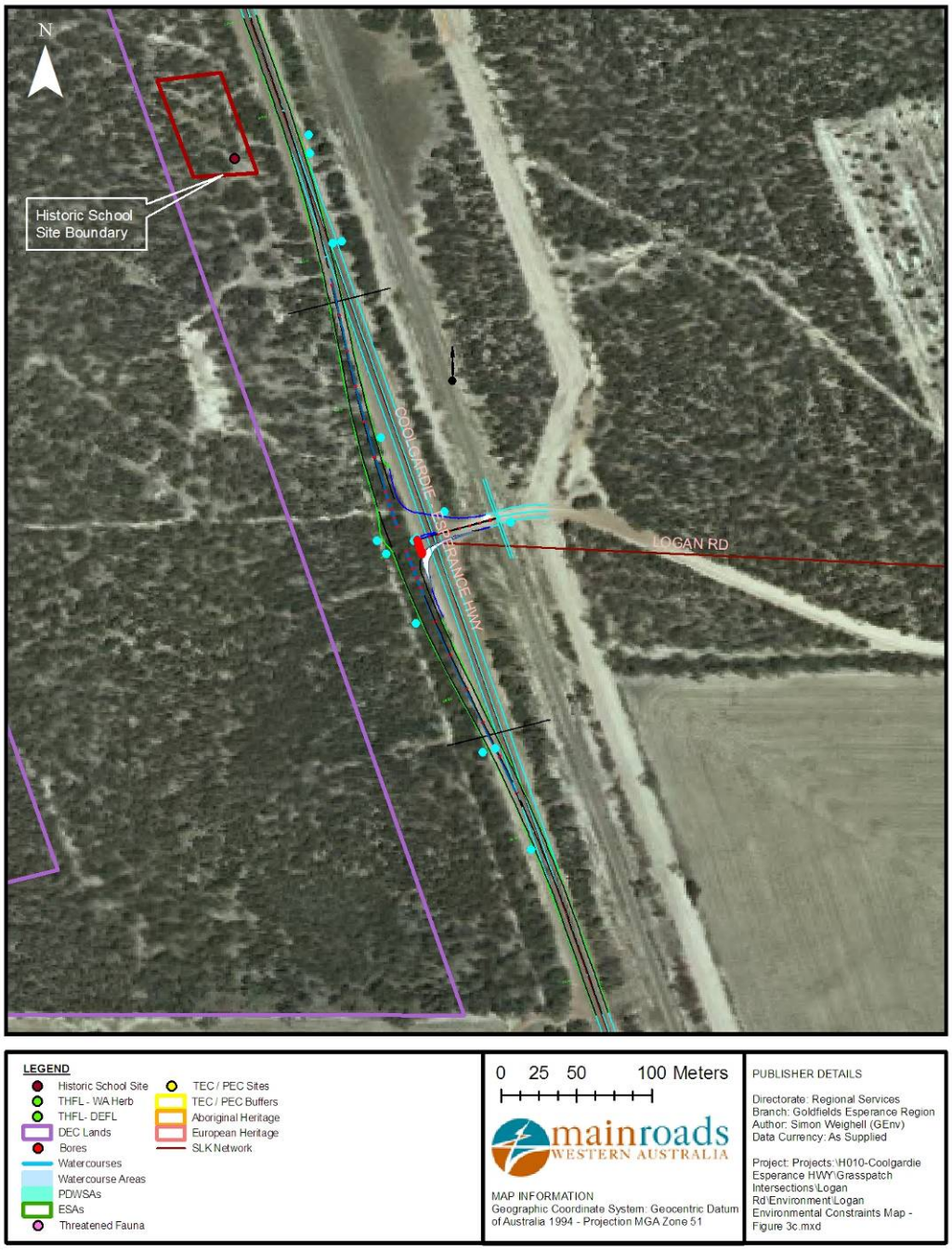

Figure 3c - Logan Proposed Realignment & Limits of Historic School Site

Figure 3d - Logan Clearing Boundaries

APPENDIX C – Site Photos

Photos taken on the 3/11/08.

Logan Rd:

Looking east.

Looking north.


Looking south.

Circle Valley Rd:

Looking east.

Looking south.

Looking north.