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December, 2000

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## Aireys Inlet District Association

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## Landscape Concept Plan

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**DRAFT**

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## Allen Noble Sanctuary

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## 1. Introduction

In December 1999 the office of Murphy Design Group Pty Ltd, Landscape Architects, was commissioned to prepare a landscape concept plan for the Allen Noble Sanctuary. The purpose of the plan is to provide a site planning framework which will guide restoration and development of the Sanctuary.

## 2. Background

### 2.1 The Marsh

Allen Noble Sanctuary is a naturally-occurring, shallow fresh water marsh. It is located in a central and prominent location within the township of Aireys Inlet. The Sanctuary is visible from the Great Ocean Road, and is located on a major access route to the Split Point Lighthouse.

Fresh water reaches the marsh as direct rainfall, as surface flows from the surrounding catchment, and as piped stormwater flows from the surrounding catchment. Water levels fluctuate according to seasonal conditions. Typically the marsh fills in winter and early spring. Normal top or full water level is controlled by the level of a concrete culvert which carries overflow under the Ocean Road at the Inlet Crescent intersection. This overflow is discharged from the culvert on the north side of the Great Ocean Road.

### 2.2 Use and Modification

From European settlement until the mid twentieth century, the marsh formed part of the Angahook pastoral property. Angahook homestead and its garden overlooked the marsh from the west. Photographs taken in the early twentieth century depict the marsh as a shallow water body surrounded by grazing paddocks. No fencing, trees or shrubs can be seen on the margins of the marsh.

During a severe drought in 1967 & 1968 the marsh dried out. Around this time, Ian Noble, nephew of the late Allen Noble of Angahook Homestead, supervised the removal of silts and gravel which had built up over many decades. The existing island in the centre of the marsh was built with surplus material from this work. Following this work and the breaking of the drought, the marsh refilled, water plants regenerated, and bird life returned to an increased variety of shallow and deeper water habitats.

Around this time the Noble family made arrangements for the marsh to be preserved as a wildlife sanctuary, named in memory of Allen Noble.

### 2.3 Existing Conditions

In the three decades since the work of 1967/68, significant changes have occurred within the Sanctuary. The first of these changes is the build up of sediments in the marsh. These sediments consist mainly of clays, gravels and sands from Lighthouse Road. Water depths have decreased, and areas of open water have become smaller as a consequence of the gradual build up of sediments.

Introduced plant species have also become established on terrestrial margins of the marsh. Many of these species are noxious or serious environmental weeds.

The results of these changes are:

- Less open water occurs; this is viewed as a loss in terms of visual diversity and in terms of the diversity of habitat for birds, especially those bird species which frequent open water, or require open water for take-off and landing.
- The ecological values of the sanctuary are disturbed, because introduced weed species are in most cases an unsuitable substitute for the indigenous plants they have replaced, many of which foster the survival of native insect, crustacean, reptile, bird and other wetland life.

### 3. Landscape Concept Plan Description

Five Design Aims & Strategies were developed during the Landscape Concept Plan Process. The strategies arising from each of these aims are described in this section. Aims 1 and 2 involve limited adjustments to the shape and depth of the bed and banks of the marsh.

#### 3.1 Aims and Strategies, 1 & 2

**Aim 1**  
Improve the diversity & quality of marsh habitats; limit disturbance when works are implemented.

**Strategy 1**  
Remove sediments on the east and north sides of the marsh; no dredging to west and south sides of the marsh. Create deeper open water areas.

**Aim 2**  
Reduce the rate of future sedimentation.

**Strategy 2**  
Construct sedimentation ponds where stormwater pipes discharge to the marsh.

These aims have regard to the need to contain adverse impacts when carrying out modifications to achieve increased areas of open water, and recognise the need to control the pattern of future sedimentation. Implementation is described in the following sections:

#### 3.1.1 Excavation

A layer of silts, silty clays and organic sediments is believed to form a 'lining' to the bottom of the wetland. The lining is thought to overlay permeable sands. This layer must be kept intact. If the lining is removed, ongoing loss of water from the wetland may occur.

When earthworks to create the opens water areas and sediment ponds are carried out, an appropriately experienced engineer should monitor and direct the progress and depth of excavation. Preliminary investigations indicate that a safe bottom depth of 1.80 metres-AHD (Australian Height Datum) may be achievable. For convenience the landscape concept plan identifies 1.75 metres AHD as a suggested bottom depth. Both of these levels must be treated as desirable bottom depths, only to be implemented if the wetland lining can be maintained to a satisfactory thickness.

### 3.1.2 Open Water

Two areas of open water will be constructed to provide an additional type of habitat for water birds and other life in the marsh. These open water areas will also add visual interest to the wetland.

The depth of open water areas will be within the range of 0.8 to 1.1 metres.

### 3.1.3 Sediment Ponds

Two sediment ponds will be constructed. These ponds will act as sumps, capturing stormwater which is discharged into the wetland from existing stormwater pipes. Coarse sediments carried in stormwater will settle on the base of ponds. Incoming water will then flow out of the ponds into the marshland.

The sediment ponds will be up to 1 metre deep. In constructing these ponds it will be necessary to extend the existing concrete pipes for several metres beyond their existing discharge point. The ponds will also have a safety bench constructed to their perimeter. The construction process should be controlled to result in a water depth of 0.5 metres over a 2 metre wide bench. The safety bench, planted with robust marsh plants such as Eleocharis species, will serve as margin and barrier around the deeper water in the centre of the sediment pond.

The sediment ponds will require periodic removal of silts and gravel deposits. Provided that the condition of the catchment and vegetation cover is not altered significantly to increase the quantity of material being transported through surface and piped run-off, this removal may be required at intervals of approximately 10 years.

### 3.1.4 Disposal of Excavated Material

Material excavated from the construction of open water areas and sediment ponds will be retained within the Sanctuary. Several disposal areas are envisaged. These areas Fill Zones A, B, C, D and E, are identified in the Appendices to this report.

Disposal area A will be formed by the excavation of the sediment pond on Inlet Crescent (North). The small peninsula on the south side of the pond can be shaped to impound water in the sediment pond, and accommodate a walking path.

Disposal area B will be the existing island. Part of the material generated by the excavation of the large area of open water will be transferred to form an enlarged island. The island will be enlarged from its existing length and breadth of approximately 15 metres by 7 metres, to a length and breadth of approximately 30 metres by 15 metres. The height of the island will be increased by 1 metre to approximately 4.0 metres AHD, or 1.2 metres above normal water level.

The increased scale of the island will provide a strong visual focus in the centre of the Sanctuary. When trees and shrubs become established the island will be an visually appealing background to water and marsh areas, and an important roosting and refuge site for birds.

Disposal areas C and E will absorb the material generated by the excavation of the large open water area, and the excavation of smaller open water pond located south of the island. Both of these areas are at present terrestrial environments. Surplus material placed in these areas can form low mounds (up to 0.5 metres height, with side slopes not exceeding 1 horizontal / 3 vertical), on which the amenity planting can be established. These mounds will add visual interest to the terrestrial / amenity planting areas, without obstructing views into the marsh.

In placing excavated material in Areas C and E, care will be taken to ensure that the method and placement of material creates suitable conditions for terrestrial planting. In addition, the placement of material, and final shaping, will ensure that the surface drainage regimen (of fall from Inlet Crescent towards the marsh) is preserved, whilst also maintaining the existing surface levels at the edge of the Inlet Crescent road margin.

### 3.2 Aims and Strategies, 3, 4 & 5

#### Aim 3

Maintain & improve natural values on land.

#### Strategy 3

Progressively remove & control introduced plant species; buffer the marsh margins with indigenous terrestrial plant species.

#### 3.2.1 Weed Control

The land surrounding the wetland contains a large number of plant species which have been introduced to the site, either by planting or by opportunistic invasion. These species are 'weeds' because they threaten or exclude indigenous vegetation.

A program of weed removal will be implemented on an ongoing basis, and where appropriate in conjunction with other works on the site. Expert advice on weed identification and removal strategies will be sought from locally-based contractors with suitable expertise.

The Landscape Concept Plan identifies Terrestrial Buffers and Amenity Planting Areas. The island and the margins of the wetland will be planted with indigenous plants. These plants will replace many weed species which thrive on the margins of the wetland, and buffer the edges of the wetland against weed invasion.

Other planting areas will be planted with indigenous plant species to provide amenity benefits such as shade and shelter, and to frame views into the wetland.

#### Aim 4

Preserve important cultural values within the site.

#### Strategy 4

Retain the Willow border along Angahook Homestead margin of marsh. Control spread of willows beyond existing extent.

#### 3.2.2 Willow Management

A line of Willows (Golden Willow, *Salix alba x vitellina*, and Weeping Willow, *Salix babylonica*) define the edge of the Angahook Homestead property, on the western edge of the sanctuary. These trees are an important visual element of the site, and have a cultural significance due to their association with the Homestead and its links with European settlement and pastoral activity in Aireys Inlet. These trees will be retained. Willows generally are an inappropriate and potentially invasive species in indigenous wetland settings. The extent of the stand of willows will be controlled to its existing limits. If required, the weeping canopies will be raised to prevent suckering.

Aim 5

Provide opportunities for appreciation & enjoyment of the Sanctuary and its natural values.

Strategy 5

Provide paths, boardwalks, seating and simple picnic facilities.

3.2.3 Facilities

A walking path will be constructed around the margin of the Sanctuary. This path will be a combined gravel (on land) and timber boardwalk (through shallow marsh) treatment. Local 'Barrabool' gravel and durable timbers (re-dried treated pine) will be used to construct the path system. At entry points to the Sanctuary, the path will be formalised into circular 'entry nodes', surrounded by low indigenous plants. Low signs will be installed at each entry point, to identify the Sanctuary and provide basic visitor information.

The path will pass through an Open Grassed Area, located at the intersection of Inlet Crescent and Lighthouse Road. Simple picnic facilities (tables, seating) will be provided in this area. Amenity planting will provide shade and separate the edge of the area from the adjacent road. Bollards will be installed to prevent vehicles from entering the grassed area.

A bird hide will be constructed in future to provide opportunities for discreet observation of wildlife, in particular water birds. The hide will be located in an existing thicket of Paperbark trees (*Melaleuca* species).

**4. Conclusion**

Allen Noble Sanctuary is a valuable natural feature and community asset which requires sensitive and ongoing management to preserve and restore its natural and habitat values. The Sanctuary can also become, with the installation of simple facilities, a place where residents and visitors can observe and enjoy the flora and fauna of the Sanctuary.

The Landscape Concept Plan identifies the land use history and existing problems which apply to the site. The Plan identifies strategies to address these problems. A range of works and facilities is outlined, and indicative costs are attached to those works and facilities. Ideally, implementation of the plan will take place over a two to three year period.

As change occurs over time within the catchment around the Sanctuary, it will be important to anticipate and monitor the impacts of these changes.

It is recommended that the Landscape Concept Plan be reviewed after 2005, and not later 2010.

**Appendices**

(following pages)

- Landscape Concept Plan
- Landscape Section / Elevations
- Landscape Concept Plan (Fill Zones)
- Budget Estimates



ALLEN NOBLE SANCTUARY – LANDSCAPE CONCEPT PLAN – AIREYS INLET DISTRICT ASSOCIATION

Budget Estimates

Element	Assumptions	Unit	Quantity	Rate	Budget / Amount
Weed Control	Control program over 1.5 years, monthly for six months, bi-monthly thereafter.	item	-	-	\$7,500
Earthworks	Site earthworks including excavate sediment ponds and open water areas, on site disposal, site shaping and mound formation.	item	-	-	\$10,000
Drainage	Modify and extend existing concrete culverts to form sediment pond inlets.	item			\$1,500
Restoration & Amenity Planting (Terrestrial)	Soil preparation, bed mulching, tubestock at ave 4 per m2.	m2	2900	\$10	\$29,000
Restoration & Amenity Planting (Terrestrial)	Specialist propagation and planting of wetland species.	item	-	-	\$2,000
Paths	Barrabool Gravel, 75 mm depth, 1.5 m wide, soft edge, 216 lin metres plus entry areas.	m2	430	\$10	
Boardwalks	Redried treated pine, 1.5 m wide, approx 100 lin metres.	m2	150	\$250	\$37,500
Furniture	Bollards, Signs, Seating, Picnic Tables, treated pine.	allowance	-	-	\$5,000
<b>Total</b>	All elements above.				<b>\$92,500</b>

The estimates above indicate the likely cost of implementing works, based on the Landscape Concept Plan and using experienced contractors and trades. Costs may vary according to the procurement strategy adopted. Use of local trades and volunteer group provide reduction in works areas where volunteer input is appropriate.