



Tallawarra Lands Part 3A Concept Plan Application

Environmental Management Strategy

Prepared for
TRUenergy

4 February 2011



DOCUMENT TRACKING

ITEM	DETAIL
Project Name	Tallawarra Lands Part 3A Concept Plan Application
Project Number	09SUTECO-0077
File location	G:\Synergy\Projects\09SUTECO\09SUTECO-0077 Tallawarra Lands Concept Plan\Report\Draft Reports\EMS
Prepared by	Tammy Haslehurst
Prepared by	Nathan Kearnes
Approved by	Mark Adams
Status	FINAL
Version Number	2
Last saved on	4 February 2011

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd with support from Anthony Savenkov (TRUenergy) and the project design team.

Disclaimer

This document may only be used for the purpose for which it was commissioned and in accordance with the contract between Eco Logical Australia Pty Ltd and TRUenergy. The scope of services was defined in consultation with TRUenergy, by time and budgetary constraints imposed by the client, and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information.

Eco Logical Australia Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report and its supporting material by any third party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

Contents

1	Introduction	4
1.1	Study Area	4
1.2	Description of the Proposal	8
1.3	Summary of identified values	8
1.4	Aim of Strategy	9
1.5	Structure of the Strategy	10
2	Protect Biodiversity Values.....	11
3	Enhance High Conservation Riparian Areas.....	12
4	Improve the Condition of Native Remnant Vegetation.....	13
5	Manage the Bushfire Risks	14
6	Provide Habitat Connectivity	15
7	Development Controls.....	16
7.1	Site Management	16
7.2	Revegetation	17
7.3	Weed Control	17
7.4	Urban/environmental interface	18
7.5	Riparian Management	18
7.6	Bushfire Risk Management.....	19
8	Summary.....	20
9	References.....	21

List of Figures

Figure 1: Study area location.....	5
Figure 2: Study site.....	6
Figure 3: Tallawarra Lands Concept Plan.....	7

Abbreviations

ABBREVIATION	DESCRIPTION
BMP	Bushfire Management Plan
BPA	Bushfire Planning Assessment
CRZ	Core Riparian Zone
DGEARs	Directors General Environmental Assessment Requirements
EA	Ecological Assessment
EEC	Endangered Ecological Community
EMS	Environmental Management Strategy
NES	National Environmental Significance
PBP	Planning for Bushfire Protection
RCMS	Riparian Corridor Management Study
SFPP	Special Fire Protection Purpose
VB	Vegetated Buffer
VMP	Vegetation Management Plan

1 Introduction

Eco Logical Australia Pty Ltd (ELA) was commissioned by TRUenergy to develop an environmental management strategy for the Tallawarra Lands in Yallah, NSW (**Figure 1**). This strategy is part of the Concept Plan for future development of the site. The proposed development includes areas already rezoned for residential, industrial and tourism precincts combined with large areas of environmental conservation and open space. The Concept Plan is being assessed under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This Environmental Management Strategy (EMS) summarises the proposed environmental management intent for the site. This strategy is supported by, and should be read in conjunction with:

- *Tallawarra Lands Part 3A Concept Plan Application, Bushfire Planning Assessment*. Prepared by Eco Logical Australia for TRUenergy (ELA 2010a)
- *Tallawarra Lands Part 3A Concept Plan Application, Ecological Assessment*. Prepared by Eco Logical Australia for TRUenergy (ELA 2010b)
- *Tallawarra Lands Part 3A Concept Plan Application, Riparian Assessment*. Prepared by Eco Logical Australia for TRUenergy (ELA 2010c)
- *Tallawarra Lands Part 3A Concept Plan Application, Vegetation Management Plan*. Prepared by Eco Logical Australia for TRUenergy (ELA 2010d)

For the purposes of this strategy, the environmental values identified on site (and detailed in the reports listed above) have not been repeated.

1.1 STUDY AREA

The study area is located on the Tallawarra Lands in Yallah, east of Dapto, within the Wollongong Local Government Area (LGA), NSW. Lake Illawarra marks the eastern boundary of the study area, with the Princess Highway to the west, residential development and Mount Brown Reserve to the north and the suburb of Haywards Bay to the south (**Figure 1**).

The Tallawarra Gas-fired Power Station, owned by TRUenergy, is located on the east of the study area although it is excluded from the Concept Plan. A public recreation area owned by Lake Illawarra Authority runs along the foreshore of Lake Illawarra between the TRUenergy power station and the northern boundary of the site. Yallah Bay Road and Duck Creek run through the centre of the site.

Large portions of the study area have undergone past disturbances particularly in the south-west and central-east including a number of former ash settling ponds used by the former coal fired Tallawarra Power Station. Extensive vegetation clearance has occurred across much of the remainder of the site, formerly for grazing purposes, resulting in large areas of exotic grassland. The most intact native vegetation occurs in the south-eastern corner of the site with smaller areas in the north with connectivity to the adjoining native vegetation stands in Mount Brown Reserve as well as along the central part of the western boundary of the site. **Figure 2** shows the study site.

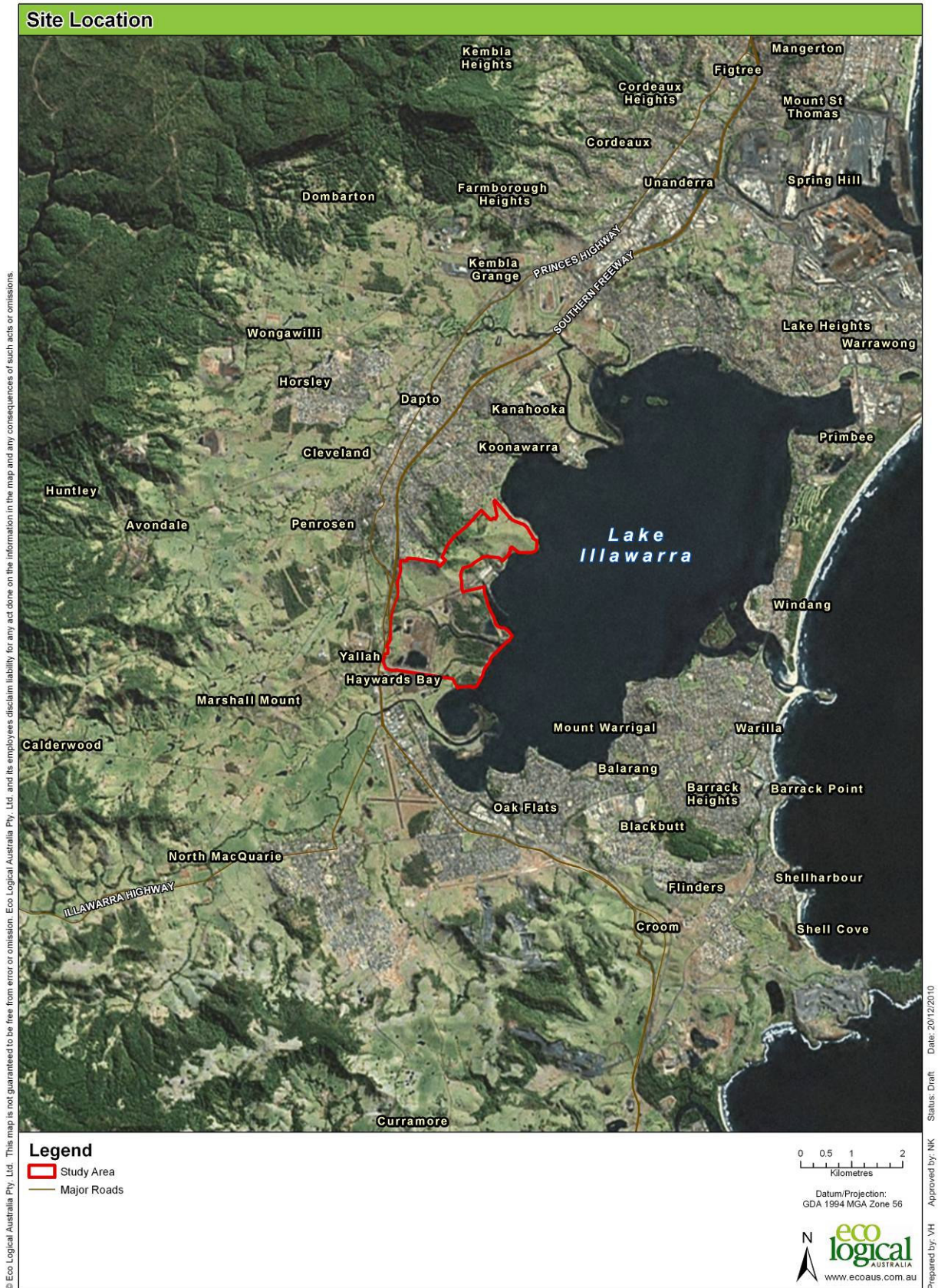


Figure 1: Study area location



Figure 2: Study site

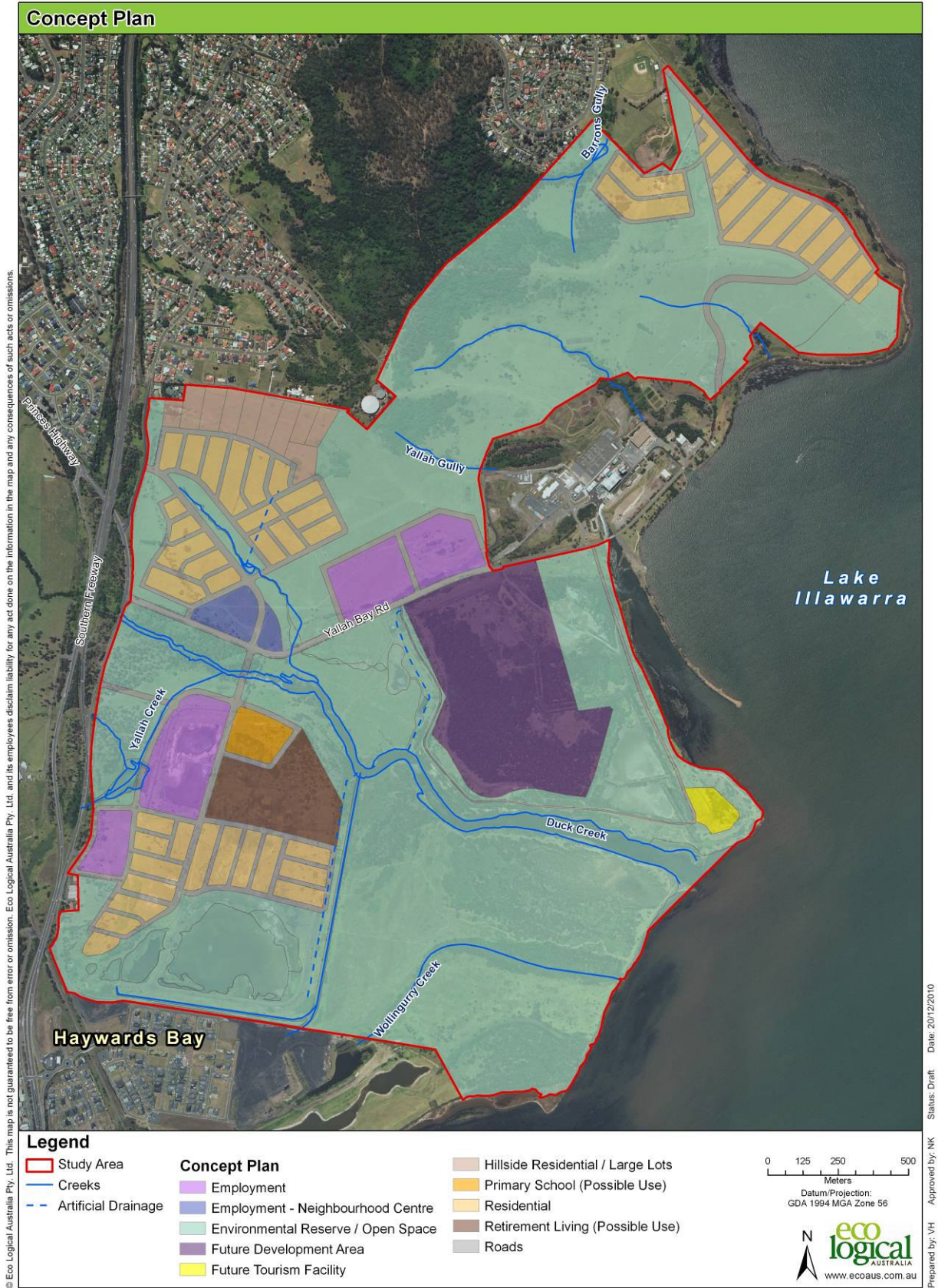


Figure 3: Tallawarra Lands Concept Plan

1.2 DESCRIPTION OF THE PROPOSAL

The development proposal involves the establishment of a number of land uses throughout the study area (**Figure 3**). These include:

- Residential development in the north-east of the site along the Lake Illawarra Foreshore
- A local centre and an employment zone in the central precinct
- Residential development in the central-west
- An employment area and tourism facility in the central–eastern parts of the site
- An employment precinct, primary school, retirement living and residential development in the south-west of the site and
- Significant dedication for environmental conservation and open space including:
 - Provision of a significant environmental corridor for Duck Creek
 - A large environmental reserve in the south-east incorporating two SEPP 14 wetlands
 - Retention of remnant vegetation adjoining Mount Brown reserve
 - An open space reserve along the Lake Illawarra foreshore
 - Retention of two artificial wetlands providing waterbird habitat in the south-west
 - An environmental reserve incorporating endangered ecological communities on the western boundary
 - Provision of riparian zones and buffer setbacks for watercourses (and wetlands) on site, including significant vegetation management and revegetation
- Approximately 117.23 ha of native vegetation being protected across the study area which includes six EECs and two SEPP 14 wetlands.

1.3 SUMMARY OF IDENTIFIED VALUES

In order to facilitate the understanding of the intent of this strategy a brief summary of key ecological values is provided below. This abbreviated list is not exhaustive and readers are urged to refer to the detailed reports referenced in the introduction.

- There is a total of 121.60 ha of EEC with the study area including:
 - Swamp Sclerophyll Forest on Coastal Floodplains on the NSW North Coast, Sydney Basin and South East Corner Bioregions (SSF) - poor to very good condition
 - Illawarra Lowlands Grassy Woodland of the Sydney Basin Bioregion (ILGW) - poor to moderate condition
 - Swamp Oak Floodplain Forest on the NSW North Coast, Sydney Basin and South East Corner Bioregions (SOFF) – very poor to poor quality
 - Coastal Saltmarsh of the Sydney Basin Bioregion (CS) - moderate condition

- Freshwater Wetlands on Coastal Floodplains (Freshwater Wetlands) (FW) – very poor condition
- Illawarra Subtropical Rainforest in Sydney Basin Bioregion (ISR) – poor condition
- There are also large areas of weed infestation including Acacia scrub and exotic grassland
- Weed abundance across the lands is generally high and resilience is low from a long history of disturbance and modification
- Potential habitat is present for eleven threatened flora species although none have been observed on the site in surveys to date
- There is potential habitat for a range of threatened fauna species predominately confined to existing native vegetation stands including:
 - 12 threatened birds
 - 18 migratory birds
 - Green and Golden Bell Frog
 - Microbats
- There is additional artificial wetland habitat for waterbirds
- There are two SEPP 14 Wetlands
- The site borders Lake Illawarra
- Duck Creek and other riparian zones are in a degraded state
- The area has been identified as part of a regional corridor by DECCW

1.4 AIM OF STRATEGY

The aim of this Environmental Management Strategy (EMS) is to integrate the approach for management in non development areas within the Tallawarra Lands development area to ensure continued protection, maintenance and improvement of recognised values. These objectives are to:

1. Protect the biodiversity of the site including the diversity of species and habitats
2. Enhance high conservation riparian areas
3. Improve the condition of remnant native vegetation
4. Manage the bushfire risks
5. Provide habitat connectivity within the site and to adjacent areas

These five (5) objectives summarise the legislative and best practice requirements for the site and can be used as a platform for consideration against ecological sustainable development (ESD) principles.

1.5 STRUCTURE OF THE STRATEGY

Each subsequent chapter in this strategy addresses the above objectives. This strategy addresses each of the above objectives by indentifying relevant:

- **Legislative requirements**

The multiple agency, legislative and policy requirements that drive the objective(s) are listed.

- **Strategies**

Given the values of the site and the professional opinion Eco Logical Australia's of bushfire experts, environmental planners, restoration ecologists, botanists, zoologists and herpetologists, the approaches taken on site are outlined.

- **Design Responses**

The tables provide a summary of how the Concept Plan design either responds to identified ecological constraints.

The strategies found in the following chapters are followed by a list of specific development control actions in Section 7. These are the range of specific actions that assist in delivering the strategies. Whilst not exhaustive, they outline the intent and actions for integration of environmental management prior to, during, and post development. These actions achieve multiple objectives in many cases, for instance, weed control assisting in enhancing biodiversity values and increasing habitat connectivity. These actions achieve multiple objectives in many cases, for instance, weed control assisting in enhancing biodiversity values and increasing habitat connectivity.

2 Protect Biodiversity Values

This objective relates to the conservation of biodiversity on site with a particular emphasis on threatened and endangered species and communities.

Legislative requirements	Strategies	Design Response
<ul style="list-style-type: none"> Comply with the provisions of Part 3A of the <i>Environmental Planning and Assessment Act 1979</i> - maintaining or improving the biodiversity values Comply with the objectives of the <i>Threatened Species Conservation Act 1995</i> - protect and encourage the recovery of threatened species, populations and communities listed under the Act Meeting the objectives of the <i>Part 3A Guidelines for Threatened Species Assessment</i> DECC (2005) Address the Director General Environmental Assessment Requirements (DGEARs) and Comply with the objectives of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> - provide for the protection of the environment, especially those aspects of the environment that are matters of National Environmental Significance (NES) 	<ul style="list-style-type: none"> Conserve and protect Endangered Ecological Communities (EEC) Retain habitat for threatened species Avoid impacts on Matters of NES Protect areas of known and potential habitat for threatened species from indirect impacts Protect areas of important habitat for wetland birds Restoring areas of important habitat from threatening processes such as weeds, alteration of natural flows, clearing and others Maintaining the diversity of habitats on site 	<ul style="list-style-type: none"> Only 32% of the site is proposed for development purposes with the remainder (68%) proposed for environmental reserves and open space uses Establishes approximately 180 ha of environmental reserves Concentrates the development footprint in areas of low ecological value or areas of small, isolated and degraded vegetation and/or habitat Protects waterbird habitat in the former ash ponds that provide higher value habitat (approximately 13 ha) Protects approximately 96% of the EEC's on site. EEC clearance is comprised of a number of very small areas of differing communities ranging from 0.17 ha to 2.54 ha in size, in degraded condition, representing a 27:1 protection ratio Avoids the clearance of hollow-bearing trees Reduces the development / conservation interface Maintains current hydrological regimes in wetlands and saltmarsh areas Recognises downstream aquatic values by providing for improved water quality and mimicry of natural flow regimes in WSUD and riparian buffers in line with the RCMS. Design does not concentrate impacts in a particular ecotone or vegetation community

3 Enhance High Conservation Riparian Areas

This objective concentrates on the planning incorporated into the proposal in relation to the ecological treatment of riparian areas and does not address the additional engineering work that will be undertaken as part of the application to adhere to water sensitive urban design principles.

Legislative requirements	Strategies	Design Response
<ul style="list-style-type: none"> • Comply with the objectives of <i>State Environmental Planning Policy 14 – Coastal Wetlands (SEPP 14)</i> • Comply with the provisions of the Regional Corridor Management Study (RCMS) • Address the Director General Environmental Assessment Requirements (DGEARs) • Management of existing natural riparian features in accordance with the requirements established under SEPP 14 and the RCMS • Provision of a regional linkage from the Ocean to the Escarpment in the form of a large Duck Creek corridor (DECCW Regional Strategy) • Apply <i>Water Management Act 2000</i> guidelines although the under Part 3A is exempt from such requirements 	<ul style="list-style-type: none"> • Application of the Regional Corridor Management Study (RCMS) methodology (DIPNR 2004) for mapping of streams, categorisation and riparian buffers (CRZ and VB) • Protect the Duck Creek Corridor • Provision of a series of secondary riparian corridors to support important waterways • Provision of sufficient riparian zones for remaining waterways to provide for bed and bank stability • Protect areas of SEPP 14 wetlands • Protect Saltmarsh and Mangrove • Protect the receiving waters of Lake Illawarra • Protect riparian areas from indirect impacts • Maintain and improve riparian values 	<ul style="list-style-type: none"> • Protection of a 100m riparian corridor for Duck Creek • Provision of 50m buffer setbacks to SEPP 14 wetlands and to Lake Illawarra Foreshore for its entire length within the site • The concept plan allows for a riparian zone (CRZ plus a VB where relevant) for all affected waterways in line with the RCMS approach (DIPNR, 2004) • Restoration strategy for riparian areas (see ELA 2010d and ELA 2010c) including significant weed control and extensive riparian zone revegetation • Southern Floodplain Foreshore is protected as an environmental reserve including SEPP14 wetlands, saltmarsh and EEC listed vegetation protected and improved through vegetation management works (ELA 2010d) • Duck Creek will be the focus of extensive restoration with widespread environmental and noxious weed control throughout the corridor with full structural native revegetation proposed for the riparian zone (including currently cleared areas). Supported by additional open space revegetation exceeding requirements • That major riparian zones be held in public ownership (such as Wollongong City Council or the Lake Illawarra Authority) and reflected in a Planning Agreement • Stormwater and sewer infrastructure constructed to perform at a high environmental standard, with the aim being for no increase in nutrient loads received by Lake Illawarra • Full structural revegetation of the Barrons Gully waterway (RCMS Category 2)

4 Improve the Condition of Native Remnant Vegetation

A detailed restoration strategy is described in the ELA Vegetation Management Plan for the environmental reserves, open space and retained habitat such as the Duck Creek corridor, wetlands and riparian zones.

Legislative requirements	Strategies	Design Response
<ul style="list-style-type: none"> • Comply with the requirements for management of noxious weeds under the <i>Noxious Weeds Act 1993</i> (NW Act) • Compliance with the provisions of the <i>National Parks and Wildlife Act 1974</i> (NPW Act) • Comply with the provisions of the <i>Water Management Act</i> • Comply with DECCW revegetation requirements • Address the Director General Environmental Assessment Requirements (DGEARs) • Provide for a regional corridor (DECCW Policy) 	<ul style="list-style-type: none"> • Implement a best practise management approach to vegetation management and rehabilitation • Prevention of soil erosion in riparian areas • Control of noxious and environmental weeds • Revegetation of degraded areas where required • Protection of habitats for threatened species on the lands • Provide monitoring and reporting methodologies • Intensely manage and improve native remnant vegetation to minimise long term management needs 	<ul style="list-style-type: none"> • Duck Creek will receive substantial targeted revegetation and extensive noxious weed control • The wetlands reserve will receive noxious weed control and targeted environmental weed control in the woodland areas • The southern artificial wetlands (former ash dams) will receive low density tree planting and noxious and environmental weed control • Creation of open space along Yallah Creek with selective riparian revegetation and water quality and soil erosion management works including removal of concrete channel lining • Areas adjoining the Mt Brown Reserve will be provided with stock proof fencing, control of noxious and environmental weeds and targeted revegetation • Amenity plantings (as part of the Landscape Masterplan prepared by Corkery Consulting) will be provided in strategic locations (to integrate open space and biodiversity) using endemic native species in conjunction with weed control • Restoration works in riparian areas will focus on water quality and bank stability issues with revegetation proposed where required • Noxious and environmental weed control and minor revegetation using some midstorey species will occur along foreshore areas in order to maintain viewsheds and amenity

5 Manage the Bushfire Risks

The objective of protecting life and property from bushfire risks is integrated with revegetation strategies for riparian and ecological requirements.

Legislative requirements	Strategies	Design Response
<ul style="list-style-type: none"> • Comply with the requirements of the <i>Rural Fires Act</i> • Compliance with Planning for Bushfire Protection (PBP) • Address the Directors General Environmental Assessment Requirements (DGEARs) 	<ul style="list-style-type: none"> • Provide appropriate combination of protection measures that seek to protect life and property including the provision of: <ul style="list-style-type: none"> • APZ to setback development from bushfire hazards • Appropriate access arrangements • Emergency management arrangements • Building construction and design • Water supply and services • Landscaping 	<ul style="list-style-type: none"> • A design that minimises the bushland-development interface • Assessment of PBP compliant APZs to residential and SFPP developments. Design of the concept plan to accommodate these APZs • Design of an appropriate road network including the provision of perimeter roads, alternative access/egress routes and construction according the requirements • Sound design for emergency management arrangements including access/egress above RFS requirements and emergency evacuation plan for SFPP development • Assessment of building construction standards to be undertaken at the Development Application stage or detailed precinct planning • Reticulated water to be supplied throughout the development site in accordance with AS 2419-2005 'Fire hydrant installations – System design, installation and commissioning' (Standards Australia 2005) • Specifications for electrical transmission lines and the supply of natural gas • Plans for landscaping and vegetation management to maintain APZs • Development of a Bushfire Management Plan to guide the application of fire regimes for biodiversity protection

6 Provide Habitat Connectivity

This objective aims to ensure connectivity of habitat is maintained and enhanced.

Legislative requirements	Strategies	Design Response
<ul style="list-style-type: none"> • Address the Director General Environmental Assessment Requirements (DGEARs) • Provision of a regional linkage from the Ocean to the Escarpment in the form of a large Duck Creek corridor (DECCW Regional Strategy) • Provide a buffer along Lake Illawarra Foreshore 	<ul style="list-style-type: none"> • Protection of remnant native vegetation • Retention of significant watercourse habitat areas • Link retention and restoration to adjacent habitats 	<ul style="list-style-type: none"> • Retention of high value habitat areas and substantial restoration activities proposed to improve condition and function of retained habitat • Designated riparian buffers to increase functionality and condition through restoration and enhancement • Integration of associated infrastructure (detention basins, cycle ways, passive open space) in areas of lower ecological value • Stormwater and sewer infrastructure constructed to perform at a high environmental standard, with the aim being for no increase in nutrient loads received by Lake Illawarra • Substantial open space landscaping and revegetation using native species of local providence and to support retained habitat areas through the provision of additional habitat • Restoration of a 200m wide Duck Creek Corridor supported by two adjacent environmental reserves and conserved open space • Consolidation of Mt Brown Reserve • Significant environmental reserves and open space dedications • Buffer setbacks to riparian areas, SEPP14 wetlands, Lake Illawarra and artificial wetlands

7 Development Controls

There are a range of specific development control actions that assist in delivering the strategy outlined above. Whilst not exhaustive, the following key recommendations outline the intent and actions for integration of environmental management prior to, during, and post development. These actions achieve multiple objectives in many cases, for instance, weed control assisting in enhancing biodiversity values and increasing habitat connectivity. These actions achieve multiple objectives in many cases, for instance, weed control assisting in enhancing biodiversity values and increasing habitat connectivity.

7.1 SITE MANAGEMENT

- Preparation of Construction Environmental Management Plan (CEMP) incorporating a Soil and Water Management Plan (SWMP)
- Hazardous materials be stored on or off-site in specific lay-down/storage areas, and will be handled and stored according to regulatory requirements and Australian Standards AS1940
- Fringing aquatic vegetation around the waterbodies (including artificial wetlands) is not disturbed by any works
- The boundaries of the construction area will be clearly marked to prevent construction works breaching the boundaries and extending into environmental areas
- Piling of soil at least 50m away from the creeklines, drainage lines and other areas of native vegetation
- Soil will not be piled within riparian and wetland buffer areas nor vegetated areas
- Stockpiles will be covered
- All machinery, equipment and vehicles are to be washed down before entering and leaving the site
- Topsoil re-use should only be undertaken within construction areas and top soil is not to be relocated to areas subject to the environmental areas unless required for engineering purposes
- All onsite staff and contractors will be made aware of noxious weeds present at the site and ways to prevent their spread
- Soil, rubble, etc imported to the site should be certified that it is free of weeds and weed seed
- Where possible, construction is to be undertaken at least 15 m away from the base of trees
- The bush regeneration contractor will monitor changes in the vegetation across the lands over time

7.2 REVEGETATION

- Revegetation of the currently cleared portions of the Duck Creek corridor to the vegetation associations naturally occurring along Duck Creek, these being Coastal Swamp Oak Forest and Lowland Woollybutt – Melaleuca Forest
- Prior to clearing – collect native seed from vegetated areas for use in revegetation works and landscaping throughout the study area
- Revegetation using locally native endemic species characteristic of the native vegetation types present with species should be sourced prior to construction to ensure availability
- In areas where fencing of the trail may restrict fauna movement, the trail should be raised up 0.6 m - 1 m from the ground in parts to allow fauna to pass beneath
- All seed for revegetation works will be collected from bushland found across the lands, including in EECs
- If appropriate quantities cannot be sourced on site, seed will be sourced within a 5 km radius of the lands
- All seed collected will be of local provenance with seed collection undertaken in accordance with Florabank Guidelines (Mortlock 1998)
- Seed propagation undertaken in accordance with the VMP
- If seed collection is undertaken outside of the site, land owner permission will be required and a Section 132C licence under the NSW NPW Act will be required
- Areas greater than 20 square metres where revegetation does not survive will be required to be replanted and a 10% mortality rate has been factored into the number of plants required for revegetation purposes
- For further details refer to the Vegetation Management Plan (ELA 2010d)

7.3 WEED CONTROL

- Weed control works will target all noxious weeds
- Environmental weeds will be targeted in high value areas
- Noxious weeds to be managed through the appropriate methods outlined in the VMP (e.g. hand pulling, cut and paint, drill and fill)
- Weed control will target all noxious weed and some environmental weeds
- Weeds around the edges of wetlands (Lantana, Kikuyu, Couch and Blackberry) will be controlled in accordance with the VMP
- Before the vegetated buffer is established around wetlands, all noxious weed species and several environmental weed species will be controlled
- Revegetation undertaken in accordance with the planting densities outlined in the VMP

- Native overstorey and midstorey species naturally found in the area will be planted as tube stock, with tree guards in accordance with the densities outlined in the VMP
- Understorey species will be planted as hiko cells with densities as outlined in the VMP

7.4 URBAN/ENVIRONMENTAL INTERFACE

- Buffers between the development and areas of waterbird habitat should be maintained to prevent indirect impacts
- Barriers are erected between residential areas and the lake and environmental reserves to restrict predation by dogs on native fauna
- Dogs must be kept on a leash in environmentally sensitive locations (fauna habitat). Signage indicative of this and of the significance and value of the vegetation and waterbird habitat will be erected along the trail to inform and educate users
- All cats have a collar with a bell, as it is difficult to contain cats within the residential areas
- A feral animal management plan should be implemented to reduce feral animal activity across the site
- Installation of fauna proof rubbish bins at strategic locations to prevent rubbish disposal within environmental reserve areas
- Prevent foot or other access to sensitive EECs such as Saltmarsh and SEPP 14 wetlands by installing barriers such as fences, screening vegetation or other landscape treatments
- Stock proof fencing is recommended around the perimeter of any paddock areas to exclude stock from areas of remnant EEC vegetation

7.5 RIPARIAN MANAGEMENT

- No construction within riparian zones (excluding landscape, open space or works to existing infrastructure)
- Works within riparian zones in accordance with Water Management Act requirements
- Preparation of a Construction Environmental Management Plan and Soil and Water Management Plan to protect riparian values during construction
- Revegetation according to VMP (ELA 2010d)
- All works to maintain and improve bend and bank stability
- All works to maintain and improve water quality and hydrological regimes

7.6 BUSHFIRE RISK MANAGEMENT

- Implementation of bushfire protection measures according to PBP and outlined in ELA (2010a) including:
 - Asset protection zones
 - Road and trail network
 - Emergency management arrangements including preparation of a evacuation plan for SFPP developments
 - Building construction and design
 - Supply of water and other utilities
 - Landscaping, vegetation and property maintenance

More detailed development controls specific to objectives, site values and individual areas of the site are contained in the supporting documents outlined in Section 1.

8 Summary

This Environmental Management Strategy (EMS) provides an outline of the strategies expressed in the Concept Plan design and recommended in the background reports listed in the Introduction (Section 1).

The strategy illustrates compliance with environmental legislative requirements for ecology, riparian, bushfire and vegetation management and underpins the sites protection, management and enhancement of environmental values.

Further it summarises development controls to meet the objectives of the various disciplines.

9 References

ELA. 2010a. *Tallawarra Lands Part 3A Concept Plan Application, Bushfire Planning Assessment*. Prepared by Eco Logical Australia for TRUenergy.

ELA. 2010b. *Tallawarra Lands Part 3A Concept Plan Application, Ecological Assessment*. Prepared by Eco Logical Australia for TRUenergy.

ELA. 2010c. *Tallawarra Lands Part 3A Concept Plan Application, Riparian Assessment*. Prepared by Eco Logical Australia for TRUenergy.

ELA. 2010d. *Tallawarra Lands Part 3A Concept Plan Application, Vegetation Management Plan*. Prepared by Eco Logical Australia for TRUenergy.

NSWRFS. 2006. *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities and Developers* including the 2010 Appendix 3 Addendum. Australian Government Publishing Service, Canberra.

Standards Australia. 2005. *AS 2419 Fire hydrant installations – System design, installation and commissioning*. Standards Australia, Sydney.

Standards Australia. 2008. *AS/NZS1596 The storage and handling of LP gas*. Standards Australia, Sydney.

Standards Australia. 2009. *AS 3959-2009 Construction of buildings in bushfire-prone areas*. Standards Australia, Sydney.



HEAD OFFICE

Suite 4, Level 1
2-4 Merton Street
Sutherland NSW 2232
T 02 8536 8600
F 02 9542 5622

SYDNEY

Suite 604, Level 6
267 Castlereagh Street
Sydney NSW 2000
T 02 9993 0566
F 02 9993 0573

ST GEORGES BASIN

8/128 Island Point Road
St Georges Basin NSW 2540
T 02 4443 5555
F 02 4443 6655

CANBERRA

Level 2
11 London Circuit
Canberra ACT 2601
T 02 6103 0145
F 02 6103 0148

HUNTER

Suite 17, Level 4
19 Bolton Street
Newcastle NSW 2300
T 02 4910 0125
F 02 4910 0126

NAROOMA

5/20 Canty Street
Narooma NSW 2546
T 02 4476 1151
F 02 4476 1161

COFFS HARBOUR

35 Orlando Street
Coffs Harbour Jetty NSW 2450
T 02 6651 5484
F 02 6651 6890

ARMIDALE

92 Taylor Street
Armidale NSW 2350
T 02 8081 2681
F 02 6772 1279

BRISBANE

93 Boundary St
West End QLD 4101
T 1300 646 131

WESTERN AUSTRALIA

108 Stirling Street
Perth WA 6000
T 08 9227 1070
F 08 9227 1078

WOLLONGONG

Level 2
25 Atchison Street
Wollongong NSW 2500
T 02 8536 8615
F 02 4254 6699