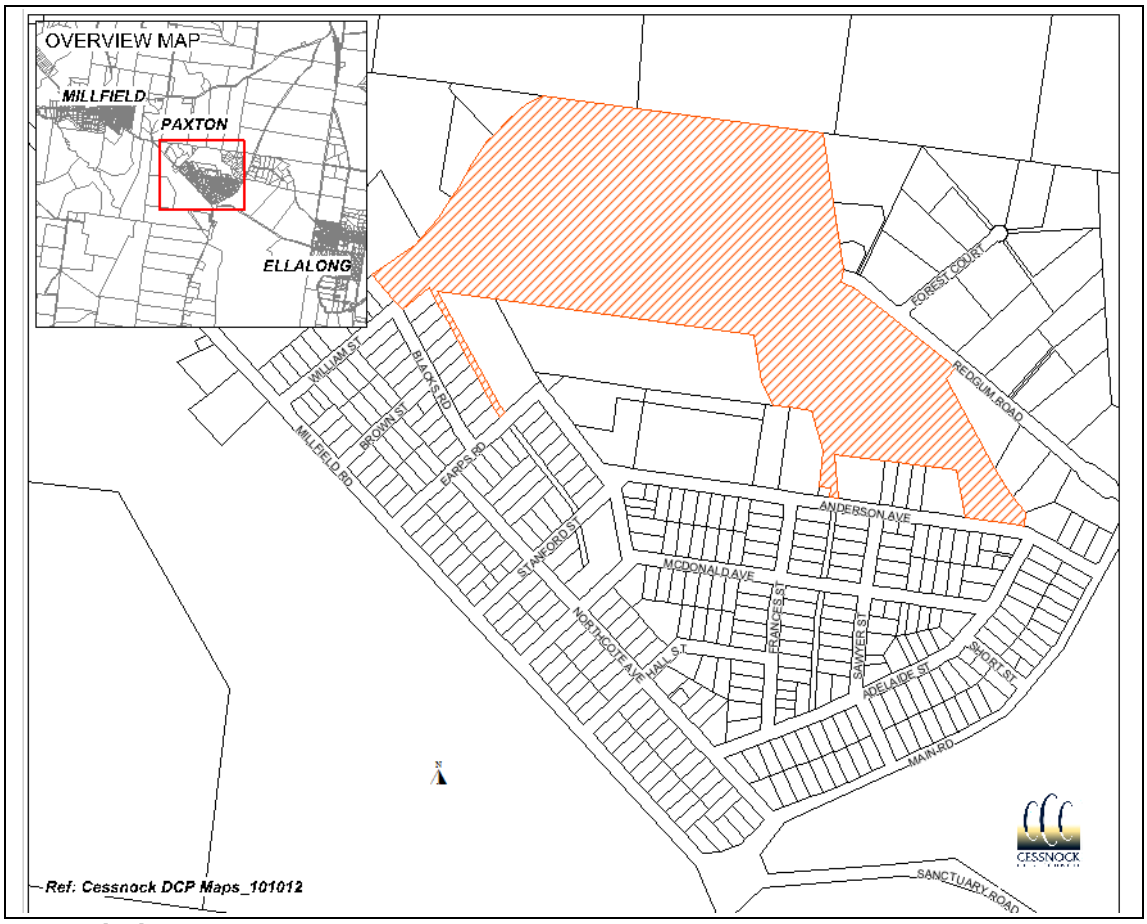
F.3 - Paxton North Urban Release Area



Description

The Paxton North Urban Release Area is located in the village of Paxton, directly north of Anderson Avenue and contains approximately 44.21 ha. To the north and west, vacant land exists. Stages 1 and 2 of the "Watagan Rise" subdivision are situated to the east.

Through the implementation of the Paxton North Urban Release Area, Cessnock City Council wishes to establish controls and guidelines to facilitate successful residential development that is of a high quality and considers the ecological importance of the area. It is envisaged that development on site will compliment the existing village structure and have minimal adverse impacts on the natural environment.

Specific landscape and visual amenity controls are included to ensure that the appearance of the development has regard for sustainable environmental management principles.

Development Requirements

All development applications shall demonstrate consistency with the following requirements.

1 Staging Plan

All development applications for subdivisions shall include a staging plan, where the development is intended to be released sequentially.

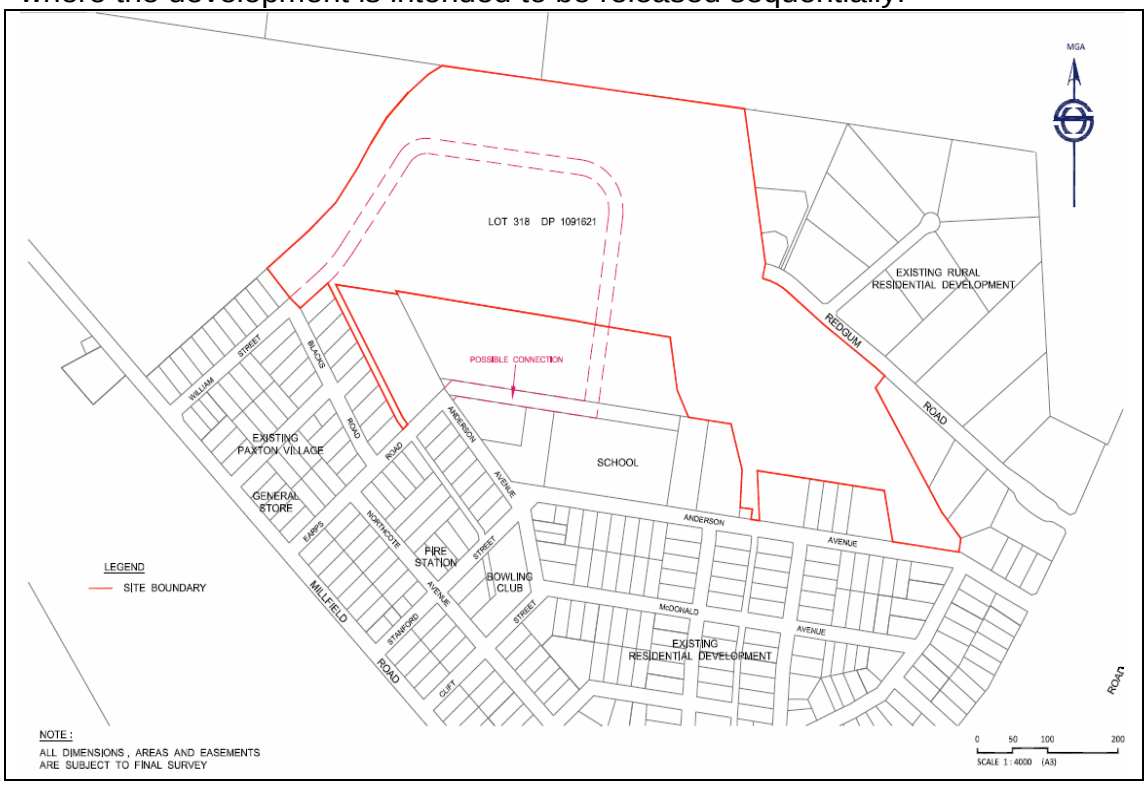


Figure 1: Precinct Plan and Road Hierarchy

2 Transport Movement Hierarchy

Road layout should be consistent with the Precinct Plan. Development applications for subdivisions must ensure that road networks connect to other development areas in a logical hierarchy of street function.

3 Overall Landscaping Strategy

The subdivision design is to provide for lot frontages addressing streets, and drainage reserves. Where this is unavoidable, boundary fencing shall be of an open style and of consistent materials and colour.

4 Passive and Active Recreational Areas

There are no specific requirements in this regard.

5 Stormwater and Water Quality Management Controls

a) Stormwater Management facilities are to be generally provided in accordance with the Precinct Plan.

b) Development applications for subdivision will be accompanied by a Stormwater Management Plan identifying both quantity and quality controls.

6 Amelioration of Natural and Environmental Hazards

Natural Hazards

Bushfire

Due to the geographical location of the site it is necessary in accordance with the NSW Rural Fire Service 'Planning for Bushfire Protection 2001' (PBP 2001) to implement APZ's. The configuration of the APZ's (as can been seen on Figure 2) are derived from direct application of the PBP 2001 criteria. Any deviation from this criteria would have to be clarified and accepted by the NSW Rural Fire Service.

Outer Protection Area (OPA)
The OPA (10m) is located adjacent to the hazard and would have originally been part of the hazard but has become an area where the fuel loadings are reduced. This fuel reduction substantially decreases the intensity of an approaching fire and restricts the pathways to crown fuels, thereby reducing the level of direct flame, radiant heat and ember attack on the IPA.

Inner Protection Area (IPA)
The IPA (30m) extends from the edge of the OPA to the development, and ensures that the presence of fuels are minimised close to a development, thereby minimising the impact of direct flame contact and radiant heat upon the development. The performance of the IPA must be such that:

- there is minimal fine fuel at ground level which could be set alight by a bushfire; and
- any vegetation in the IPA does not provide a path for the transfer of fire to the development – that is, the fuels are discontinuous.

The presence of a few shrubs or trees in the IPA is acceptable provided that they:

- do not touch or overhang any buildings;
- are well spread out and do not form a continuous canopy;
- are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
- are located far enough away from any dwelling so that they will not ignite the dwelling by direct flame contact or radiant heat emission.

Woodpiles, wooden sheds, combustible material storage areas, large areas / quantities of garden mulch, stacked flammable building materials etc. should not be permitted in the IPA, although the IPA can include lawns, discontinuous gardens, swimming pools, driveways and unattached garages. The perimeter road surrounding the RU5 - Village zone will be included as part of the Inner Protection Area for the APZ.

Ongoing Fuel Management
Once an appropriate APZ has been created, ongoing maintenance is required to ensure that regrowth and fuel load replacement does not occur. This will be the responsibility of the landowner and it is usual for such responsibility to be detailed in

the appropriate Conditions of Consent, such as in the Section 88b Certificate. In this case, it is expected that the maintenance of the proposed APZ's will become the responsibility of the individual lot owner.

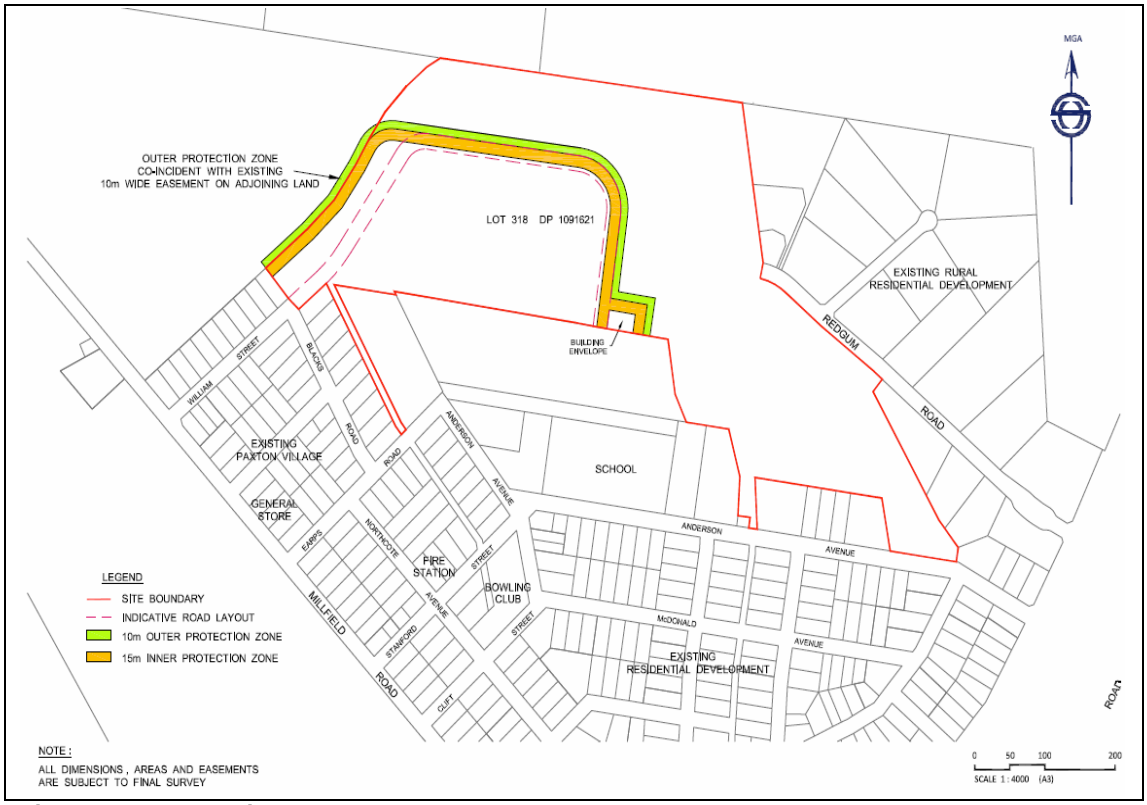


Figure 2: Concept Plan

Environmental Hazards

There are no specific requirements in this regard.

7 Significant Development Sites

Building Envelopes

The lots are to be generally created in accordance with the Concept Plan as identified in Figure 2.

The building envelopes for the construction of dwellings are to be located in accordance with the Concept Plan, being located to have minimal impact on flora and fauna.

No structures are to be located outside of the envelope.

A restriction-as-to-user is to be placed on all the lots at the time of subdivision to provide for such building envelopes and any easements and rights-of-way required.

Adjoining land zoned for environmental protection

In order to maximize the conservation outcomes of the Paxton Urban Release Area, a Plan of Management has been prepared.

The Plan of Management examines the land to which this Chapter applies and is the overarching management strategy for the E2 - Environmental Conservation Zone.

Prospective applicants shall refer to this report during the preparation of development applications.

To ensure that the Plan of Management will be executed, consent conditions for the subdivision of land will require that a revised Plan of Management be attached to a Voluntary Conservation Agreement or an 88B/E covenant on the Title Deed of the lot zoned E2 - Environmental Conservation Zone.

Full details of this arrangement are provided in the Plan of Management for Environmental Conservation Zone (Harper Somers O'Sullivan, November 2008) which is reproduced as Appendix A.

8 Residential Densities

There are no requirements for this Precinct.

9 Neighbourhood Commercial and Retail Uses

There are no requirements for this Precinct.

10 Provision of Public Facilities and Services

There are no specific requirements for this Precinct.

APPENDIX A





Plan of Management

For
Proposed Environmental Conservation Zone

Part Lot 100 DP 817644
Paxton North

Prepared for
Coops (NSW) Pty Ltd
1st Floor, 597 Darling Street
Balmain NSW 2041

HARPER SOMERS O'SULLIVAN
PLANNING ▸ SURVEYING ▸ ECOLOGY
A member of RPS Group Plc

Job Reference 21906 - November 2008

Plan of Management

For
Proposed Environmental Conservation Zone

Part Lot 100 DP 817644
Paxton North

Prepared for
Coops (NSW) Pty Ltd
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Balmain NSW 2041

HARPER SOMERS O'SULLIVAN
PLANNING · SURVEYING · ECOLOGY
A member of RPS Group Plc

Job Reference 21906 - November 2008

Prepared By:
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Hamilton NSW 2303
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Fax: (02) 4961 6794
Web: www.hso.com.au

PROJECT: PLAN OF MANAGEMENT – E2 ENVIRONMENTAL CONSERVATION ZONE – PAXTON NORTH	
CLIENT:	COOPS (NSW) PTY LTD
OUR REF	21502
DATE:	NOVEMBER 2008
APPROVED BY:	MATHEW WILKINSON
SIGNATURE:	
CHECKED BY:	ROB DWYER
SIGNATURE:	

CONTENTS

FIGURES

TABLES

1 INTRODUCTION

1.1 Name and Status of Plan

This Plan is called the "Plan of Management" for lands within the Paxton North E2 Environmental Protection zone.

The Plan consists of a written statement, a map identifying the land to which the Plan of Management Applies and a range of management procedures to be implemented for this land.

This Plan of Management was prepared in accordance with the requirements of NSW Department of Environment Climate Change (DECC) and Cessnock City Council.

This Plan of Management has been prepared to assist the rezoning process of land at Part Lot 100 DP 817644 Paxton North and in particular to ensure the environmental qualities of the site are maintained.

1.2 Land to which this Plan of Management Applies

This Plan of Management applies to land proposed to be rezoned E2 Environmental Conservation as part of the proposed rezoning of Part Lot 100 DP 817644, Paxton. The land is located directly north of the village of Paxton.

The proposed E2 Environmental Conservation zone is situated around the north, north-east, and east of the proposed urban development's perimeter road, which is illustrated in Figure 1-1.

Legend

- Hunter Lowland Redgum Forest
- Lower Hunter Spotted Gum Ironbark Forest
- Rutidosis heterogama
- Scattered Aboriginal Artefacts
- Asset Protection Zone (APZ)
- Zoning Boundary
- Future fencing of E2 Zone
- Future gates and/or fence

(A) - Easement for Transmission Lines (10 wide)
RU5 - Village
E2 - Environmental Conservation

APPROXIMATE LOCATION OF SCATTERED ARTEFACTS TO BE RETAINED IN SITU

E2

RU5

ENVIRONMENTAL PROTECTION

BUILDING ENVELOPE

E2

EXISTING PAXTON VILLAGE

(A)

MGA

CLIENT:	COOPS (NSW) PTY LTD	SCALE:	1 : 3000 (A3)	REF:	21906-2C FIG 1-1 MW/LS	DATE:	1 DECEMBER 2008

TITLE: FIGURE 1-1 : SITE ANALYSIS PLAN
LOT 318, DP 1091621 PAXTON NORTH

T: 02 4961 6500 F: 02 4961 6794 241 DENISON STREET BROADMEADOW
PO BOX 428 HAMILTON NSW 2303 WWW.RPSHSO.COM.AU
creativepeople making a difference
RPS HARPER SOMERS O'SULLIVAN

1.3 Aims and Objectives

The principal objectives of this Plan of Management are to:

- Identify relevant threatened species, endangered ecological communities and habitats;
- Identify areas of Aboriginal heritage significance and implement controls to manage these sites;
- Identify actions in relation to management and protection of conservation lands;
- Implement regular reviews of the effectiveness of the management arrangements;
- Identify actions for the design and implementation of appropriate adaptive management responses;

1.4 Relationship to Other Planning Instruments

Cessnock City Council (CCC) is preparing a Draft Comprehensive Local Environmental Plan for the Cessnock Local Government Area (LGA). CCC has requested this Draft Plan of Management be prepared to be exhibited with Council's Draft Comprehensive Local Environmental Plan.

This Draft Plan of Management will only come into effect with Council's approval. CCC's new Local Environmental Plan will outline permissible development within various zonings, including the E2 Environmental Conservation.

1.5 Application of the Plan

The proposed E2 Environmental Conservation land subject to this Plan of Management will remain in private ownership, and have one dwelling entitlement. This landowner will be required to ensure management and monitoring of the land is in accordance with measures in this Plan.

This Plan of Management is the overarching management strategy for the proposed E2 Environmental Conservation zone.

2 ABORIGINAL HERITAGE VALUES

A preliminary surface survey over the proposed urban development lands and Conservation land, carried out by archaeologist Angela Besant from Insite Heritage in 1999, revealed several scattered Aboriginal artefacts on the western portion of the study area. The approximate location of these artefacts is identified on Figure 1-1.

In July 2003 NPWS issued a section 90 consent (under NPWS ACT 1974) to destroy the aboriginal objects identified via the surface survey, in the course of residential development, with the salvage collection of the objects being undertaken by Angela Besant.

However, as the Conservation Land will be rezoned E2 Environmental Conservation, the scattered artefacts are likely to remain *in situ.*

3 ECOLOGICAL VALUES

The Conservation Land contains two vegetation communities, being Lower Hunter Spotted Gum / Ironbark Forest (LHSGIB) and Hunter Lowland Redgum Forest (HLRF). Both of these communities are currently listed as Endangered Ecological Communities (EECs). The forest on site is generally of a young age class, and it is probable that extensive clearing took place on the site in the past – most probably for 'pit propping' associated with underground mining plan. The forest is deemed to provide some habitat for a number of native fauna species, including several threatened species known from the vicinity of the site.

A population of *Rutidosis heterogama* occurs within the plan of management land and should be conserved though effective management.

3.1 Threatened and Endangered Species

The following species occur or have the potential to occur within the Conservation Land. The primary objective of this Plan of Management is the protection of the occurrence of these species.

<u>Endangered Ecological Communities</u>

- Hunter Lowland Redgum Forest
- Lower Hunter Spotted Gum Ironbark Forest

<u>Threatened Flora Species</u>

- *Rutidosis heterogama*

<u>Threatened Fauna Species</u>

- Woodland Birds: *Chthonicola sagittata* (Speckled Warbler), *Climacteris picumnus* (Brown Treecreeper), *Pomatostomus temporalis* (Grey-crowned Babbler) and *Melithreptus gularis* (Black-chinned Honeyeater)

- *Xanthomyza Phrygia* (Regent Honeyeater) and *Lathamus discolor* (Swift Parrot)
- Forest Owls: *Ninox strenua* (Powerful Owl) and *Tyto novaehollandiae* (Masked Owl)
- *Petaurus norfolcensis* (Squirrel Glider)
- *Petaurus australis* (Yellow-bellied Glider)
- *Pteropus poliocephalus* (Grey-headed Flying-fox)
- Microchiropteran Bats: *Miniopterus australis* (Little Bentwing-bat), *M. schreibersii* (Large Bentwing-bat), *Scoteanax rueppellii* (Greater Broad-nosed Bat) *Myotis adversus* (Large-footed Myotis) and *Mormopterus norfolkensis* (East-coast Freetail-bat)

Management Controls outlined in Sections 6 & 7 provide measures to ensure adequate protection of these species.

4 BUSHFIRE HAZARD REDUCTION

A Bushfire Threat Assessment for the rezoning of the Paxton North site was undertaken in accordance with "Planning for Bushfire Protection" (Rural Fire Service, 2001) (hereafter referred to as 'PBP 2001'). This assessment has now been superseded by "Planning for Bushfire Protection" (Rural Fire Service, 2006) (hereafter referred to as 'PBP 2006').

From the vegetation and slope assessments undertaken during the previous assessment a 25 metre APZ would be required under PBP 2006 and any future Bushfire Threat Assessment undertaken for the site to inform on future development. This 25m APZ is consistent with Table A2.4 for Forest vegetation on hazards occurring on slopes of 0 – 5 degrees and are down slope from the site.

This APZ would be partially provided for within the 20 metre perimeter road to the north and east of the future residential subdivision, with the remaining 5 metres within the future allotments to be maintained to the standard of an Inner Protection Area (IPA).

An additional 25m APZ would be required for the individual dwelling to be constructed within the Environmental Protection Area. This APZ would consist of a 10 metre Outer Protection area (OPA) and 15 meter IPA.

5 MANAGEMENT OBJECTIVES

5.1 Ecological

Rutidosis heterogama

Rutidosis heterogama is a perennial herb that grows to 30cm in height. It grows in heath, often along disturbed roadsides, mainly in coastal districts from Maclean to the Hunter Valley, and inland to Torrington (Harden 1992). Analysis of the NPWS Atlas of NSW Wildlife indicates that the species has been mainly recorded in the north-east of NSW, with no records south of Armidale. Nonetheless, there are historical records of the species from the 1940's in the Cessnock and Maitland areas (D. Stevenson *pers. comm.*).

This species was recorded within the Conservation Land. The size of the stand of this species in this part of the study area was estimated to be between 700-1000 plants. As a result of the species conservation, the majority of individuals will not be directly affected through vegetation removal as part of future proposals in that area.

Due to the proximity of these plants to the future development lands, it is possible that some 'edge effects' could potentially occur upon the stand as a result of potential future development. Such impacts could occur as a result of development activity taking place upstream of *R. heterogama* plants, such as runoff and exotic perennial grasses.

The primary objective for *Rutidosis heterogama* on the Conservation Lands is the protection of its occurrence. Provided that the Management Controls provided in this Plan of Management are adhered to, this species will be adequately protected.

'Woodland Birds' - Speckled Warbler, Brown Treecreeper, Black-chinned Honeyeater and Grey-crowned Babbler

Of these species, the Speckled Warbler and Grey-crowned Babbler have been recorded within the estate study area. There is considered to be a moderate chance of the Black-chinned Honeyeater and to a lesser extent, Brown Treecreeper occurring within the Conservation Land from time to time due to known records in similar habitat in the immediate vicinity. However, of these four species, it is likely only that Grey-crowned Babblers would utilise the site as part of a home range. It is also likely that Speckled Warblers no longer persist within the Conservation Land due to the distinct lack of records since 1997.

The conservation of the HLRF in the Conservation Land will result in retention of habitat for these species. It is considered that this community contains potential habitat for these species and will be retained as part of any future planning proposal.

The primary objective for Woodland Birds on the Conservation Lands is the protection of its occurrence. Provided that the Management Controls provided in this Plan of Management are adhered to, these species will be adequately protected.

Swift Parrot / Regent Honeyeater

Neither of these species were recorded on the site during the Flora and Fauna Assessment. However, potential foraging habitat exists on the site, chiefly in the form of the winter-flowering *Corymbia maculata* (Spotted Gum). Several records exist of

these species from the vicinity of the site in similar habitat to that found on the site. Therefore, the site may be used on a transitory / seasonal basis by individuals of these species. Swift Parrots breed only in Tasmania and no preferred nesting habitat for Regent Honeyeaters is considered to occur anywhere within the site.

The proposal should not significantly compromise the availability of potential foraging habitat for these species. Similar habitat to that found on the site occurs in abundance both locally and on a regional scale. These species appear to have a noted preference in the locality to forage within mature trees. It is therefore recommended that where possible retention of mature trees take place.

The retention of the HLRF community and part of the LHSGIF will result in the retention of habitat for these species within the site. The primary objective for Swift Parrot / Regent Honeyeater on the Conservation Lands is the protection of its occurrence. Provided that the Management Controls provided in this Plan of Management are adhered to, the potential habitat of this species will be adequately protected.

Forest Owls - Powerful Owl and Masked Owl

It is possible that a local population of Powerful Owls utilise the site as part of a hunting home range and it is considered that the entire site and study area could provide hunting habitat for this species. Furthermore, suitable prey species have been recorded (albeit in low numbers) in the study area. The site is generally unsuitable for nesting purposes due to the general paucity of mature trees bearing hollows of a suitable size.

The Conservation Land may also potentially represent a part of a hunting home range for one or more pairs of Masked Owls (which are known to be greater than 1000ha in size). It is considered likely that the Conservation Land constitutes potential hunting habitat for this species; however areas containing suitable roosting and nesting habitat are generally absent.

The primary objective for Forest Owls on the Conservation Lands is the protection of its occurrence. Provided that the Management Controls provided in this Plan of Management are adhered to, the potential habitat for this species will be adequately protected.

Squirrel Glider

No direct observations or secondary indications of this species have been noted within the Conservation Land; however, recent records of this species have been noted in the vicinity of the site (Atlas of NSW Wildlife 2005). This species occurs in a range of forested habitats and such habitat occurs in abundance both locally and on a regional scale. Some potential nesting habitat (in the form of hollow-bearing trees) does exist. It is recommended that all hollow bearing trees be retained under the proposal.

Suitable habitat and movement corridors for this species also occur within the HLRF and retained LHSGIF. The primary objective for Squirrel Glider on the Conservation Lands is the protection of its occurrence. Provided that the Management Controls provided in this Plan of Management are adhered to, the potential habitat for this species will be adequately protected.

Yellow-bellied Glider

Yellow-bellied Gliders are usually associated with tall, mature wet Eucalypt forests, although the species is also known from mature dry open forests and woodlands. The species requires tree hollows for nesting and has territories of around 60 hectares. This species has been recorded within adjoining habitat, approximately 1.5km from the site. No secondary indications (such as feeding scars) have been recorded in the Conservation Land.
Potential habitat exists for this species over the majority of the site within those areas containing Forest Red Gums and Grey Gums, which is within both the Hunter Lowland Redgum Forest and some parts of the Lower Hunter Spotted Gum / Ironbark Forest.

The primary objective for Yellow-bellied Glider on the Conservation Lands is the protection of its occurrence. Provided that the Management Controls provided in this Plan of Management are adhered to, the potential habitat for this species will be adequately protected.

Grey-headed Flying-fox

No sign of this species has been noted within the Conservation Land; however, it is considered likely that populations of this species may utilise the Conservation Land at some time. This species occurs in a range of forested habitats and such habitat occurs in abundance both locally and on a regional scale. No potential roosting habitat (in the form of dense vegetation / rainforest edges) occurs on the site or will be affected by the proposal.

Should the Management Controls of this Plan of Management be adhered to, it is likely this species will utilise the Conservation Lands.

Microchiropteran Bats - Little Bentwing-bat, Large Bentwing-bat, East-coast Freetail-bat, Greater Broad-nosed Bat and Large-footed Myotis

Of these species, the Little Bentwing-bat, East-coast Freetail-bat and Greater Broad-nosed Bat were recorded within the Conservation Land. Therefore, it is considered likely that they utilise the habitats found on the site from time to time. The Large Bentwing-bat has been recorded from adjacent land containing similar habitat as the site and as such is considered likely to occur therein. The Large-footed Myotis has been recorded on adjacent land, although the preferred habitat of this species does not occur on the Conservation Land.

It is recommended that all identified hollow-bearing trees and where possible, all mature Eucalypts be retained as part of any future development within the site.
Furthermore, potential hunting habitat will be retained for these species on the Conservation Land.

No preferred roosting habitat occurs for the Bentwing-bats and Large-footed Myotis (in the form of caves, culverts etc). Roosting habitat for the Greater Broad-nosed Bat and East-coast Freetail-bat (in the form of tree hollows) will be retained within the proposal.

Should the Management Controls of this Plan of Management be adhered to, it is likely that Microchiropteran Bats will continue to utilise the Conservation Lands.

5.2 Aboriginal Heritage

A section 90 certificate allowed for the destroying and salvaging of a number of Aboriginal artefacts across the Conservation Land; however, this applied to a previous approved subdivision of the Conservation Land. As the Conservation Land is to be rezoned E2 Environmental Conservation, the land owner should leave all scattered aboriginal artefacts *in situ.*

6 MANAGEMENT CONTROLS

6.1 Overview

This Plan of Management has been prepared to identify management actions for the Conservation Land. The management actions and requirements are consistent with those identified as being required by CCC.

The aim of such management actions is to ensure that the habitats provided by the Conservation Land for listed threatened flora and fauna are managed appropriately. The actions primarily relate to management issues frequently associated with conservation lands and these consist of:

- Restriction of vehicular access to the conservation zoned lands and deferred areas;
- Implementation of appropriate bushfire management practices that reflect the requirements of the various threatened species recorded therein;
- Implementation of weed control / bush regeneration programs;
- Control of areas identified as being problematic in terms of erosion; and
- Pest control.

Management issues and corresponding actions are provided in the following sections.

The basic premise of this Plan of Management is to ensure that these lands are protected and managed and in turn the habitat of these species is protected and managed. Therefore blanket controls can be applied to ensure protection and management of these areas will occur, as these lands face similar issues.

6.2 Access

Issues

Many informal tracks occur throughout the Conservation Land and currently have a high frequency of mostly illegal use by recreational vehicles that may contribute to arson, rubbish dumping and soil erosion.

Any access to these forested parts of the site should be restricted to areas where tracks have already been formed. Further track construction within these areas is not

deemed appropriate or necessary due to the large numbers of tracks currently in existence.

It should be noted that the entire site is in the process of being fenced to limit access and to enable trespass action to be taken if necessary. This will significantly increase protection of the entire Conservation Land from unregulated access, and in turn will greatly increase protection of the Conservation Land.

Desired Outcomes

A decrease in the use of tracks to encourages rehabilitation of native vegetation (and listed threatened species habitat), which leads to a decrease in anthropogenic disturbance that includes but is not limited to, rubbish dumping, erosion, unnatural fire regimes and weed incursion.

Actions

- Closure of tracks to vehicles (including surplus fire trails) through the Conservation Land via use of lockable gates, boulders, exclusion planting etc;
- Consultation with NPWS and RFS regarding coordinated track closure and management;
- Temporary fencing of Conservation Land prior to clearing of surrounding lands for development;
- Install and maintain signs to inform public of access restrictions, presence of highly significant native flora and fauna habitats;
- Rehabilitation / natural regeneration along tracks, with weed maintenance and threatened flora surveys, particularly with the aim of benefiting *Rutidosis heterogama*; and
- Prepare and distribute information regarding access restrictions to appropriate site working groups, construction companies, other stakeholders and public authorities**.**

6.3 Weed Control and Bushland Rehabilitation

Issues

It is important to ensure that as the adjacent urban development progresses the Conservation Land is adequately protected from weed invasion.
Rehabilitation of areas affected by weeds, rubbish dumping, erosion and other anthropogenic disturbances is also desirable, as this will increase the available conserved habitat for nationally listed threatened species.

Desired Outcomes

The Conservation Land should be assisted in developing in a relatively weed-free, disturbance free, natural state in order to provide increased conserved habitat for nationally listed threatened species.

Actions

- Undertake weeding and bushland restoration;
- Remove existing dumped rubbish;
- Close off vehicle tracks;
- Create and distribute weeds brochure to relevant stakeholders and construction workers;
- Seek the cooperation of future property holders on adjacent urban lands, future landowner within the Conservation Land, and the local community in implementing weed programs within the conservation lands; and
- Allow natural regeneration along closed tracks.

6.4 Erosion Control and Water Quality Management

Issues

Erosion is generally an issue along creek lines, drainage lines and tracks used by vehicles such as cars and motorbikes.
Erosion affects the substrate for which the ecologically sensitive habitats are dependent upon and can have effects on downstream water quality via sedimentation and nitrification.

Desired Outcomes

Erosion should be controlled and minimised to ensure that the Conservation Land provides adequate habitat for the nationally listed threatened species. Avoidance of sedimentation, nitrification and contamination is also an important issue for protection of relevant species.

Actions

- Close off vehicle tracks;
- Allow natural regeneration along closed tracks. This will reduce potential for erosion within the areas to occur and stabilise soils where it is already occurring; and
- Provide protection from adjoining development by ensuring erosion and sediment control measures are properly installed and maintained.

6.5 Pest Control

Issues

Evidence of feral animals is present across the Conservation Land. These include Rabbits, Foxes and Deer. These animals can impact upon the ecology of conservation areas via selective browsing, denudation, resultant erosion and predation upon native species. In general, such issues are considered to be relatively minor for the nationally listed threatened species, although grazing and erosion may affect some of the plant species.

Desired Outcomes

To control numbers of such introduced pests in order to minimise impacts upon nationally listed threatened species.

Actions

- Continue co-ordinated pest control program of foxes, dogs and cats with the NSW DECC and the Department of Primary Industries; and
- Investigate co-ordinated control of deer species with NSW National Parks and Wildlife Service.

6.6 Domestic Pest Control

Issues

The increased human habitation due to the adjacent urban development could lead to an increased number of domestic cats also being present in the area. This may lead to an increased predation upon native species, of particular concern being the Grey-crowned Babblers.

Desired Outcomes

The containment of domestic cats, particularly at night.

Actions

- Create and distribute pamphlets on responsible cat ownership;
- Include environmental values information in brochures;
- Education package for local schools on responsible cat ownership; and
- Only allow cats for lot owners in the adjacent urban development if it can be demonstrated that appropriate containment of the animal can be achieved, particularly at night.

6.7 Fire

Issues

This ease of access facilitates dumping and torching of cars, random arson and recreational use (i.e. by trail bikes). Recreational use can result in the possibility of accidental or human error fires. This could result in a reduction of diversity in the vegetation communities over the Conservation Land.

Desired Outcomes

To implement and maintain a fire regime that suits both the natural fire frequency of the ecosystem and therefore encourages biodiversity (reflects the requirements of nationally threatened species), as well as protecting human life and assets.

Actions

- Close Conservation Land to the public;
- Limit vehicle access; and
- Maintain access, i.e. fencing or locked gates for fire management.

6.8 Adjacent Development

Issues

The Conservation Land adjoins lands to be developed for residential purposes. The construction phase has the potential to have adverse impacts on the environmental integrity of the Conservation Land. Post-Construction, the activities of residents also could have adverse effects on the Conservation Land. Appropriate management of the Conservation Land will result in protected habitat being available for threatened species and a 'bushland setting' being provided, which would increase the visual amenity of the urban development.

Desired Outcomes

The Conservation Land is managed for conservation purposes and protected from development impacts, which then provides the bushland setting for the estate.

Development of such areas occurs with due consideration to both this Plan of Management Conservation Land.

Actions

- All clearing activities adjoining the Conservation Land are to be limited to within the approved development by temporary fauna friendly fencing (no barbed wire) and flagging / pegging extent of clearing;
- Warning signage in relation to access permissibility into Conservation Lands to be erected;
- Mature trees identified for retention as part of the development are to be marked accordingly and construction personnel inducted on measures to be taken during construction;
- Replacement landscape trees should include 50% Spotted Gum or Forest Redgum when development is located within LHSGIF or HLRF(except in locations where these do not naturally occur as a dominant species);
- Standard erosion control measures to be erected during construction;

- Accidental damage occurring to Conservation Lands edges will be corrected via funding by the responsible party for restoration works;

- Permanent post and wire fencing to be erected post-construction along boundaries of all Conservation Lands where development occurs within 10 metres of any such Conservation Lands; and

- An ecologist is to be present during all clearing activities over 0.1ha. The ecologist is to monitor that works occur in accordance with approvals and that monitoring results are included within any relevant letters or monitoring reports.

7 MANAGEMENT FRAMEWORK

7.1 Actions

Fencing

a) Temporary fencing must be erected prior to construction activities occurring within the designated building envelope. This must be 'fauna friendly' (i.e. star picket and wire) and not be barbed or razor; and

b) Permanent fencing must also be erected post construction along the interface with Conservation Lands. This must also be 'fauna friendly' and preferably consist of post and wire rural type fencing.

Clearing procedures for Land Adjoining Land Earmarked for Residential Development

Appropriate clearing procedures should be followed during construction to ensure that the Conservation Lands are not detrimentally impacted upon, these measures should include:

a) Boundary flagging and survey pegs are required to delineate the interface of the Development Lands and Conservation Lands;
b) Fencing is to be installed;
c) Felled trees, cleared vegetation, soil or other non-approved foreign materials are not permitted to be placed or encroach upon the Conservation Lands; and
d) A qualified ecologist shall be present during clearing works to ensure compliance with these actions.

Management

a) The Conservation Land landowner shall implement this Plan of Management; and

b) Shall fund the management of the land in accordance with this Plan.

7.2 Responsibility

Landowner

a) The landowner of the Conservation Land is responsible for the upkeep, management and protection of the Conservation Land; and

Other Authorities

a) Service Authorities are responsible for informing the landowner of the Conservation Land of any proposed works within the Conservation Land and demonstrate consideration of the actions listed in this Plan of Management.

7.3 Monitoring

The Conservation Land will require monitoring to ensure that it is adequately protected and that the ecological values are maintained or improved.

Base data already exists for the Conservation Land collected during the rezoning process.

Monitoring parameters will include:

a) Mistletoe density

b) Hollow / fallen timber density

c) Understorey diversity

d) Understorey nectar

e) Logging and firewood collection

f) Fire Impacts

g) Erosion and soil disturbance

h) Rubbish dumping

i) Weed density

j) Feral Animal evidence

Monitoring of these parameters will ensure that the conservation measures outlined in this document are shown to be effective.

7.4 Adaptive Management Procedures

Adaptive management is a principle that encourages an exploratory, experimental approach to management problems, and emphasises the value of continuous monitoring and periodic adjustment of management regimes.

Adaptive management will be used as part of the management of the Conservation Lands. This will ensure that mechanisms identified in this Plan of Management are effective.

The adaptive management measures will relate to the effectiveness of the management measures proposed in this Plan of Management. If issues (such as erosion, weeds etc) are still shown to be affecting the Conservation Lands, responses will be outlined to address such issues. These could include additional fencing, security patrols etc.

8 MANAGEMENT MATRIX

The management matrix provides a table that collates the information provided in this CLCMP into a concise package. This matrix identifies the proposed objectives, actions, review, adaptive management and reporting requirements and timing (if possible) of these.

Table 8-1: Management Matrix

Issue	Objectives	Actions	NES Species Benefits	Performance Criteria	Monitoring	Responsibility	Timing
Monitoring	- To monitor condition of Conservation Lands over time and ensure their improvement	- Undertake annual monitoring of Conservation Lands in Spring and/or Summer of every year - Monitoring to consist of ECMP parameters	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Condition of Conservation Lands is protected and improved - Issues highlighted in this management matrix are addressed	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	The Conservation Land landowner is responsible for issuing of AMR to relevant authorities following receipt of monitoring information	- Monitoring to occur every Spring and/or Summer
Access	- Eliminate illegal use of existing tracks and Conservation Lands - Minimise erosion - Eliminate rubbish dumping - Eliminate anthropogenic fires - Increase public awareness of ecological values	- Closure of majority of tracks using fencing, lockable gates, boulders etc - Consultation with NPWS & RFS regarding track closure - Fencing of Conservation Lands adjoining development zonings for protection - Installation of signage at each of the Conservation Lands identifying ecological values and access restrictions - Distribution of information to relevant stakeholders regarding Conservation Lands and restrictions of access	Generally protects existing documented habitat of all NES threatened species covered by this Plan of Management	- Tracks for closure are identified and mapped - Gates, bollards or boulders excluding access are installed - RFS documented consultation - Fencing of Conservation Lands interface adjoining Development Lands with 'fauna friendly' fencing has occurred - Signage has been installed - Information package (including access restriction map) provided to local community	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	Conservation Land landowners have responsibility for the protection, maintenance and rehabilitation of conservation land	- Tracks mapped and closure prioritised into 3 categories by Sep 2009 - Agreement with RFS / NPWS on track closure by December 2009 - Gates / bollards installed on Priority 1 tracks by Dec 2009 - Fencing occurs on an 'as needed' basis depending on progression and location of development - Signage installed at all Conservation Land perimeters at likely access points by Dec 2009 - Information package prepared and available by Dec 2009

Issue	Objectives	Actions	NES Species Benefits	Performance Criteria	Monitoring	Responsibility	Timing
Weed Control and Bushland Rehabilitation	- Control of existing weeds - Rehabilitation of weed affected and degraded areas using native species of local provenance	- Remove dumped rubbish and green waste from Conservation Lands on a regular basis - Closure of superfluous tracks within Conservation Land - Information signage to be erected on Conservation Land - Weeds brochure to be distributed to workers and local community - Seek cooperation with local stakeholders (including Aboriginal Land Council, local residents etc) in relation weed control and bush restoration - Allow natural regeneration along closed access tracks and other areas - Areas affected by infrastructure to be restored using local provenance material	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Dumped rubbish removed - Track closure occurs in accordance with Access management requirements - Signage is erected - Weeds brochure is made available and provided to workers and local community - Local community are consulted in relation to interest in community weeding / bush rehabilitation activities - Evidence of natural regeneration in protected areas is observed - Evidence of disturbed infrastructure rehabilitation is observed	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	Conservation land owners are responsible for rubbish removal, track closure, signage, weeds brochure and coordination of community involvement	- Rubbish removal ongoing - Track closure occurs in accordance with 'Access' timing - Signage installed at all Conservation Land perimeters at likely access points by Dec 2009 - Weeds brochure prepared by Sep 2009. To be made available as required

Issue	Objectives	Actions	NES Species Benefits	Performance Criteria	Monitoring	Responsibility	Timing
Erosion Control and Water Quality Management	- Rehabilitation of existing eroded areas - Avoidance of adjoining development causing erosion, sedimentation or water quality impacts	- Closure of superfluous tracks within Conservation Lands - Allow natural regeneration along closed access tracks and other areas - Include restoration of eroded areas in BRP - Adjoining development to include use of sediment control and anti-scour devices	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Existing erosion along creek lines and drainage areas is managed - Existing eroded areas are rehabilitated	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	Conservation Land landowners are responsible for track closure and informing adjacent urban land lot owners of requirements	- Track closure occurs in accordance with 'Access' timing
Pest Control	- Control of pest animals is undertaken	- Co-ordinated control of pests such as Deer, Rabbits and Cats also investigated	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Demonstration of communication with NPWS and DECC regarding control of pest species	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	Conservation Land landowners are responsible for ensuring that control of pest species is investigated	- Investigation into need for control of pests to be undertaken by end of 2009

Issue	Objectives	Actions	NES Species Benefits	Performance Criteria	Monitoring	Responsibility	Timing
Domestic Pest Control	- The containment of domestic cats, particularly at night	- Create and distribute pamphlets on responsible cat ownership - Include environmental values information in brochures - Education package for local schools on responsible cat ownership - Only allow cats in the adjacent urban development if it can be demonstrated that appropriate containment of the animal can be achieved, particularly at night.	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Demonstration of communication with adjacent urban development lot owners regarding control of pest species	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	Adjacent urban development lot owners are responsible for ensuring that control of domestic pest species controlled	- Investigation into need for control of domestic pests to be undertaken by end of 2009
Fire	- Arson is minimised - Natural fire regime replicated	- Close Conservation Land to the public - Limit vehicle access as per 'Access' actions - Maintain access, i.e. fencing or locked gates for fire management.	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Fire frequency is reduced to a natural state - Access is controlled and limited as per 'Access' requirements	Monitoring is to occur every Spring and/or Summer to gauge effectiveness of actions and implement adaptive management procedures as necessary	Conservation Land landowners are responsible for ensuring that access is controlled	- Track closure occurs in accordance with 'Access' timing

Issue	Objectives	Actions	NES Species Benefits	Performance Criteria	Monitoring	Responsibility	Timing
Adjacent Development	- The Conservation Land is managed for conservation purposes and protected from development impacts - Development of such areas occurs with due consideration to both this Plan of Management Conservation Land.	- All clearing activities adjoining the Conservation Land are to be limited to within the approved development by temporary fauna friendly fencing (no barbed wire) and flagging / pegging extent of clearing; - Warning signage in relation to access permissibility into Conservation Lands to be erected; - Mature trees identified for retention as part of the development are to be marked accordingly and construction personnel inducted on measures to be taken during construction; - Replacement landscape trees should include 50% Spotted Gum or Forest Redgum when development is located within LHSGIF or HLRF(except in locations where these do not naturally occur as a dominant species);	Generally aids in protection and conservation of all NES threatened species covered by this Plan of Management	- Erection of fauna friendly fencing, and flagging/pegging - Signage is erected - Trees for retention identified - Replacement trees observed	Monitoring is to occur during construction periods to gauge effectiveness of actions and implement adaptive management procedures as necessary	- Conservation Land landowners are responsible for the erection of signage - Construction companies are responsible for adhering to the objectives and actions required by this Plan of Management	- Fencing erected on 'as need' basis prior to any clearing - Signage installed at all Conservation Land perimeters at likely access points by Feb 2007 - Mature trees identified prior to construction and all construction personnel inducted prior to entering site

Issue	Objectives	Actions	NES Species Benefits	Performance Criteria	Monitoring	Responsibility	Timing
		- Standard erosion control measures to be erected during construction; - Accidental damage occurring to Conservation Lands edges will be corrected via funding by the responsible party for restoration works; - Permanent post and wire fencing to be erected post-construction along boundaries of all Conservation Lands where development occurs within 10 metres of any such Conservation Lands; and - An ecologist is to be present during all clearing activities over 0.1ha. The ecologist is to monitor that works occur in accordance with approvals and that monitoring results are included within any relevant letters or monitoring reports		- Erosion control measures implemented - Any damage corrected - Post and wire fencing erected - Works occur in accordance with approvals and relevant reporting completed			- Observation on erosion management to be included in the AMR - Damage to be reported on in AMR - Fencing occurs on an 'as needed' basis depending on progression and location of development - Clearing activities to be reported on by ecologist and to be included in AMR by Conservation Land landowners.