



succession
ecology

Light Regional Council

**Bruce Eastick Dam
Revegetation Phase 1**



PROJECT SPECIFICATION

Client: Light Regional Council
Client contact: Andrew Philpott
Client email: APhilpott@light.sa.gov.au

Succession Ecology contact: Glenn Christie
Succession Ecology email: glenn@successioneology.com.au

Prepared by: Jacob Lemon
Date: 5th November 2019

Quote #: EQ1119-03

BUSINESS DETAILS

Succession Ecology

ABN: 79 919 229 765

Directors: Briony Horner & Glenn Christie

Address:

7 Angus Avenue,
Edwardstown, SA 5039

Glenn Christie

Director and Revegetation Consultant

Email: glenn@successioneology.com.au

Ph: 0409282096

Dr Briony Horner

Director and Ecologist

Email: briony@successioneology.com.au

Ph: 0410526210

Accounts:

Janine Horner

Email: admin@successioneology.com.au

Ph: 0419800428

www.successioneology.com.au



WH&S

All work activities carried out by Succession Ecology are conducted following strict Work Health and Safety standards. A Safety Management Plan and Risk assessment is established for all projects prior to commencing works. All staff wear the appropriate PPE and follow the appropriate Standard Operating Procedures (SOP) established for the tasks they are assigned.



DOCUMENT OUTLINE

This document provides a proposal for revegetation and weed control works at the Bruce Eastick North Para Flood Control Dam site. This proposal will be provided to the six council stakeholders including Light Regional Council.

The document will address:

- 1) Bruce Eastick Dam site
- 2) Kemp Road Laneway revegetation works
- 3) Flood Control Dam revegetation works
- 4) Cost for activities

BRUCE EASTICK DAM SITE

The Bruce Eastick North Para Flood Control Dam site is located approximately 60 km north of Adelaide; it is a 27-Ha parcel of land (Fig. 1) co-managed by six local councils, with a portion leased to a local landholder. The landscape includes riverine flats, steep embankments and hill sides. Currently, the site is grazed by sheep and a limited amount of weed control activity is undertaken annually by the landholder. The Bruce Eastick Dam project is divided into two sections: 1) Kemp Road laneway entrance (4 Ha) and 2) the 23-Ha site surrounding the dam.



Figure 1: Bruce Eastick Dam site including the laneway entrance (Kemp Road) from Sturt Highway.



KEMP ROAD LANEWAY

The Kemp Road Laneway is solely owned by the Light Regional Council. This project will cover 1 Ha of the Kemp Road Laneway. The aims of revegetation work at this site are to reduce fire load, reduce weed control requirements and increase biodiversity. The council will slash the site using a tractor before any weed control or revegetation work is undertaken by Succession Ecology.

Weed Control

Succession Ecology will undertake weed control pre revegetation on the 1 Ha laneway site. A knock-down herbicide will be applied using mini booms attached to 15-L backpack sprayers. Chemical will be applied using proscribed rates from the chemical specifications.

Revegetation

This work comprises planting and direct seeding including planting *Eucalyptus odorata* (peppermint box) and direct seeding chenopod species (Fig 2 and Table 1). The Eucalypts will be protected with mesh guards (Fig. 3) to exclude grazing herbivores such as sheep, kangaroos and rabbits. The chenopod species have been selected for their colonising abilities, fast growth, drought resistance and fire-retardant qualities.



Figure 2: Peppermint box (*Eucalyptus odorata*; left) and ruby saltbush (*Enchylaena tomentosa*; right).



Figure 3: Seedling with a protective mesh guard to exclude grazing by herbivores.



Succession Ecology uses a broadcast seeding technique that enables an even coverage of seed on site. The seeding rate on the Kent Road laneway will be 15 kg/Ha, proportions of individual species is available in Table 1. Prior to seeding, the soil will be roughened with a set of prickle chain harrows. After seeding, the site will be prickle chain harrowed to incorporate the seed into the soil.

Table 1: Species to be used for direct seeding and their rate per Ha

Name	Common Name	Rate kg/Ha
<i>Atriplex semibaccata</i>	Berry saltbush	4
<i>Atriplex suberecta</i>	Sprawling saltbush	3
<i>Enchylaena tomentosa</i>	Ruby saltbush	5
<i>Einadia nutans</i>	Climbing saltbush	1
<i>Rhagodia candolleana</i>	Seaberry saltbush	1
<i>Rhagodia parabolica</i>	Fragrant saltbush	1

Timing of Works

The scheduled of works are described in Table 2. These include weed control activities conducted one month before revegetation. Revegetation will be undertaken in late autumn/early winter to maximise the likelihood of plant survivorship and seed germination/survivorship.

Table 2: Schedule of works for Kemp Road Laneway

Works	Timing
Weed Control	May 2020
Seeding/tubestock planting	June 2020



FLOOD CONTROL DAM

Management of this site is the responsibility of six different local councils. Several management actions are suggested for the area including woody and herbaceous weed control (in conjunction with efforts of the landholder), tubestock planting of open woodland species and direct seeding of chenopods for increased biodiversity, fire fuel reduction and erosion control.

Weed Control

A range of weed control activities will be required on site to help reduce the weed biomass and prepare for revegetation. Pre-revegetation weed control will be conducted on 1 Ha of the banks adjacent to the waterway using a knock-down herbicide applied with a mini boom attached to a 15-L backpack sprayer. Woody weeds will be targeted using a “drill and fill” or “frilling” technique, these include olives (*Olea europaea*) and African boxthorn (*Lycium ferocissimum*). At each tubestock plant site, ring spraying will be conducted before planting to reduce competition for moisture and light and enhance survival outcomes.

Revegetation

Scattered *Eucalyptus odorata* (peppermint box) seedlings will be planted throughout the site. These plants will be protected with a mesh guard and stakes (Fig. 3) to exclude grazing herbivores such as sheep, kangaroos and rabbits. To reduce erosion of the steep banks adjacent to the waterway, 1 Ha of the upper banks will be seeded with chenopod species. These chenopods will provide natural erosion control as well as increase biodiversity on site.

Succession Ecology uses a broadcast seeding technique that provides an even coverage of seed. Seeding rate for this section will be 15 kg/Ha; the chenopod species and proportion of each in the seed mix is provided in Table 1. Prior to seeding the site will be roughened with prickle-chain harrows. After seeding the seed will be incorporated into the soil using prickle chain harrows.

Timing of Works

Weed control will occur one month before revegetation works (Table 3). Revegetation will be undertaken in late autumn/early winter to maximise the likelihood of planting survivorship and seeding germination/survivorship.

Table 3: Schedule of works for the flood control dam site

Works	Timing
Weed Control	May 2020
Seeding/tubestock planting	June 2020



COST

This fee proposal provides costs against each activity for the revegetation and weed control works at the Bruce Eastick North Para Flood Control Dam site (Table 4).

Table 4: The proposed costings for the Bruce Eastick Flood Control Dam site revegetation works.

Item	Description	Quantity	Unit Price	Price (Excl GST)
Weed Control	Travel (vehicle)	120 km	\$1/Km	\$120
	Travel (2 staff)	4 Hr	\$50/Hr	\$200
	Labour (2 staff)	12 Hr	\$70/Hr	\$840
	Equipment			\$50
			Sub Total	\$1,210
Planting	Travel (vehicle)	120 km	\$1/Km	\$120
	Travel (staff)	4 Hr	\$50/Hr	\$200
	Labour (2 staff) (planting, guarding, watering)	14 Hr	\$70/Hr	\$980
	Plants	50	\$2	\$100
	Stakes and guards	50	\$4	\$200
	Equipment	1	\$50	\$50
			Sub Total	\$1,650
Seeding	Travel (staff)	2 Hr	\$50/Hr	\$100
	Seed	30	\$175/kg	\$5,250
	Labour (2 staff)	7 Hr	\$70/Hr	\$490
	Tractor Hire	1	\$100/day	\$100
	Equipment	1	\$50/day	\$50
			Sub Total	\$5,990
Administration	5%			\$442
TOTAL				\$9,292

Cost of services provided is \$9,292 + GST = \$10,221.20