



Huntlee Conservation Management Plan

Huntlee New Town Residential Development

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Approval for Issue

Name	Signature	Date
Matt Doherty		9-1-2014

ANDERSON
ENVIRONMENT & PLANNING

ENVIRONMENT | STRATEGY | SOLUTIONS | MANAGEMENT

Our Ref: 1315EPBC APPROVAL – EPBC 2011/5898
HUNTLEE NEW TOWN RESIDENTIAL DEVELOPMENT, HUNTER VALLEY, NSW

As per Clause 16 of EPBC 2011/5898, the Huntlee Conservation Management Plan (HCMP) herewith dated 9 January 2014 has been reviewed and endorsed by the writer in the role of *independent scientific expert*.

Yours faithfully,
ANDERSON E&P**CRAIG ANDERSON**
DIRECTOR**DATE:** 9-1-2014

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- Appendix 1 Combined tables of corrective actions, timings, responsibilities and trigger levels
- Appendix 2 Pathogen Control Protocols
- Appendix 3 EPBC Approval 2011/5898
- Appendix 4 Revegetation Community Profile and Species List

1.0 Introduction

1.1 Purpose and Scope

The purpose of the Huntlee Conservation Management Plan (HCMP) is to detail all restoration and revegetation measures to be implemented within the Huntlee Conservation Areas. This HCMP has been prepared in accordance with the EPBC Conditions of Approval (EPBC 2011/5898) dated 15 October 2013 and specifically addresses Condition 15 of the project approval.

The scope of the HCMP is to identify actions for the improvement and maintenance of the Huntlee Conservation Areas 1, 2 and 3, and other relevant open space and remnant bushland within the Huntlee project area. These actions will form the core works program for the proactive ongoing management of Conservation Areas 1,2 and 3, and other lands including Persoonia Park, 57 Washery Road and the 150m vegetated corridor containing the Northern Population of *Persoonia pauciflora*.

1.2 Background

The Huntlee development area is located within the Hunter Region of NSW, approximately 55 km north-west of Newcastle and immediately south of the township of Branxton within the Cessnock and Singleton Local Government Areas (LGAs) (refer to **Figure 1**).

On 15 October 2013, project approval was granted under the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) for the Huntlee New Town project. The key parameters of the proposal include:

- up to 5,600 dwellings in residential zones of varying sizes covering up to 612 hectares;
- employment lands totalling up to 200 hectares including a mixed use town centre with up to 1,700 residential dwellings;
- rural residential development covering up to 93 hectares to achieve up to 200 lots;
- the provision of associated infrastructure including upgrades to road, sewerage and water infrastructure and the dedication of land for education and health services, community facilities and utilities;
- dedication of 780 hectares of conservation land within Huntlee;
- dedication of Persoonia Park (17 hectares); and
- dedication of 4988 hectares of conservation land elsewhere within the Lower Hunter Region.

1.3 Objectives

The objectives of the HCMP are underpinned by Condition 15 of EPBC Approval 2011/5898. The objectives of this HCMP are to:

- Assess the flora and fauna management issues relating to the Conservation Areas;
- To manage weeds within the Conservation Areas;
- Specify appropriate measures for the re-vegetation, regeneration and management of the Conservation Areas with particular regard to EPBC Act listed threatened flora and fauna species;
- Identify the appropriate timing of works including site preparation, planting, weed management, and to also provide a schedule of works;
- Identify and assign responsibilities for ongoing management actions;

- Establish an effective monitoring and reporting framework to determine the effectiveness of any mitigation measures used during and post construction;
- Provide specific trigger levels for instigating corrective actions;
- Detail the corrective actions that will be implemented if the above trigger levels are exceeded; and
- Describe how the plan will apply to conservation areas that may be transferred to a third party for protection.

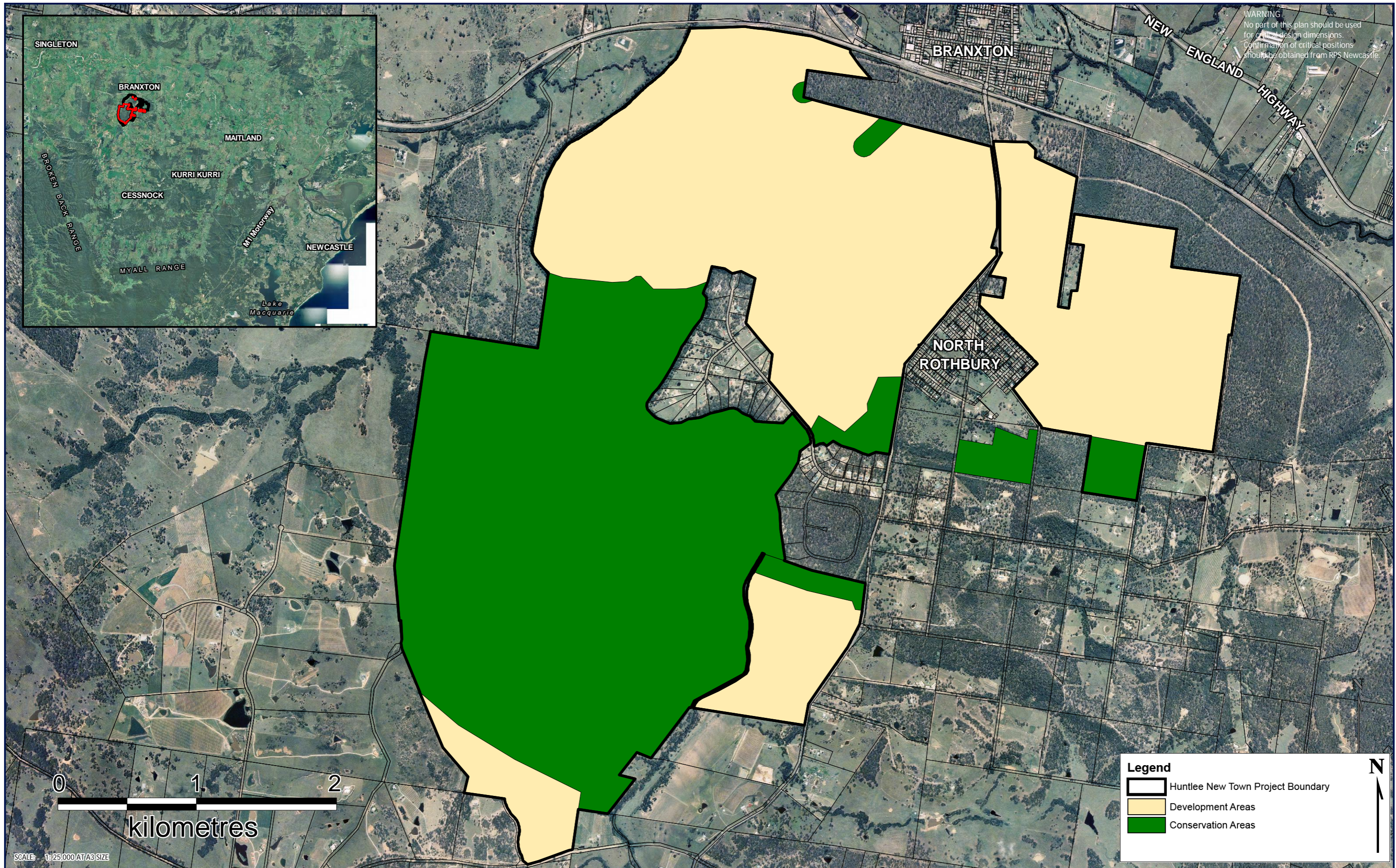


FIGURE 1 - SITE LOCALITY

LOCATION: NORTH ROTHBURY

DATUM: GDA 94
PROJECTION: MGA ZONE 56

DATE: 02/12/2013
PURPOSE: HUNTLEE CONSERVATION MGT PLAN

LAYOUT REF: J:\JOBS\105K\105216 North Rothbury (Huntlee)
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VERSION (PLAN BY): JS (A A3)

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1.4 Definitions

Definitions for the HCMP have been taken from the EPBC Conditions of Approval (EPBC 2011/5898).

Commencement of the action	Means any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for fencing, buildings or infrastructure, but excluding any works for conservation purposes, native revegetation works or the creation of conservation buffers.
Conservation Area 1	An area of land (currently owned by the proponent) immediately north of the southern portion of Hanwood, bounded on the east side by Wine Country Drive. which encompasses known <i>Persoonia pauciflora</i> in this area. This area is defined in Figure 2 .
Conservation Area 2	An area of land (currently owned by the proponent) immediately south of the southern portion of Hanwood, bounded on the east by Wine Country Drive which encompasses known <i>Persoonia pauciflora</i> in this area. This area is defined in Figure 2 .
Conservation Area 3	An area of land (currently owned by the proponent) of over 400 hectares extending to the west of the southern portion of Hanwood and straddling the local government area border between Singleton and Cessnock. This area is defined in Figure 2 .
Department	The Australian Government Department responsible for the <i>Environment Protection and Biodiversity Conservation Act 1999</i> .
Independent Scientific Expert	Means a scientist with relevant qualifications and expertise who is not affiliated with the proponent or with other parties affiliated with the project of which the action is involved or a part. The expert is approved by the Minister.
Minister	The Minister administering the <i>Environment Protection and Biodiversity Conservation Act 1999</i> and includes a delegate of the Minister.
Northern Population	Means the area defined in Conditions 1 and 2 of EPBC Approval 2011/5898, being all <i>Persoonia pauciflora</i> in the area of the proposed action that is west, north or east of North Rothbury. This area is defined in Figure 2 .
<i>Persoonia pauciflora</i>	Means <i>Persoonia pauciflora</i> (also referred to as North Rothbury Persoonia) and known, recognised hybrids of <i>Persoonia pauciflora</i> . Where applicable this definition extends to include both living plants and the residual soil stored seed bank.
Project Area	Means the area proposed for development and any adjacent or proximate open space, remnant bushland or conservation areas that form part of the proposed action.

2.0 Statutory Requirements

2.1 Relevant Legislation

Key environmental legislation generally relating to the HCMP includes:

- *Commonwealth Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act)
- *NSW Threatened Species Conservation Act 1995* (TSC Act)
- *NSW Fisheries Management Act 1994* (FM Act)
- *NSW Environmental Planning and Assessment Act 1979* (EP&A Act)
- *NSW National Parks and Wildlife Act 1974* (NPW Act)
- *NSW Noxious Weeds Act 1993* (NW Act)
- *NSW Native Vegetation Act 2003* (NV Act)
- *NSW Water Management Act 2000* (WM Act)

2.2 Consent Conditions

The Conditions of Approval that this management plan addresses, and the specific section of this document they are addressed in, are detailed below in **Table 1**. A full copy of EPBC Approval 2011/5898 is contained within **Appendix 3**.

Table 1 Conditions of Consent and Statement of Commitments

Condition	Description	Section
Condition 8		
	All cleared areas within Conservation Areas 1, 2, and 3 must be revegetated to Central Hunter Ironbark – Spotted Gum – Grey Box forest vegetation type (NSW) (to act as a buffer to the <i>Persoonia pauciflora</i>). The revegetated areas must be maintained for conservation purposes.	Section 11.1
Condition 15		
The person taking the action must submit a detailed Huntlee Conservation Management Plan to the Minister for approval prior to commencement of the action . This plan must be approved by the Minister prior to commencement of the action . The approved plan must be implemented. The Plan must include, but not be limited to, the following requirements:		
a	Restoration and revegetation measures to be implemented in Conservation Areas 1, 2 and 3 , as relating to Condition 8.	Section 11.0
b	Measures to maintain and improve the quality and condition of habitat values in all conservation areas (including Conservation Areas 1, 2, and 3), open space and remnant bushland in the project area that support other matters of national environmental significance (other than <i>Persoonia pauciflora</i>), including Swift Parrot (<i>Lathamus discolor</i>), Regent Honeyeater (<i>Anthochaera phrygia</i>), Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>) and Slaty Red Gum (<i>Eucalyptus glaucina</i>).	Section 5.0
c	Measures to prevent, mitigate and manage all direct and indirect impacts to the natural habitat values to all conservation areas (including Conservation Areas 1, 2 and 3), open space and remnant bushland within the project area resulting from the action, including but not limited to measures to avoid, suppress and control the spread of weeds, plant pathogens, invasive species, commercial grazing, domestic pets, unauthorised vehicles, and erosion and sediment control.	Sections 6, 7, 8, 9, 10 and Huntlee PD (RPS 2013) Section 5.0 and Appendix 7
d	Measures to prevent changes to hydrological regimes arising from the action that	Section 12.0

Condition	Description	Section
	may negatively affect native vegetation.	
e	Any measures that support <i>Persoonia pauciflora</i> that are in addition to those included under Condition 11.	-
f	The design of Conservation Areas 1, 2 and 3 .	Figure 2
g	Measures referred to in Condition 15a, 15b, and 15c must be clear, measurable, auditable and time bound.	Sections 6.3, 7.2, 8.4, 9.2, 10.4, 11.8 and Huntlee PD (RPS 2013) Section 5.0 and Appendix 7
h	Clear objectives and performance indicators for the measures referred to in Condition 15a, 15b, and 15c.	Sections 6.3, 7.2, 8.4, 9.2, 10.4, 11.8 and and Huntlee PD (RPS 2013) Section 5.0 and Appendix 7
i	Details on the monitoring to be undertaken to demonstrate the effectiveness of the measures referred to in Condition 15a.	Sections 13.0
j	Details of the parameters to be monitored, methods, timing, frequency and location of monitoring.	Section 13.0 and Table 13
k	Specific and measurable trigger levels that will result in corrective actions being implemented to prevent the objectives referred to in Condition 15e being compromised	-
l	Corrective actions to be taken should the trigger levels referred to in Condition 15h be exceeded. These must be clear, measurable, auditable, and detail specific timing.	Sections 6.3, 7.2, 8.4, 9.2, 10.4, 11.8 and Huntlee PD (RPS 2013) Section 5.0 and Appendix 7
m	Measures to report to the Department on any exceedances of identified trigger thresholds, the implementation of corrective actions, and the outcome of these.	Section 14.0
n	The person responsible for the management actions.	Table 2 Sections 6.3, 7.2, 8.4, 9.2, 10.4 and 11.8
o	A description of how the Plan will apply to any conservation areas that may subsequently be transferred to a third party for protection and management for conservation.	Section 2.5

2.3 Approvals, Licences and Permits

All works will need to be conducted in accordance with the EPBC Conditions of Approval (EPBC 2011/5898) dated 15 October 2013).

The Project Ecologist must conduct all works under the appropriate licence(s), which may include but not be limited to:

- NSW National Parks and Wildlife Service Scientific Investigation Licence.
- Animal Research Authority issued by NSW Agriculture.
- Certificate of Accreditation of a Corporation as an Animal Research Establishment issued by NSW Agriculture.
- Animal Care and Ethics Committee Certificate of Approval issued by NSW Agriculture.

Other licences, permits or approvals not identified in this HCMP and deemed to be required through consultation or legislative changes will be obtained by Huntlee Pty Ltd or their nominated contractors during the course of the Project. The specific conditions of these licences, permits or approvals will be incorporated into the HCMP as required.

Copies of all relevant licences, permits and approvals will be kept on-site by Huntlee Pty Ltd.

2.4 Responsibilities

Key personnel responsible for implementation of the measures set out in the HCMP are included in **Table 2**.

Table 2 Responsibilities of Project Personnel

Title	Responsibilities	Reports to
Huntlee Pty Ltd	Ensure adequate resources are made available for the implementation of the HCMP as well as ensuring that all staff and contractors comply with the HCMP.	The Department
Huntlee Conservation Officer	Employed by Huntlee Pty Ltd. Responsible for the day-to-day implementation of the HCMP and associated monitoring and reporting.	Huntlee Pty Ltd
Contractors	Contracted by Huntlee Pty Ltd. Responsible for the implementation of the HCMP Actions and complying with the requirements within.	Huntlee Conservation Officer and Huntlee Pty Ltd

2.5 Conservation Land Governance

The HCMP relates to conservation lands defined in **Section 1.4** as Conservation Areas 1, 2 and 3; and the objectives are equally applicable to the Persoonia Park, 57 Washery Road and the Northern Population (in perpetuity or until such time that *Persoonia pauciflora* have been successfully propagated using genetic material from the Northern Population).

The EPBC Approval Condition 15(o) requires consideration of conservation area governance under third party protection and management, whether this is via land dedication or via a legal instrument.

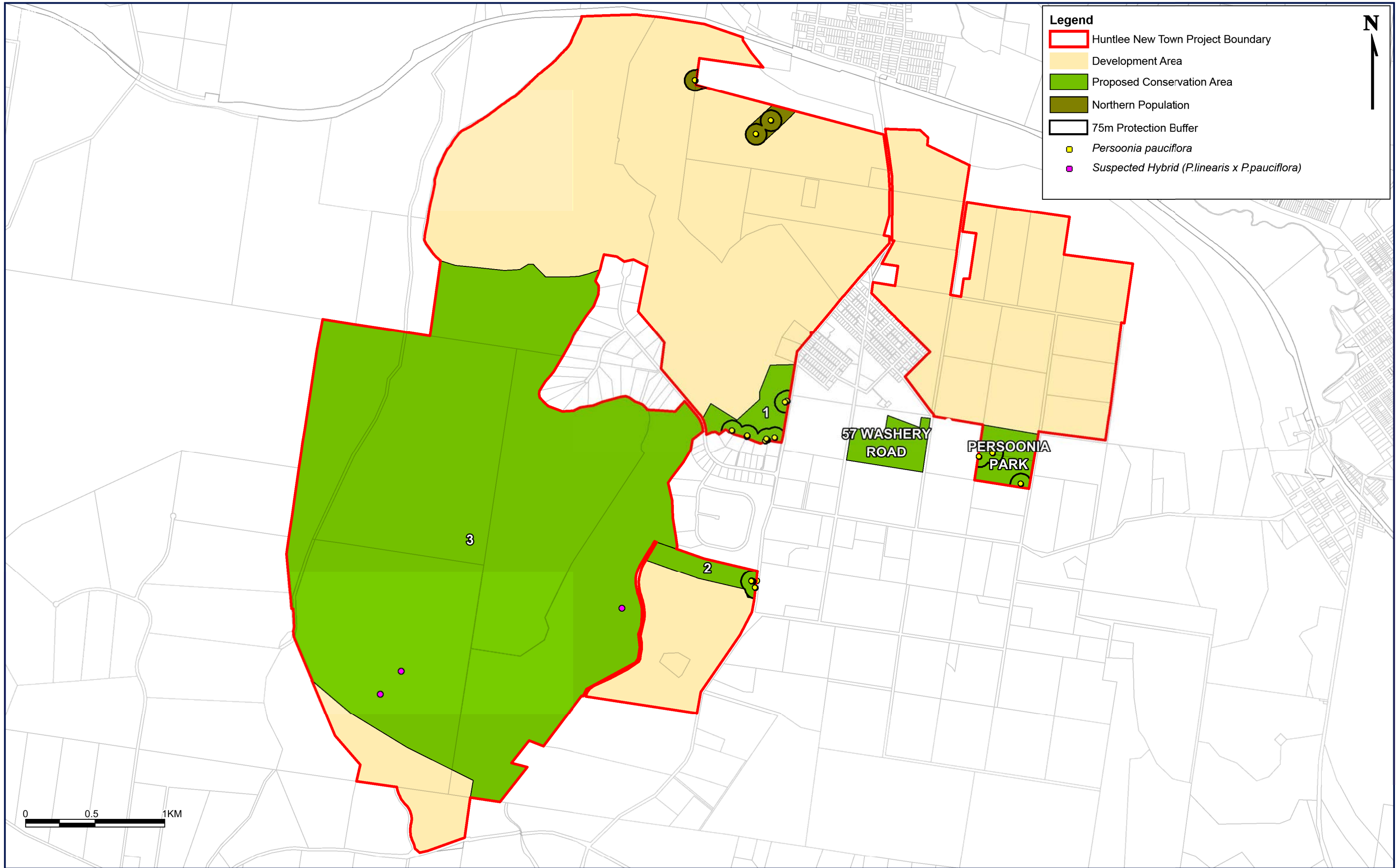
In the first instance the scope and objectives of the HCMP should be enduring to the lands, regardless of end user ownership or management, and based on legal instruments to be secured over lands to be divested as follows:

- Conservation Areas 1 and 3 / Persoonia Park – land to be transferred to the NSW Government under the terms of a Voluntary Planning Agreement (VPA). As part of the VPA, funding provisions have been made for the protection and management of the Conservation Areas to be transferred to the NSW Government as follows:
 - \$100,000 cash contribution towards the Draft National *Persoonia pauciflora* Recovery Plan paid to the NSW Minister for Planning on the 11th December 2012.
 - \$100,000 cash contribution for the preparation of a Plan of Management for the Huntlee Conservation Offset Lands, which includes Persoonia Park, paid to the NSW Minister for Planning on the 11th December 2012.

-
- \$900,000 paid at \$150,000 per annum for 6 years commencing 11th December 2013 for the operation of the Plan of Management.
 - Conservation Area 2 / 57 Washery Road – to be managed under a legal instrument. Funding for the management will be subject to a separate agreement with the future third party, however and most importantly the funding provision shall allow for continued management delivered under the HCMP and this will be secured under the terms of the legal instrument.
 - Northern Population – to be protected and managed by Huntlee Pty Ltd.

A further Huntlee Pty Ltd initiative is the creation of the 'Persoonia Preservation Society', for which a funding allowance of \$20,000 for the society establishment has been made by Huntlee Pty Ltd.

The funding commitment from Huntlee Pty Ltd allows both the State and Commonwealth Governments an opportunity to invest and work collaboratively with Huntlee Pty Ltd and the Huntlee Conservation Officer (funded by Huntlee Pty Ltd) to deliver the protection and management outcomes sought by the HCMP.



Legend

- Huntlee New Town Project Boundary
- Development Area
- Proposed Conservation Area
- Northern Population
- 75m Protection Buffer
- Persoonia pauciflora*
- Suspected Hybrid (*P.linearis* x *P.pauciflora*)

FIGURE 2 - HUNTLÉE CONSERVATION AREA DESIGN MAP

LOCATION: NORTH ROTHBURY

DATUM: DATUM
PROJECTION: MGA ZONE 56

DATE: 29/11/2013
PURPOSE: CONSERVATION MGT PLAN

LAYOUT REF: J:\OBS\105K\105216 North Rothbury(Huntlee)\10- Drafting\management plans
VERSION (PLAN BY): MD PH JS (A-A3)

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3.0 Site Ecology

3.1 Summary of Key Ecological Attributes

A summary of key ecological attributes across the Project Area is provided below. This information was derived from the EPBC Preliminary Documentation Report prepared by RPS in May 2013 and the Ecological Assessment Report (EAR) prepared by RPS in September 2010 (RPS 2010). The EAR was based on ecological investigations undertaken from 2005 - 2010 over approximately 3,750 hectares of lands formerly known as 'Sweetwater'. Detailed ecological investigations were undertaken over 1,558 hectares — then under ownership and/or control of Huntlee - and more broad scale investigations were also undertaken across the remaining 2,150 hectares of lands, most of which occurred on private land tenures.

3.1.1 Flora

3.1.1.1 Vegetation Communities

A vegetation survey of the Huntlee Project Area was undertaken by East Coast Flora Surveys in 2005 (Bell and Driscoll 2005), wherein six broad vegetation communities were recorded and mapped with a total of 325 plant taxa recorded.

Native vegetation communities mapped within the Huntlee Conservation Lands are shown in **Figure 3**.

A summary of the six native vegetation communities recorded within the Huntlee Conservation Areas are provided below based on an outline of the vegetation survey results presented in RPS (2010).

Hunter Valley Dry Rainforest: This community is restricted to a small area along Black Creek. This community will be retained in entirety in the proposed Conservation Area, south of Black Creek;

Central Hunter Riparian Forest (equivalent to **River-Flat Eucalypt Forest on Coastal Floodplains**): This community is restricted to creeklines within the Project Area that are dominated with Swamp Oak (*Casuarina glauca*). Approximately two-thirds of the occurrence is to be retained within the Huntlee Conservation Lands;

Wollombi Redgum – River Oak Woodland (equivalent to **River-Flat Eucalypt Forest on Coastal Floodplains**): restricted to riparian areas of Black Creek and its major tributaries. The entire occurrence of this community at Huntlee would be retained within the Huntlee Conservation Lands;

Central Hunter Ironbark – Spotted Gum – Grey Box Forest: dominant vegetation community over the majority of the Project Area, with a number of variants noted. The higher quality areas of this community will be retained as part of the Huntlee Conservation Lands south of Black Creek;

Hunter Lowland Redgum Forest: A small patch of this community occurs in Conservation Area 1. The majority of this community occurs along an unnamed creekline within the Stage 1 construction footprint and would be retained as part of the approved subdivision layout; and

Phragmites Rushland: Contained within a small number of man-made dams and water bodies.

WARNING

No part of this plan should be used for critical design dimensions. Confirmation of critical positions should be obtained from RPS Newcastle. Note that this vegetation community map depicts clearly defined boundaries between vegetation communities that are the product of individual interpretation and are not distinguished by clearly defined boundaries on the ground. Therefore, the map should only be treated as an indication of approximate perimeters between delineated vegetation communities. Caution should therefore be exercised when using this data for purposes requiring high levels of accuracy. Furthermore, no account for intergrading areas between delineated vegetation communities has been made.

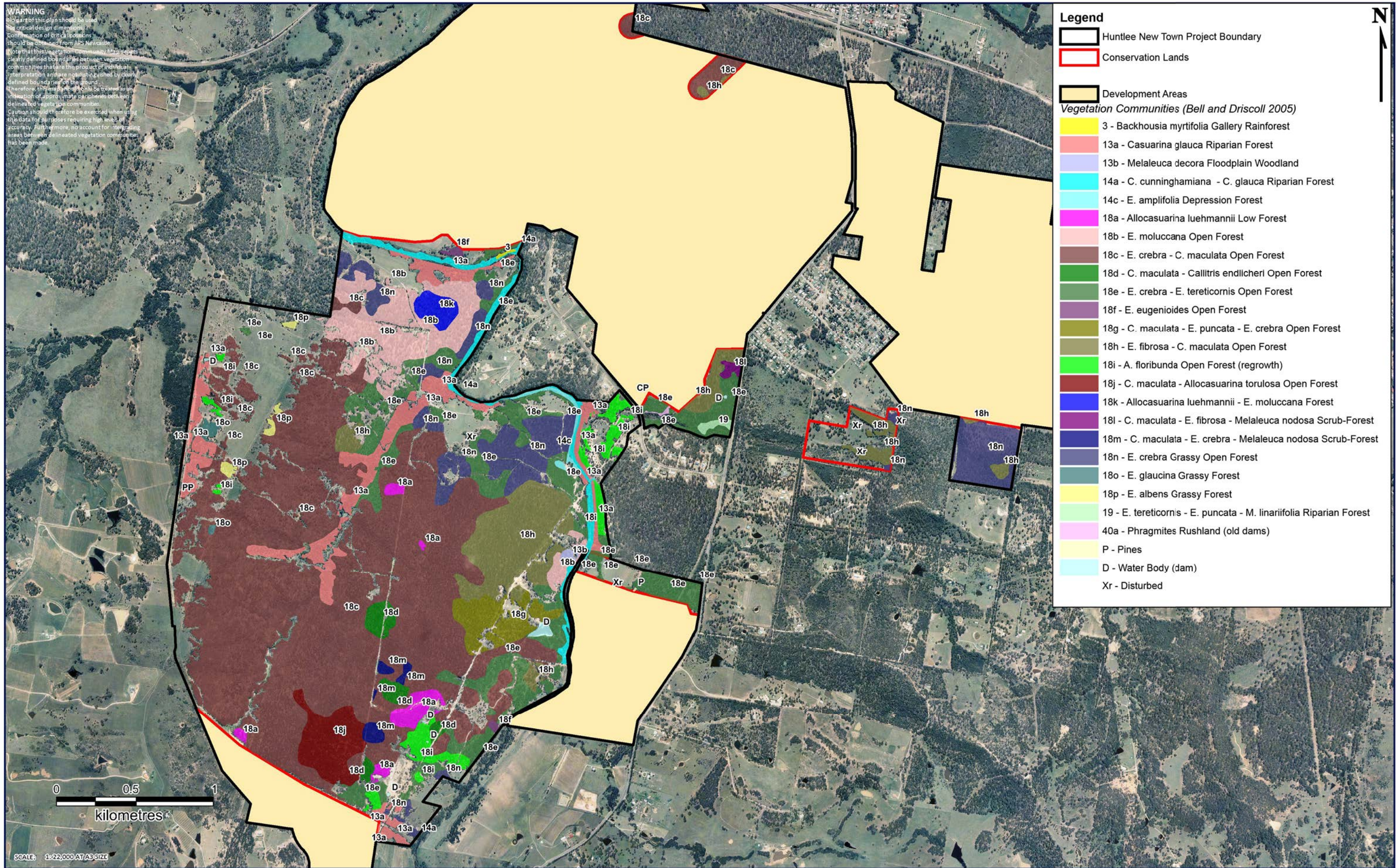


FIGURE 3 - HUNTLEE CONSERVATION AREA VEGETATION MAP

LOCATION: NORTH ROTHBURY

DATUM: GDA 94
PROJECTION: MGA ZONE 56

DATE: 29/11/2013
PURPOSE: CONSERVATION MGT PLAN

LAYOUT REF: J:\JOBS\105k\105216 North Rothbury (Huntlee)
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3.1.1.2 Threatened and Rare Flora

Threatened flora species recorded across the Huntlee Project Area listed under the EPC Act included:

Eucalyptus glaucina – Listed as Vulnerable under the EPBC Act, this threatened tree species was recorded across the Project Area and may be hybridising with other co-occurring Red Gums. The Huntlee Conservation Lands south of Black Creek and retention of riparian woodland within Black Creek and along other watercourses within the Project Area will achieve conservation outcomes for the species;

Acacia bynoeana – Listed as Vulnerable under the EPBC Act, this threatened shrub was recorded at one location off Littlewood Road;

Eucalyptus parramattensis* subsp. *decadens – Listed as Vulnerable under the EPBC Act, a single, healthy individual of *Eucalyptus parramattensis* subsp. *decadens* was discovered in the southern part of Huntlee Project Area. This specimen, its habitat and appropriate buffers have been retained within the proposed Huntlee Conservation Lands south of Black Creek; and

Persoonia pauciflora – Listed as Critically Endangered under the EPBC Act, targeted surveys for the shrub *Persoonia pauciflora* have been undertaken within the Huntlee Project Area in 2005, 2007, 2009 and 2010 (RPS 2010). The 2009 and 2010 surveys confirmed a single population of the species containing 22 individual plants within the Huntlee Project Area. The proposed creation and dedication of 'Persoonia Park' will assist in the efforts to preserve and propagate this species into the future.

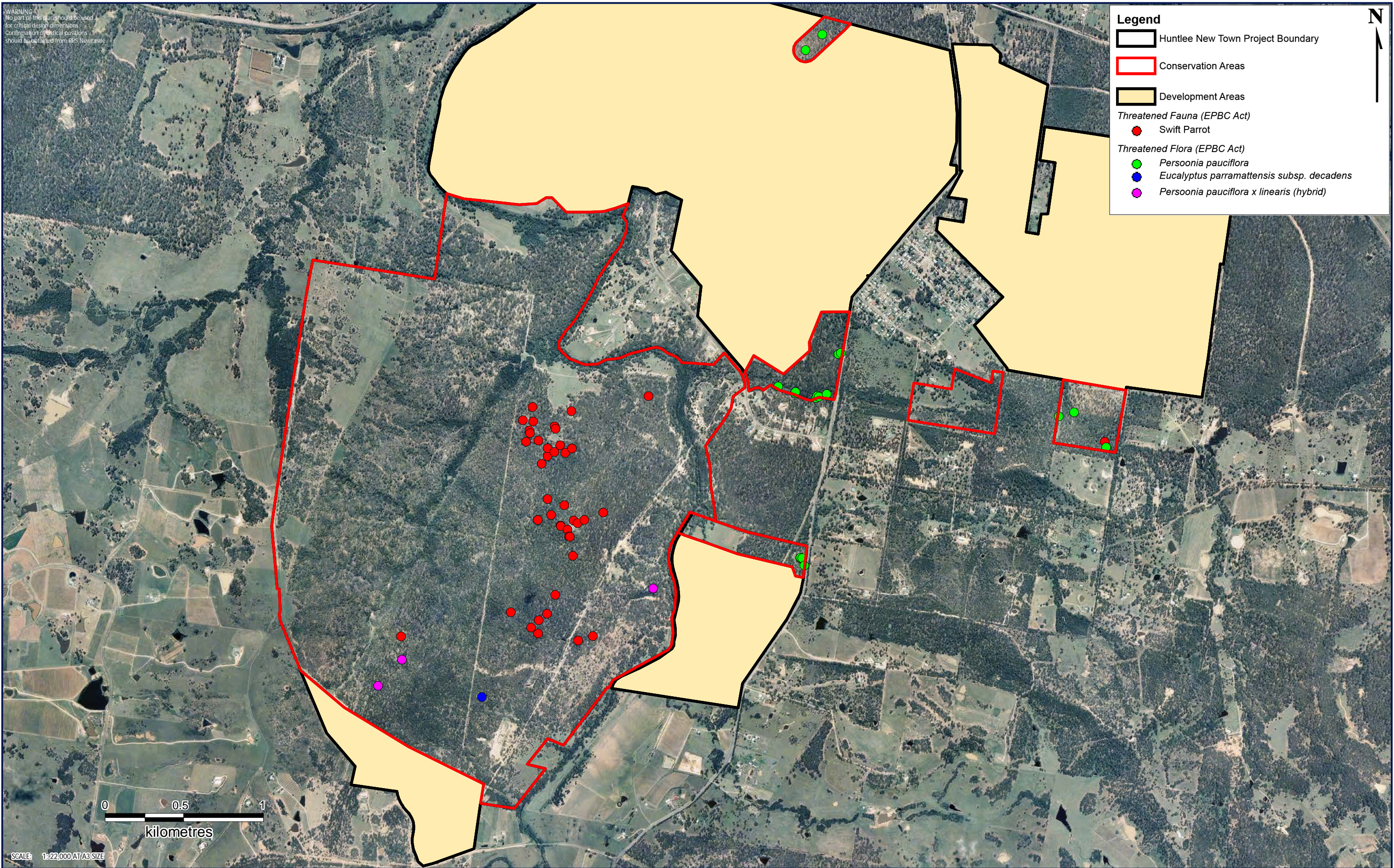
3.1.2 Fauna

A total of 206 vertebrate fauna species have been recorded within the Huntlee Project Area to date, including 27 threatened species — comprising ten mammals and 17 birds (RPS 2010a). Threatened fauna species listed under the EPBC Act that have been recorded within the Huntlee Project Area are listed below in **Table 3**. Threatened flora and fauna species recorded within the Huntlee Conservation Lands are shown in **Figure 4**.

Table 3 Threatened Fauna Recorded Within Huntlee Project Area

Species	Scientific Name	Legislative Status		Occurrence Project Area
		TSC Act	EPBC Act	
Regent Honeyeater	<i>Xanthomyza phrygia</i>	Critically Endangered	Endangered	Historical record from 1977 in North Rothbury. Possible vagrant. Proposed Conservation Area south of Black Creek would provide suitable habitat for any birds moving through the area.
Swift Parrot	<i>Lathamus discolor</i>	Endangered	Endangered	Seasonal migrant, especially during the winter flowering of Spotted Gums in the wider Hunter Valley. In winter 2005, flocks representing approximately 3% of the total national population were recorded using areas south of Black Creek for foraging and roosting. Very small number recorded within proposed Conservation Area and Persoonia Park sites in winter 2007.
Koala	<i>Phascolarctos cinereus</i>	Vulnerable	Vulnerable	Record from 2004 in Hanwood Estate. Potential habitat occurs throughout the Project Area.
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Vulnerable	Vulnerable	Nomadic forager for Eucalypt blossom and likely to visit the Project Area when such resources are available. No communal camps known from the locality. Proposed Conservation Area south of Black Creek would provide suitable seasonal foraging habitat for this species.

WARNING
 No part of this plan should be used
 for critical design dimensions.
 Confirmation of critical positions
 should be obtained from RPS Newcastle



Legend

- Huntlee New Town Project Boundary
- Conservation Areas
- Development Areas
- Threatened Fauna (EPBC Act)**
 - Swift Parrot
- Threatened Flora (EPBC Act)**
 - Persoonia pauciflora*
 - Eucalyptus parramattensis* subsp. *decadens*
 - Persoonia pauciflora* x *linearis* (hybrid)

FIGURE 4 - HUNTLEE CONSERVATION AREA
 THREATENED SPECIES RECORDS (EPBC ACT)

LOCATION: NORTH ROTHBURY

DATUM: GDA 94
 PROJECTION: MGA ZONE 56

DATE: 29/11/2013
 PURPOSE: CONSERVATION MGT PLAN

LAYOUT REF: J:\JOBS\105K\105216
 North Rothbury (Huntlee)\10- Drafting\Management Plans
 VERSION (PLAN BY): JS (A A3)

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 JOB REF: 105216

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4.0 Communication

4.1 Training and Awareness

All contractors and employees will undergo a general environmental project induction prior to commencing work on-site. This induction will be developed by the Huntlee Conservation Officer (HCO) and will include details on, but not be limited to:

- Pathogen hygiene protocols and obligations in regards to complying with the protocols;
- Access protocols including details on access requirements i.e. locking gates behind them, ensuring vehicles are weed and soil free before entering the Conservation Areas etc; and
- Issues that should be reported to the Huntlee Conservation Officer i.e. observed unauthorised access, presence of cattle within conservation areas, weed infestations, pathogen infection etc.

A record of who has received these inductions and on what date will be kept by the HCO and no visitors, contractors, or staff shall be permitted on the Conservation Areas if they have not completed these inductions. Inductions will be refreshed every 24 months to ensure all personnel are aware of any changes that may have been made in the past 24 months.

Any changes regarding pathogen infection areas, weed infestations, and revegetation work areas should be communicated to visitors and contractors upon signing in before entering the Conservation Areas.

4.2 Sign In Protocols

All visitors, staff and contractors will need to provide their name, the company the work for, their activity, location and time and date that they arrive and leave the Conservation Areas before they access the Conservation Areas. A sign in sheet will be available at a convenient location to be maintained by the Huntlee Conservation Officer and Huntlee Pty Ltd. These details will be regularly archived for future reference.

5.0 Habitat Improvement and Maintenance

The improvement and maintenance of habitat for the key identified species will be achieved through restoring and maintaining the vegetation within the Conservation Areas. The key fauna species of national environmental significance identified within the Project Area have only been recorded as utilising the Conservation Areas for foraging purposes; as such the management actions detailed within this management plan will be appropriate for the level of utilisation by the target species and will therefore concentrate on ensuring that their habitat is improved and subsequently maintained.

The species identified as requiring measures for the improvement and maintenance of the quality and condition of habitat include:

- Swift Parrot (*Lathamus discolor*);
- Regent Honeyeater (*Anthochaera phrygia*);
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- North Rothbury Persoonia (*Persoonia pauciflora*); and
- Slaty Red Gum (*Eucalyptus glaucina*).

Improvement and maintenance of key habitat attributes for the above species will be achieved by adhering to the following recommendations:

- Controlling pests and weeds that can have a negative impact on vegetation including the *Persoonia pauciflora* and Slaty Red Gum, and in the case of pests those that could potentially predate on the fauna species (**Sections 6 and 7**);
- Ensuring no commercial grazing occurs within the Conservation Areas, thereby eliminating the negative impact this process could have on the structure, composition and reproductive success of the Slaty Red Gum and the vegetation (i.e. habitat) in general (**Section 8**);
- To reduce the impact that human interference can have on the key species and their habitat, a fencing program will ensure that no unauthorised persons or vehicles will be able to access the conservation areas (**Section 9**);
- The management of plant pathogens that could potentially reduce the diversity and composition of the vegetation and impact upon the Slaty Red Gum (**Section 10**); and
- Increasing the area of vegetation available as potential habitat by restoring vegetation to cleared land (**Section 11**).

6.0 Weed Management

Weed removal shall target any species likely to significantly invade bushland, prevent natural regeneration, or impede native seedling growth. During the initial primary weed control phase, priority shall be given to significant infestations of species listed as Weeds of National Significance (WoNS) and Noxious Weeds. Weed removal techniques should be appropriate to the weed type, growth form, ecology, and to the existing Conservation Areas conditions. Wherever possible, weed removal should be carried out prior to annual seed set.

It is not possible to remove a weed from a site on a single occasion, as many weeds have a persistent seedbank that can remain viable for long periods of time. Seeds will germinate rapidly after the parent plant has been removed due to increases in light and habitat availability. Therefore a secondary consolidation phase of weed control will be undertaken which will involve control of minor infestations and revisiting the primary control phase sites for follow-up weeding, as cleared areas containing even moderately disturbed soil are highly conducive to weed invasion. This is likely to consist of spraying with herbicide (in areas not in the vicinity of a water body) or removal by hand, as any weeds present will be small and easily eradicated. At the completion of this stage, there should be minimal weeds remaining. To ensure this remains the case, preventative measures and an ongoing maintenance phase control program will be undertaken.

Minimising or active control of the spread of weeds as part of an integrated strategy will ameliorate the movement of weeds within the Conservation Areas and surrounds. Those weeds that bypass these strategies or naturally disperse into the Conservation Areas will be controlled as part of the maintenance phase.

General likely causes of weed spread within the Conservation Areas are:

- Equipment brought onto Conservation Areas that are contaminated with weed seeds and plant matter;
- Vehicles transporting seeds within the Conservation Areas along access roads and tracks;
- Use of weed contaminated soil, mulch or other horticulture products; and
- Spread of weed seed or propagules on clothing and boots.

6.1.1 Preventative Measures

Preventative measures for weeds are generally limited to prevention of the spread of weeds and prevention of the transportation of weeds from external sources. To control the spread of weeds to and from the Conservation Areas a vehicle and equipment hygiene protocol will be established. This will involve all contractors and staff being responsible for removing any plant material from beneath their vehicles when leaving and entering the Conservation Areas when they have been in potential weed infestation areas. Soil can carry weed seed, and as such vehicles that have a build-up of soil should be washed down before entering Conservation Areas and at the first opportunity upon leaving Conservation Areas.

All civil plant machinery transported to the Conservation Areas must be inspected to ensure that it has been cleaned of foreign soil and vegetative matter prior to arrival. This will also apply to any equipment to be removed from the Conservation Areas to prevent weeds being transported off-site.

Details on these requirements will be incorporated into the site induction.

6.1.2 Weed Infestations

As part of ongoing monitoring and inspections any weed infestations encountered will be recorded and logged into a GIS based weed map to be supplied to weed management contractors for control.

Weed invasion is particularly problematic along Black Creek where dense infestations of *Cestrum parqui*, *Tradescantia albiflora*, *Macfadyena unguis-cati*, and *Cardiospermum grandiflorum* are prevalent in the River Oak forests. It is unlikely that such weeds will be completely eradicated as upstream influences are likely to maintain the presence of weed species (Bell 2005).

6.1.3 Weeds of National Significance

Weeds of National Significance (WoNS) are the highest priority species targeted for sustained nationally coordinated action under the Australian Weeds Strategy. This strategy provides for national management to eradicate WoNS species from parts of the country where Australia's productive capacity & natural ecosystems are affected.

Each WoNS has a strategic plan that outlines strategies and an action required to control the weed, and identifies those responsible for each action. Individual landowners and managers are ultimately responsible for managing WoNS species. State and territory governments are responsible for overall legislation and administration.

WoNS species must be identified for the locality and considered under the weed management activities carried out within the Project Area.

6.1.4 Listed Noxious Weeds

The NSW Department of Industry & Investment under the *Noxious Weeds Act 1993* (NW Act) lists Noxious Weed declarations for all Local Government Areas. Similarly to WoNS, these weeds must be identified for the locality and considered under the weed management activities carried out within the Conservation Areas.

6.1.4.1 Weed control classes

The following weed control classes may be applied to a plant by a weed control order:

- (1) Class 1, State Prohibited Weeds.
- (2) Class 2, Regionally Prohibited Weeds.
- (3) Class 3, Regionally Controlled Weeds.
- (4) Class 4, Locally Controlled Weeds.
- (5) Class 5, Restricted Plants.

The characteristics of each class are as follows:

- (a) Class 1 noxious weeds are plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent.
- (b) Class 2 noxious weeds are plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent.
- (c) Class 3 noxious weeds are plants that pose a serious threat to primary production or the environment of an area to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area.

- (d) Class 4 noxious weeds are plants that pose a threat to primary production, the environment or human health, are widely distributed in an area to which the order applies and are likely to spread in the area or to another area.
- (e) Class 5 noxious weeds are plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State.

A noxious weed that is classified as a Class 1, 2 or 5 noxious weed is referred to in this Act as a **notifiable weed** and a range of restrictions on their sale and movement exist.

6.1.5 Other Known or Likely Weeds

In addition to the abovementioned WoNS and Noxious Weeds, there will be further weeds of local significance that should be considered during weed management activities. Cessnock and Singleton Council identifies a number of Environmental Weeds that they recommend should be controlled. In addition, any existing escapee garden plant species (non endemics) should be controlled as they can result in local infestations that out-compete native species and may have a negative impact upon native bushland and natural resources such as waterways, creeks and rivers.

Listed weeds recorded from within the project area are provided in **Table 4**.

Table 4 Listed weeds recorded from within the Huntlee lands.

Scientific Name	Common Name	Weed of National significance	Cessnock LGA Environmental & Noxious Weed	Singleton LGA Noxious Weed
<i>Cardiospermum grandiflorum</i>	Balloon Vine	-	CCC Env	-
<i>Cestrum parqui</i>	Green Cestrum	-	Class 3	-
<i>Lantana camara</i>	Lantana	✓	Class 4	-
<i>Ligustrum lucidum</i>	Large Leaved Privet	-	CCC Env	-
<i>Ludwigia peploides</i> subsp. <i>montevidensis</i>	Water Primrose	-	CCC Env	-
<i>Lycium ferocissimum</i>	African Boxthorn	✓	Class 4	-
<i>Macfadyena unguis-cati</i>	Cat's Claw Creeper	✓	-	-
<i>Olea europaea</i> subsp. <i>cuspidata</i>	African Olive	-	CCC Env	-
<i>Opuntia aurantiaca</i>	Prickly Pear	✓	Class 4	Class 4
<i>Opuntia stricta</i> var. <i>stricta</i>	Prickly Pear	✓	Class 4	Class 4
<i>Prosopis velutina</i>	Mesquite	✓	-	-
<i>Richardia humistrata</i>	Richardia	-	CCC Env	-
<i>Rubus ulmifolius</i>	Blackberry	✓	Class 4	-
<i>Senecio madagascariensis</i>	Fireweed	✓	CCC Env	-
<i>Solanum mauritianum</i>	Wild Tobacco	-	CCC Env	-
<i>Tradescantia albiflora</i>	Wandering Jew	-	CCC Env	-

6.1.6 Weed Control Methods

Weed control requires an integrated approach and a single method of treatment should not be relied upon. Bush regeneration principles (Bradley, 2006) designed for use in bushland settings, in combination with designated plantings should be employed. The systematic removal of weeds will allow native plants to establish themselves naturally (Buchanan, 1989) in designated regeneration areas. Furthermore, the retained vegetation will be managed as part of a long-term maintenance program.

The Bradley Method of bush regeneration employs four basic principles:

- (1) Work outwards from good bush areas towards areas of weed;
- (2) Make minimal disturbance to the environment;
- (3) Weed control will involve primary, consolidation and long term maintenance; and
- (4) Do not over-clear; where possible let native plant regeneration dictate the rate of weed removal.

Manual removal of herbaceous weeds, regrowth and seedlings is preferred where possible, with minimal disturbance to soil stability and existing native species. Ecologically sensitive areas where weeds are removed manually should be stabilised or planted by the end of each working day. Removal work will be undertaken outside the seeding period of weeds, especially those weeds that produce large quantities of seed. If any work is undertaken within these periods, seed will be collected, bagged and disposed of off-site, ensuring that no seed remains.

6.1.7 Use of Herbicides

Chemical removal is only considered appropriate for larger weeds and areas of large infestation or in areas containing few natives. In regards to larger woody weed species and infestations, felling and digging up the roots can be dangerous, expensive, time consuming and could potentially increase erosion. Where practical the application of herbicides should only be carried out by qualified personnel and the use of chemicals should be kept to a minimum. Care should also be taken when implementing chemical spraying techniques near waterways and environmentally sensitive areas.

The use of more environmentally-friendly herbicides such as "Roundup Biactive[®]" should be used when working within or adjacent to riparian areas. Herbicides should not be applied immediately prior to rain occurring. This reduces the effectiveness of the herbicide and poses the risk that the herbicide could be transported by runoff into local creeklines and waterways.

An advantage of herbicide use is the shorter time it takes to spray weeds as compared to physically removing them, particularly for large infestations of weeds.

The use of herbicides should be considered when:

- There are small areas of dense weeds with few or no native plants to protect;
- There are large areas of weeds; and
- The weeds are growing too rapidly for physical removal.

It is important to plan herbicide control of target species according to a weeding calendar that recognises the weed's life form and seasonality (i.e. flowering, fruiting and seed set).

The success of each treatment must be evaluated by the operator after a set period of time and re-applied (if necessary) according to the labelled effectiveness for each herbicide. The herbicide of choice for bush regeneration work is Glyphosate.

Herbicide application shall be limited to the following techniques. Always remember to read the product label and any relevant permit before using any herbicide.

- Cut-stump and poison (cut and dab);
- Stem injection;
- Stem-scrape or frilling and poison;
- Basal bark painting; and
- Selective spot-spraying.

6.1.8 Consolidation and Weed Removal

The Conservation Areas may need several visits to remove weeds that are regenerating and/or have grown in response to the disturbance and are competing with regenerating native plants. A system of weed removal must be undertaken to remove weed seedlings and regrowth. These visits are essential; otherwise the weeds will re-establish and out-compete the regenerating/replanted natives.

6.2 Management Triggers

The targets for weed management within the Huntlee Conservation Areas are linked to the primary, secondary and maintenance weed management phases within the Huntlee Conservation Areas. Targets are objectives to be aimed for when carrying out the management actions. Triggers are to be the objectives that must be met before works can proceed to the next stage. The numerical value attributed to the trigger levels will be determined by the annual vegetation monitoring. If the trigger objectives are not met by the end of the phase, then this will prompt the requirement for management actions of additional work to be done until the trigger objectives are met (see **Table 5**, **Table 6**, and **Table 7**).

The goal of the works to be conducted during the primary control phase will be to remove any identified infestations prioritizing noxious weeds and weeds of national significance. Once target levels for the primary control phase have been met (**Table 5**), the secondary consolidation phase will commence where the goal will be to return to primary phase weed control sites to ensure none of the weeds have resprouted or reestablished from seed and to control any minor infestations that may not have been included within the primary control phase. Once weeds have been reduced to target levels (**Table 6**), the maintenance phase weed control stage will commence, which will involve ongoing works to ensure no additional infestations occur and that infestations controlled during the primary and secondary phase do not reestablish (**Table 7**).

6.3 Primary Weed Control Phase Actions

In accordance with Conditions 15(k)(l)(n) of the EPBC Approval, **Table 5** addresses the required actions, timing, responsibilities and triggers for weed management.

Table 5 Primary Weed Control Phase Actions

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Primary Control Phase weed control	Removal of woody weeds, particularly noxious weeds from the Conservation Areas, particularly Lantana and African Boxthorn	Weed cover of large infestations to be reduced within 2 years of commencement of weed control program Less mature or flowering/fruited plants remain within 2 years of commencement of weed control program	During periods of active growth At least twice a year until performance targets are met Completed within 36 months of commencement of the Action	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Continue Control Phase weed control
	Removal of non-woody weeds, particularly Green Cestrum, from the Conservation Areas	Weed cover of large infestations to be reduced within 2 years of commencement of weed control program	During periods of active growth At least twice a year until performance targets are met Completed within 36 months of commencement of the Action	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Continue Control Phase weed control
	Removal of canopy species (non endemic) from the Conservation Areas	Weed cover of large infestations to be reduced within 2 years of commencement of weed control program Less cover of mature or flowering/fruited plants remain within 2 years of commencement of weed control program	During periods of active growth At least twice a year until performance targets are met Completed within 36 months of commencement of the Action	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Continue Control Phase weed control

Table 6 Secondary Consolidation Phase Actions

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Secondary Consolidation Phase weed control	Consolidation of woody weed control for the Conservation Areas, particularly Lantana and African Boxthorn	Weed cover, weed regrowth, and mature or flowering/fruited plants reduced below Primary Control Phase levels	During periods of active growth At least twice a year until performance targets are met	Huntlee Pty Ltd Weed Management Contractor	Large infestations, weed regrowth and secondary infestations, and mature or flowering/fruited plants are at Primary Control Phase levels	Revert back to primary control phase
	Consolidation of non-woody weed control, particularly Green Cestrum, from the Conservation Areas	Weed cover to be reduced to less than Primary Control Phase levels	During periods of active growth At least twice a year until performance targets are met	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Revert back to primary control phase
	Consolidation of canopy species control (non endemic) within the Conservation Areas	Weed cover of large remaining infestations, Cover of weed regrowth and secondary infestations, and mature or flowering/fruited plants reduced below Primary Control Phase levels	During periods of active growth At least twice a year until performance targets are met	Huntlee Pty Ltd Weed Management Contractor	Large infestations, weed regrowth and secondary infestations, and mature or flowering/fruited plants are at Primary Control Phase levels	Revert back to primary control phase

Table 7 Maintenance Phase Actions

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Maintenance Phase weed control	Removal of woody weeds from the Conservation Areas, particularly Lantana and African Boxthorn	Weed cover maintained at less than Secondary Control Phase levels	Ongoing Once a year	Huntlee Pty Ltd Weed Management Contractor	Weed cover reaches Secondary Control Phase levels	Revert to secondary control phase targets and frequency of control
	Removal of non-woody weeds, particularly Green Cestrum, from the Conservation Areas	Weed cover maintained at less than Secondary Control Phase levels	Ongoing Once a year	Huntlee Pty Ltd Weed Management Contractor	Weed cover reaches Secondary Control Phase levels	Revert to secondary control phase targets and frequency of control

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
	Removal of canopy species (non endemic) from the Conservation Areas	Weed cover maintained at less than Secondary Control Phase levels	Ongoing Once a year	Huntlee Pty Ltd Weed Management Contractor	Weed cover reaches Secondary Control Phase levels	Revert to secondary control phase targets and frequency of control

7.0 Pest Control

The management of pest fauna species is essential to maintain the ecological value of the Conservation Areas. Pest species control is also essential to maintain good relations with neighbouring agricultural landholders as Conservation Areas are often perceived to harbour feral animals that then damage crops and prey upon livestock.

Annual monitoring will be used to determine if pest animal control needs to occur, for which species, and which methods to apply. Recommendations will be provided regarding target pest species and potential locations for control as part of annual monitoring reporting.

There are a number of feral animal control contractors within the locality that could conduct the proposed pest fauna control program. Consultation with Council and local Department of Primary Industries (DPI) officers should be undertaken regarding coordinating control programs.

To ensure the success of pest fauna control measures they need to be integrated into local and regional management programs. Management control measures can be implemented by a neighbour or Council. Consultation with these stakeholders can establish what species are of concern, what measures are best used to control them and how they will be incorporated into the onsite management program. Ecologically - cattle, rabbits, hares, feral cats, wild dogs and foxes are likely to be the species of most concern on the Conservation Areas.

7.1.1 Fox and Wild Dog Control

Control of foxes and wild dogs is more difficult than for many other species because both migrate further than other species and can have home ranges of up to 500 ha (Sharp and Saunders 2012). Both foxes and wild dogs are also more likely to re-infest previously controlled areas from distant uncontrolled areas. Foxes are accomplished hunters, with a large portion of their diet consisting of rabbits. If rabbit populations are controlled it will aid in the reduction of fox numbers in the Conservation Areas. If management of rabbit populations on site is ineffective a baiting program may be required.

Fox baiting can include the use of a variety of agents (1080, Foxoff®, Den-co-fume© and Econobaits©), but is strictly controlled. Fox poisoning is regulated in NSW by the *Pesticide Act 1978* (PA Act), and can be carried out only under the conditions specified in the current Off-label Permit. Rural Lands Protection Boards prepare and supply baits for use by landholders. Alternative fox control measures such as den fumigation, night-shooting and trapping may be important to complement fox baiting in some areas.

For more information consult the NSW DPI website at <http://www.dpi.nsw.gov.au/agriculture/pests-weeds/vertebrate-pests/pest-animals-in-nsw/fox-control> and <http://www.dpi.nsw.gov.au/agriculture/pests-weeds/vertebrate-pests/pest-animals-in-nsw/wild-dog-control>.

7.1.2 Rabbit Control

Rabbits occasionally reach large numbers when conditions allow. Rabbits have been controlled in the past via the introduction of Myxamatoxis or the Calicivirus. However, some rabbit strains are resistant to one or both of these diseases, or, the diseases are not present due to the isolation of the rabbit population in the area. These diseases have resulted in the decreased use of '1080' poison for the control of rabbits in Australia. Rabbits are a major food source for foxes, wild dogs and cats; therefore the control of rabbits should be prioritised due to the flow on effects to the other pest species. The control of rabbits (and hares) is best achieved through an integrated approach comprising most, if not all, of the following methods:

- fumigation of warrens;
- destruction of warren systems;
- removal of rabbit shelter; and
- shooting.

For more information consult the NSW DPI website at <http://www.dpi.nsw.gov.au/agriculture/pests-weeds/vertebrate-pests/pest-animals-in-nsw/rabbit-control>.

7.1.3 Feral Cat Control

The feral cat is an opportunistic predator and dietary studies have shown that small mammals, birds, reptiles, amphibians, insects and even fish can be taken as prey (DAFF 2013). Actual competition for prey can cause a decline in the numbers of native predatory species such as quolls, eagles, hawks and reptiles. Rabbits may comprise up to 40% of a feral cat's diet so rabbit control measures will assist with the reduction in feral cat numbers.

There are four main methods of feral cat control, namely exclusion, shooting, poisoning, and trapping.

- Exclusion is the most successful method of control but is only appropriate where an area contains a species that is at high risk from feral cat predation.
- A night shooting control program can be incorporated into the shooting program for wild dogs and foxes. Night shooting for cats is assisted by their distinctive green eyeshine.
- A poisoning program using 1080 baits can be conducted at the same time as the wild cat and dog program. Neighbouring communities will need to be notified of poison programs.
- Where there is a high likelihood that domestic animals may be accessing the Conservation Areas a trapping program using cage traps may be more appropriate. Any cats captured should be taken to a vet to be checked for microchip. If a microchip is recorded then it should be taken to the pound, if no microchip recorded it should be euthanised.

For more information consult http://www.daff.qld.gov.au/_data/assets/pdf_file/0004/61987/IPA-Feral-Cat-Ecology-PA26.pdf

7.1.4 Domestic Animal Control

Household pets if uncontrolled can have a significant negative impact upon local wildlife. The impact pets have upon wildlife is managed in new developments within ecologically sensitive areas by placing covenants that restrict the ownership of cats and dogs or places controls on how these pets are managed. The Huntlee Conservation Lands are adjacent to existing residential development, and therefore the application of zoning and restrictive covenants on pet ownership and control is not applicable.

The most appropriate method of pet cat and dog control within the Huntlee Conservation Lands will be an education program informing all property owners adjacent to the conservation lands of the impacts that their pets can have on native wildlife and how the control measures that are to occur within the Conservation Areas like poisoning, shooting and trapping may directly impact upon any uncontrolled pets.

7.2 Pest Control Action Timetable

In accordance with Conditions 15(k)(l)(n) of the EPBC Approval, **Table 8** addresses the required actions, timing, responsibilities and triggers for pest control management.

Table 8 Pest Control Action Timetable

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Pest Animal Population Assessment	Annual monitoring for pest animal species will be undertaken	Assessment completed	During first round of annual monitoring	Huntlee Pty Ltd Huntlee Conservation Officer	Assessment not conducted	Contractor engaged and assessment conducted with 3 months of original due date of assessment.
Pest Animal Control	Contractor engaged and management commenced	Controls commenced as per population assessment and monitoring recommendations	Annual or as required	Huntlee Conservation Officer	Pest control not implemented when pest animal population assessment and annual monitoring report has identified the need	Contractor engaged to complete works within 3 months of breach of triggers noted.
Pest Animal Monitoring	Pest Animal monitoring conducted as part of annual monitoring	Monitoring completed	Annual	Huntlee Conservation Officer	Monitoring not undertaken annually	Contractor engaged and contract to complete works on a fixed schedule developed and signed by both parties.

8.0 Exclusion of Commercial Grazing

No commercial grazing is to be permitted within the Huntlee Conservation Areas. At the time of HCMP production there were no known domestic grazing animals in Huntlee Conservation Areas. The following exclusion program would be applicable to any future incidents where domestic stock entered Huntlee conservation Areas.

The first stage will be the installation or upgrade / repair of boundary fences along the boundaries and the second stage in the program will be the mustering of stock to remove them from the Conservation Areas. Fencing works will be undertaken generally in accordance with Section 9 of the HCVMP.

8.1 Stock Exclusion

The majority of the Conservation Areas are fenced to some degree. A number of sections of the Conservation Area boundaries have been identified as requiring the installation of new fencing; in addition fencing in some cases may be inadequate or may require replacing due to poor condition. Inspection by a suitably experienced fencing contractor will be required to determine what fencing works will be required to meet the objectives of the fencing program. Ongoing inspections will need to be conducted to ensure the fences remain in serviceable condition and if at any stage they are damaged by flood, fire or tree fall they are to be replaced as soon as practical. It is recommended that any internal fences are removed to reduce the potential for fauna injuries and restrictions to fauna movement.

Refer to **Section 9** for more details on fencing design including objectives, completion criteria, monitoring requirements, corrective action triggers and corrective actions.

8.1.1 Fence Condition Inspection

A suitably experienced contractor should be engaged to assess the condition of the existing boundary fencing. The contractor shall assess the fenceline to determine if it is adequate for the exclusion of grazing animals, specifically cattle, and to determine what will need to be done to meet the fenceline objectives outlined in **Section 9**. This action should be completed within 3 months of the Huntlee Conservation Officer commencing their role so that the fencing schedule can be developed and the fencing program implemented.

8.1.2 Schedule of Works

Following the inspection, the contractor and the Huntlee Conservation Officer will develop a schedule of works for the required fencing. Priority should be given to high risk areas including Conservation Area 1 and Persoonia Park and any areas where no fencing occurs. The target will be the completion of the entire fencing program within 24 months of the completion of the fencing condition inspection.

All fencing will be in accordance with objectives outlined in **Section 9**.

8.2 Stock Mustering

This action is expected to be undertaken by Huntlee Pty Ltd who will be required to remove any stock from the respective Conservation Areas should a future fencing breach occur by domestic grazing stock. Within three months of the boundary fencing of a particular area being of a standard that would exclude grazing animals, a sweep of the area should occur to ensure there are no domestic grazing stock therein. Ongoing monitoring of fencelines will determine if there is the need for follow up mustering of any remaining stock.

8.3 Monitoring

Following removal of grazing animals from a Conservation Area, monitoring for the presence of domestic grazing animals will be integrated into ongoing monitoring programs. In addition all contractors and staff will be informed of the need to notify the conservation officer of any domestic grazing animals they observe within the conservation areas.

Whenever the Huntlee Conservation Officer conducts a site inspection they should inspect watering points for signs of cattle activity including fresh manure and tracks. An audit of the progress of the fencing schedule of works will be conducted every six months by the Huntlee Conservation Officer until the completion of the fencing program to ensure the program is running to schedule.

8.4 Commercial Grazing Exclusion Action Timetable

In accordance with Conditions 15(k)(l)(n) of the EPBC Approval, **Table 9** addresses the required actions, timing, responsibilities and triggers for commercial grazing management.

Table 9 Commercial Grazing Exclusion Action Timetable

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Stock Exclusion	Fence inspection	All boundary fences inspected	Within 3 months of Huntlee Conservation Officer commencing their role	Huntlee Pty Ltd to provide resources Huntlee Conservation Officer to complete action	Fence inspection not conducted within 2.5 months of Huntlee Conservation Officer commencing their role	Huntlee Pty Ltd to provide resources and Huntlee Conservation Officer to ensure action is completed within specified timeframe.
					Fence inspection not conducted within 3 months of Huntlee Conservation Officer commencing their role	Huntlee Pty Ltd and Huntlee Conservation Officer to complete action immediately.
	Schedule of works	Huntlee Conservation Officer has developed detailed program of works	Within 3 months of Huntlee Conservation Officer commencing their role	Huntlee Conservation Officer	Fencing schedule of works not developed within 2.5 months of Huntlee Conservation Officer commencing their role.	Huntlee Conservation Officer to ensure action is completed within specified timeframe.
					Fencing schedule of works not developed within 3 months of Huntlee Conservation Officer commencing their	Huntlee Pty Ltd to ensure that Huntlee Conservation Officer completes action immediately.

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
					role.	
Installation of Fencing	All fencing installed in accordance with Section 9.		Within 24 months of approval of the commencement of the action	Huntlee Conservation Officer	Within 12 months of approval of this management plan the program is not running to schedule.	Huntlee Conservation Officer to develop a revised schedule to ensure action is completed within specified timeframe. Engage new contractor if necessary
					Within 24 months of approval of this management plan the works have not been completed.	Huntlee Pty Ltd to ensure Huntlee Conservation Officer to develop program to complete all works within 3 months
Removal of Stock	All stock removed from conservation areas		Within 3 months of a conservation area's fencing being determined to be adequate for the exclusion of cattle.	Huntlee Conservation Officer	Within one month of a conservation area's fencing being determined to be adequate for the exclusion of cattle still remain	Huntlee Conservation Officer to immediately organise for the removal of cattle within 2 months
					Within 3 months of a conservation area's fencing being determined to be adequate for the exclusion of cattle stock still remain within conservation area	Huntlee Pty Ltd to provide resources to ensure the immediate removal of cattle.

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Monitoring	Initial monitoring to ensure all cattle removed from a conservation area	Monitoring conducted at nominated intervals	Weekly for the first month. Then ongoing in conjunction with annual monitoring program.	Huntlee Conservation Officer	Evidence that cattle still occupy conservation area	Fencelines inspected to ensure cattle have not accessed the site from neighbouring properties. Repairs conducted if required. Stock removed from conservation area.

9.0 Fencing Design

To ensure that unauthorised persons or vehicles as well as domestic grazing animals, specifically cattle, are deterred from accessing the Conservation Areas the boundaries of the Conservation Areas will need to be fenced. The type of perimeter fencing used needs to consider durability, integrity, potential impacts to wildlife, and in some locations aesthetics.

A variety of fence types are proposed for the conservation lands to discourage unauthorised entry, with the inclusion of modifications to allow for the movement of macropods. For Conservation Area 2 and Conservation Area 3 conventional rural type fencing with signage will be adequate. For Persoonia Park a 1.2 metre high powder coated aluminium fence type or similar is suggested along the interface with the residential development, and for the largest concentration of *P. pauciflora* within Conservation Area 1 a 2.1 metre high chain link type fence or similar is proposed.

Native wildlife can be negatively impacted upon by agricultural fencing with the key risks to wildlife being entanglement in loose mesh style fencing and injuries resulting from collisions with and getting hung up in barbed wire. Due to the presence of Grey-Headed Flying Fox and Squirrel Gliders and the potential impacts to wildlife in general the use of barbed wire should be prohibited and should be removed from all existing fencelines over time.

A number of access points at key locations will be required for access to undertake management actions and for fire safety. Specific signage will need to be installed at these points to ensure people are aware of their obligations regarding access to the Conservation Areas and the need for restricting their access.

Consultation with the NSW Government regarding installation, fencing types and funding will be required prior to commencement of fencing works.

9.1.1 Rural Fencing

The entire perimeter of Conservation Area 2 and Conservation Area 3 will need to be fenced. Generally fencing has been established and as such an audit will be required to determine if they are in a serviceable condition and what maintenance requirements exist (e.g replacing, upgrading or ongoing maintenance / monitoring). The wire used should be single strand high tensile wire to ensure that the fencing does not cause injuries to wildlife and retains its ability to exclude cattle - a three to five strand single strand wire fence or similar will be sufficient for these purposes. Wherever an existing fenceline is in a serviceable condition, it will be retained, and if barbed wire has been used the top and bottom run should be replaced with high tensile single strand wire.

To ensure that unauthorised personnel are aware that they are not permitted to enter the Conservation Areas, signage should be installed at regular intervals along the fenceline. All access points will need to be locked and larger access point signage installed. All signage will be installed in accordance with **Section 9.1.5**.

9.1.2 Persoonia Park Fencing

As Persoonia Park will be adjacent to residential areas there is a higher likelihood of unauthorised entry. As such, different considerations are required when determining what style of fencing will be required. Steel or aluminium powder coated type or similar fencing will be required along this residential interface as it is the most appropriate for unauthorised access control as it is durable, and is less obtrusive than chain link fencing. The remainder of the boundary should be fenced with rural fencing as described above. Initially prior

to development occurring on the Persoonia Park interface, the interface area shall be fenced with rural type fencing until such time that development occurs.

A number of access points at key locations will be required for access to undertake management actions. Signage will also need to be installed to ensure people are aware of their obligations regarding access to the site and the need for restricting their access.

9.1.3 Conservation Area 1 Fencing

Of all the Conservation Areas, Conservation Area 1 contains the highest concentrations of *Persoonia pauciflora*. This Conservation Area is bounded by Hanwood Road to the west, Wine Country Drive to the east, rural residential lots to the south, and proposed residential lots to the north. As such 2100 mm high chain link fencing will be required along all boundaries with an urban interface, and to limit the potential impacts to wildlife barbed wire is not to be used. Due to its imperviousness the chain link fence will require the installation of wildlife thoroughfares. The designs of which are detailed below in **Section 9.1.4**. Signage will also be required at all access points and at regular intervals along the boundary, the details of which are provided in **Section 9.1.5**.

Initially prior to development occurring on the Conservation 1 interface, the existing boundary fencing shall be maintained and the future interface area generally to the north / north-west shall be fenced with rural type fencing until such time that development occurs in the area.

9.1.4 Wildlife Thoroughfares

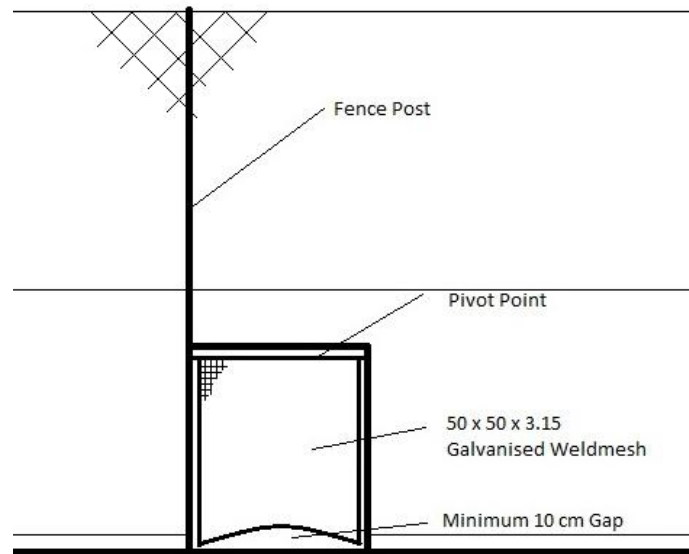
The exclusion of unauthorised persons from Conservation Area 1 will also inadvertently exclude macropods (an important species for dispersal of seeds of the Critically Endangered *Persoonia pauciflora*) and other terrestrial fauna, and as such wildlife thoroughfares will need to be installed.

There are a number of methods for creating wildlife thoroughfares but not all will achieve the goal of deterring people. The swing gate design developed in Western Australia and described in the Victorian Department of Sustainability and Environment Flora and Fauna Notes *Problems Caused by Kangaroos and Wallabies* (FF0019 ISSN 1440-2246) is the most suitable design as it is of a size that would exclude all but the most persistent people and can easily be incorporated into the chain mesh fenceline.

Swing gates are a 500 x 450 rectangle hinged at the top with an arc on the bottom to enable macropods to identify the gate as a possible entry point. The rectangle should have a durable mesh welded to it that should be able to be seen through more easily than the surrounding fence wire to enable macropods to identify the gate as a potential thoroughfare (see **Figure 5**).

An ecologist should inspect the proposed location of the fenceline to identify any potential movement corridors. These corridors should then be recorded and a swing gate installed in that exact location. If no obvious thoroughfares are recorded swing gates should be installed every 100-200 metres.

Figure 5 Swing Gate Design



9.1.5 Signage

To ensure that individuals are aware of the need for exclusion and the consequences of accessing the Conservation Areas without authorisation, clear information will be provided via the education program and information signage. Specific signage will also need to be added to the fence lines themselves and will include ‘Conservation Area authorised access only’, or similar, signs installed around the perimeter. To ensure that people’s privacy is not impinged upon as a result of wildlife thoroughfare and unauthorised access surveillance camera notices should also be erected. These signs will also serve a dual purpose and act as a deterrent to unauthorised access. These details could be incorporated into the Conservation Area signs. Signage does not need to be confrontational and should emphasise the positive aspects of the Conservation Areas.

Figure 6 Example of Conservation Fenceline Signage



9.1.6 Fence and Thoroughfare Monitoring

Monitoring points should be established adjacent to a representative number of the swing gate sites to establish if they are being utilised and if they are to estimate the number of macropods doing so. Monitoring would involve the temporary installation of infrared motion sensitive cameras which are designed to detect motion and take photographs when a sensor is triggered by movement.

A formal and informal monitoring program as well as feedback / information provided by the general public will be used to monitor for unauthorised persons accessing the Conservation Areas. This program will be

used to determine whether or not macropods are freely moving in and out of the Conservation Areas. Results of this monitoring will be used to determine the need for upgrades / modifications to any elements of the fence design as well as the need for maintenance works.

9.2 Fencing Management Action Timetable

In accordance with Conditions 15(k)(l)(n) of the EPBC Approval, **Table 10** addresses the required actions, timing, responsibilities and triggers for fencing management.

Table 10 Fencing Management Action Timetable

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Unauthorised people, vehicles or stock are unable to access the conservation areas	Fencing program implemented for boundaries of all Conservation Areas	All fences are installed in accordance with Section 9	Within 12 months of commencement of the action (Note: Persoonia Park and Conservation Area 1 interim fencing per Section 9.1.2 & 9.1.3)	Huntlee Pty Ltd	All of the prescribed fences are not installed within 12 months	Huntlee Pty Ltd will immediately complete the fencing program within 6 months
		The fences are adequate for the exclusion of unauthorised persons, vehicles and Stock	Within 24 months following the commencement of the action	Huntlee Pty Ltd	If unauthorised persons are observed or reported as being observed within the conservation areas	Establish the validity of the sighting or signs of unauthorised access; If the unauthorised access can be confirmed then determine the nature of the unauthorised access; Inspect the fenceline, gates, and wildlife thoroughfares to ensure they have not been intentionally damaged to access the Conservation Areas or as a result of tree or branch fall; If repairs are required ensure they are carried out as soon as possible; Ensure that the fenceline, wildlife

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
						thoroughfares and gates are adequate to exclude unauthorised access and modify if required; and If unauthorised access occurs repeatedly then initiate a surveillance camera program to detect offenders.
		Fences are in a serviceable condition that ensures that they will function as they were intended	Ongoing	Huntlee Pty Ltd Huntlee Conservation Officer	Fenceline is not in serviceable condition	A fencing contractor will be engaged to undertake repairs immediately
Macropods are freely entering and leaving the Conservation Areas	Macropod thoroughfares installed	The macropod thoroughfares are functioning as intended	Ongoing	Huntlee Pty Ltd Huntlee Conservation Officer	Thoroughfare monitoring establishes that macropod gates are ineffective	Determine why the gates are not being utilised and modify gates accordingly

10.0 Pathogen Control

10.1 Pathogens

The two plant pathogens that are most likely to impact upon plant species and communities within the Conservation Areas are Phytophthora (*Phytophthora cinnamomi*) and Myrtle Rust (*Uredo rangeli*). Both of these pathogens are fungal pathogens that require the same control methods. Unless these pathogens are recorded in the Conservation Areas, the Conservation Areas should be considered to be free from these pathogens and control measures should concentrate on preventing the pathogens from being brought in to the Conservation Areas from external sources.

10.2 Baseline

An initial baseline assessment should be conducted over the conservation lands to determine if these pathogens are present and if so to what extent. This information will then be used to determine what controls are necessary and where they should be applied. If neither pathogen is recorded then general hygiene protocols will apply to all of the Conservation Areas.

Field kits are readily available to test for the presence of Phytophthora. Stratified sample sites situated within access tracks and roads and key access points across the Conservation Areas will be assessed and the locations of positive Phytophthora records will be mapped so that any recorded pathogen infection zones can be mapped and controls implemented. Myrtle Rust assessments will be conducted within all vegetation monitoring sites. During inductions all staff and contractors will be provided with a fact sheet to allow them to identify the above pathogens. All records and potentially occurring records identified by staff and contractors are to be reported to the Huntlee Conservation Officer.

All records of plant pathogens will then be verified by the Huntlee Conservation Officer before any controls are implemented.

10.3 Controls

The general pathogen hygiene control protocol that will apply to all persons entering the conservation lands will involve a few simple actions. The action includes vehicle and equipment hygiene with all vehicles to be free from plant material and build up of mud before being allowed onto the Conservation Areas. If any pathogen infections are recorded then strict controls regarding vehicle and equipment hygiene will be implemented for anybody accessing and leaving these infection areas.

The additional controls for working within infestation areas will be determined by the Huntlee Conservation Officer and will include, but not be limited to supervised mandatory vehicle, clothing and equipment disinfection before accessing other areas of the conservation lands.

See **Appendix 2** for more details regarding pathogen management protocols.

10.4 Pathogen Control Action Timetable

In accordance with Conditions 15(k)(l)(n) of the EPBC Approval, **Table 11** addresses the required actions, timing, responsibilities and triggers for pathogen control management.

Table 11 Pathogen Control Action Timetable

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Baseline pathogen assessment conducted	Consultant or Huntlee Conservation Officer to nominate sample sites and complete assessment	All sample sites assessed and pathogen records mapped and controls implemented	Before any works are commenced within the Conservation Areas	Huntlee Pty Ltd Huntlee Conservation Officer	Staff, visitors and contractors access the Conservation Areas other than to conduct the assessment before pathogen assessment conducted	All persons on the Conservation Areas are removed and no works to commence until baseline assessment conducted
All staff, visitors and contractors informed as to the pathogen protocols	Details regarding identification and controls for plant pathogens provided to staff, visitors and contractors in inductions and a fact sheet provided	All staff, visitors and contractors inducted	Before an individual accesses the conservation areas	Huntlee Pty Ltd Huntlee Conservation Officer	Staff, visitors or contractors access the conservation areas without having been inducted	Staff, visitor or contractor removed from Conservation Areas immediately and inducted before being allowed to enter the conservation areas
Pathogen Hygiene Kit	Pathogen Hygiene kits will need to be acquired by contractors and Huntlee Pty Ltd staff.	A sufficient number of Pathogen hygiene kits are available for all staff, visitors and contractors accessing the conservation areas	Before any staff, visitors or contractors are to access the conservation areas	Huntlee Pty Ltd to provide resources. Huntlee Conservation Officer to complete action	Staff, visitors or contractors access the conservation areas without a pathogen hygiene kit. There are insufficient pathogen hygiene kits for staff, visitors and contractors.	No staff, visitors or contractors are to access the Conservation Areas until a sufficient number of pathogen hygiene kits are available. More pathogen hygiene kits are acquired.

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Pathogen infection area protocols	Where pathogens are recorded within the conservation areas, control protocols implemented which include mapping and demarcation of infection areas	Pathogen infection areas mapped, demarcated and staff, visitors and contractors informed of their locations and responsibilities when entering those areas	Within a week of pathogens being recorded	Huntlee Conservation Officer	Pathogen infection areas not demarcated, mapped and staff, visitors and contractors not informed of their location and the requirements for accessing these areas	Huntlee Conservation Officer to ensure action is completed within specified timeframe.
Pathogen Protocol Audits	Conduct regular random audits of contractors to ensure compliance with pathogen hygiene protocols	At least six audits conducted a year, more during periods of high activity	Ongoing	Huntlee Conservation Officer	Audits not carried out throughout the year	Huntlee Conservation Officer to ensure action is completed within specified timeframe.

11.0 Revegetation

The aim of the revegetation and rehabilitation program is to restore the natural ecosystems within the Conservation Areas, utilising native plant species of local provenance for revegetation purposes. In consideration of the past disturbances and structural modification that has occurred throughout the Conservation Areas in association with agricultural land use, rehabilitation will aim to restore cleared areas to a condition that would be representative of the structural diversity of pre-clearance woodland vegetation.

As per Condition 8 of the EPBC Approval (2011/5898) all cleared areas within Conservation Areas 1, 2, and 3 must be revegetated to Central Hunter Ironbark – Spotted Gum – Grey Box forest vegetation type (NSW) with the revegetated areas maintained for conservation purposes.

Additional areas have been identified as being at risk of, or already have areas of, significant erosion. These areas will be revegetated with the goal being to reduce erosion rates and establish a self sustaining groundcover layer. Refer to **Figure 7** for the location of these areas.

At a minimum, successional restoration of native vegetation cover is to be initiated with the establishment of native grass species to stabilise topsoil and limit weed invasion. Benchmark data on surrounding vegetation in the Conservation Areas and other examples of intact 'like' vegetation communities of the region will be used to determine target plant cover, height and structural composition for setting performance criteria associated with revegetation activities.

11.1 Target Vegetation Community

The vegetation community Central Hunter Ironbark - Spotted Gum – Grey Box forest is the dominant community within the Project Area and is the community that *Persoonia pauciflora* predominantly occurs within. As such, all cleared areas are to be revegetated back to this community. This community is typically characterised as an open forest to woodland of *Eucalyptus crebra*, *Corymbia maculata*, and/or *Eucalyptus moluccana*, over a grassy understorey where *Aristida vagans*, *Cymbopogon refractus*, *Aristida ramosa*, *Eragrostis brownii* and *Microlaena stipoides* var. *stipoides* are prominent (OEH 2013). A detailed community profile and species list with indicative densities is provided in **Appendix 4**.

11.2 Plant Stock

Naturally occurring remnant vegetation, preferably from the Conservation Areas or local area, is the best source of seed and/or vegetative material for revegetation. Generally, these plants will have evolved to suit local environmental conditions and have a desirably broad genetic base.

Ecologically and genetically, local sourced seed will complement other plants and animals in the area, and poses the least potential threat of genetic contamination (Mortlock 1998). A licensed nursery can complete the seed collection, germination and supply of tubestock. For example, Riverdene Nursery at Gresford is a local nursery that has experience in the local ecology, has the appropriate licenses and has the capacity to supply large projects.

A number of reference sites will be established within Central Hunter Ironbark - Spotted Gum – Grey Box forest communities, with species selection and density for planting values recorded within these reference sites used as a guide for species selection and planting densities. Allowance should be made for mortalities.

11.3 Planting Locations

Planting will occur in cleared areas to improve the canopy extent, connectivity and habitat quality of the existing vegetation. The planting of additional vegetation will increase the canopy coverage of existing stands, enhance existing community structure, connect patches of vegetation and increase the resilience of the community as a whole whilst supplementing natural succession from the seedbank.

It is expected that re-planting would be undertaken by suitably experienced bushland regeneration contractors who will be able to assess the proposed revegetation areas and develop a site-specific approach. Planting should occur during spring to allow for plants to become acclimated before drier hotter conditions occur over summer. Better results will occur if regular watering occurs while plants are establishing, especially in the drier, warmer months.

Understorey re-establishment should occur in areas where extensive weed infestations occur, as natural regeneration in these areas is predicted to be much slower than within less degraded habitats. In areas where native vegetation is more dominant than weed species, natural regeneration is likely and planting should only occur as a last resort.

The total area of cleared land that will require active revegetation is 75.59 hectares (**Figure 7**). The areas that require revegetation are significant patches of cleared land where there is a lack of natural regeneration. Smaller patches of cleared land surrounded by native vegetation will not require active rehabilitation and will only require weed control to reduce competition on naturally establishing native species as the smaller narrower areas will naturally revegetate from propagules dispersing from surrounding vegetation.

11.4 Mulching

The need for mulching shall be determined on a case-by-case basis. It is recommended wherever there is the risk of erosion and weed growth, weed-free leaf and woodchip mulch should be applied. Examples would include areas of bare ground where earthworks or control of large weed infestations has occurred, or on steep areas with minimal groundcover. All mulch shall be free of contaminants such as weed seeds and propagules and non-biodegradable material such as litter and building rubble. Mulch will be established to a minimum depth of 75 millimetres prior to planting. Mulch has been shown to increase the survivorship of plants in soils with poor water holding ability; however, it will limit the likelihood of both native and weed species regenerating. Therefore, it is recommended that once tubestock becomes established, mulching should not reoccur to encourage seed germination of native plants.

11.5 Fertilisers

Given that locally occurring native species will be planted, the use of fertiliser during planting works is optional. If fertilising is deemed necessary by the vegetation rehabilitation contractor, pellet forms of fertiliser with low levels of Phosphorus are suitable for use within native rehabilitation (planting) areas.

11.6 Tree Guards and Fencing

Tree guards should be utilised where there is a high level of herbivory occurring or tubestock require an unsustainable amount of watering. Tree guards protect individual plants from herbivory by kangaroos, rabbits, and other feral animals as well as protect the tree and soil from desiccating winds. The need for use of tree guards will be determined on a case-by-case basis by the vegetation rehabilitation contractor.

WARNING
No part of this plan should be used
for critical design dimensions.
Confirmation of critical positions
should be obtained from RPS Newcastle

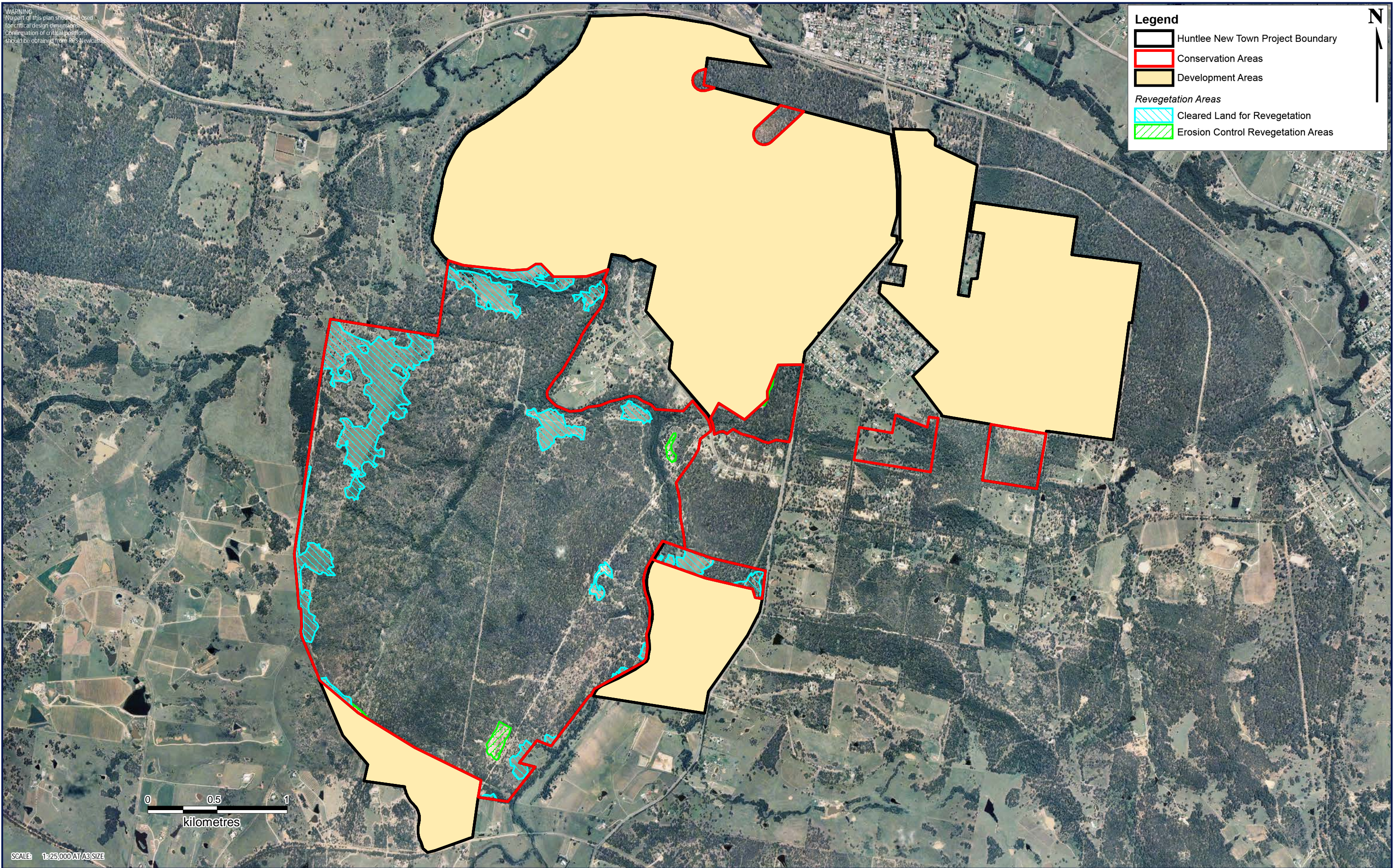


FIGURE 7 - HUNTLEE CONSERVATION AREA
REVEGETATION AREAS

LOCATION: NORTH ROTHBURY

DATUM: GDA 94
PROJECTION: MGA ZONE 56

DATE: 29/11/2013
PURPOSE: CONSERVATION MGT PLAN

LAYOUT REF: J:\JOBS\105K\105216
North Rothbury (Huntlee)\10- Drafting\Management Plans
VERSION (PLAN BY): JS (A A3)

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11.7 Maintenance

Upon completion of the staged rehabilitation works maintenance will be required. This maintenance is predominantly to ensure that rehabilitation works have been successful and, if not, controls are put in place to ensure that they are. Maintenance will only be necessary until rehabilitation becomes self-sustaining and will be required for a minimum of a year after rehabilitation. Maintenance will constitute weed control, plant replacement, irrigation and pest control where required.

11.7.1 Plant Replacement

Plant replacement should take place in areas where plants have been completely removed (i.e. as a result of vandalism or accidental damage) or where rehabilitation has failed, been damaged or is suffering from pests and/or disease. Where necessary, replanting will occur preferably in spring when temperatures are milder, there is a higher chance of rainfall, and the risk of frost is reduced.

Plants lost or damaged should be replaced to maintain a minimum of 80% survival rate of the original planted stock and recommended plant densities. Initial and careful consideration of the health of tubestock prior to its purchase should negate stock losses. Where weeds are removed, plantings should be undertaken at the vegetation rehabilitation contractor's (or other qualified persons) discretion. Plants should be replaced at the size originally specified and in accordance with all planting methods previously described.

11.7.2 Irrigation

Watering of seedlings should be continued as required until all plants are established. Weather and site conditions will determine the frequency of watering for plants during the maintenance period to ensure they do not perish. Moisture levels and plant health should be monitored regularly during drier periods. Watering should be undertaken early morning or late afternoon to avoid the hottest part of the day to minimise water loss.

11.7.3 Pests and Diseases

All plants must be monitored for pests and disease for the first four weeks, and then every three months thereafter. Plants significantly affected by pests or disease must be removed, disposed of off-site and replaced.

11.8 Revegetation Action and Management Timetable

In accordance with Conditions 15(k)(l)(n) of the EPBC Approval, **Table 12** addresses the required actions, timing, responsibilities and triggers for revegetation action management.

Table 12 Revegetation Action Management Timetable

Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Revegetation	Revegetation of cleared areas	All cleared areas revegetated	Within 10 years of approval of the Conservation Management Plan	Huntlee Pty Ltd	At least 10% of cleared land revegetated every 12 months	Revegetation works in following year to compensate for what was not completed in the preceding year.
		Survival of at least 80% of tubestock plantings	Within 24 months of revegetation works		Signs of high mortality rates observed during regular inspections	Watering, mulching to occur immediately or tree guards to be installed where appropriate Replacement of the plants lost at a suitable time of year.
		Revegetated areas composition, structure, and size trending towards baseline values of reference sites	Ongoing		Vegetation not trending towards values of reference sites after 5 years	Additional planting and maintenance to occur to ensure that revegetation trends towards reference site values

12.0 Hydrology and Water Quality

Potential indirect impacts to *P. pauciflora*, as a result of changes to water quality have been considered previously within the EPBC Preliminary Documentation. The hydrology of the Project Area has been documented with regard to stormwater impacts and flooding risk by Worley Parsons (2010). Notably, all *P. pauciflora* individuals are 'up stream' of proposed development activities, which significantly reduces and/or negates the indirect impacts commonly associated with management of development stormwater and considerations of erosion and sedimentation.

The development within the Project Area aims to treat stormwater prior to it entering drainage lines to targets prescribed within IEAAust (2006) and which are also adopted within the Development Control Plan (DCP). The targets are:

- Suspended solids: retention of 85% of the developed average annual load;
- Total phosphorous: retention of 45% of the developed average annual load; and
- Total nitrogen: retention of 45% of the developed average annual load.

The design of the stormwater management system within the Project Area, as defined by Worley Parsons (2010), includes the use of bio-retention basins and water quality control ponds. Modelling by Worley Parsons (2010), with regard to the management of water from Stage 1 of the development, suggests that the proposed treatments on Tributary 1 have the potential to remove 89% of suspended solids, 57% of total phosphorous and 45% of total nitrogen, which are all at or above the targets prescribed by IEAAust (2006). It is expected that such treatments will also be applied to future stages of the development.

As not all of the suspended solids and nutrients are to be retained by control mechanisms, there will be some increased nutrient loadings within drainage lines flowing into the Conservation Areas. To date, no *P. pauciflora* have been recorded within riparian areas, thus the increase in nutrient loading, which is to be within acceptable limits (Worley Parsons 2010), is not expected to adversely affect *P. pauciflora* plants or known habitat.

An annual inspection of control mechanisms will be conducted to ensure that they are operating within design parameters with results and recommendations included within the Annual Report.

13.0 Monitoring Program

A monitoring program will be undertaken to demonstrate the effectiveness of the HCMP and will include parameters to be monitored, methods, timing, frequency, and the location of each monitoring site for each management action.

13.1 Photo Monitoring

Designated permanent photo monitoring locations have been selected in important areas within the Conservation Areas. The selected areas are those that contain dense weed infestations. The progressive photo monitoring will provide an indication of the success or failure of the rehabilitation plan within this management plan. They will enable contractors to adjust rehabilitation works accordingly to enhance the quality of retained vegetation further and provide required information for ongoing monitoring reports. Monitoring points should be marked with steel star-pickets and located with a GPS to ensure consistent replication of monitoring.

13.2 Flora Surveys

Flora monitoring plots will consist of 20 x 20 metre quadrats. Quadrat points should be marked with a steel star-picket and located with a GPS to ensure consistent replication of monitoring.

All species recorded will be identified as far as practicable to species and subspecies level (where relevant). When a plant could not be identified accurately in the field, a single sample will be collected, together with notes on habitat, form, percent coverage and height. These samples will be identified in the office (according to nomenclature in Harden [1992 – 2002]) or sent to the Royal Botanical Gardens for identification.

The following parameters will be collected within each 20 x 20 metre permanent monitoring quadrat:

- Flora species diversity;
 - » Total number of flora species.
 - » Number and percent of native flora species.
 - » Number and percent of introduced flora species.
- Flora species abundance (Modified Braun-Blanquet 1-6);
- Dominant species and vegetation height in metres of each vegetation layer; and
- Presence of dieback.

For revegetation monitoring, additional parameters to be monitored will include the number of stems per plot, and once trees reach a sufficient height the total basal area measured at breast height.

Weed identification and monitoring will be undertaken in association with these works.

13.3 Fauna

Fauna monitoring should take place to ensure a reduction in the abundance of pest species on the Conservation Areas is occurring and that the habitat values for the key fauna species is being maintained. Targeted fauna monitoring will be restricted to birds as they are considered to be a key bio-indicator of ecosystem / habitat health, as they have been shown to respond to environmental changes over many spatial scales (Temple and Weins, 1989) and can yield results which are data rich and efficient to collect (Carignan & Villard 2002). They are also highly suited to monitoring as they can be censused efficiently over large

spatial scales, are easy to accurately identify, have stable taxonomy and relatively well known ecology and behavior, are reasonably long-lived, and hold a high position in some food chains where they may integrate the effects of environmental stresses over time (Furness *et al.* 1993; Read *et al.* 2000).

Fauna surveys will be performed at permanent census plots established during the commencement of the fauna monitoring program. Opportunistic pest monitoring will also be undertaken in association with these works.

13.3.1 Birds

Birds can be identified by direct observation or by recognition of calls or distinctive features such as nests, feathers and owl regurgitation pellets. Surveys will involve walking a one hectare census plot for 20 minutes early in the morning (at dawn) as activity decreases with time from dawn (DEC 2004).

13.3.1.1 [Bird Survey Plots](#)

Methods adopted for bird surveys are to include:

- Discrete one hectare survey plots; and
- Three surveys conducted for a period of twenty (20) minutes at dawn or dusk.

13.3.2 General Fauna

To enable comparisons to be made between surveys, a standardised camera trapping program will be used. Cameras will be placed in the same location (fixed monitoring point), at the same height (300-500 millimeters above ground), at the same time of year, for the same amount of time (4 nights min.), facing the same direction and with the same baits. This method will be used to monitor both native and pest species presence. The location should also be marked with a GPS unit to support the potential loss of a metal stake.

13.3.2.1 [Camera Traps](#)

Camera traps can be used to monitor a wide variety of fauna species, specifically pest animals, accurately and efficiently. Camera traps are used as a tool to conduct surveys or record general observations as they provide better results than standard surveys, such as live trapping (Paull *et al.* 2011). Detection rate is one of the simplest methods of measuring animals that are photographed at camera trap sets (Kays *et al.* 2009), which provides a general index of abundance, and is recorded as:

- $\text{Detection Rate} = \text{Total number of events of a species} / \text{deployment time}$.

If each camera trap is queried separately, a probability of detection per-site can be derived by calculating the detection of each species by each camera each day (Kays *et al.* 2009).

Camera trapping will include:

- Four trap nights per fauna census plot; and
- The use of both carnivore and omnivore baits.

13.4 Habitat Health Assessment

Habitat health assessments will be conducted and will involve the utilisation of the habitat analysis techniques described in Bayley and Brouwer (2004). This program will be conducted in conjunction with monitoring programs associated with the Huntlee *Persoonia pauciflora* Population Management Plan (RPS 2013). Recorded habitat attributes include:

- Physical features including:
 - » Topographic position;
 - » Slope;
 - » Aspect;
 - » Structure;
 - » Patch size;
 - » Patch shape;
 - » Width if linear;
 - » Connectivity;
 - » Linear type;
 - » Geology;
 - » Soil colour and texture; and
 - » Surface water bodies within 100 m.
- Plant diversity and health including:
 - » Exposed soil;
 - » Lichen;
 - » Litter;
 - » Herbs / forbs;
 - » Grasses;
 - » Grassland condition;
 - » Grassland height;
 - » Grassland species diversity;
 - » Dieback;
 - » Mistletoe;
 - » Litter tree base;
 - » DBH ranges and percentage cover;
 - » Shrub species;
 - » Shrub layer species diversity;
 - » Canopy species;
 - » Canopy layer species diversity;
 - » Canopy layer structural diversity;
 - » Patch health;
 - » Canopy description;
 - » Understory description; and
 - » Tree species percentage (%) cover.
- Habitat value including:
 - » Rock on rock;
 - » Overhangs / caves;
 - » Mistletoe;
 - » Terrestrial and Arboreal termite mounds;
 - » Hollow; structure, size classes, number, status and relative abundance;
 - » Number of habitat trees;
 - » Scratches on smooth tree trunks; and
 - » Loose tree bark.
- Level of disturbance including:
 - » Fire;
 - » Number of cut stumps;
 - » Presence of grazing and if so by what animal species;
 - » Presence of erosion and if so what type;
 - » Dumping;
 - » Weed cover abundance; and
 - » Dominant weed species.

The above variables have been analysed by using a habitat typology assessment developed by RPS.

13.4.1 Timing and Frequency

For details regarding the application of each monitoring method and the timing for each monitoring event refer to **Table 13**.

Table 13 Monitoring Timetable

Monitoring Method	Purpose	Location	Frequency
Photo Monitoring	Revegetation Monitoring	One per discrete area of revegetation	Annual
	Weed Control Monitoring	One per discrete area of primary weed control phase	Annual
Flora Quadrats	Revegetation Monitoring	Formalised monitoring points	Annual
	Pathogen Monitoring		
Camera Traps	Macropod Thoroughfare Monitoring	Macropod Thoroughfares	4 sites per year for 4 nights
	Unauthorised Access Monitoring	Areas identified as likely points of unauthorised entry	As required
	Pest Monitoring / General Fauna Monitoring	Formalised monitoring points	4 sites per year for 4 nights
Bird Census	Habitat Condition Monitoring	Formalised monitoring points	Annual
Habitat Assessment	Habitat Condition Monitoring	Formalised monitoring points	Annual
Visual Inspection	Hydrology and Water Quality Monitoring	Water Quality Control Structures	Annual
	Fenceline Integrity Monitoring	Boundary Fencelines	Quarterly / opportunistically
	Commercial Grazing Animal Access Monitoring	Watering points	Quarterly / opportunistically
	Revegetation Success Monitoring	Areas of revegetation	Initially weekly for four weeks following planting then monthly for 12 months

13.5 Monitoring Locations

Monitoring locations will be established during the first round of annual monitoring by a consultant in consultation with the Huntlee Conservation Officer. The location of weed control and revegetation monitoring will be established in line with the progress of those programs.

13.6 Survey Data

All survey data collected for the project must be collected and recorded so as to conform to a reasonable standard such that it can be readily used by a third party or to data standards notified from time to time by the **Department** in accordance with Condition 22 of the EPBC Approval (2011/5898)

14.0 Reporting and Review

14.1 Reporting

An Annual Report (AR) will be developed for submission to the Department within three months of every 12 month anniversary of the **commencement of the action** and the type, the standard, and the timing for delivery of information will comply with Conditions 22, 23, and 24 of the EPBC Approval (2011/5898).

The AR will include:

- progress of the implementation of the Conservation Management Plan including actions completed during the reporting period;
- summary of monitoring results;
- any exceedances of identified triggers thresholds;
- details of corrective actions implemented as a result of exceedances; and
- the outcomes of the above.

In accordance with the EPBC Approval (2011/5898) any non-compliance is to be notified to the Department in writing within 2 days of becoming aware of non-compliance.

14.2 Revisions

All reviews and revisions will be conducted in accordance with Conditions 26, 27, and 28 of the EPBC Conditions of Approval (EPBC 2011/5898)

If the person taking action wishes to carry out any activity otherwise than in accordance with the plans, as specified in the conditions, the person taking action must submit to the Department for the Minister's written approval a revised version of that plan. The varied activity shall not commence until the Minister has approved the revised plan in writing. The Minister will not approve a revised plan, unless the revised plan would result in an equivalent or improved environmental outcome. If the Minister approves the revised plan, that plan must be implemented in place of the plan originally approved.

If the Minister believes that it is necessary or convenient for the better protection of listed threatened species and communities or listed migratory species to do so, the Minister may request that the person taking the action make specified revisions to the relevant management plan specified in the conditions and submit the revised plan for the Minister's written approval. The person taking the action must comply with any such request. The revised approved plan must be implemented. Unless the Minister has approved the revised plan then the person taking the action must continue to implement the originally approved plan, as specified in the Conditions.

If, at any time after 5 years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the Minister.

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Appendix 1

Combined tables of corrective actions, timings, responsibilities and trigger levels

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Weed Control	Primary Control Phase weed control	Removal of woody weeds, particularly noxious weeds from the Conservation Areas, particularly Lantana and African Boxthorn	Weed cover of large infestations to be reduced within 2 years of commencement of weed control program Less mature or flowering/fruited plants remain within 2 years of commencement of weed control program	During periods of active growth At least twice a year until performance targets are met Completed within 36 months of commencement of the Action	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Continue Control Phase weed control
		Removal of non-woody weeds, particularly Green Cestrum, from the Conservation Areas	Weed cover of large infestations to be reduced within 2 years of commencement of weed control program	During periods of active growth At least twice a year until performance targets are met Completed within 36 months of commencement of the Action	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Continue Control Phase weed control

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
		Removal of canopy species (non endemic) from the Conservation Areas	Weed cover of large infestations to be reduced within 2 years of commencement of weed control program Less cover of mature or flowering/fruited plants remain within 2 years of commencement of weed control program	During periods of active growth At least twice a year until performance targets are met Completed within 36 months of commencement of the Action	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Continue Control Phase weed control
	Secondary Consolidation Phase weed control	Consolidation of woody weed control for the Conservation Areas, particularly Lantana and African Boxthorn	Weed cover of weed regrowth and mature or flowering/fruited plants reduced below Primary Control Phase levels	During periods of active growth At least twice a year until performance targets are met	Huntlee Pty Ltd Weed Management Contractor	Large infestations, weed regrowth and secondary infestations, and mature or flowering/fruited plants are at Primary Control Phase levels	Revert back to primary control phase
		Consolidation of non-woody weed control, particularly Green Cestrum, from the Conservation Areas	Weed cover to be reduced to less than Primary Control Phase levels	During periods of active growth At least twice a year until performance targets are met	Huntlee Pty Ltd Weed Management Contractor	Large infestations remain	Revert back to primary control phase

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
		Consolidation of canopy species control (non endemic) within the Conservation Areas	Weed cover of large remaining infestations , Cover of weed regrowth and secondary infestations, and mature or flowering/fruited plants reduced below Primary Control Phase levels	During periods of active growth At least twice a year until performance targets are met	Huntlee Pty Ltd Weed Management Contractor	Large infestations, weed regrowth and secondary infestations, and mature or flowering/fruited plants are at Primary Control Phase levels	Revert back to primary control phase
	Maintenance Phase weed control	Removal of woody weeds from the Conservation Areas, particularly Lantana and African Boxthorn	Weed cover maintained at less than Secondary Control Phase levels	Ongoing Once a year	Huntlee Pty Ltd Weed Management Contractor	Weed cover reaches Secondary Control Phase levels	Revert to secondary control phase targets and frequency of control
		Removal of non-woody weeds, particularly Green Cestrum, from the Conservation Areas	Weed cover maintained at less than Secondary Control Phase levels	Ongoing Once a year	Huntlee Pty Ltd Weed Management Contractor	Weed cover reaches Secondary Control Phase levels	Revert to secondary control phase targets and frequency of control
		Removal of canopy species (non endemic) from the Conservation Areas	Weed cover maintained at less than Secondary Control Phase levels	Ongoing Once a year	Huntlee Pty Ltd Weed Management Contractor	Weed cover reaches Secondary Control Phase levels	Revert to secondary control phase targets and frequency of control

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
Pest Control	Pest Animal Population Assessment	Annual monitoring for pest animal species will be undertaken	Assessment completed	During first round of annual monitoring	Huntlee Pty Ltd Huntlee Conservation Officer	Assessment not conducted	Contractor engaged and assessment conducted with 3 months of original due date of assessment.
	Pest Animal Control	Contractor engaged and management commenced	Controls commenced as per population assessment and monitoring recommendations	Annual or as required	Huntlee Conservation Officer	Pest control not implemented when pest animal population assessment and annual monitoring report has identified the need	Contractor engaged to complete works within 3 months of breach of triggers noted.
	Pest Animal Monitoring	Pest Animal monitoring conducted as part of annual monitoring	Monitoring completed	Annual	Huntlee Conservation Officer	Monitoring not undertaken annually	Contractor engaged and contract to complete works on a fixed schedule developed and signed by both parties.
Commercial Grazing Exclusion	Stock Exclusion	Fence inspection	All boundary fences inspected	Within 3 months of Huntlee Conservation Officer commencing their role	Huntlee Pty Ltd to provide resources Huntlee Conservation Officer to complete action	Fence inspection not conducted within 2.5 months of Huntlee Conservation Officer commencing their role	Huntlee Pty Ltd to provide resources and Huntlee Conservation Officer to ensure action is completed within specified timeframe.

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
						Fence inspection not conducted within 3 months of Huntlee Conservation Officer commencing their role	Huntlee Pty Ltd and Huntlee Conservation Officer to complete action immediately.
		Schedule of works	Huntlee Conservation Officer has developed detailed program of works	Within 3 months of Huntlee Conservation Officer commencing their role	Huntlee Conservation Officer	Fencing schedule of works not developed within 2.5 months of Huntlee Conservation Officer commencing their role.	Huntlee Conservation Officer to ensure action is completed within specified timeframe.
						Fencing schedule of works not developed within 3 months of Huntlee Conservation Officer commencing their role.	Huntlee Pty Ltd to ensure that Huntlee Conservation Officer completes action immediately.
		Installation of Fencing	All fencing installed in accordance with Section 9.	Within 24 months of approval of the commencement of the action	Huntlee Conservation Officer	Within 12 months of approval of this management plan the program is not running to schedule.	Huntlee Conservation Officer to develop a revised schedule to ensure action is completed within specified timeframe. Engage new contractor if necessary

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
						Within 24 months of approval of this management plan the works have not been completed.	Huntlee Pty Ltd to ensure Huntlee Conservation Officer develop program to complete all works within 3 months
		Removal of Stock	All stock removed from conservation areas	Within 3 months of a conservation area's fencing being determined to be adequate for the exclusion of cattle.	Huntlee Conservation Officer	<p>Within one month of a conservation area's fencing being determined to be adequate for the exclusion of cattle agistee not instructed to remove cattle</p> <p>Within 3 months of a conservation area's fencing being determined to be adequate for the exclusion of cattle stock still remain within conservation area</p>	<p>Huntlee Conservation Officer to immediately notify agistee that they must remove cattle within 2 months</p> <p>Huntlee Pty Ltd to provide resources to ensure the immediate removal of cattle.</p>

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
	Monitoring	Initial monitoring to ensure all cattle removed from conservation area	Monitoring conducted at nominated intervals	Weekly for the first month. Then ongoing in conjunction with annual monitoring program.	Huntlee Conservation Officer	Evidence that cattle still occupy conservation area	Fencelines inspected to ensure cattle have not accessed the site from neighbouring properties. Repairs conducted if required. Agistee contacted to ensure all their stock was accounted for. Stock removed from conservation area.
Fence Installation	Unauthorised people, vehicles or stock are unable to access the	Fencing program implemented for boundaries of all Conservation Areas	All fences are installed in accordance with Section 9	Within 12 months of approval of the Conservation Management Plan	Huntlee Pty Ltd	All of the prescribed fences are not installed within 12 months	Huntlee Pty Ltd will complete the fencing program within 6 months

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
	conservation areas		The fences are adequate for the exclusion of unauthorised persons, vehicles and Stock	Within 12 months of approval of the Conservation Management Plan	Huntlee Pty Ltd	If unauthorised persons are observed or reported as being observed within the conservation areas	<p>Establish the validity of the sighting or signs of unauthorised access;</p> <p>If the unauthorised access can be confirmed then determine the nature of the unauthorised access;</p> <p>Inspect the fenceline, gates, and wildlife thoroughfares to ensure they have not been intentionally damaged to access the Conservation Areas or as a result of tree or branch fall;</p> <p>If repairs are required ensure they are carried out as soon as possible;</p> <p>Ensure that the fenceline, wildlife thoroughfares and gates are adequate to exclude unauthorised access and modify if required; and</p> <p>If unauthorised access occurs repeatedly then initiate a</p>
PR105216; / 9 January 2014							

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
			Fences are in a serviceable condition that ensures that they will function as they were intended	Ongoing	Huntlee Pty Ltd Huntlee Conservation Officer	Fenceline is not in serviceable condition	A fencing contractor will be engaged to undertake repairs immediately
	Macropods are freely entering and leaving the Conservation Areas	Macropod thoroughfares installed	The macropod thoroughfares are functioning as intended	Ongoing	Huntlee Pty Ltd Huntlee Conservation Officer	Thoroughfare monitoring establishes that macropod gates are ineffective	Determine why the gates are not being utilised and modify gates accordingly
Pathogen Management	Baseline pathogen assessment conducted	Consultant or Huntlee Conservation Officer to nominate sample sites and complete assessment	All sample sites assessed and pathogen records mapped and controls implemented	Before any works are commenced within the Conservation Areas	Huntlee Pty Ltd Huntlee Conservation Officer	Staff, visitors and contractors access the Conservation Areas other than to conduct the assessment before pathogen assessment conducted	All persons on the Conservation Areas are removed and no works to commence until baseline assessment conducted

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
	All staff, visitors and contractors informed as to the pathogen protocols	Details regarding identification and controls for plant pathogens provided to staff, visitors and contractors in inductions and a fact sheet provided	All staff, visitors and contractors inducted	Before an individual accesses the conservation areas	Huntlee Pty Ltd Huntlee Conservation Officer	Staff, visitors or contractors access the conservation areas without having been inducted	Staff, visitor or contractor removed from Conservation Areas immediately and inducted before being allowed to enter the conservation areas
	Pathogen Hygiene Kit	Pathogen Hygiene kits will need to be acquired	A sufficient number of Pathogen hygiene kits are available for all staff, visitors and contractors accessing the conservation areas	Before any staff, visitors or contractors are to access the conservation areas	Huntlee Pty Ltd to provide resources Huntlee Conservation Officer to complete action	Staff, visitors or contractors access the conservation areas without a pathogen hygiene kit There are insufficient pathogen hygiene kits for staff, visitors and contractors	No staff, visitors or contractors are to access the Conservation Areas until a sufficient number of pathogen hygiene kits are available More pathogen hygiene kits are acquired

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
	Pathogen infection area protocols	Where pathogens are recorded within the conservation areas, control protocols implemented which include mapping and demarcation of infection areas	Pathogen infection areas mapped, demarcated and staff, visitors and contractors informed of their locations and responsibilities when entering those areas	Within a week of pathogens being recorded	Huntlee Conservation Officer	Pathogen infection areas not demarcated, mapped and staff, visitors and contractors not informed of their location and the requirements for accessing these areas	Huntlee Conservation Officer to ensure action is completed within specified timeframe.
	Pathogen Protocol Audits	Conduct regular random audits of contractors to ensure compliance with pathogen hygiene protocols	At least six audits conducted a year, more during periods of high activity	Ongoing	Huntlee Conservation Officer	Audits not carried out throughout the year	Huntlee Conservation Officer to ensure action is completed within specified timeframe.
Revegetation of Cleared Areas	Revegetation	Revegetation of cleared areas	All cleared areas revegetated	Within 10 years of approval of the Conservation Management Plan	Huntlee Pty Ltd	At least 10% of cleared land revegetated every 12 months	Revegetation works in following year to compensate for what was not completed in the preceding year.

Management Activity	Action	Details	Performance Criteria	Timing	Responsibility	Trigger for Corrective Action	Corrective Actions
			Survival of at least 80% of tubestock plantings	Within 24 months of revegetation works		Signs of high mortality rates observed during regular inspections	Watering, mulching to occur immediately or tree guards to be installed where appropriate Replacement of the plants lost at a suitable time of year.
			Revegetated areas composition, structure, and size trending towards baseline values of reference sites	Ongoing		Vegetation not trending towards values of reference sites after 5 years	Additional planting and maintenance to occur to ensure that revegetation trends towards reference site values

Appendix 2

Pathogen Control Protocols

Plant Pathogen Management Program

As introduced plant pathogens, it must be assumed that Phytophthora (*Phytophthora cinnamomi*) and Myrtle Rust (*Uredo rangelii*) are not present in bushland unless there is evidence to the contrary. These uninfected bushland sites need to be protected, as there are no known methods to eradicate or prevent the autonomous spread of Phytophthora and Myrtle Rust from sites once they have become infested.

Disease mitigation options in bushland include hygiene protocols, the application of phosphonate, restriction of access to uninfected areas, the provision of educational resources, effective communication between land managers and land users.

Soil or mud on footwear, clothing, vehicles, tyres, equipment and tools etc, provides the ideal medium to spread plant pathogens. Hygiene protocols seek to limit the human assisted spread of plant pathogens.

Purpose

The purpose of this document is to ensure the plant pathogens Phytophthora and Myrtle Rust do not become established in the Huntlee Conservation Lands which would pose a risk to *Persoonia pauciflora* and its habitat. To achieve this, this document provides a list of actions to prevent the introduction and spread of Phytophthora and Myrtle Rust which will be distributed to contractors and staff entering and / or working within the Huntlee Conservation Lands.

This document will apply to any contractors accessing or working within the conservation lands. How this program will be applied will be dependent on the frequency of access, where the contractor or employee accesses the site from, and where within the conservation lands they access; for example known locations of *P. pauciflora*.

Identification

Phytophthora (*Phytophthora cinnamomi*)



Phytophthora species can invade the roots and crowns of woody trees but foliar symptoms may not become evident for months or even years. Leaves become pale green, wilted and fall readily. Shoots die back from the tips so that eventually the tree is reduced to a bare framework of dying branches. Death of the tree may take from a few months to several years.

Feeder roots are black, decayed and few in number. As infected roots lose the ability to exclude salts, leaf margins in affected trees develop brown, necrotic symptoms typical of salt burn. Under severe waterlogging, rapid decline of trees may occur. The leaves wilt and die, leaving a canopy of brown, dead leaves. A weeping stem canker may occur on the lower trunk.

Zoospores (motile asexual spores) are important for the rapid spread of the pathogen. This occurs when free water is present in the soil or on aerial plant surfaces. *Phytophthora cinnamomi* is mostly soil-borne and can survive in infected roots under adverse conditions for several years. Infection is usually confined to the roots and lower trunk (DAFF 2013).

Some plants are more susceptible to *Phytophthora* than others and these can be used as "indicator" species to detect the possible presence of *Phytophthora*. One of the most susceptible species is *Xanthorrhoea* (Greening Australia).

Myrtle Rust (*Uredo rangelii*)



Myrtle Rust is a Fungal Pathogen that affects plants belonging to the family Myrtaceae including Australian natives like bottle brush (*Callistemon* spp.), tea tree (*Melaleuca* spp.) and eucalypts (*Eucalyptus* spp.).

Myrtle rust is distinctive in that it produces masses of powdery bright yellow or orange-yellow spores on infected plant parts. It infects leaves of susceptible plants producing spore-filled lesions on young actively growing leaves, shoots, flower buds and fruits. Leaves may become buckled or twisted and may die as a result of infection. Sometimes these infected spots are surrounded by a purple ring. Older lesions may contain dark brown spores. Infection on highly susceptible plants may result in plant death (DPI 2013).

Myrtle rust cannot be eradicated and will continue to spread because it produces thousands of spores that are easily spread by wind, human activity and animals.

Resources

Recommended disinfectant products include:

- Non corrosive disinfectants include Coolacide®, Phytoclean® or Biogram® for cleaning footwear, tools, tyres, machinery and other items in contact with soil.
- **70% Methylated spirits in spray bottle for personal use.**
- Sodium Hypochlorite 1% is very effective but can damage clothing and degrades rapidly in light.

Recommended hygiene equipment includes:

- **Spray bottles.**
- Large tubs for dipping footwear and tools.
- **Scraper or coarse brush to remove mud.**

All persons accessing the Huntlee Conservation Areas are to ensure compliance with this process. The items marked in bold above will be made available to contractors who do not have their own kit.

Hygiene Protocols

Provide hygiene protocols to all new workers, contractors and volunteers during the site induction.

General vehicle, equipment, and clothing hygiene will apply in all cases with vehicles with a build-up mud, soil, and plant material. Huntlee Conservation Officer to determine which additional protocols will apply in each case.

A map of all known pathogen infection sites will be provided to all persons accessing the Conservation Areas and signage installed at access points to these areas identifying them as pathogen infection sites.

The below actions are developed from the *Phytophthora cinnamomi* within the Sydney Metropolitan Catchment Management Authority Area fact sheet (Suddaby and Liew, 2008).

To prevent introduction of Plant Pathogens:

- Assume the area you are entering in is free of plant pathogens unless otherwise tested and understand that your activities have the potential to introduce pathogens.
- **To avoid introducing infection, before entering un-infested sites remove excess soil and mud and then spray boots, tools, gloves and small equipment with recommended disinfectant until runoff is clear.**
- Plan works so they begin in non- infested sites and then move on to infested areas.
- Do not import plants unless they are from nurseries accredited with Nursery Industry Accreditation Scheme (NIASA).
- Restrict movement of people, vehicles and equipment. It may be necessary to quarantine areas, either permanently or temporarily (for example when the soil is moist).
- Where possible avoid working in wet conditions. Restrict activities to times when dry soil conditions exist (generally from November – March). Postpone activities in wet weather when feasible.

- Travel only on designated roads and tracks. Avoid entering surrounding bushland.
- Use mulch sourced from disease free native trees and taken from at least one metre above ground level.
- Never import soil or gravel unless it is certified to be free of plant pathogens by a plant disease diagnostic laboratory.
- Restrict access in high value areas, particularly if autonomous spread is unlikely to occur.

To avoid spread of Plant Pathogens from areas of infestation:

- To avoid spreading Plant Pathogens, when leaving infested sites remove excess soil and mud and then spray boots, tools, gloves and small equipment with methylated spirits or disinfectant until runoff is clear.
- On infested revegetation sites, plant species known to be resistant to Phytophthora and Myrtle Rust.
- All vegetative materials stored on site must be in a bunded area, and then removed from site and taken to landfill.
- Do not drive or park vehicles or trailers off established tracks.
- Use vehicle wash down stations when available.
- Ensure effluent from wash down stations does not drain into bushland.
- Use coloured tape to label tools when working in infested sites. Remove tape once tools have been cleaned.
- Where ever possible avoid work on a site if the soil is saturated and mud is likely to adhere to footwear and tools.
- Avoid unnecessary soil disturbance.

Responsibilities

It is the responsibility of Huntlee Pty Ltd to ensure all staff and contractors accessing the site understand their obligations regarding the Plant Pathogen Management Program.

It is the responsibility of the contractor to ensure all their staff are aware of their obligations regarding the Phytophthora Management Program and that all their staff abide by it.

It will be the responsibility of Huntlee Conservation Officer to periodically audit contractors and staff regarding compliance with the Plant Pathogen Management Program.

Reporting

Contractors are responsible for reporting any signs of infection by Phytophthora or Myrtle Rust to the Huntlee Conservation Officer for verification.

To whom this document has been provided to, the audits undertaken, details of any non-conformance and occurrences of known infections will be provided in the Annual Report.

References

Department of Agriculture, Fisheries, Forestry (DAFF), (2013). Phytophthora Root Rot (Fact Sheet).

<http://www.daff.qld.gov.au/plants/fruit-and-vegetables/a-z-list-of-horticultural-diseases-and-disorders/phytophthora-root-rot> Accessed on line on 1/12/2013

Department of Primary Industries (DPI), (2013). Myrtle Rust (Fact Sheet).

<http://www.dpi.nsw.gov.au/biosecurity/plant/myrtle-rust> accessed online 1/12/2013.

Suddaby, T., and Liew, E. (2003), *Phytophthora cinnamomi within the Sydney Metropolitan Catchment Management Authority Area*. Botanic Gardens Trust, Royal botanic gardens, Sydney.

Appendix 3

EPBC Approval 2011/5898



Australian Government
Department of the Environment

Approval

Huntlee New Town Residential Development, Hunter Valley, NSW (EPBC 2011/5898)

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted Huntlee Pty Limited

proponent's ACN (if applicable) 143 744 745

proposed action To develop a new urban settlement known as Huntlee, to be located adjacent to the villages of North Rothbury and Branxton in the Hunter Valley, NSW (see EPBC Act referral 2012/5898).

DECISION to approve:

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approve
Listed migratory species (sections 20 & 20A)	Approve

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 01 January 2038

Decision-maker

name and position The Hon Greg Hunt MP
Minister for the Environment

Signature

date of decision

15/10/2013

Conditions attached to the approval (EPBC 2011/5898)

Maintenance of existing populations of *Persoonia pauciflora* in-situ

1. The person taking the action must protect and manage the **northern population** of *Persoonia pauciflora* establishing a 75 metre buffer of existing native vegetation (limited to the **project area**) around each plant prior to **commencement of the action**.
2. All plants within the **northern population** must be connected by a native vegetation corridor, to be of a minimum width of 150 metres, to each other and to allow connection to conservation areas and/or native vegetation outside of the **project area** (so as to allow for macropod access) prior to **commencement of the action**.
3. The **northern population** and vegetation referred to in Conditions 1 and 2 must be maintained (to protect and conserve both plants and seed bank) in perpetuity or until such time as *Persoonia pauciflora* from the **northern population** have been scientifically verified by an **independent scientific expert** approved by the **Minister**, to have been successfully propagated and surviving in the wild (consistent with the EPBC Act Policy Statement: *Translocation of Listed Threatened Species – Assessment under Chapter 4 of the EPBC Act*) and as defined in these conditions.
4. The person taking the action must arrange for the protection and conservation management of all *Persoonia pauciflora* (including living plants and the in-soil seed bank of known dead or pre-existing plants) in **Conservation Areas 1, 2 and 3** in perpetuity prior to **commencement of the action**.
5. **Conservation Areas 1, 2 and 3** must be protected by a legal instrument under relevant nature conservation legislation on the title of the land. Arrangements to implement this instrument must be approved by the **Department**, in writing, prior to **commencement of the action**. This instrument must:
 - a. provide for the protection of the land in perpetuity;
 - b. prevent any future development activities, including mining and mineral extraction; and
 - c. ensure the active management of the land.
6. All *Persoonia pauciflora* within **Conservation Areas 1, 2 and 3** must be a minimum of 75 metres from the development at the start of the **commencement of the action**.
7. **Conservation Area 2** must be contiguous with **Conservation Area 3** to the west. It must be a minimum of 150 metres wide (north to south).
8. All cleared areas within **Conservation Areas 1, 2 and 3** must be revegetated to Central Hunter Ironbark - Spotted Gum - Grey box forest vegetation type (NSW) (to act as a buffer to the *Persoonia pauciflora*). The revegetated areas must be maintained for conservation purposes.
9. The person taking the action must arrange for the in-perpetuity protection and conservation management of the *Persoonia pauciflora* in Persoonia Park (as identified in the **preliminary documentation**) through an appropriate legal instrument on the title of the land. Arrangements to implement this instrument must be approved by the **Department**, in writing, prior to **commencement of the action**. The northern boundary of Persoonia Park must be designed so that all *Persoonia pauciflora* within Persoonia Park are a minimum of 75 metres away from the northern boundary.

10. The person taking the action must protect by a legal instrument under relevant nature conservation legislation on the title, an area of at least 16.9 hectares at 57 Washery Road (being Lot 47 DP 755211). Arrangements to implement this instrument must be approved by the **Department**, in writing, prior to **commencement of the action**. The legal instrument must:
 - a. provide for the protection of the land in perpetuity;
 - b. prevent any future development activities, including mining and mineral extraction; and
 - c. ensure the active management of the land.
11. The person taking the action must submit for the **Minister's** approval a *Persoonia pauciflora* Population Management Plan to support the conservation management of all known *Persoonia pauciflora* plants and seed banks within the **northern population** (and connecting habitat), **Conservation Areas 1, 2 and 3**, Persoonia Park and the area at 57 Washery Road referred to in Condition 10. This plan must be approved by the **Minister** prior to **commencement of the action**. The plan must be implemented. The plan must include:
 - a. measures to protect and conserve *Persoonia pauciflora* in situ (including living plants and seed bank) to ensure the ongoing survival and recovery of the species, through appropriate management. These measures must be clear, measurable, auditable and time bound;
 - b. measures to discourage unauthorised human access to *Persoonia pauciflora* and its habitat, while still allowing access by macropods;
 - c. measures to encourage the building of community awareness and stewardship of *Persoonia pauciflora*, including appropriate education programs to encourage care and protection of known plants and seed banks.
 - d. clear objectives and performance indicators for the measures referred to in Condition 11a, 11b and 11c;
 - e. costing of the management measures required and demonstration that these will be funded in perpetuity;
 - f. details of the monitoring and reporting to be undertaken to demonstrate the effectiveness of the measures referred to in Condition 11a, 11b and 11c, including the parameters to be monitored, methods, timing, frequency and location of monitoring;
 - g. specific and measurable trigger levels that will result in corrective actions being implemented to prevent the objectives referred to in Condition 11d being compromised;
 - h. corrective actions to be taken should the trigger levels referred to in Condition 11g be exceeded. These must be clear, measurable, auditable and time bound;
 - i. measures to report to the **Department** on any exceedances of identified trigger thresholds, the implementation of corrective actions, and the outcome of these;
 - j. the person responsible for the management actions; and

- k. a description of how the plan will apply to any conservation areas that may subsequently be transferred to a third party for protection and management for conservation.
12. The *Persoonia pauciflora* Population Management Plan must be reviewed by an **independent scientific expert** approved by the **Department** prior to submission.
13. Prior to and within six months of **commencement of the action** the person taking the action must undertake pre-clearance surveys to identify any *Persoonia pauciflora* plants (dead or alive) that are not currently documented and advise the **Department** in writing of any new plants or seed banks that are discovered.
14. The person taking the action must implement measures, consistent with those referred to in Condition 1 and, where applicable, 11a, to be put in place to protect and manage any new plants or seed banks identified as a result of implementing Condition 13.

Management of conservation areas, edge effects, open space and indirect impacts to conservation values

15. The person taking the action must submit a detailed Huntlee Conservation Management Plan to the **Minister** for approval prior to **commencement of the action**. This plan must be approved by the **Minister** prior to **commencement of the action**. The approved plan must be implemented. The Plan must include, but not be limited to, the following requirements:
 - a. restoration and revegetation measures to be implemented in **Conservation areas 1, 2 and 3**, as relating to Condition 8.
 - b. measures to maintain and improve the quality and condition of habitat values in all conservation areas (including **Conservation Areas 1, 2 and 3**), open space and remnant bushland in the project area that support other matters of national environmental significance (other than *Persoonia pauciflora*), including Swift Parrot (*Lathamus discolor*), Regent Honeyeater (*Anthochaera phrygia*), Grey-headed Flying-fox (*Pteropus poliocephalus*) and Slaty Red Gum (*Eucalyptus glaucina*).
 - c. measures to prevent, mitigate and manage all direct and indirect impacts to the natural habitat values to all conservation areas (including **Conservation Areas 1, 2 and 3**), open space and remnant bushland within the project area resulting from the action, including but not limited to measures to avoid, suppress and control the spread of weeds, plant pathogens, invasive species, commercial grazing, domestic pets, unauthorised vehicles, and erosion and sedimentation control;
 - d. measures to prevent changes to hydrological regimes arising from the action that may negatively affect native vegetation;
 - e. any measures that support *Persoonia pauciflora* that are in addition to those included under Condition 11;
 - f. the design of **Conservation Areas 1, 2 and 3**;
 - g. measures in referred to in condition 15a, 15b and 15c must be clear, measurable, auditable and time bound;
 - h. clear objectives and performance indicators for the measures referred to in Condition 15a, 15b and 15c;

- i. details of the monitoring to be undertaken to demonstrate the effectiveness of the measures referred to in Condition 15a;
- j. details of the parameters to be monitored, methods, timing, frequency and location of monitoring;
- k. specific and measurable trigger levels that will result in corrective actions being implemented to prevent the objectives referred to in Condition 15e being compromised;
- l. corrective actions to be taken should the trigger levels referred to in Condition 15h be exceeded. These must be clear, measurable, auditable, and specific timing;
- m. measures to report to the **Department** on any exceedances of identified trigger thresholds, the implementation of corrective actions, and the outcome of these;
- n. the person responsible for the management actions; and
- o. a description of how the plan will apply to any conservation areas that may subsequently be transferred to a third party for protection and management for conservation.

16. The Huntlee Conservation Management Plan must be reviewed by an **independent scientific expert** approved by the **Department** prior to submission.

Funding of a Huntlee Conservation Officer

17. The person taking the action must arrange for and commit to the funding of a Huntlee Conservation Officer, to be employed for no less than 22.5 hours per week for a period of at least 10 years. The person to be employed in this position must possess relevant qualifications and expertise. A plan setting out contractual arrangements for the funding of the role, relevant employment arrangements (including start date) and a duty statement for the position must be provided to the **Minister** prior to the **commencement of the action**. This plan must be approved by the **Minister** prior to **commencement of the action**. The approved plan must be implemented.

18. The roles of the position must include:

- a. coordination and implementation of Condition 11c;
- b. coordination and implementation of actions to support the protection and conservation of *Persoonia pauciflora* consistent with the plans referred to in Conditions 11 and 15; and
- c. contribution to actions that are consistent with the *National Recovery Plan North Rothbury Persoonia* (*Persoonia pauciflora*).

Offsets – *Persoonia pauciflora* (recovery actions)

19. To compensate for the loss of habitat for the *Persoonia pauciflora* and the remaining residual impacts to the species as a result of the action, the person taking the action must provide \$341,700 directly to the NSW Office of Environment and Heritage (or appropriate agency or organisation responsible for implementation of the *National Recovery Plan North Rothbury Persoonia* (*Persoonia pauciflora*) and approved by the **Minister**) prior to **commencement of the action** to fund activities that are consistent with the recovery actions identified in the *National Recovery Plan North Rothbury Persoonia* (*Persoonia pauciflora*).

Offsets – other matters of national environmental significance

20. The person taking the action must dedicate or ensure the transfer of, for the purposes of dedication, the 5791 hectares of conservation offset lands described in the preliminary documentation to National Park (or arrange for and demonstrably commit to an equivalent other arrangement of in-perpetuity protection and management of these offset lands that is consistent with the **Department's** EPBC Act offsets policy). The area of land contained within this 5791 hectares must include appropriate areas of offset lands for each of the following matters of national environmental significance: Swift Parrot (*Lathamus discolor*) and Regent Honeyeater (*Anthochaera phrygia*), the vulnerable Grey-headed Flying-fox (*Pteropus poliocephalus*) and Slaty Red Gum (*Eucalyptus glaucina*).
21. Any land referred to at Condition 20 that is not dedicated to National Park or with an alternative level of protection in perpetuity agreed to by the **Department** must be protected by a legal instrument under relevant nature conservation legislation on the title of the land. Arrangements to implement this instrument must be approved by the **Department**, in writing, prior to **commencement of the action**. The instrument must:
 - a. provide for the protection of the land in perpetuity;
 - b. prevent any future development activities, including mining and mineral extraction; and
 - c. ensure the active management of the land.

Reporting and auditing

22. All survey data collected for the project must be collected and recorded so as to conform to a reasonable standard such that it can be readily used by a third party or to data standards notified from time to time by the **Department**. When requested by the **Department**, the proponent must provide to the **Department** all species and ecological survey data and related survey information from ecological surveys undertaken for matters of national environmental significance. This survey data must be provided within 30 business days of request, or in a timeframe agreed to by the **Department** in writing. The **Department** may use the survey data for other purposes.
23. Within 14 days after the commencement of construction, the person taking the action must advise the **Department** in writing of the actual date of **commencement of the action**.
24. Within three months of every 12 month anniversary of the **commencement of the action**, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **Department** at the same time as the compliance report is published. The person taking the action must also notify any non-compliance with this approval to the **Department** in writing within two business days of becoming aware of the non-compliance.
25. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.

Revisions

26. If the person taking the action wishes to carry out any activity otherwise than in accordance with the plans, as specified in the conditions, the person taking the action must submit to the **Department** for the **Minister's** written approval a revised version of that plan. The varied activity shall not commence until the **Minister** has approved the revised plan in writing. The **Minister** will not approve a revised plan, unless the revised plan would result in an equivalent or improved environmental outcome. If the **Minister** approves the revised plan that plan must be implemented in place of the plan originally approved.
27. If the **Minister** believes that it is necessary or convenient for the better protection of listed threatened species and communities or listed migratory species to do so, the **Minister** may request that the person taking the action make specified revisions to the relevant management plan specified in the conditions and submit the revised plan for the **Minister's** written approval. The person taking the action must comply with any such request. The revised approved plan must be implemented. Unless the **Minister** has approved the revised plan then the person taking the action must continue to implement the originally approved plan, as specified in the conditions.
28. If, at any time after 5 years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the **Minister**.

Publication of plans

29. The person taking the action must maintain accurate records substantiating all activities and outcomes associated with or relevant to the above conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **Department**. Such records may be subject to audit by the **Department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **Department's** website. The results of audits may also be publicised through the general media.
30. Unless otherwise agreed to in writing by the **Minister**, the person taking the action must publish all management plans referred to in these conditions of approval on their website. Each management plan must be published on the website within 1 month of being approved.

Definitions

commencement of the action – means any preparatory works required to be undertaken including clearing vegetation, the erection of any onsite temporary structures and the use of heavy duty equipment for the purpose of breaking the ground for fencing, buildings or infrastructure, but excluding any works for conservation purposes, native revegetation works or the creation of conservation buffers.

Conservation Area 1 – an area of land (currently owned by the proponent) immediately north of the southern portion of Hanwood, bounded on the east side by Wine Country Drive which encompasses known *Persoonia Pauciflora* in this area (as identified on the map at Annexure 1 to these Conditions).

Conservation Area 2 – an area of land (currently owned by the proponent) immediately south of the southern portion of Hanwood, bounded on the east side by Wine Country Drive which encompasses known *Persoonia Pauciflora* in this area (as identified on the map at Annexure 1 to these Conditions).

Conservation Area 3 – an area of land (currently owned by the proponent) of over 400 hectares extending to the west of the southern portion of Hanwood and straddling the local government area border between Singleton and Cessnock (as identified on the map at Annexure 1 to these Conditions).

Department – the Australian Government Department responsible for the *Environment Protection and Biodiversity Conservation Act 1999*.

independent scientific expert – means a scientist with relevant qualifications and expertise who is not affiliated with the proponent or with other parties affiliated with the project of which the action is involved or a part.

Minister – the Minister administering the *Environment Protection and Biodiversity Conservation Act 1999* and includes a delegate of the Minister.

northern population – means all *Persoonia Pauciflora* in the area of the proposed action that is west, north or east of North Rothbury.

Persoonia pauciflora – means *Persoonia Pauciflora* (also referred to as North Rothbury *Persoonia*) and known, recognised hybrids of *Persoonia Pauciflora*. Where applicable this definition extends to include both living plants and the residual soil stored seed bank.

preliminary documentation – means the preliminary documentation submitted by the proponent to the **Department** in October 2012 as part of the EPBC Act assessment process.

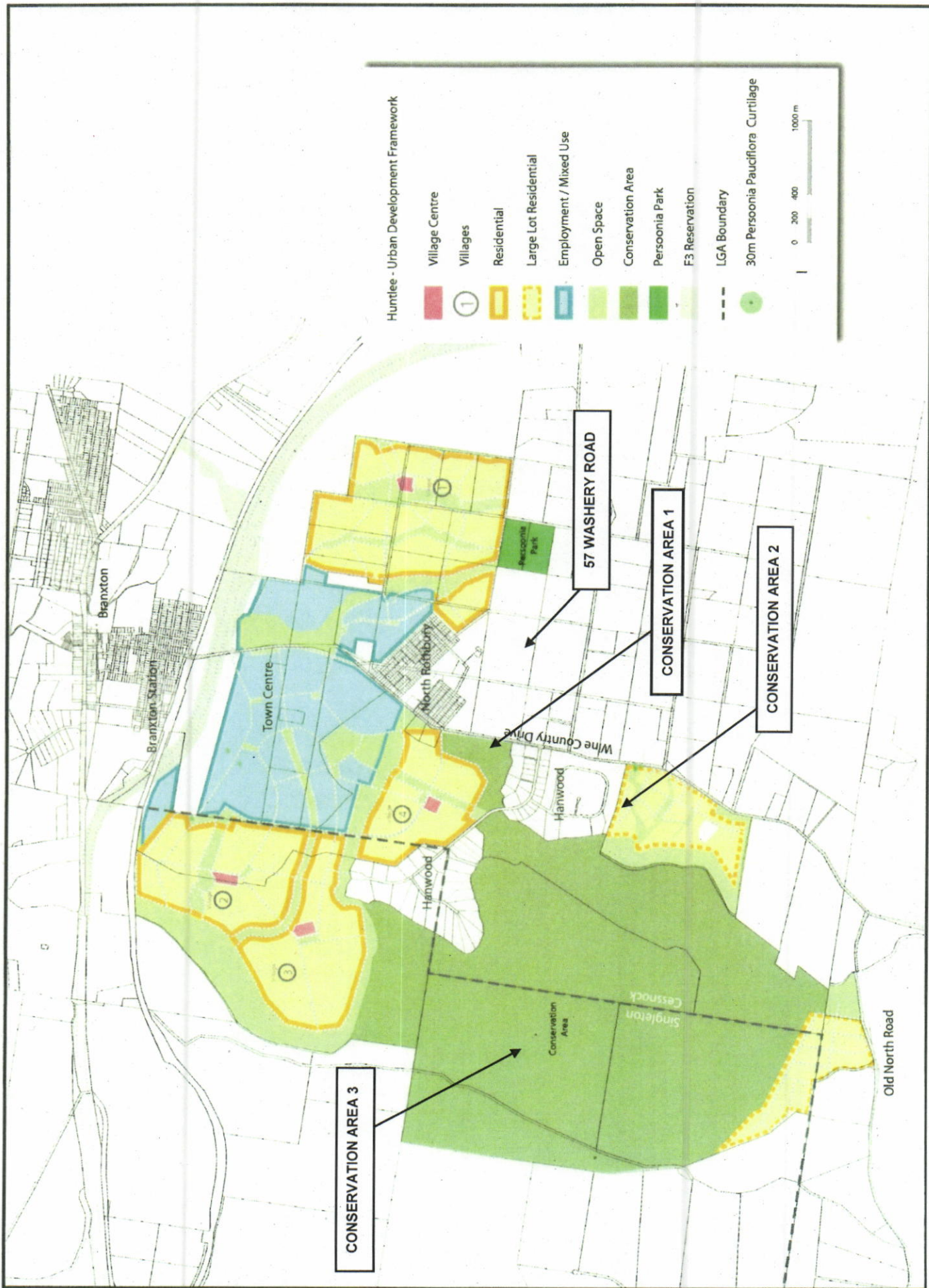
project area – means the area proposed for development and any adjacent or proximate open space, remnant bushland or conservation areas that form part of the proposed action.

successful propagation – means the individual plants involved being of measurable value to the long term conservation of the listed entity, with this value likely to be retained for 50 or 100 years without management input, that is, plants are established with very low risk that this value will diminish without active management (for the purposes of clarity, this meaning can be taken to include, but not be limited to, plants being self-sustaining in the wild, propagating from seed over successive generations). If further definition is required to implement the conditions it should be defined in a way that is consistent with the **Department's** EPBC Act policy statement: *Translocation of Listed Threatened Species – Assessment under Chapter 4 of the EPBC Act*.

Attached to these Conditions:

Annexure 1: Huntlee Project Area, identifying conservation areas for *Persoonia pauciflora*.

Annexure 1: Huntlee Project Area, identifying conservation areas for *Personia pauciflora* (map reproduced from Preliminary Documentation, October 2012, Figure 1-2: Huntlee Development Concept)



Appendix 4

Revegetation Community Profile and Species List

Central Hunter Ironbark – Spotted Gum – Grey Box Forest

The vegetation community description for Central Hunter Ironbark – Spotted Gum – Grey Box Forest (CHISGGBF) was sourced from the Vegetation Survey of “Sweetwater”, North Rothbury, Mid Hunter Valley, New South Wales (Bell, 2006)

Species constantly occurring at high cover abundances (> 2) and frequency (> 50%) for CHISGGBF include *Corymbia maculata*, *Pomax umbellata*, *Eragrostis brownii*, *Aristida vagans*, *Entolasia stricta*, *Dianella revoluta* var. *revoluta*, and *Cheilanthes sieberi* subsp. *sieberi*.

CHISGGBF is characterised by *Corymbia maculata* and *Eucalyptus crebra*, with other unique species including *Allocasuarina luehmannii* and *Eucalyptus tereticornis*. *Eucalyptus fibrosa* also occurs in the CHISGGBF.

CHISGGBF supports a poorly developed shrub layer, and contains the three unique species *Acacia parvipinnula*, *Indigofera australis* and *Cassinia arcuata*. Other species when present occur at significantly lower abundances.

CHISGGBF supports a diverse herb layer, including high frequencies of *Vernonia cinerea* var. *cinerea*, *Laxmannia gracilis*, *Goodenia rotundifolia*, *Oxalis perennans*, *Hibbertia diffusa*, *Solanum prinophyllum*, and *Opercularia diphylla*, in addition to a range of less common but unique species.

CHISGGBF have high abundances and frequencies of the grasses *Eragrostis brownii*, *Entolasia stricta* and *Aristida vagans*. Grass species are far more prevalent in the CHISGGBF, with positively diagnostic species such as *Aristida ramosa*, *Cymbopogon refractus*, *Microlaena stipoides* var. *stipoides*, and *Paspalidium distans* occurring at greater frequencies, together with several other unique species.

CHISGGBF supports high frequencies of *Lomandra multiflora* subsp. *multiflora* and *Lomandra filiformis* subsp. *coriacea*, and the unique *Gahnia aspera*. CHISGGBF supports the unique *Cheilanthes distans* and higher frequencies of *Glycine clandestina*.

Species list for Revegetation Works (Central Hunter Ironbark - Spotted Gum – Grey Box Forest)

Scientific Name	Suggested Density (per 50m x 50m = 2500m ²)
Trees	
<i>Corymbia maculata</i>	3
<i>Eucalyptus tereticornis</i>	3
<i>Eucalyptus crebra</i>	3
<i>Allocasuarina luehmannii</i>	2
<i>Eucalyptus punctata</i>	3
<i>Allocasuarina torulosa</i>	1
<i>Melaleuca decora</i>	2
<i>Eucalyptus fibrosa</i>	4
Shrubs	
<i>Persicaria linearis</i>	1
<i>Grevillea montana</i>	2
<i>Melaleuca nodosa</i>	6
<i>Daviesia ulicifolia</i>	1
<i>Lissanthe strigosa</i>	1
<i>Melichrus urceolatus</i>	1
<i>Hakea sericea</i>	1
<i>Jacksonia scoparia</i>	1
<i>Podolobium ilicifolia</i>	2
<i>Bursaria spinosa</i>	1
<i>Acacia elongata</i>	1
<i>Pimelea linifolia</i>	2
<i>Ozothamnus diosmifolius</i>	1
<i>Maytenus sylvestris</i>	1
<i>Breynia oblongifolia</i>	1
<i>Acacia falcata</i>	1
<i>Acacia brownii</i>	1
<i>Pultenaea spinosa</i>	2
<i>Acacia parviflora</i>	1
<i>Indigofera austral</i>	1
<i>Cassia arcuata</i>	1
Herbs	
<i>Pomax umbellata</i>	2
<i>Phyllanthus hirtellus</i>	2
<i>Hibbertia pedunculata</i>	1
<i>Veronica cinerea</i> var. <i>cinerea</i>	2
<i>Goodenia rotundifolia</i>	2
<i>Laxmannia gracilis</i>	2
<i>Pseuderanthemum variabile</i>	2

Scientific Name	Suggested Density (per 50m x 50m = 2500m ²)
<i>Chorizema parviflorum</i>	1
<i>Pratia purpurascens</i>	2
<i>Caesia parviflora</i> var. <i>parviflora</i>	1
<i>Tricoryne elatior</i>	1
<i>Poranthera microphylla</i>	1
<i>Lagenifera stipitata</i>	2
<i>Brunoniella australis</i>	2
<i>Oxalis perrenans</i>	2
<i>Hibbertia diffusa</i>	1
<i>Solanum prinophyllum</i>	1
<i>Opercularia diphylla</i>	2
<i>Chrysocephalum apiculatum</i>	1
<i>Dichondra repens</i>	2
<i>Phyllanthus virgatus</i>	1
<i>Stackhousia viminea</i>	2
<i>Eremophila debilis</i>	2
<i>Veronica plebeia</i>	1
<i>Calotis lappulacea</i>	2
<i>Commelina cyanea</i>	1
<i>Wahlenbergia communis</i>	1
<i>Glossogyne tannensis</i>	1
<i>Desmodium varians</i>	2
<i>Zornia dyctiocarpa</i> var. <i>dyctiocarpa</i>	1
Murd gram	2
Grasses	
<i>Eragrostis brownii</i>	2
<i>Entolasia stricta</i>	2
<i>Aristida vagans</i>	3
<i>Themeda australis</i>	2
<i>Panicum simile</i>	1
<i>Imperata cylindrica</i> var. <i>major</i>	1
<i>Dichelachne micrantha</i>	1
<i>Digitaria ramularis</i>	1
<i>Austrodanthonia setacea</i>	2
<i>Aristida ramosa</i>	3
<i>Cymbopogon refractus</i>	2
<i>Microlaena stipoides</i> var. <i>stipoides</i>	2
<i>Paspalidium distans</i>	2
<i>Panicum effusum</i>	2
<i>Echinopogon caespitosus</i> var. <i>caespitosus</i>	2
<i>Cynodon dactylon</i>	2

Scientific Name	Suggested Density (per 50m x 50m = 2500m ²)
<i>Chloris truncata</i>	1
Sedges	
<i>Dianella revoluta</i> var. <i>revoluta</i>	2
<i>Lepidosperma laterale</i>	2
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	2
<i>Patersonia sericea</i>	1
<i>Lomandra longifolia</i>	1
<i>Lomandra glauca</i>	2
<i>Lomandra confertifolia</i>	2
<i>Fimbristylis dichotoma</i>	2
<i>Lomandra multiflora</i> subsp. <i>multiflora</i>	2
<i>Lomandra filiformis</i> subsp. <i>filiformis</i>	2
<i>Gahnia aspera</i>	1
Ferns	
<i>Cheilanthes sieberi</i> var. <i>sieberi</i>	2
<i>Cheilanthes austrotenuifolia</i>	1
<i>Cheilanthes distans</i>	2
Cycads	
<i>Macrozamia flexuosa</i>	1
Vines	
<i>Cassytha glabella</i> forma <i>glabella</i>	1
<i>Hardenbergia violacea</i>	1
<i>Glycine clandestina</i>	2
<i>Billardiera scandens</i>	1
<i>Glycine tabacina</i>	2