

**REVEGETATION PLAN
CORAL BAY BORROW PIT AREAS (2.4 AND 11 SLK)**



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PROJECT TITLE

REVEGETATION PLAN

1. PROJECT DESCRIPTION

1.1 Purpose

Main Roads Western Australia (MRWA) has a policy aim to “protect and enhance the environmental values of road reserves”. This document has been prepared to ensure compliance with Main Roads’ Environmental Policy and Main Roads’ Clearing Purpose Permit CPS 818/2.

In the process of establishing new roads and upgrading existing roads, there is often a need to undertake revegetation of the road reserve or other affected areas. Where clearing of native vegetation is to occur under Main Roads’ Clearing Purpose Permit CPS 818/2, a revegetation plan is required for temporary clearing (eg. borrow pits, access tracks, camps etc.). Where the temporary clearing exceeds 0.5ha, the revegetation plan needs to be forwarded to the Department of Environment and Conservation prior to clearing.

This revegetation plan sets out the revegetation requirements for the borrow pits located at 2.4 and 11.0 SLK off Coral Bay Road.

The purpose of the revegetation plan is to identify effective revegetation practices that help accelerate the natural succession processes that occur following the clearing of native vegetation and soil disturbance.

1.2 Background

MRWA has been asked to undertake the management and construction of associated facilities being:

- Upgrade the Coral Bay Road/Minilya-Exmouth Road intersection to cater for Double Road Train access for cartage of fuel to the power station.
- Upgrade Sanctuary Drive, including the intersection with Coral Bay Road, and extend to the Water Corporation site. (Approximately 1.5km).

MRWA has undertaken to act as the constructing authority for these roadwork’s, on behalf of the Department of Planning and Infrastructure, the Shire of Carnarvon, Horizon Power and Water Corporation.

1.3 Project Description

The Department of Planning and Infrastructure (DPI) are proposing the development of a new boat launching facility north of Monck Head, approximately 1.5 kilometres south of the Coral Bay town site.

Key features of the proposed new facility and associated infrastructure include:

- An offshore rubble mound with integrated boat launching ramps. This rubble mound provides turning space for vehicles and boat trailers, a loading area for transferring vessels, and a coach/disability set down point. No permanent parking is located on this mound.
- A causeway and embankment linking the offshore rubble mound with the mainland (approximately 75m long).

DPI have approached Main Roads Western Australia (MRWA) and requested they undertake the management and construction of associated facilities being:

- A car and trailer parking facility for approximately 100 to 120 vehicles (approx 10,000m²). The parking area is to be located at the eastern end of the approach embankment to the island causeway.
- Construction to seal standard of an existing access track to link the car park with Banksia Drive (approximately 1.5km). (The first 600m or so, starting from Banksia drive, will largely coincide with the existing track

Carnarvon Shire have approached MRWA requesting that whilst other works are being undertaken in the area that remedial works be undertaken to:

- Banksia Drive from the intersection with Coral Bay road through to the boating facility access road intersection be brought up to seal standard, including the upgrading of Coral Bay Road/Banksia Drive intersection to carter for road train access.

All of these works require considerable amounts of road construction material. Two proposed gravel pits are located along Coral Bay Road at 2.4 SLK and 11.0 SLK. The 2.4 SLK pit is approximately 1800m X 600m giving an area of 108 hectares, while 11.0 SLK pit is 2000m X 700m giving an area of 140 hectares. The 11.0 SLK pit will be the priority pit with 2.4 SLK pit being used if there is a shortage of good road base material. The proposed borrow pit area at 2.4 SLK is dissected through the middle by Coral Bay Road.

It should be noted that although a search area of 248 hectares for materials has been given, the total quantity for road building material is 20,000 cubic meters, requiring approximately 10 hectares of clearing.

The areas to be rehabilitated are shown in Table 1:

Table 1: Revegetation Area Details

Type	Area
Temporary clearing revegetation	10 hectares
Other revegetation	0 hectares

The location and boundaries of the revegetation area(s) are shown on Figures 1 and 2 below.

Figure 1 Location of 11 SLK Material Pit

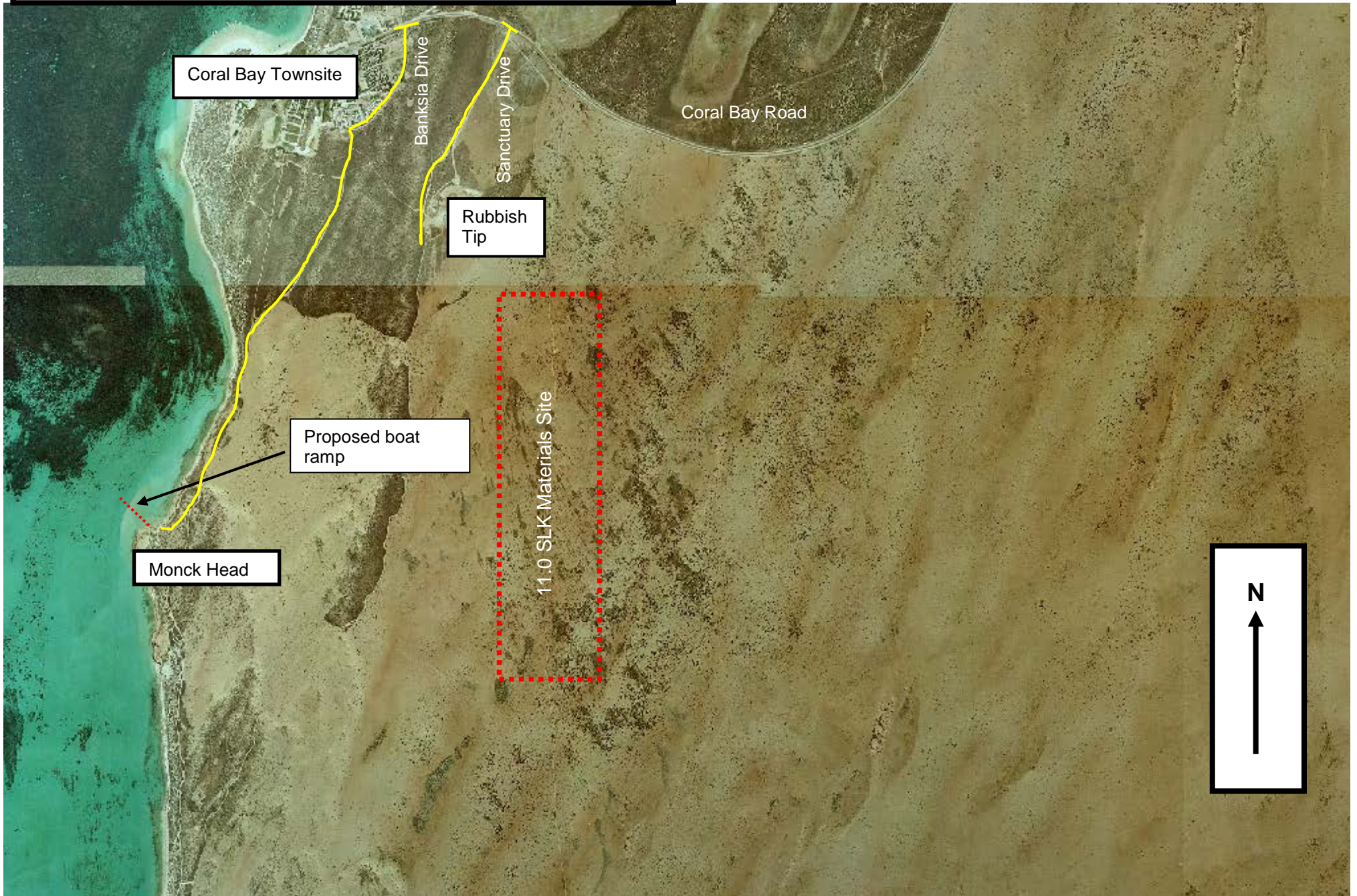
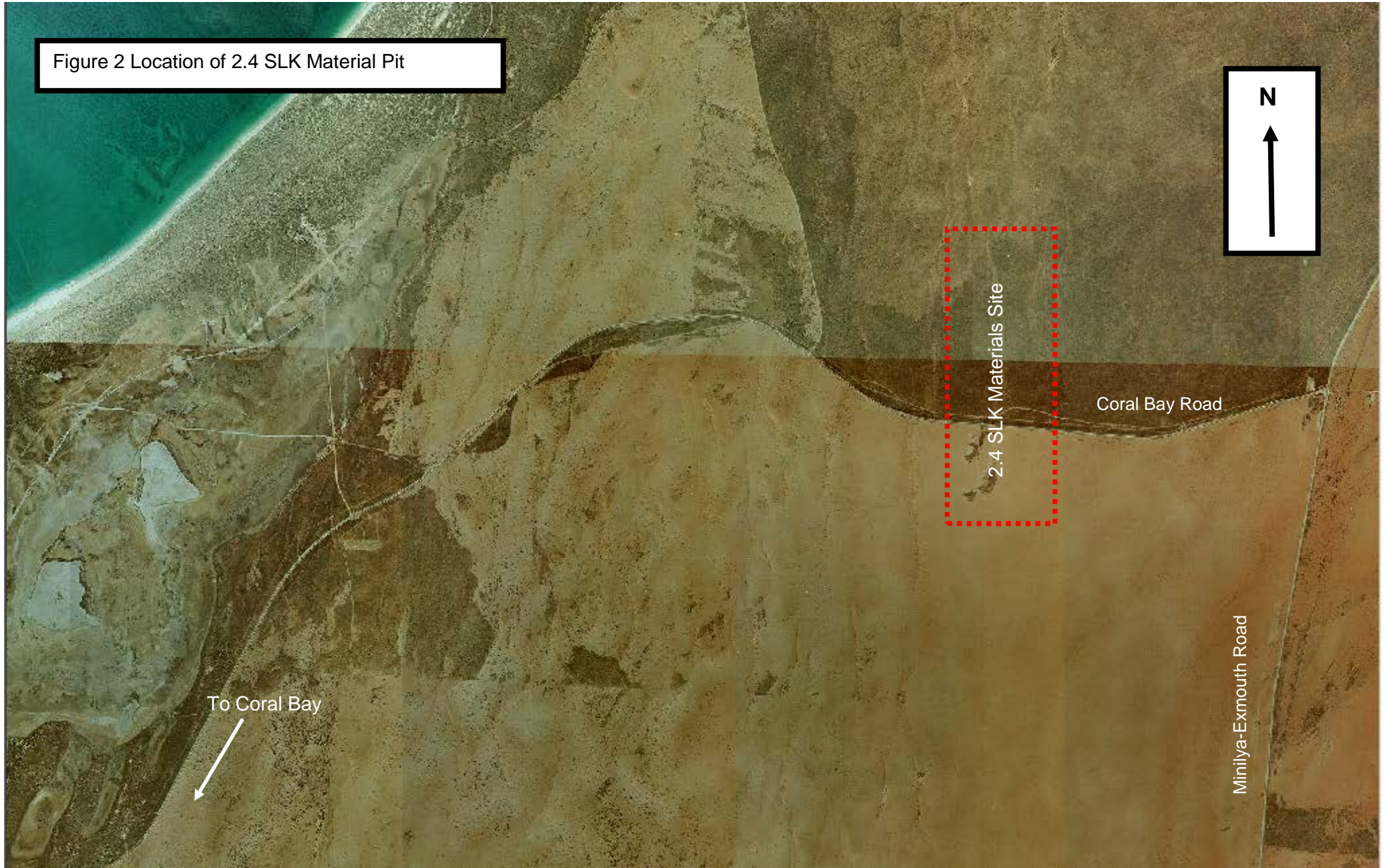


Figure 2 Location of 2.4 SLK Material Pit



1.4 Existing vegetation

According to the Native Vegetation Association Data (DEC & DAF) the proposed pit areas occur within vegetation association 662 which is described as “Hummock grassland; shrub steppe; mixed acacia scrub & dwarf scrub with soft spinifex & *Triodia basedowii*”. This vegetation association is well represented in the region with 99.3% remaining. The condition of the vegetation is somewhat degraded due to cattle grazing.

The following list of flora species was recorded at pit 2.4 and 11.0 SLK:

- Grey Corchorus (*Corchorus walcottii*)
- Narrow-leaved mulla mulla (*Ptilotus divaricatus*)
- Soft Spinifex (*Triodia pungens*)
- Wirewood or Weeping Acacia (*Acacia coriacea*)
- Curara (*Acacia tetragonophylla*)
- Tall saltbush (*Rhagodia eremaea*)
- Wind Grass (*Aristida contorta*)
- Flannel bush (*Solanum lasiophyllum*)
- Gascoyne bluebush (*Maireana polypterygia*)
- Tall poverty bush (*Eremophila maitlandii*)
- Saltbush (*Striplix* sp.)
- Current bush (*Scaevola spinescens*)

No mature trees will be cleared for the works.

1.5 Weeds

No weed species were observed within the project areas.

2. SITE PREPARATION

2.1 Vegetation clearing, mulching and re-use

All vegetation will be cleared from the works area and non-weed infested vegetation will be stockpiled. Stockpiled vegetation will not be placed on the very edge of the approved cleared area in order to prevent machinery going outside the cleared area to push the stockpile forward again. Weed infested vegetation will be disposed of at an appropriate site. Burning of the cleared vegetation will not be permitted.

2.2 Topsoil stripping and re-use

Topsoil will be stripped to a maximum depth of 100 mm. Topsoil will be stored in a weed free (as far as possible) area, as close as possible to the area to be rehabilitated. The topsoil will be placed in windrows of less than 1m in height and reinstated as soon as possible, to prevent deterioration to the in-situ seeds and maintain seed viability.

3. WEED CONTROL

Adequate control measures will be incorporated to ensure weeds are killed or not transported to other areas. Control measures include removal of weeds to an approved dump site or treatment of weeds such as using herbicide spraying.

Herbicide spraying shall only be carried out by licensed operators and herbicide shall be mixed and applied in accordance with manufacturer's instructions.

Where practicable, weeds should not be removed when they are in flower or seeding.

All machinery shall be free of built up soil and vegetative material before entering and leaving the site to help minimise the transportation of weeds and their seeds.

Exposed areas such as bare batters and borrow pits shall be promptly rehabilitated to reduce the ingress of weeds.

4. REVEGETATION THROUGH REGENERATION

4.1 Revegetation objectives

The revegetation objectives are to:

- Ensure roadside stability and minimise ongoing maintenance;
- Ensure that conservation values and biodiversity are protected; and
- Ensure local amenity and aesthetics are enhanced.

4.2 Required vegetation cover

The roadside vegetation should be similar in structure and content to comparable naturally occurring vegetation in the local area and will reflect the vegetation communities present in the road reserve and adjacent bushland. The width of the vegetation setbacks and clearances will be appropriate for the specific location and will be dependent on an assessment of the road design speed, road alignment and the roadside batter slopes.

4.3 Revegetation Techniques

The following rehabilitation works shall be undertaken on areas of disturbed earth requiring rehabilitation:

- Topsoil will be uniformly respread to a minimum depth of 100 mm over the area and;
- Area to be ripped to a minimum depth of 200mm deep with rip lines approximately 300mm apart. Where slopes are present, rip lines shall be along contours.

The following rehabilitation work shall be undertaken at borrow/gravel pits:

- Overburden and then topsoil shall be uniformly and evenly spread over the disturbed areas of the pit. Depending on the slope of drainage lines within the pit, it may be necessary to form small swales from the topsoil to reduce erosion velocities and encourage the deposition of seeds.
- The existing pit floor shall be ripped to a depth of 300 – 500mm deep with rip lines between 500 - 800mm apart, if the material in the floor of the pit is able

to be ripped. The whole area of the pit, including drainage lines, shall be ripped.

- All stockpiled vegetation shall be spread along the contour and pit floor to help promote seed deposition and further reduce erosion velocities.

5. VEGETATION ESTABLISHMENT PERIOD

The vegetation establishment period will be for at least twelve months following the completion of the works. During this period, the maintenance and monitoring will be undertaken, see Section 6.

6. ONGOING MAINTENANCE AND MONITORING

Maintenance and monitoring of the project shall be ongoing to measure regeneration effectiveness and to control weeds.

6.1 Maintenance and Monitoring

After revegetation works, revegetated areas will be inspected every six months for a total of 12 months to monitor and control weeds and to measure the effectiveness of revegetation works.

Monitoring will comprise the use of criteria. Essentially, this involves visual assessment to ensure the revegetation works have been implemented as planned. Table 2 shall be used as the monitoring guide to assess the success or otherwise of the revegetation plan.

Due to the variable rainfall patterns in pastoral areas, revegetation works may not be successful, despite the use of best management practices.

Table 2: Revegetation Monitoring Guide

Criterion	Target	After three months	After one year	After three years
Mean vegetation foliage cover (%) excluding weeds.	>50	0	20	40
Mean weed foliage cover (%).	<20	<20	<20	<20
Amount of bare soil areas >4m ² (%).	<30	<100	<80	<50