Lot A in DP 392643 Burley Road
Horsley Park Employment Precinct

Concept Plan & Concurrent Project Application
for
Employment Lands & Stage 1 Industrial Development

Ecological Issues & Assessment Report

19th November 2010

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TABLE of CONTENTS

LOT A in DP 392643 BURLEY ROAD
HORSLEY PARK EMPLOYMENT PRECINCT

CONCEPT PLAN & CONCURRENT PROJECT APPLICATION
for
EMPLOYMENT LANDS & STAGE 1 INDUSTRIAL DEVELOPMENT

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19th November 2010

Statement of Veracity

The principal author of this *Ecological Issues & Assessment Report* (Mr F Dominic Fanning) states that this *Report* represents the true circumstances and condition of the natural environment and native biota on the subject site, and in its immediate vicinity, to the extent that those ecological circumstances are 'knowable' at any point in time, and on the basis of the information available to the author.

The information in the *Report* includes an array of data provided by other experts and consultants, the truth and accuracy of which I cannot vouchsafe. It also includes data provided by the DECCW, which I accept at face value.

I also note that as a regular expert witness in the Land & Environment Court of NSW, I always apply the *Expert Witness Directions* and the *Uniform Civil Procedures Rules* to every project with which I am involved. I note in particular that in every instance I prepare my *Reports* on the basis of my own opinions and assessment, irrespective of the desires, opinions or goals of the proponent or of any government agency (or any other person).

F Dominic Fanning
Director – Environmental InSites

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PART A INTRODUCTION & INFORMATION BASE

1 INTRODUCTION

1.1 Background

The site that is the subject of this *Ecological Issues & Assessment Report* is Lot A in DP 392643 Burley Road, Horsley Park (Figure 1). The subject site is located within the Local Government Area (LGA) of Penrith:

- to the south of the Sydney Water Supply Pipeline;
- to the east of Mamre Road; and
- to the west of Wallgrove Road.

The subject site is an 'L' shaped parcel of land with access from Old Wallgrove Road, at its northeastern corner. The site occupies a total area of approximately 100 hectares, and is zoned predominantly *IN1 – General Industrial* pursuant to *State Environmental Planning Policy* (*Western Sydney Employment Area*) *2009* (the 'SEPP'), although there is one area of land zoned *E2 – Environmental Protection* (Figure 2).

The site has been used for grazing over a long period (at least 70 years), and as a result has been largely cleared of native trees and most of its native groundcover vegetation. Mature trees only exist as scattered paddock specimens (Figure 3). There is one small drainage line present (see Chapter 3), and two farm dams. There is also a small residential dwelling in the southeast of the subject site, and some associated buildings associated with the agricultural practices of the site.

1.2 Definitions

The definitions for relevant terms employed in this *Report* are:

- "*subject site*" Lot A in DP 392643 Burley Road, Horsley Park
- "*study area*" the "*subject site*" and adjoining lands
- "*locality*" an area of 10km radius around the "*subject site*"

Other terms used in this *Report* conform to the definitions contained in the relevant legislation and planning instruments (see below and the *Bibliography*).

1.3 Proposed Development

The overwhelming majority of the subject site at Horsley Park is currently zoned *IN1 – General Industrial* pursuant to *State Environmental Planning Policy* (*Western Sydney Employment Area*) *2009* (the 'SEPP'). A small portion of the site on the western boundary is zoned *E2 – Environmental Conservation* pursuant to the SEPP (Figure 2).

On the basis of the current zoning of the subject site (Figure 2), and on the basis of relevant considerations with respect *inter alia* to ecological issues and potential constraints, the subject site is proposed to be developed in a staged manner as an employment precinct (Figure 4). The proposal is the subject of an application to the NSW Minister for Planning through the Department of Planning (DoP), pursuant to Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

The *Part 3A Application* for development of the subject site consists of two principal elements:

- a *Concept Plan* (10_0129) for the whole of the subject site, which –

  identifies the general industrial layout, indicative building pads, a road hierarchy and relevant management elements, including stormwater control features, services delivery and the general approach to bushfire protection and management of the E2 zone, and landscape management throughout the site (Figure 4); and

- a *Project Application* for Stage 1 of the *Concept Plan* (10_0129), which includes *inter alia*:
  - an access road from the end of Old Wallgrove Road along the alignment of Burley Road into the northeastern corner of the subject site;
  - an industrial building on an allotment in the northeastern corner including truck manoeuvring areas, carparking and landscaping;
  - relevant design features including building design, stormwater management, parking and physical features; and
  - a detailed landscaping protocol for the *Stage 1 Project Application* by Clouston Associates (Figure 5).

In addition to the ecological issues, which are addressed in this *Ecological Issues & Assessment Report*, a range of detailed investigations and reports have been prepared for the Part 3A *Applications*. Of relevance with respect to the consideration of ecological issues, and the potential impacts of development activities on the subject site at Horsley Park, are:

- the *Bushfire Hazard Assessment Report* for the project and the recommendations contained therein (ABPP 2010);
- the stormwater management and treatment regime contained in the *Report* by Brown Consulting (2010);
- the *Landscape Plan* for the project (Clouston Associates 2010); and
- peripheral issues raised in a number of other *Reports*, including *inter alia* the road engineering and aboriginal heritage *Reports*.

1.4 Scope and Aims of this Report

The scope of this *Ecological Issues & Assessment Report* (EIAR) with respect to the subject site at Horsley Park is:

- to collate existing relevant information regarding the subject site and adjoining lands;
- to undertake a search of the DECCW[1] *Atlas of NSW Wildlife* and to review the NPWS[2] 2002 mapping of vegetation in western Sydney (Figure 6);
- to undertake a search of the DEWHA[3] web database regarding *Matters of National Environmental Significance* (MNES) listed in the EPBC Act *Environmental Protection & Biodiversity Conservation Act 1999* (EPBC Act);
- to consider the likely impacts of future development of the subject site on the natural environment in general, and on threatened biota and their habitats in particular;
- to address the requirements of the *Director-General's Requirements* (DGRs) for the Part 3A *Environmental Assessment Report* for the proposal, referred to by the Department of Planning (DoP) as *Concept Plan 10_0129* and *Major Project 10_0130*; and
- to address the relevant requirements of:
    - the *Environmental Planning & Assessment Act 1979* (EP&A Act);
    - the *Threatened Species Conservation Act 1995* (TSC Act); and,
    - the *Environmental Protection & Biodiversity Conservation Act 1999* (EPBC Act).

The specific aims of this *Ecological Issues & Assessment Report* are:

- to determine the relevance of the subject site and/or elements within it for native biota and with respect to biodiversity conservation;
- to identify ecological constraints and/or issues which either would constrain the industrial development footprint and/or would identify matters that need particular consideration in the development design (particularly with respect to stormwater discharges and possibly to bushfire protection);
- to determine an appropriate and reasonable development outcome which *inter alia* maintains any biodiversity values on the subject site (if present) and also facilitates the protection and/or enhancement of any such biodiversity values; and
- to assist in the provision of an appropriate and balanced development outcome which *inter alia* is sensitive to any biodiversity conservation values present on the subject site.

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[1] DECCW – the NSW Department of Environment, Climate Change & Water, which was previously in part the Department of Environment & Climate Change (DECC) and prior to that the Department of Environment and Conservation (DEC). The DECCW incorporates the NSW National Parks & Wildlife Service (NPWS) and the NSW Office of Water (NoW) and part of the Department of Natural Resources (DNR).

[2] NPWS – NSW National Parks & Wildlife Service, now part of the DECCW.

[3] DEWHA – the Commonwealth Department of Environment, Water, Heritage & the Arts.

2 INFORMATION BASE

This *Environmental Issues & Assessment Report* is based on a variety of sources of information, including *inter alia*:

- several inspections of the subject site by the principal author of this *Report* (in 2008 and 2010);
- a dedicated survey of the subject site for flora and fauna, undertaken on the 23rd of July 2010 by Environmental InSites staff;
- previous investigations on other similar lands in the general vicinity and *Reports* prepared therefore, including *inter alia*:
    - ecological investigations at Templar Road, Erskine Park (Environmental InSites 2008);
    - investigations on Lot 5 Ropes Creek (to the north of the subject site) over a number of years, and a current *Ecological Issues & Assessment Report* for that site (Environmental InSites 2010);
    - ecological investigations on Lot 4 (to the north of Lot 5 Ropes Creek) for Land & Environment Court *Proceedings* in 2009 (by the principal author of this *Report*); and
    - a variety of investigations undertaken by Gunninah Environmental Consultants and/or Environmental InSites, involving the principal author of this *Report*, within the *Erskine Park Employment Area* and on other developments along Old Wallgrove Road and the old Australian Wonderland site (to the northeast).

In addition to those investigations, a range of additional information and data has been inspected, including *inter alia*:

- the Wildlife Atlas of the DECCW, within a 10km radius of the subject site at Horsley Park;
- information regarding *Matters of National Environmental Significance* (MNES) listed on the EPBC Act website within 10km of the subject site;
- the mapping of vegetation in western Sydney by the DECCW (Figure 6);
- information contained on the DECCW website with respect to threatened biota, *Recovery Plans* and "*key threatening processes*"; and
- information regarding threatened biota and general native biota contained in the scientific and published literature.

3 EXISTING ENVIRONMENT

3.1 The Concept Plan

The subject site at Horsley Park (the subject of the *Concept Plan*) is undulating grazing land, with gentle to moderate slopes and elevations ranging from high points at between 80m and 90m AHD (in the northern part of the site and around the southern and southeastern boundaries) to the lower gullies (in the central western part of the site and in the northeastern corner), which are at between 65m and 67m AHD (see Topographic Plan).

The subject site contains a number of small ridges or hilltops, including:

- a ridge across the northern part of the site and in the northwestern corner;
- a ridge with a series of hilltops along the southern part of the subject site; and
- a number of ridgetops or high points on the eastern side and in the central-northern part of the southern portion of the site, with elevations of about 85m AHD.

The landform of the site (see *Contour Map* of JBA above) is:

- a low ridge through the northern part of the site, which creates gentle slopes to the northeast and southwest; and
- a 'bowl' in the southern part of the site, which constitutes the catchment of the small drainage line which drains to Ropes Creek.

A small drainage line (Figure 3) flows from the larger southern part of the site, in an east-west direction towards Ropes Creek, which is located several hundred metres to the west of the subject site (Figure 3). That drainage line is (as discussed in detail below) highly modified and degraded, and drains a catchment which is predominantly confined to the southern part of the site, as well as the 5-acre lots to its immediate east. The drainage line is located within the *E2 - Conservation Zone*. There is a large farm dam in the southern part of the site, which is characterised by an expanse of open water and fringing vegetation of sedges and reeds (Figure 3).

There are no other 'watercourses' on the subject site, although there is a second small farm dam on the western boundary of the northern part of the site (Figure 3).

The overwhelming majority of native vegetation on the subject site has long been removed, and the site has long been used for grazing and other agricultural purposes. Substantial parts of the site have been ploughed and planted with oats as stock feed, and there are only a very few scattered trees throughout the pasture.

A narrow band of scattered trees is located within the *E2 - Conservation Zone* (Figure 3). The understorey in this area is of sedges, grasses and weeds, and the drainage line is in very poor condition. Upstream of the farm dam, the drainage lines contain only a few scattered trees, and a narrow degraded groundcover (see photographs below).

3.2 Stage 1 Project Application Area

The northeastern corner of the subject site (the area of the *Stage 1 Project Application* – Figure 5) is a gentle north-facing slope descending from the ridge across the northern part of the site towards the northern boundary (Photo 1). That part of the subject site contains no native vegetation or watercourses (Figure 3), and there are no hollow-bearing trees present (Figure 8).

Photo 1 Looking north over the northeastern part of the subject site, from the southern edge of the *Stage 1 Project* site. This land is the location of the *Stage 1 Project Application* proposal for the construction of an industrial building and associated features, including an access road into the northeastern corner of the site (at the middle right of the photo).

Photo 2 Looking south over the subject site from the upper (southern) edge of the *Stage 1 Project* site. The 'dense' trees in the centre right of the photograph are associated with the drainage line to Ropes Creek to the west of the subject site. The large farm dam is located to the left of the scattered trees in the centre of the photograph.

Photo 3 The small farm dam on the western boundary, with the low northern ridge to the right. Photograph taken looking west from the southern edge of the *Stage 1 Project* site.

Photo 4 The main farm dam in the southwest of the subject site, with the trees in the *E2 – Conservation Zone* land to the right.

Photo 5 Looking southeast into the southeastern part of the subject site. This 'bowl' drains into the large farm dam in the southwest of the site (in the right of picture).

4 FLORA and VEGETATION

4.1 Existing Vegetation

As indicated above, the overwhelming majority of the subject site (approximately 98%) has long been cleared and managed for grazing and other agricultural activities. Thus, the majority of the site is characterised by introduced pasture grasses and pasture weeds, with only a few scattered trees remaining through the paddocks (Figure 3).

There are two farm dams present which support aquatic and semi-aquatic vegetation and habitats, and there is a narrow band of highly degraded riparian vegetation located in the *E2 – Conservation Zone* along the drainage line to the west of the large farm dam. Upstream of that dam, vegetation in the highly degraded drainage line consists of a few very scattered trees, stands of sedges and introduced pasture grasses (Figure 3).

The subject site supports four vegetation types (Figure 7):

- Community 1 – Low Closed Grassland (Pasture), which occupies the overwhelming majority of the site (approximately 98%);
- Community 2 – Degraded Riparian Woodland, which is confined primarily to the *E2 – Conservation Zone*. The extremely degraded drainage line above the dam is an even less relevant subset of this vegetation type;
- Community 3 – Highly Degraded Drainage Lines, along the upper part of the drainage line in the southwestern part of the site; and
- Community 4 – Artificial Freshwater Wetland, which occupies the two farm dams, in the western and southwestern parts of the site.

Community 1 – Low Closed Grassland (Pasture)

The Low Closed Grassland (Pasture) vegetation type occupies the overwhelming majority of the subject site (approximately 98%), and has long been managed for agricultural purposes. Whilst the land doubtless originally supported a eucalypt woodland typical of western Sydney, there is little of that original vegetation type extant on the site other than a few scattered trees and the narrow band of degraded riparian woodland in the *E2 – Conservation Zone* (Figure 3).

Substantial parts of the site are used for the production of stock feed, particularly oats (see Photos 1-5), including all of the *Stage 1 Project Application* area (see Photo 1). Beyond those areas which have been ploughed and sown with oats, the grassland is dominated by the introduced pasture species Paspalum *Paspalum dilatatum*, Parramatta Grass *Sporobolus africanus*, Fire-weed *Senecio madagascariensis*, Kikuyu *Pennisetum clandestinum*, Slender Pigeon Grass *Setaria gracilis*, Lamb's Tongue *Plantago lanceolata*, White Clover *Trifolium repens,* Narrow-leaved Carpet Grass *Axonopus fissifolius*, Small-flowered Mallow *Malva parviflora*, Paddy's Lucerne *Sida rhombifolia* and African Love Grass *Eragrostis curvula*. Relatively sparse common native groundcover species are also present (Appendix C).

A few isolated Narrow-leaved Ironbark *Eucalyptus crebra* specimens are present in the southeastern portion of the site. A small number of mature Large-leaved Privet *Ligustrum lucidum* specimens are also located in the northwestern portion of the site, along an old paddock fence.

This community does not represent any native vegetation assemblage, and is the result of historic and ongoing clearing and agricultural activities.

Photo 6 Low Closed Grassland (Pasture).

Community 2 – Degraded Riparian Woodland

This vegetation type is located in the *E2 – Conservation Zone*.

The community is restricted to a narrow and discontinuous linear band associated with a small incised drainage channel. The canopy is sparse due to historic clearing and grazing, and has a foliage cover of <10%. Trees present in this narrow band of woodland include Swamp Oak *Casuarina glauca*, Narrow-leaved Ironbark *Eucalyptus crebra*, Cabbage Gum *Eucalyptus amplifolia* subsp. *amplifolia* and Broad-leaved Apple *Angophora subvelutina*.

The shrub layer has been removed due to historic and on-going agricultural activities. The ground layer is disturbed and dominated by Sharp Rush *Juncus acutus* along with a mixture of native and exotic species including Creeping Saltbush *Atriplex semibaccata*, Water Buttons *Cotula coronopifolia*, Water Couch *Paspalum distichum*, Common Couch *Cynodon dactylon*, Slender Knotweed *Persicaria decipiens, Juncus planifolius*, Wild Aster *Aster subulatus* and *Juncus usitatus*.

Photo 7 Degraded Riparian Woodland downstream of the main farm dam in the southwest of the site. Note the substantial levels of disturbance and degradation

Community 3 – Highly Degraded Drainage Lines

The upper parts of the drainage line in the south of the site has been extremely modified as a result of historical and ongoing agricultural practices. This area is virtually devoid of trees or shrubs, and is characterised by a narrow band of native and introduced sedges and grasses, with stands of Sharp Rush *Juncus acutus* dominant and a range of other sedges, pasture grasses and native and/or introduced groundcover species (Appendix D).

These areas do not represent examples of any listed "*endangered ecological community*", and have extremely little ecological value. Further, they do not warrant protection or retention given their very narrow conformation, the extremely high levels of long-term disturbance and degradation, and their lack of connectivity to any relevant vegetation upstream.

Photo 8 The highly degraded upper part of the northern drainage line on the subject site, in the left of the photo, above the dam. Note the lack of shrubs and trees and the sparse groundcover layer.

Community 4 – Artificial Freshwater Wetland

This vegetation type is located in the two farm dams on the site.

The largest dam, located in the central southern portion of the site, is dominated by the exotic sedge species Sharp Rush *Juncus acutus* along the eastern and southern edges, with Tall Spike Rush *Eleocharis sphacelata* in western portion of the dam. Shallow parts of this dam contain Slender Knotweed *Persicaria decipiens*, Water Ribbons *Triglochin procerum* and Swamp Lily *Ottelia ovalifolia*.

The dam in the central western portion of the site is species poor, with Tall Spike Rush *Eleocharis sphacelata* as the dominant species and small numbers of the Sharp Rush in the shallows.

This vegetation type does not constitute an example of any listed "*endangered ecological community*".

Photo 9 Artificial Freshwater Wetland in the main farm dam in the southwest of the site.

4.2 Plant Species

A total of 95 plant species have been recorded on the subject site at Horsley Park, of which 57 (60%) are exotic (Appendix C). The majority of the plant assemblage, and the majority of the vegetation cover, is of introduced species associated with grazing pastures and agricultural practices.

4.3 NPWS (2002) Vegetation Mapping

The NPWS (2002) mapping of vegetation in western Sydney has identified a small area of Alluvial Woodland on and immediately adjacent to the western boundary of the site, downslope of the main farm dam, and three very small patches of Shale Hills and Shale Plains Woodland on the southern and southeastern boundaries of the site (Figure 6).

Whilst some of the Alluvial Woodland mapped by the NPWS (2002) may constitute an example of the REFCF community (see Chapter 4.4), there is no vegetation present anywhere on the site which would conform to either the Shale Hills Woodland or the Shale Plains Woodland (Figure 7). The mapped Alluvial Woodland has been incorporated within the *E2 - Conservation Zone* in the southwestern part of the subject site.

It is to be noted that the NPWS (2002) mapping of vegetation in western Sydney is broad scale and generic, and was generated using (now dated) aerial photography, with only limited ground-truthing. It is extremely unlikely that the vegetation mapped by the NPWS on the subject site was ever ground-truthed (given its marginal condition and value), and the NPWS mapping does not reflect the vegetation currently present on the site.

As is always the case, empirical data and information from current on-site investigations on any site supercedes and over-rides the generic and dated NPWS 2002 vegetation mapping.

4.4 Threatened Plants and Endangered Ecological Communities

No threatened flora species have been recorded from the subject site, and no such species are likely to be present, given the intensive and long-term agricultural practices undertaken on the site.

There are no relevant "*endangered populations*" of any plant species in the locality.

Vegetation in the farm dams on the subject site does not constitute an example of an "*endangered ecological community*" (EEC) listed in the TSC Act.

The NPWS (2002) mapping (Figure 6) identifies small areas of Shale Plains and Shale Hills Woodland in the southern part of the subject site. However, there is no woodland in these locations presently, and the few scattered trees with pasture grasses and some limited native groundcover species does not conform to the Cumberland Plain Woodland (CPW) community because of the levels of disturbance and the lack of ecosystem functionality (Figure 7; Appendix A).

The degraded riparian vegetation in the *E2 - Conservation Zone* downstream of the large farm dam in the southern part of the subject site was mapped by the NPWS (2002) as Alluvial Woodland Type 11 (Sydney Coastal River-flat Forest). That community was subsumed into the REFCF "*endangered ecological community*" (EEC) in 2005. That vegetation in parts exhibits some of the floristic

characteristics of the EEC known as River-flat Eucalypt Forest on Coastal Floodplains (REFCF) and/or Swamp Oak Floodplain Forest (SOFF).

However, that vegetation on the subject site does is not regarded as an example of the REFCF community or the SOFF community because none of the land along or adjacent to this part of Ropes Creek constitutes a "*coastal floodplain*". The subject site is located approximately 35km upstream of the Hawkesbury River (at Windsor), and cannot reasonably be said to be located on a "*coastal floodplain*".

The vegetation on the subject site, therefore, does not constitute either the REFCF community or the SOFF community.

Notwithstanding above considerations, it is noted that the riparian vegetation in question (Figure 7) is contained within that part of the subject site which has been zoned *E2 – Environmental Conservation*, and is to be retained in any case. The inclusion of that minor and highly degraded drainage line in areas zoned *E2 – Environmental Conservation* is not justified on ecological grounds.

5 FAUNA and FAUNA HABITATS

5.1 Fauna Habitats

As discussed above, the subject site is highly modified, consisting predominantly of cleared land, paddocks sown with oats and grazed pasture. A small section of highly disturbed riparian woodland is located in the *E2 - Conservation Zone*. However, this small narrow band of riparian vegetation is too small and disturbed to provide habitat of relevance or particular value for forest-dependent fauna.

The fauna species recorded on the subject site consist predominantly of highly mobile bird species and amphibians which are common in modified or disturbed environments, or in grasslands and farm dams in rural and peri-urban environments.

The farm dams on the site provide suitable habitat for a variety of wetland, wading and aquatic species, such as the Pacific Black Duck, Maned Duck, Hoary-headed Grebe, Dusky Moorhen and Purple Swamphen. These are widely distributed, and common to abundant, species recorded regularly throughout the Sydney Basin.

The farm dams also provide habitat opportunities for some amphibian species, specifically those that are able to adapt to life in disturbed environments (such as the Common Eastern Froglet, the Striped Marsh Frog and Peron's Tree Frog).

There are only a very few hollow-bearing trees present on the subject site at Horsley Park, located within the paddocks in southwestern part of the site (around or close to the large dam) as isolated specimens (Figure 8). These features provide potential habitat for a number of native (including threatened) fauna species, particularly including microchiropteran bats. However, such resources are also likely to be utilised by more common native species recorded on the subject site (such as the Maned Duck), and in urban areas are also often utilised by invasive and aggressive pest species (such as the Common Mynah and European Honey Bee).

5.2 Fauna Species

The fauna assemblage which has been recorded from the subject site at Horsley Park is understandably depauperate, given the nature and condition of the subject site in general and the nature and types of vegetation present.

Because of the extremely limited resources and habitat features for native biota present on the subject site, and the highly degraded nature and condition of the site, only a restricted suite of fauna species would be expected to occur, even on an occasional basis. A total of 37 native fauna species have been recorded on the subject site at Horsley Park during the various investigations undertaken to date (Appendix D). These species can be divided into two main categories:

- fauna species associated with the farm dams and aquatic habitats; and
- native species associated with open grasslands and/or sparse degraded woodlands.

A total of 37 bird species have been recorded on the subject site, of which 4 (Appendix D) are introduced pest species. Of the remaining avifauna:

- an array of species are associated predominantly with open grassland habitats (*eg* the Masked Lapwing, Long-billed Corella, Australian Magpie and Richards Pipit);
- a second suite of birds associated with trees or shrubs within grassland habitats (*eg* the Willie Wagtail, Magpie-lark, Noisy Miner, Eastern Rosella and Striated Pardalote); and
- a further suite of species associated with aquatic and semi-aquatic habitats in the farm dams (including ducks, Grebes, the Purple Swamp Hen and the Black-winged Stilt).

In addition, two wide-ranging raptors typical of grassland and open woodland communities have been recorded over the subject site (the Brown Falcon and Australia Kestrel). These species are typical of agricultural environments in western Sydney, and are widely distributed.

Three amphibian species were recorded in the farm dams on the subject (the Common Eastern Froglet, Striped Marsh Frog and Pink-striped Frog). Notwithstanding the presence of records of the Green & Gold Bell Frog in the Wildlife Atlas within 10km, the farm dams present do not provide potential or likely quality habitat for this species, given the lack of over-wintering or shelter habitat.

The only reptile species recorded on the subject site is the Grass Sun-skink *Lampropholis delicata*, but a number of other reptile species would likely occur on occasions or during appropriate seasons. The Red-bellied Black Snake was recorded on Lot 5 (to the north of the subject site) on the same day, and it is likely that this species is present on the subject site along the minor drainage line and around the farm dams. A number of other widespread reptiles (such as the Eastern Blue-tongued Lizard and Jacky Lizard) would also be expected to occur.

The subject site is not of value or particular relevance for any native mammal species other than the Eastern Grey Kangaroo. This species has been recorded on lands in the general locality, although many of the individuals present are likely to be escapees from either the ADI site to the northwest or the old Australian Wonderland site to the northeast.

Highly mobile and widespread species (such as a number of microchiropteran bats and the Grey-headed Flying Fox) could also potentially or theoretically occur on the subject site on occasions. However, whilst individuals of a few microchiropteran bat species could potentially utilise part of the subject site either for foraging (along the scattered tree canopy on the small drainage line or around

the farm dams) or could roost in the hollow-bearing trees on the site, the resources present are miniscule by comparison to those available through the general landscape. There are no relevant resources present for the Grey-headed Flying Fox.

5.3 Threatened Species

As indicated above, no threatened fauna species have been recorded within or adjacent to the subject site. Further, the subject site does not provide significant habitat or resources for any threatened fauna species, due to the highly disturbed condition of the vegetation and the isolation of the site from large areas of vegetation, as well as the habits and the habitat requirements of potentially relevant species.

Whilst there are some extremely limited roosting resources for microchiropteran bats on the subject site (by way of hollow-bearing trees), and the extremely limited tree canopy on the subject site represents (marginal) potential foraging habitat for microchiropteran bats, the vegetation present and/or to be removed represents only a minute fraction of the home range or the available foraging habitat for any such species.

6 GENERAL CONSIDERATIONS

6.1 Site Value and Potential Impacts

The proposed development on the subject site at Horsley Park, which is the subject of a *Part 3A Application* for both a *Concept Plan* and a *Stage 1 Project Plan*, has been designed in accordance with the recent zoning of the subject site pursuant to *State Environmental Planning Policy* (*Western Sydney Employment Area*) *2009* (the 'SEPP'). That zoning of the subject site, approved by the Department of Planning (DoP), identifies the majority of the subject site for general industrial development purposes, and a small area of *Environmental Conservation* land (zoned E2) along the small tributary in the southwestern portion of the subject site (Figure 2).

As discussed in some detail in this *Report*, the overwhelming majority of the subject site has long been highly modified and degraded (from an ecological perspective) for grazing and agricultural purposes. The overwhelming majority of the site constitutes either pasture grassland or sown oats as stock fodder (Figure 3). Those features also characterise the whole of the *Stage 1 Project Application* area (Photo 1; Figure 5).

There is little native vegetation present, and that currently extant on the subject site involves a few scattered paddock trees, aquatic and emergent sedges and rushes in two farm dams, a very narrow band of sedges and Spike Rush upstream of the main (southern) farm dam, and a highly degraded and depauperate narrow riparian woodland in the *E2 - Conservation Zone*, downstream of the dam.

The subject site presents essentially no ecological constraints to the proposed development activities. None of the vegetation present is of particular ecological value or significance, and it is not considered likely that any native biota would be dependent or reliant upon any of the vegetation, habitats or resources present on the subject site for their survival in this locality.

Given the nature and condition of the subject site at present, and on the assumption that development activities would be undertaken in accordance with the *Concept Plan* and *Stage 1 Project Plan* (including all relevant impact amelioration measures – see Chapter 11), it cannot be regarded as likely that the proposed development of the subject site would impose adverse impacts of any relevance or concern on the natural environment in general, or on threatened biota or their habitats in particular.

No resources, habitats or ecological features of particular value or conservation significance would be adversely affected by the proposal. Further, it is intended that regrowth and/or regeneration in the *E2 - Conservation Zone*, and the use of stormwater detention basins at various locations around the development site as habitat for native biota, will provide a range of resources and enhanced habitat features for native biota.

It is also to be assumed and anticipated that development of the subject site (including all necessary excavation, land clearing, construction and subsequent management) will be undertaken in an environmentally sensitive manner, applying all appropriate current "*best practice*" methods and measures to maintain water quality and to control sediment discharges and runoff.

6.2 Riparian Setbacks

The only (albeit highly degraded) riparian vegetation on the subject site is contained within the *E2 - Conservation Zone* land along the small drainage line on the southwestern side of the site. This area will be retained and allowed to regenerate as part of the project, and there is no need for any further setbacks or buffers.

No additional setbacks from or buffers to the minor extremely degraded drainage line above the dam are considered necessary. These features do not currently provide habitat of value or conservation significance, and do not connect to any areas of habitat upstream. Their retention is not warranted (as indeed is indicated by their exclusion from the *E2 - Conservation Zone*).

6.3 Stormwater Management Features

The *Stormwater Management & Trunk Drainage Strategy* prepared by Brown Consulting (2010) details the manner in which stormwater is to be managed and treated within both the whole of the Horsley Park site for the *Concept Plan* (Figure 4) and within the *Stage 1 Project Application* area in the northeastern corner of the site (Figure 5).

The management of stormwater within the future industrial development on the subject site, as detailed in the *Concept Plan* (Brown Consulting 2010) will incorporate an array of measures, including:

- piped and/or bioretention swale discharges to a number of detention basins at various locations on the subject site;
- the treatment of stormwater prior to discharge:
- a stormwater detention system to detain and manage the discharge of flows during a range of rainfall events; and
- the use of appropriate stormwater quality management measures including bioretention swales, pross pollutant traps and the retention of stormwater in a number of basins to provide aquatic environment and habitats for native biota.

With respect to the *Concept Plan*, Brown Consulting propose a number of stormwater detention basins around the subject site at Horsley Park (see plan below), particularly in the central western part of the site (adjacent to the E2-zoned land), as well as in the northeastern corner (including one on the *Stage 1 Project Application* site).

It is proposed that those detention basins be specifically designed, constructed and planted to provide replacement habitat and resources for wetland and aquatic species displaced from the farm dams on the subject site for the purposes of the proposed industrial development. This approach would provide both a worthwhile ecological function and a valuable aesthetic role.


BASIN No.7
BASIN No.6
BASIN No.5
BASIN No.4
BASIN No.3
BASIN No.2
BASIN No.1

6.4 Bushfire Considerations

The potential for a bushfire threat to be imposed upon the proposed industrial development of the subject site at Horsley Park has been addressed in detail in the *Bushfire Threat Assessment Report* of Australian Bushfire Protection Planners (ABPP 2010).

The only area of the subject site in which there is some (slight) bushfire risk involves those industrial lots which contain or abut part of the *E2 - Conservation Zone* lands in the southwestern part of the subject site. This area constitutes only a minor bushfire threat or risk because of the small area of the E2-zoned land and the limited areas of adjoining bushland.

Natural regrowth and/or assisted regeneration in the E2-zoned land will provide a mosaic of vegetation and plant community types, including:

- patches of moderately tall eucalypt or she-oak woodland, predominantly along the central parts of the riparian area;
- occasional scattered plantings of canopy trees;
- swathes of native grassland and sedgeland to provide significant vegetation breaks;
- small ephemeral ponds or swales within the riparian zone; and
- concentration of the tall canopy vegetation closer to the watercourse and away from the periphery of the E2-zoned land.

This will provide an array of quasi–natural or regenerating ecosystems and plant communities which mimic the natural circumstances of watercourses in western Sydney, whilst avoiding the creation of a significant bushfire threat. In their undisturbed condition, small watercourses in western Sydney would have included patches of sedgelands and grasslands, ponds and small channels, patches or bands of canopy trees and an array of other features.

In addition, the stormwater detention basins proposed by Brown Consulting adjacent to the E2-zoned land (see attached plan below) will ameliorate the bushfire risk in certain locations, because they are interposed between the potential threat (the riparian areas) and the industrial development.

It is to be noted that there is no bushfire risk associated with the *Stage 1 Project Application* area.

6.5 Cumulative Impacts

Given the nature and condition of the subject site at Horsley Park, the "*cumulative impacts*" of the proposed development of the site in ecological terms will be minimal. The overwhelming majority of the land to be developed for industrial purposes is highly modified and (ecologically) degraded, and none of the area proposed for development purposes is of any conservation or biodiversity value.

As discussed above, the degraded riparian vegetation along the drainage line downstream of the farm dam (which is of only marginal biodiversity conservation value or significance), is to be retained within the *E2 - Conservation Zone* land. Development of the site as proposed would not constitute a relevant cumulative impact, given its condition and context.

It is also of note that the subject site was rezoned for industrial development (with some areas designated *E2 – Conservation*) by the DoP in 2009, in consultation with other government agencies.

That zoning specifically anticipated that development of most of the subject site and many surrounding lands for industrial purposes would proceed, and identified areas to be protected (the *E2 Conservation Zone* lands).

6.6 Further Consideration of the Part 3A Application

The remainder of this *Report* provides detailed consideration of the various elements of the *Part 3A Application* for the subject site at Horsley Park as required by the DoP, including:

- the *Director-General's Requirements* (DGRs) for the *Environmental Assessment Report* (Chapter 7 and following chapters);
- consideration of the objects of the EP&A Act (Chapter 8);
- consideration of the draft *DECC* (now DECCW) *Guidelines for Threatened Species Assessment* (Chapter 9);
- consideration of the relevant *Matters of National Environmental Significance* (MNES) of the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act), as documented in Chapter 10; and
- the provision of a number of recommendations with respect to impact amelioration and environmental management (Chapter 11) for both the *Part 3A Concept Plan Application*.

It is noted that earlier chapters of this *Report* have provided a detailed description of the existing natural features and condition of the subject site (Chapters 3 to 5), on which the consideration of the potential impacts of the proposal (contained in this Chapter) are based. Those chapters of the *Report* satisfy various of the requirements of the DGRs (see Chapter 7).

7 DIRECTOR-GENERAL'S REQUIREMENTS

The *Director-General's Requirements* (DGRs) for the proposed development on the subject site at Ropes Creek have been received from the Department of Planning (DoP ref: *Concept Plan 10_0129* and *Major Project 10_0130*). The DGRs were provided pursuant to Part 3A of the EP&A Act, and identify *inter alia* that the *Environmental Assessment* for the proposal must include:

- "*a detailed description of the project*" (the EAR and Chapter 1.3);
- "*a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment*" (Chapters 6 and 9);
- "*a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which include*":
    - "*a description of the existing environment, using sufficient baseline data*" (Chapters 3, 4 and 5);
    - "*an assessment of the potential impacts of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions*" (Chapters 6 and 9); and
    - "*a description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the project, including detailed contingency plans for managing any significant risks to the environment*" (Chapter 11);
- "*a suitable assessment of the .. issues specified below, outlining the measures that would be implemented to minimise the potential impacts of the project*" (Chapter 11);
- "*a conclusion justifying the project on .. environmental grounds, taking into consideration whether the project is consistent with the objects of the Environmental Planning & Assessment Act 1979*" (Chapter 8);
- "*a statement of commitments, outlining all the proposed environmental management and monitoring measures for the project*" (Chapter 11); and
- "*a signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading*".

With respect to the assessment of flora and fauna on the subject site, the following specific information and assessment is required:

- "*an assessment of any impacts on critical habitats, threatened species, populations or ecological communities and their habitats in the region*" (Chapters 6 and 9); and
- *"Details of measures to enhance and protect any riparian zones, including setbacks should also be provided*" (Chapter 11).

8 OBJECTS of the EP&A ACT

The relevant "*objects*" of the EP&A Act with respect to ecological issues are:

- "*the proper management, development and conservation of natural and artificial resources ... for the purpose of promoting the social and economic welfare of the community and a better environment*"; and
- "*the promotion and co-ordination of the orderly and economic use and development of land*"; and
- "*the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats*"; and
- the achievement of "*ecologically sustainable development*".

The proposed development of the subject site at Horsley Park for employment purposes, in accordance with its zoning pursuant to the *Western Sydney Employment Area SEPP*, has sought to appropriately apply the "*objects*" of the EP&A Act as relevant, given the nature and condition of the subject site and the extremely limited ecological or biodiversity conservation values contained thereon.

Satisfaction of the "*objects*" of the EP&A Act and the principles of "*Ecologically Sustainable Development*" (ESD) have been achieved by this project *inter alia* as a result of:

- the highly modified and (ecologically) degraded nature of the development area;
- the extremely limited habitats or features for native biota to be affected by the proposal;
- the retention and subsequent natural (and/or assisted) regrowth of riparian woodland within the *E2 - Environmental Conservation* land on the subject site;
- the provision of habitat and resources in the *E2 - Conservation Zone* land;
- the use of stormwater detention basins and other stormwater management features within the proposed development for the provision of aquatic and semi-aquatic habitat and resources for native biota;
- the implementation of appropriate 'best practice' and high quality construction methods and techniques to ensure the control and management of sediment and of other potential contaminants; and
- the provision of 'best practice' measures within the stormwater management system for the future developed landscape to ensure the maintenance of water quality discharges to the conserved lands and/or watercourses and habitats downslope and downstream.

Given those circumstances, the proposed development of the subject site at Horsley Park satisfies the requirements for *Ecologically Sustainable Development* (ESD), and appropriately applies the *Precautionary Principle* as required pursuant to the EP&A Act. The proposed development will promote "*the orderly and economic use and development of land*" and the "*social and economic welfare of the community*" whilst not adversely affecting the natural environment or any "*natural ... resources*". Further, the proposed development will not have any adverse impacts upon the "*protection and conservation of native animals and plants, including threatened species, populations and ecological communities and their habitats*".

9 DRAFT DECC GUIDELINES

The DGRs for the *Part 3A Concept Plan (10_0129)* and *Stage 1 Project Application (10_0130)* on the subject site at Horsley Park (see Chapter 7) require *inter alia* addressing the DECC *Guidelines* for threatened biota survey and assessment.

9.1 Survey Guidelines

The DECC *Working Draft Threatened Biodiversity Survey & Assessment: Guidelines for Developments & Activities* dated November 2004 (the *Draft Survey Guidelines*) state *inter alia* that an array of relevant field surveys for threatened biota should be undertaken in order to assess the potential impacts of a development proposal. The *Draft Survey Guidelines* state *inter alia* that "*Designing an appropriate field survey requires consideration of both survey methods and effort*".

Whilst that is doubtless true, the design of "*an appropriate field survey*" (emphasis added) also requires consideration of the circumstances and condition of the site proposed for those activities. An "*appropriate field survey*" for a 100ha cleared and grazed farm paddock is not the same as an "*appropriate field survey*" for 100ha of native forest.

As indicated in Chapter 5 of the *Draft Survey Guidelines*, "*Not all the survey methods detailed below will be appropriate or necessary in all situations, however adequate justification must be provided if appropriate survey methods are not applied*".

Given the nature and condition of the subject site at Horsley Park (as documented in detail in Chapters 3-5 of this *Report*), it is clear that only minimal field investigations are necessary to address threatened species issues. In particular, dedicated and intensive surveyors for threatened fauna species are not deemed appropriate or necessary on the subject site, given that over 98% of the site is pasture grassland or a sown oat crop. Further, as discussed in detail above, there are few resources of even potential relevance for threatened fauna species, and those which will be removed for the proposal are limited in extent and can readily re-created, replaced or reproduced, in any case.

Given the circumstances of the subject site at Horsley Park, 'non-compliance'[4] with the *Draft Survey Guidelines* of the DECCW (2004) is not a relevant concern.

9.2 Guiding Principles for Threatened Species Assessment

The *Draft Guidelines for Threatened Species Assessment* in respect of Part 3A matters (prepared by the DEC & DPI in July 2005) identified six *Guiding Principles for Threatened Species Assessment* (in Chapter 1.2 of the *Guidelines*). The *Draft Assessment Guidelines* state *inter alia* that the "*objective of the assessment process is to provide information to enable decision makers to ensure that developers deliver the following environmental outcomes*":

[4] It is to be noted that there is no statutory requirement for 'compliance' with the *Draft Survey Guidelines* of the DECCW. Not only are these only 'guidelines' (*ie* not statutory requirements), they remain a "*working draft*" despite having been prepared over 6 years ago (in 2004).

1 "*Maintain or improve bio-diversity values (ie there is no net impact on threatened species or native vegetation)*";

2 "*Conserve biological diversity and promote ecologically sustainable development*";

3 "*Protect areas of high conservation value (including areas of critical habitat)*";

4 "*Prevent the extinction of threatened species*";

5 *"Protect the long-term viability of local populations of a species, population or ecological community*"; and

6 *"Protect aspects of the environment that are matters of natural environmental significance*".

The *Draft Assessment Guidelines* further state that the "*assessment is designed to provide information and analysis to demonstrate that feasible alternatives have been considered, that the project has been designed to be consistent with the principles outlined above, and where there are impacts, that adequate mitigation measures are implemented*".

It is to be noted that the *Draft Assessment Guidelines* of the DEC & DPI (2005) pay no heed to the need to generate an appropriate balance between development and conservation, and place the protection of wildlife and natural features above the provision of housing or resources for humans. The *Draft Assessment Guidelines* also ignore the economic and social elements of "*ecologically sustainable development*" *(*ESD), but rather 'require' *inter alia* that "*there is no net impact on threatened species or native vegetation*" (emphasis added).

As is the case with the *Draft Survey Guidelines* (the DECCW 2004), the *Draft Assessment Guidelines* (DECC and DPI 2005):

- are "*guidelines*", not statutory or mandatory requirements;
- remain "*draft*" despite having been prepared over 5 years ago; and
- have not been endorsed or adopted by the state government.

9.2.1 Maintain or Improve Biodiversity Values

There are essentially no relevant "*biodiversity values*" present on the site at Horsley Park which warrant any particular or notable mitigation activities. As noted elsewhere in this *Report*, the subject site is predominantly stock fodder (oats) and/or long utilised pasture grassland, and there are very few resources of any relevance for any native biota present.

The proposed development will retain the scattered tree cover and highly degraded riparian vegetation within the *E2 - Conservation Zone* on the subject site, which will allow natural regeneration of this area.

The two farm dams on the subject site will be removed as a result of the industrial development of the site as proposed in the *Concept Plan* (Figure 4). Whilst these dams provide some limited habitat for some native fauna, they are not of significance with respect to biodiversity conservation in the general locality. Further, appropriate planting of native aquatic and semi-aquatic vegetation in and around the stormwater control basins on the subject site (as recommended in this *Report* – Chapter 11) would provide essentially the same habitat values and features, and will "*improve biodiversity values*".

As a consequence of the considerations outlined above, the proposed development of the subject site at Horsley Park as currently proposed, in accordance with the recent zoning of that land pursuant to the *Western Sydney Employment Area SEPP*, will not adversely affect "*biodiversity values*" on the site or in the locality. In addition, the *E2 - Conservation Zone* and the stormwater basins on the subject site will "*improve biodiversity values*" at this location.

9.2.2 Biological Diversity and ESD

As noted above, the subject site at Horsley Park has extremely little biodiversity value, and is characterised by extremely low levels of native biodiversity and extremely limited resources for native biota.

There is no "*biological diversity*" of any particular value or significance on the subject site, and certainly none that would warrant any notable conservation measures. Nevertheless, degraded riparian vegetation and habitats will be retained in the *E2 - Conservation Zone*, and natural (or assisted) regeneration will supplement that which is present. That approach will enhance the "*biological diversity*" of the subject site.

Whilst the proposed development will remove the two artificial dams from the subject site, these features are neither natural nor of particular or high conservation value. Furthermore, it is proposed in this *Report* that new detention basins and ponds on the subject site be planted to provide replacement habitat for aquatic and semi-aquatic biota which utilise the farm dams present on the site, thus contributing to the conservation of "*biological diversity*" on the subject site.

With respect to the promotion of "*Ecologically Sustainable Development*" (ESD), the highly modified, artificial and agricultural nature of the overwhelming majority of the subject site renders the site of essentially no relevance in respect of native biota, habitats or ecosystems. There is little "*ecological*" value on the subject site which would relevantly be the subject of ESD principles.

Nevertheless, as noted above, the highly degraded riparian vegetation within the *E2 - Conservation Zone* is to be retained and allowed to naturally regenerate, thus facilitating an improvement in biodiversity conservation values on the site. Further, the proposed development is to be undertaken using appropriate environmental management measures and controls, particularly with respect to stormwater quality and quantity discharges.

As a consequence of the development design and the approaches to development which are incorporated into the *Concept Plan* and the *Stage 1 Precinct Plan*, the relevant goals of the ESD philosophy are satisfied on the subject site at Horsley Park.

9.2.3 Areas of High Conservation Value or Critical Habitat

There are no areas of "*critical habitat*", as defined in the *Threatened Species Conservation Act 1995 Act* (TSC), on the subject land at Horsley Park.

Further, there are no "*areas of high conservation value*" on the subject site. The small area of degraded vegetation in the *E2 - Conservation Zone* will be retained and allowed to regenerate, and the habitat provided by the existing farm dams will be replaced by equivalent habitat in stormwater basins.

No threatened biota would be subjected to a "*significant effect*" (if indeed any effect at all) as a result of the proposed development at Horsley Park.

9.2.4 Prevent the Extinction of Threatened Species

There are no important or significant habitat or resources on the subject site at Horsley Park which could be considered relevant to the survival of any threatened species. There is no potential for any threatened biota to be placed at any risk (or even the possibility) of "*extinction*" as a consequence of the proposal at Horsley Park.

9.2.5 Long-Term Viability

The proposed development of the subject site at Horsley Park will have no impact on the "*long-term viability of local populations*" of any threatened biota.

As discussed in some detail above, the subject site is of essentially no value for the viability of any threatened or other native biota, and there are extremely few resources or habitat features of relevance for any threatened biota in the locality. Further, the only area of (highly degraded) native vegetation is to be retained within the *E2 - Conservation Zone* on the land, and allowed to regenerate to enhance its biodiversity conservation values. In addition, the habitats currently located within the two farm dams will be replicated within the stormwater detention and treatment basins to be located around the site.

On the basis of the development design and of the general approach to environmentally responsible development on the subject site, there will be no adverse impacts upon the long-term viability of local populations of either threatened biota or any other native biota.

9.2.6 Matters of National Environmental Significance

The relevant *Matters of Natural Environmental Significance* (MNES) are considered elsewhere in this *Report* (Chapter 10).

As is the case with respect to threatened biota listed on the TSC Act, the subject site at Horsley Park is of little conservation value or relevance to biota listed in the EPBC Act. No MNES will be adversely affected to any significant or relevant extent as a result of the proposed development of the subject site at Horsley Park. Further, potentially relevant MNES have been appropriately addressed pursuant to the EPBC Act in the *Environmental Assessment* for the proposal (see Chapter 10).

9.2.7 Conclusions

Given the circumstances, the objectives of the *Guiding Principles for Threatened Species Assessment* contained in the 2005 DECC/DPI *Draft Guidelines* have been appropriately addressed and satisfied by the development proposed at Horsley Park.

The subject site at Horsley Park, as discussed in detail in earlier chapters of this *Report*, is highly to extremely modified, and is highly degraded (in ecological terms at least). The overwhelming majority of the subject site is of no relevance for biodiversity conservation, and the resources which might even conceivably be of any relevance for threatened or native biota are limited in extent and widespread through the landscape generally.

The loss of a few potentially relevant wildlife resources (the two farm dams and a few hollow-bearing trees) is not of any consequence or significance with respect to biodiversity conservation, either for general native biota or for threatened species in particular. In any case, as indicated elsewhere in this *Report*, it is proposed that:

- the detention basins to be created for the development proposal be designed, constructed and managed (including with native planting) to provide replacement habitat equivalent to the existing artificial farm dams; and
- a *Hollow-bearing Tree Protocol* (see Chapter 11) be implemented as part of the proposal which will *inter alia* salvage tree-hollows from hollow-bearing trees that need to be removed, and relocate such salvaged tree-hollows into the E2-zoned land on the subject site.

9.3 The Assessment Process

The *Guidelines for Threatened Species Assessment*, prepared by the DEC[5] and the Department of Primary Industries (DPI) for assessments pursuant to Part 3A of the EP&A Act, have been addressed with respect to the assessment and evaluation of likely impacts of the proposed development.

In particular, the *Draft Guidelines* (DEC 2005) identify a number of "*steps in the assessment process*":

- *Step 1* *Preliminary Assessment*, which "*is primarily a desktop assessment involving searches of relevant databases .. and literature reviews to identify a list of threatened species which could potentially occur In the area*" (as detailed in Chapter 2 of this *Report*);
- *Step 2* *Field Survey and Assessment*. The conduct of those surveys is also discussed in the DEC *Draft Guidelines*, and has been addressed in this *Report* in Chapters 2, 3, 4 and 5;
- *Step 3* *Evaluation of Impacts* (which is the subject of Chapter 9.4 of this *Report*);
- *Step 4* *Avoid, Mitigate and Then Offset*, which involves "*the description and justification of measures to mitigate any adverse effects*" (as discussed in Chapter 8 of this *Report*); and
- *Step 5* *Key Thresholds* (discussed in Chapter 9.5 of this *Report*).

[5] The DEC is now the Department of Environment, Climate Change & Water (DECCW).

9.4 The Evaluation of Potential Impacts

Step 3 of the DEC *Draft Guidelines* (2005) indicates that the "*magnitude and extent of impacts*", and their significance is "*related to the conservation importance of the habitats, individuals and populations likely to be affected*" by the proposal. The *Draft Guidelines* state that the "*impacts will be more significant*" if:

- "*areas of high conservation value are affected*"; or
- "*individual animals, and/or plants and/or subpopulations that are likely to be affected by the proposal play an important role in the long-term viability of the species, population or ecological community*"; or
- "*habitat features that are likely to be affected by the proposal play an important role in maintaining the long-term viability of the species, population or ecological community*"; or
- "*the duration of impacts are long-term*"; or
- "*the impacts are permanent and irreversible*".

9.4.1 Areas of High Conservation Value

There is no vegetation, land or area of "*high conservation value*" on the subject site at Horsley Park (Figure 3). The proposed development of the subject site pursuant to the Part 3A *Concept Plan* and the *Stage 1 Project Application* will not involve the imposition of any impacts on or the loss of any "*areas of high conservation value*".

Whilst there is a small, narrow and highly degraded strip of riparian woodland along the lower part of a small drainage line in the southwestern part of the subject site (Figures 3 and 7), that vegetation is not regarded as of "*high conservation value*" given its existing nature and condition. In any case, that vegetation is contained within an area which has been designated *E2 – Environmental Conservation*, and will be retained and allowed to regenerate as part of the proposed development of the subject site.

9.4.2 Importance of Individual Biota

As discussed at some length above, the subject site at Horsley Park is not considered of significance or "*importance*" to any native biota in terms of their survival in the general vicinity or locality. In particular, it is not likely that any elements or features of the subject site (Figure 7) would be of significance with respect to the conservation of any threatened (or indeed non-threatened) biota or their habitats.

Doubtless, individuals of some native species will rely on particular features or habitat elements present on the subject site (*eg* aquatic birds on the two farm dams, amphibians around the dams and individuals or pairs of the Masked Lapwing in the grasslands). However, these habitat features and resources are widespread through the general landscape, and are not confined to the subject site at Horsley Park. Further, the relevant biota are generally common and widespread, and are predominantly resilient and adaptable. The removal of grasslands and a few hollow-bearing trees is not regarded as likely to impose a significant adverse impact upon any threatened or other native biota in this locality.

Given the considerations outlined above, and the context of the subject site at Horsley Park, the proposed development of the subject site according to the *Part 3A Concept Plan* and *Stage 1 Project Application* does not constitute an activity which is likely to have a significant adverse impact upon either "*individual animals and/or plants and/or sub-populations*" of either threatened or other native biota. Those actions will not impose a relevant adverse impact on the "*long-term viability of* [any such] *species, population or ecological community*".

9.4.3 Importance of Habitat Features

As discussed above, none of the "*habitat features*" or natural resources on the subject site are regarded as of particular "*importance*" or conservation significance. Whilst the proposed development of the subject site will involve the removal of two farm dams and a few hollow-bearing trees in paddocks, these "*habitat features*" are not regarded as of significance or value for any native species, including threatened biota. The loss of those resources or habitat features is not considered "*likely*" to impose a "*significant effect*" upon any threatened biota, nor to impose a significant adverse impact upon the natural environment in general.

Given the scarcity of resources or "*habitat features*" of any particular value on the subject site, and given the extent of farm dams, narrow patches of degraded riparian woodland and scattered habitat trees within paddocks throughout western Sydney, those resources present on the subject site are not regarded as of particular significance or value.

9.4.4 Duration of Impacts

Obviously, the impacts of the proposed development with respect to the removal of (the extremely limited) habitat and resources (such as farm dams and a few hollow-bearing trees) within the development footprint on the subject site will be permanent.

However, those resources are of extremely limited value given their nature and condition, their context and their wide distribution through the general landscape. It is not likely that the removal of those resources from the subject site would impose any significant or relevant adverse impacts upon native biota in general or upon threatened species in particular.

9.4.5 Permanent and Irreversible Impacts

As noted above, the impacts of the development as proposed in the Part 3A *Concept Plan* and the *Stage 1 Project Application* on the subject site at Horsley Park will involve "*permanent and irreversible*" impacts upon those areas of the site proposed for development activities. However, the fact that those impacts will be both "*permanent and irreversible*" has been taken into account in addressing the significance (or otherwise) of likely impacts upon threatened biota and their habitats and on the natural environment in general.

In respect of both the "*duration of impacts*" and the imposition of "*permanent or irreversible impacts*", the proposed development on the subject site at Horsley Park is considered of little concern because of the existing nature and condition of the subject site itself. In addition, the only vegetation which could potentially be regarded as of any ecological value is to be retained within the E2-zoned land along the drainage line in the southwestern part of the subject site.

9.5 Key Thresholds

Step 5 of the assessment process identified in the DEC *Draft Assessment Guidelines* (2005) identifies four "*key thresholds*" which the DECCW states need to be addressed in providing "*a justification of the preferred option*" for the development application. The four "*key thresholds*" identified in the *Draft Assessment Guidelines* are:

- "*whether or not the proposal, including actions to avoid or mitigate impacts or compensate to prevent unavoidable impacts will maintain or improve biodiversity values*";
- "*whether or not the proposal is likely to reduce the long-term viability of a local population of the species, population or ecological community*";
- "*whether or not the proposal is likely to accelerate the extinction of the species, population or ecological community or place it at risk of extinction*"; and
- "*whether or not the proposal will adversely affect critical habitat*".

9.5.1 Maintain or Improve Biodiversity Values

As discussed above (in Chapter 9.2.1), the proposed development of the subject site at Horsley Park will not adversely affect "*biodiversity values*" on the subject site or in the locality to any relevant or meaningful extent. Indeed, the overwhelming majority of the proposed development will have no adverse impacts upon "*biodiversity values*", and future management of the E2-zoned land on the subject site, as well as the proposed detention basins, will in fact "*improve biodiversity values*".

There is no prospect under the current management regime of the subject site for any improvement in biodiversity values, given its long-term and ongoing use for agricultural purposes. Conversely, as discussed above, an improvement in "*biodiversity values*" within the land which is designated *E2 – Conservation* on the subject site will be achievable, subject to the recommendations and considerations detailed in Chapter 11 of this *Report*.

9.5.2 Long-term Viability of Threatened Biota

As is the case with "*biodiversity values*" in general, the proposed development on the subject site at Horsley Park will have no adverse impact upon the "*long-term viability*" of either individuals or populations of any threatened biota, or upon stands or patches of any "*endangered ecological communities*".

9.5.3 Extinction of Species

As discussed above, the proposed development of the subject site at Horsley Park will not involve any likelihood of any threatened or other biota becoming extinct or being placed "*at risk of extinction*". Given the nature and condition of the subject site, there is no likelihood of even individuals of any threatened biota being place "*at risk of extinction*".

9.5.4 Impacts on Critical Habitat

The proposed development on the subject site at Horsley Park will have no effect on any "*critical habitat*" for any threatened biota.

9.5.5 Conclusions - Key Thresholds

The proposed development of the subject site at Horsley Park satisfies the "*key thresholds*" identified in the *Draft Assessment Guidelines for Threatened Biota* (DEC & DPI 2005).

The proposal will not impose an adverse impact on any threatened biota or their habitats, and management of the *E2 - Conservation Zone* land and of detention basins constructed on the subject site will constitute a net environmental benefit in the long-term.

9.6 Section 5A of the EP&A ACT

The *Threatened Species Conservation Act 1995* (TSC Act) has modified the *Environmental Planning & Assessment Act 1979* (EP&A Act) by, *inter alia*, including a requirement to determine "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*". The relevant factors of Section 5A of the EP&A Act "*must be taken into account*" by a consent or determining authority when considering a *Development Application*, and in administering Sections 78A, 79B, 79C, 111 and 112 of the EP&A Act, as relevant.

It is noted here that Section 5A of the EP&A Act is not a relevant consideration for an application pursuant to Part 3A of the EP&A Act. Section 5A does not refer to any Section of the EP&A Act relevant to Part 3A of the Act, and there is no requirement within Part 3A of the Act to consider whether a "*significant effect*" is "*likely*" to be imposed upon any "*threatened species*, *populations or ecological communities*, *or their habitats*". Nevertheless, the likelihood or otherwise of a "*significant effect*" being imposed on any threatened biota is addressed below.

Given the nature and condition of the subject site at Horsley Park, and the scarce resources of any potential relevance for threatened biota, it is considered extremely unlikely that a "*significant effect*" would be imposed upon any "*threatened species, populations or ecological communities, or their habitats*". In this regard:

- none of the vegetation to be removed constitutes an example of an "*endangered ecological community*" (EEC);
- none of the resources to be removed are regarded as of significance or particular relevance for any threatened species or "*endangered populations*"; and
- the retention and management of vegetation in part of the *E2 - Conservation Zone* would enhance the ecological outcomes for the site.

Similar considerations apply with respect to other threatened species that could potentially occur on the subject site, on occasions. The proposed development of the subject site at Horsley Park is not "*likely*" impose a "*significant effect*" on any threatened biota given:

- the nature and condition of the subject site;
- the lack of features or resources of conservation value within the areas to be affected by the proposal; and
- the implementation of appropriate impact amelioration and environmental management measures.

10 ENVIRONMENT PROTECTION & BIODIVERSITY CONSERVATION ACT

The Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) seeks *inter alia*:

- "*to provide for the protection of the environment, especially those aspects of the environment that are Matters of National Environmental Significance*";
- "*to provide ecologically sustainable development*"; and
- "*to promote the conservation of biodiversity*".

Implementation of the EPBC Act requires *inter alia* consideration as to whether a development or activity is likely to impose adverse impacts on "*Matters of National Environmental Significance*" including *inter alia* listed threatened biota and migratory species.

Of the MNES within 10km of the subject site at Horsley Park (Appendix B), there are no locations, features or biota which are likely to be adversely affected to any relevant extent by the proposed development on the subject site. In this regard:

- there are no relevant Commonwealth marine areas, properties or other Commonwealth features in the vicinity;
- the proposal will have no impact upon listed marine species or any threatened species or "*endangered ecological communities*" listed in the EPBC Act;
- there are no nuclear issues; and
- no World Heritage Areas or Ramsar wetlands would be adversely affected by the proposal.

The subject land does not constitute a significant element of the habitat or resources for any individuals of the species listed on the EPBC Act within their normal home ranges. It is not likely that even an individual of any such species would be reliant on or dependent on those parts of the subject land proposed for development activities for their survival, even on a local basis.

There is no likelihood of a "*significant impact*" being imposed on any biota listed in the EPBC Act as a result of the proposed development of the subject site at Horsley Park.

Whilst individuals of a few of the migratory birds species listed on various international treaties to which Australia is a signatory are or could be present (*eg* the Masked Lapwing, Cattle Egret or White Egret), the subject site is essentially of no relevance to the survival of these species on even a local basis. Those species, in any case, are substantially sedentary in eastern Australia, and individuals of those species at this location are not likely to be migratory.

It is extremely unlikely that the proposal would have any adverse impacts of any relevance upon any threatened or migratory species listed on the EPBC Act.

Given those considerations, there is no relevant issue with respect to the EPBC Act. There is no proposal to or requirement for a '*Referral*' of the proposed development to the Commonwealth for the purposes of assessment or for an approval by the Federal Minister for the Environment.

11 IMPACT AMELIORATION and ENVIRONMENTAL MANAGEMENT MEASURES

Notwithstanding the modified and degraded nature of the subject site at Horsley Park, appropriate impact amelioration and environmental management measures would be anticipated as a standard requirement for any development on the site for industrial purposes.

The subject site is not regarded as of any biodiversity value or significance, given:

- the modified nature and condition of the subject site due to a long history of agricultural activities; and
- the lack of any significant or important resources or features of particular relevance for native biota, particularly threatened biota.

Nevertheless, specific environmental management measures which have been incorporated into the development design for the site at Horsley Park and/or which should be included are:

- the management of stormwater discharge rates and water quality from the development area, both during construction activities and following completion and occupation of the site, according to current 'best practice' principles (as proposed by Brown Consulting 2010);
- the implementation of 'Water Sensitive Urban Design' principles in the development, including the capture and re-use of stormwater runoff, the treatment of water to be discharged from the development, and minimisation of the use of potable water for other purposes;
- the use of sediment fences and other appropriate control measures during construction activities to manage erosion and sediment discharge or the discharge of other contaminants;
- the use of detention basins within the proposed development to provide replacement habitat for the artificial farm dams which need to be removed by *inter alia*:
    - the design of features to ensure that some or all of the detention basins remain as permanent ponds (other perhaps than during major droughts);
    - construction of the detention basins with varying depths and substrate slopes to provide a variety of aquatic and sub-aquatic features;
    - the planting of detention basins with native sedge, reed and rush species to provide habitat and shelter for wetland birds and amphibians; and
    - the provision of relevant adjacent features (such as logs and rock piles) to provide resources for amphibians within and adjacent to the detention basins;
- the implementation of a management regime during the construction process to ensure that no other wastes (including building rubble, garbage, contaminants, fuels, oils, paints or other chemicals) are discharged from the construction area, and that all such wastes and contaminants are contained within the construction footprint and are appropriately managed;
- the retention of the vegetation in the *E2 - Conservation Zone* to allow natural regeneration without the adverse impact of grazing cattle in order to facilitate the long-term viability of native flora and fauna which do or could utilise the site; and
- the implementation of a *Hollow-bearing Tree Protocol* which includes *inter alia*:

- the ‘dismantling’ by professional tree experts of hollow-bearing trees in order to salvage tree-hollows, wherever possible;
- the placement of salvaged tree-hollows on either existing large trees to be retained within the *E2 - Conservation Zone* or on wooden poles adjacent to existing trees within the *E2 - Conservation Zone*;
- alternatively, the placement of salvaged tree-hollows on the ground as hollow log habitat where erection within the *E2 - Conservation Zone* is not practical; and
- the use of artificial nest boxes to replace tree-hollows which cannot be salvaged.

GLOSSARY

Activity	means: (a) the erection of a building; (b) the carrying out of a work in, on, over or under land; (c) the use of land or of a building or work; and (d) the subdivision of land, and includes any act, matter or thing for which provision may be made under Section 26 of the EP&A Act and which is prescribed for the purposes of this definition, but does not include: (e) any act, matter or thing for which development consent under Part 4 is required or has been obtained; or (f) any act, matter or thing which is prohibited under an environmental planning instrument.
DA	*Development Application* prepared pursuant to the EP&A Act.
Development	in relation to land, means: (a) the erection of a building on that land; (b) the carrying out of a work in, on, over or under that land; (c) the use of that land or of a building or work on that land; and (d) the subdivision of that land, but does not include any development of a class or description prescribed by the regulations for the purposes of this definition.
DEC	Department of Environment & Conservation.
DECC	Department of Environment & Climate Change.
DECCW	Department of Environment, Climate Change & Water.
DGRs	*Director-General's Requirements*.
Director-General	the Director-General of the Department of Planning.
Endangered Ecological Community	"*an ecological community specified in Part 3 of Schedule 1*" of the TSC Act.
Endangered Population	"*a population specified in Part 2 of Schedule 1*" of the TSC Act.
	EP&A Act *Environmental Planning & Assessment Act 1979*.
Key Threatening Process	"*a threatening process specified in Schedule 3*" of the TSC Act.
Locality	the area within a 10km radius of the study area.
NPWS	NSW National Parks & Wildlife Service.
Proposal	the development, activity or action proposed.
Recovery Plan	"*a plan prepared and approved under Part 4*" of the TSC Act.
Region	"*a bioregion defined in a national system of bioregionalisation that is determined (by the Director-General by order published in the Gazette) to be appropriate for those purposes*" (TSC Act).
SIS	*Species Impact Statement* prepared pursuant to Sections 109, 110 and 111 of the TSC Act.
Threatening Process	"*a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities*" (TSC Act).
Threatened Species	"*a species specified in Part 1 or 4 of Schedule 1 or in Schedule 2*" of the TSC Act.
TSC Act	*Threatened Species Conservation Act 1995*.

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Figure 1

Location and regional context of the subject site at Horsley Park

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NOTES:

1. Digital Cadastral DataBase (DCDB) © 2010 NSW Dept. of Lands.
2. Aerial Image © 2008 Ausimage
3. Subject Site boundary based on DCDB 2010
4. Map Locator Base Map © Mapinfo 2009
5. All features are approximate only and subject to detailed survey

LEGEND

- Subject Site
- DCDB
- Roads

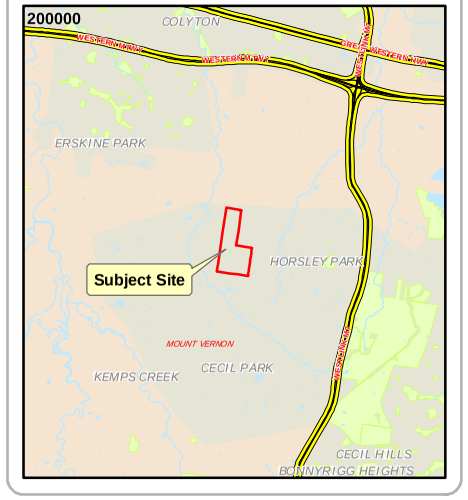

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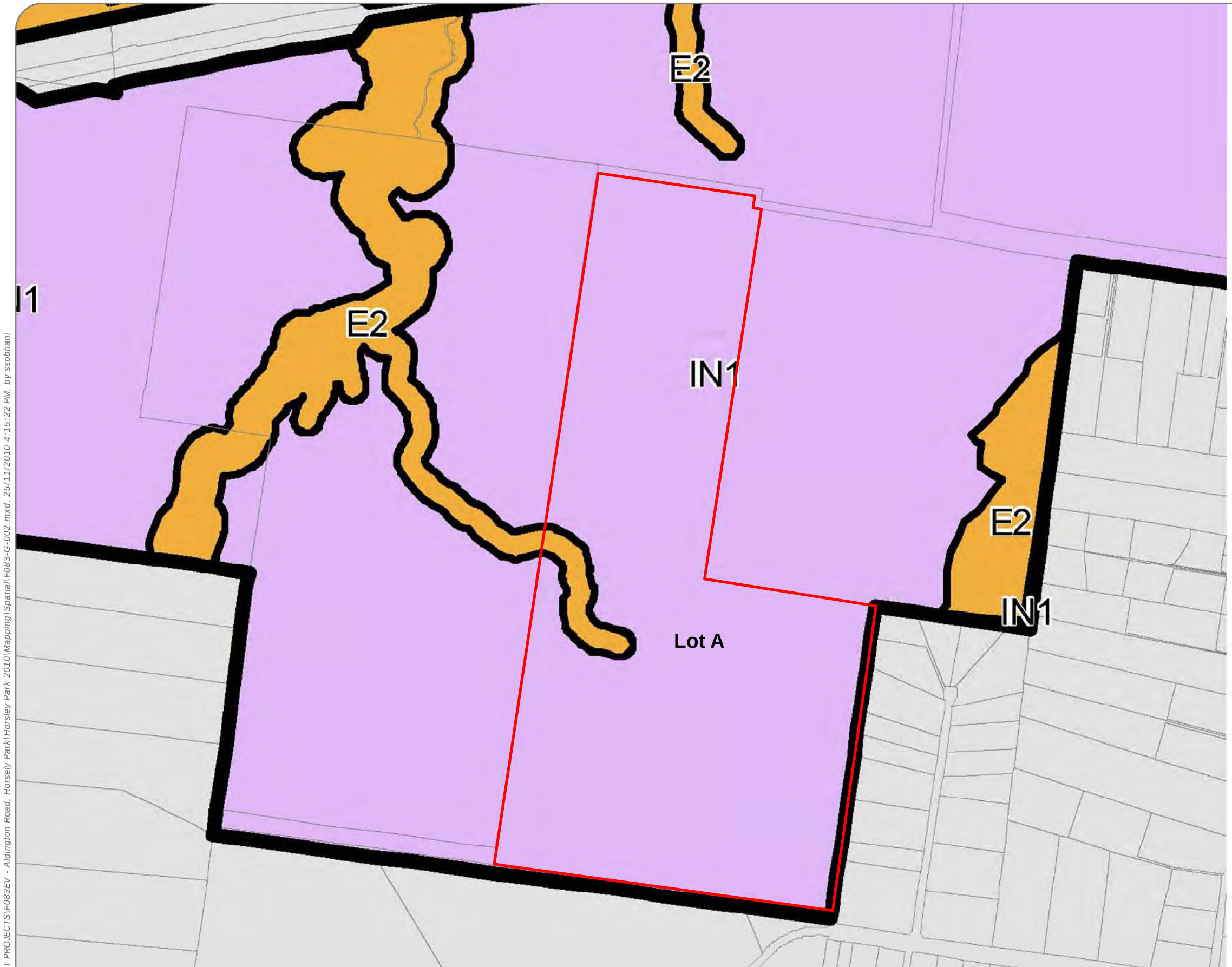
Figure 2

Zoning of the subject site pursuant to the SEPP (2009)



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2. SEPP zoning mapping © NSW Department of Planning
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Figure 3

Aerial photograph of the subject land and adjoining features

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1. Digital Cadastral DataBase (DCDB) © 2010 NSW Dept. of Lands.
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3. Subject Site boundary based on DCDB 2010
4. Development site boundary is based on Concept Plan
5. All features are approximate only and subject to detailed survey

LEGEND

- Subject Site
- Development Site
- DCDB
- Roads

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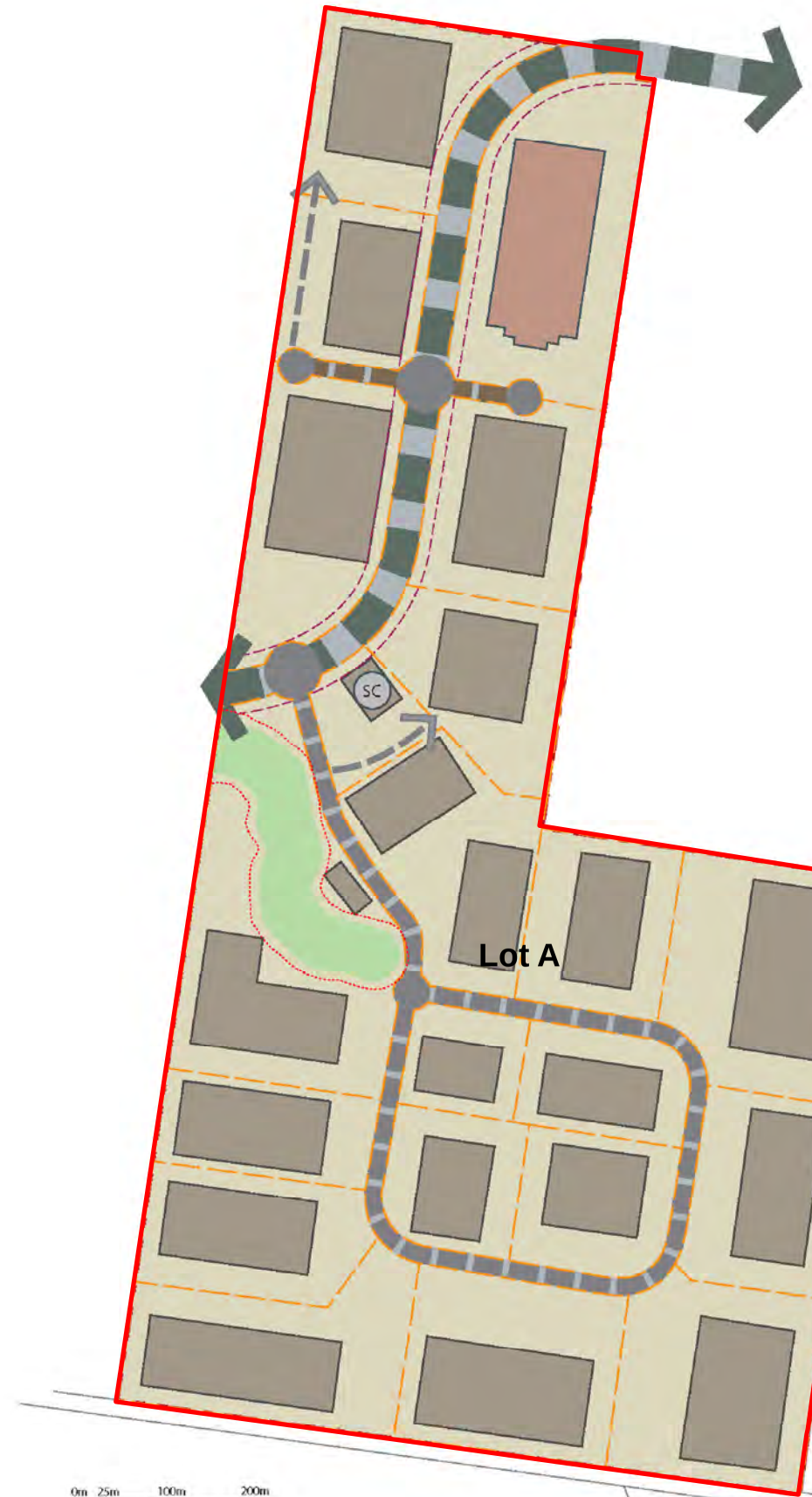
Figure 4

Proposed Concept Plan for the subject site at Horsley Park



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Lot A Burley Road, Horsley Park Employment Precinct - Concept Plan
Prepared for Jacfin Pty Ltd
23 November 2010
1:5000 @ A3

JBA planning

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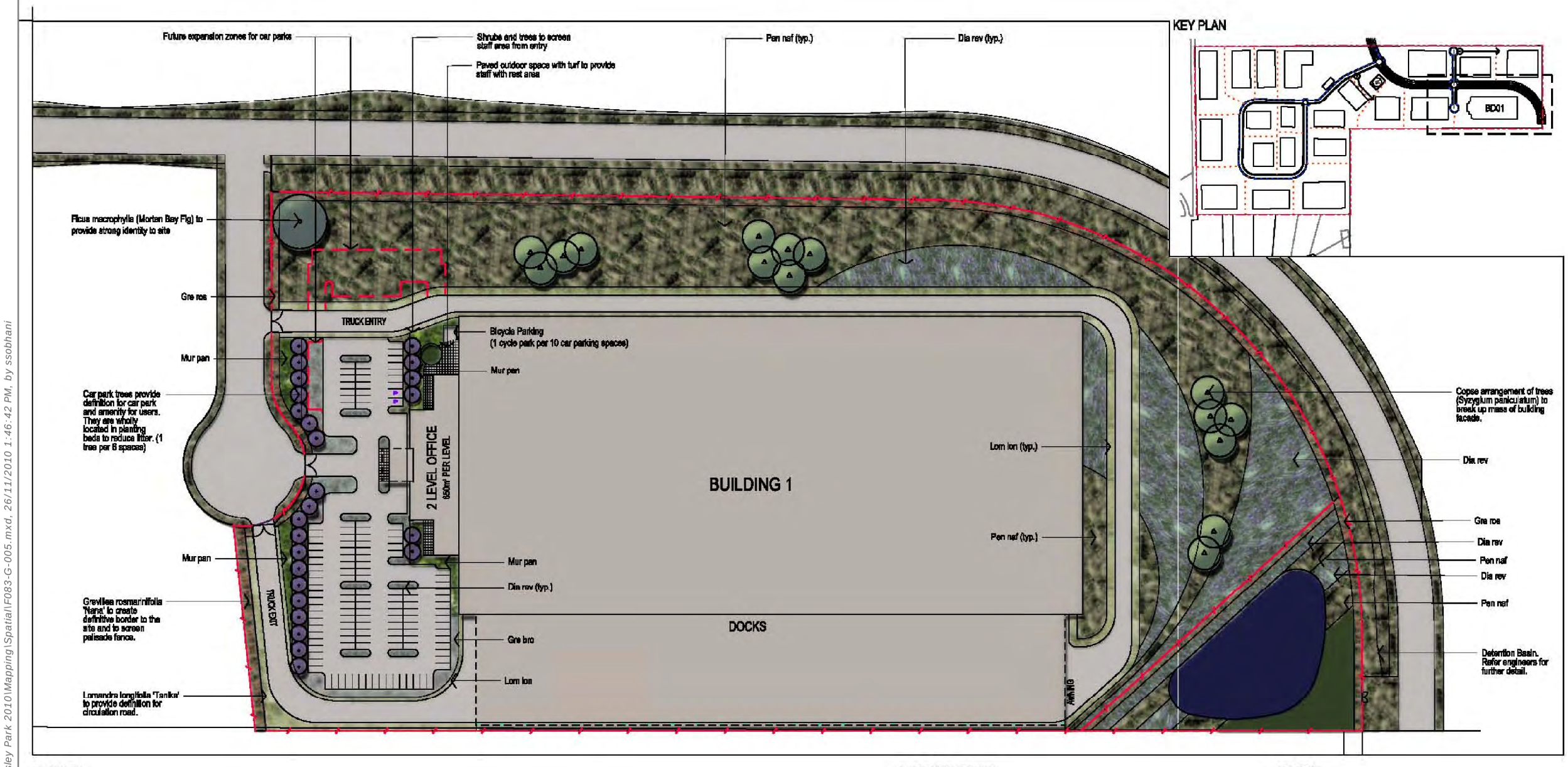
Figure 5

The Stage 1 Project Application Project at Horsley Park



LEGEND

Entry Tree (Refer plan for species)

Screen Tree (Syzygium paniculatum)

Car Park Tree (Cupaniopsis anacardioides)

Turf

Paving

Palisade Fence

Shrubs

Banksia ericifolia (Ban eri)

Murraya paniculata (Mur pan)

Grevillea rosmarinifolia 'Nana' (Gre ros)

Groundcovers and grasses

Lomandra longifolia 'Tanika' (Lom lon)

Dianella revoluta (Dia rev)

Grevillea 'Bronze Rambler' (Gre Bro)

Pennisetum 'Nafray' (Pen naf)

Poa labillardieri 'Eskdale' (Poa lab)

PLANT SCHEDULE

CODE	BOTANICAL NAME	COMMON NAME	Mature Height	Mature Spread
Trees				
Fic mac	*Ficus macrophylla*	Morton Bay Fig	30m	25
Cup ana	*Cupaniopsis anacardioides*	Tuckeroo	12m	8
Syz pan	*Syzygium paniculatum*	Magenta Cherry	15m	10
Shrubs				
Ban eri	*Banksia ericifolia*	Heath Banksia	4m	3m
Gre ros	*Grevillea rosmarinifolia 'Nana'*	Rosemary Grevillea	1m	1m
Mur pan	*Murraya paniculata*	Orange Jessamine	3m	3m
Ground Covers and Grasses				
Dia rev	*Dianella revoluta 'Little Rev'*	Blue Flax Lily	0.6m	0.8m
Gre Bro	*Grevillea 'Bronze Rambler'*	Grevillea 'Bronze Rambler'	0.3m	1m
Lom lon	*Lomandra longifolia 'Tanika'*	Spiney head Mat-rush	1m	1m
Pen naf	*Pennisetum alopecuroides 'Nafray'*	Pennisetum Nafray	0.6m	0.6m
Poa lab	*Poa labillardieri 'Eskdale'*	Tussock Grass	0.4m	0.6m

NOTES

- Refer Architects for further details on building.
- Refer Engineers for further details on levels and sediment control.

CLOUSTON associates

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Scale: 1:750 @ A1

horsley park • building 1

LANDSCAPE CONCEPT

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Figure 6

Vegetation types and status mapping by DECCW (NPWS 2002)

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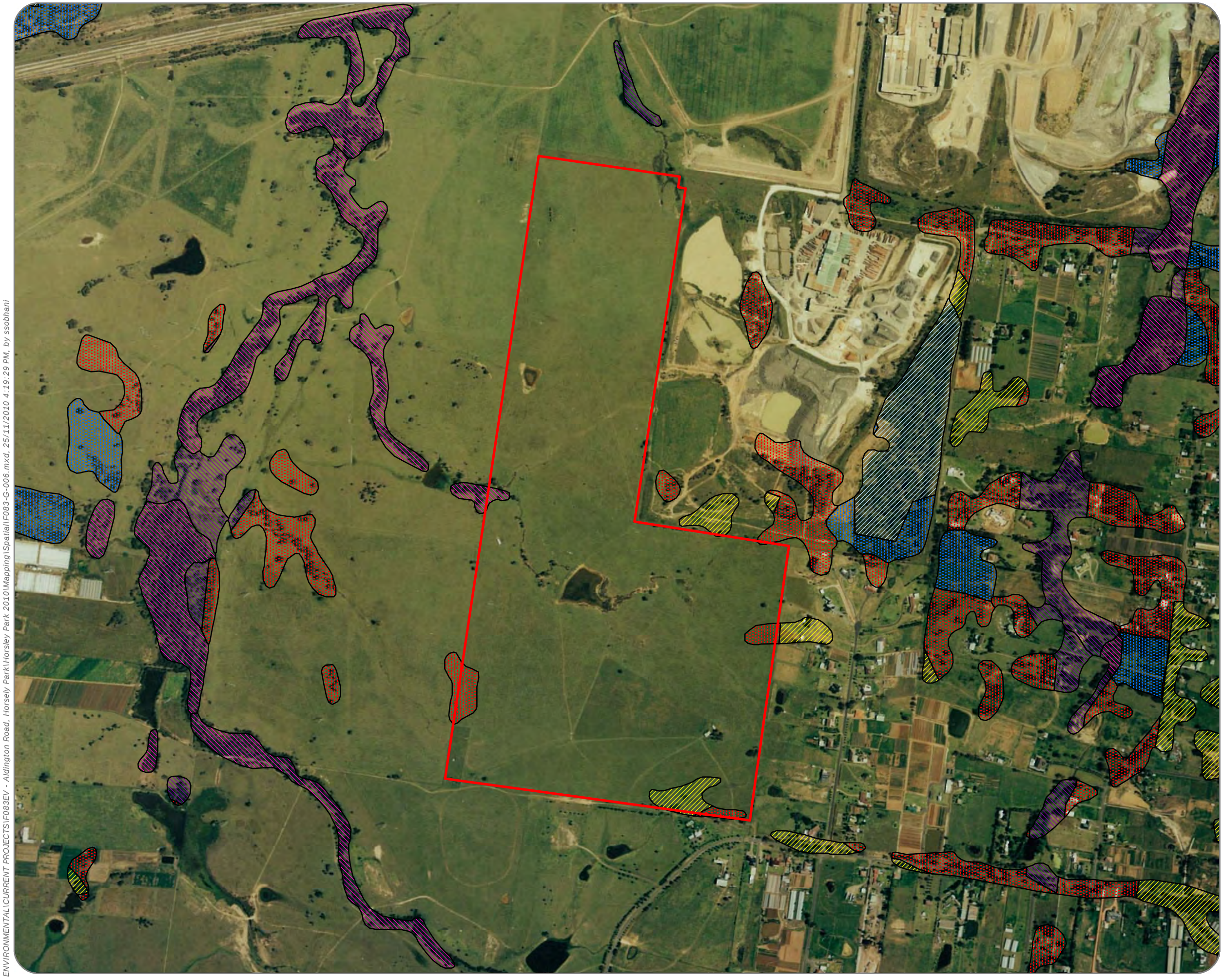

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NOTES:

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2. Subject Site boundary based on DCDB 2010
3. Vegetation mapping © NPWS 2002 (Cumberland Plain Vegetation mapping project)
4. All features are approximate only and subject to detailed survey

LEGEND

- Subject Site

Greater than 10% cover

- Alluvial Woodland
- Shale Hills Woodland
- Shale Plains Woodland

Less than 10% cover

- Alluvial Woodland
- Shale Hills Woodland
- Shale Plains Woodland

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Figure 7

Ground-truthed vegetation types on the subject site at Horsley Park

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NOTES:

1. Aerial Image © Nearmap 15/07/2010
2. Subject Site boundary based on DCDB 2010
3. Vegetation mapping surveyed by Insites 23/07/2010
4. All features are approximate only and subject to detailed survey

LEGEND

- Subject Site
- Disturbed Woodland (River Flat Forest)
- Freshwater Wetland
- Low Closed Grassland (Pasture)

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Figure 8

Hollow-bearing trees and photo-points on the subject site at Horsley Park

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0 75 150 225 300 375
Metres

NOTES:

1. Aerial Image © Nearmap 15/07/2010
2. Subject Site boundary based on DCDB 2010
3. Trees are surveyed by InSites July 2010
4. All features are approximate only and subject to detailed survey

LEGEND

- Subject Site
- Photo points

Hollow-bearing Trees

- Broad-leaved Apple
- Stag

No.	Date	Revision Details	INI

SCALE :	1:7,500 @ A3
CO-ORDS :	MGA
DATUM :	N/A
DATE OF PLAN :	29-07-2010
CHECKED BY/DATE :	SAS/29-07-2010
APPROVED BY/DATE :	FI/29-07-2010
JOB REF:	F083
GIS REF:	F083-G-008.mxd

V:\ ENVIRONMENTAL\CURRENT PROJECTS\F083EV - Aldington Road, Horsely Park\Horsley Park 2010\Mapping\Spatial\F083-G-008.mxd, 25/11/2010 4:21:52 PM, by ssobhani

Lot A in DP 392643 Burley Road
Horsley Park Employment Precinct

Concept Plan & Concurrent Project Application
for
Employment Lands & Stage 1 Industrial Development

Ecological Issues & Assessment Report

Appendix A
DECCW Wildlife Atlas Search

25th August 2010

Whelans InSites Pty Ltd
Level 12/80 Clarence Street Sydney NSW 2000
ph: 02 – 8234 8300 fax: 02 – 9262 6511
email: dfanning@insites.com.au

NPWS - Atlas of NSW Wildlife Page 1 of 2

NSW National Parks & Wildlife Service
atlas of nsw wildlife

Search Results

Your selection: Flora, threatened species, Selected Area - 150.71032,-33.92535,150.92901,-33.74553
returned a total of 460 records of 19 species.
Report generated on 28/07/2010 - 12:18 (Data valid to 25/04/2010)

Choose up to 3 species to map.

Plants	Map	Scientific Name	Common Name	Local Status	Count	Info
Apocynaceae						
	☐	Cynanchum elegans	White-flowered Wax Plant	E1	1	
	☐	Marsdenia viridiflora subsp. viridiflora	Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas	E2	24	
Fabaceae (Faboideae)						
	☐	Dillwynia tenuifolia		V	48	
	☐	Dillwynia tenuifolia	Dillwynia tenuifolia, Kemps Creek	E2	20	
	☐	Pultenaea parviflora		E1	105	
	☐	Pultenaea pedunculata	Matted Bush-pea	E1	3	
Fabaceae (Mimosoideae)						
	☐	Acacia pubescens	Downy Wattle	V	49	
Lobeliaceae						
	☐	Hypsela sessiliflora		E1	7	
Marsileaceae						
	☐	Pilularia novae-hollandiae	Austral Pillwort	E1	1	
Myrtaceae						
	☐	Callistemon linearifolius	Netted Bottle Brush	V	1	
	☐	Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	1	
	☐	Eucalyptus sclerana	Wallangarra White Gum	E1	1	
	☐	Micromyrtus minutiflora		E1	1	
Orchidaceae						
	☐	Diuris aequalis	Buttercup Doubletail	E1	1	
	☐	Pterostylis saxicola	Sydney Plains Greenhood	E1	1	
Proteaceae						
	☐	Grevillea juniperina subsp. juniperina	Juniper-leaved Grevillea	V	133	
	☐	Grevillea parviflora subsp. parviflora	Small-flower Grevillea	V	10	
	☐	Persoonia nutans	Nodding Geebung	E1	24	
Thymelaeaceae						
	☐	Pimelea spicata	Spiked Rice-flower	E1	15	

* Exotic (non-native) species

http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas?species=jsp 28/07/2010

NPWS Atlas of NSW Wildlife

Page 2 of 2

Choose up to 3 species to map.

DISCLAIMER: The Atlas of New South Wales Wildlife contains data from a number of sources including government agencies, non-government organisations and private individuals. These data are only indicative and cannot be considered a comprehensive inventory and may contain errors and omissions. Find out more about the Atlas

Atlas of NSW Wildlife Home |

Healing Thing

http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/WildSpecies.jsp

29/07/2010

NPWS - Atlas of NSW Wildlife Page 1 of 2

NSW National Parks & Wildlife Service
atlas of nsw wildlife

Search Results

Your selection: Fauna, threatened species, Selected Area - 150.72152,-33.92515,150.92581,-33.74553
returned a total of 462 records of 27 species.
Report generated on 28/07/2010 - 12:18 (Data valid to 25/06/2010)

Choose up to 3 species to map.
* Exotic (non-native) species

Amphibia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Hylidae						
	☐	Litoria aurea	Green and Golden Bell Frog	E1	16	

Aves	Map	Scientific Name	Common Name	Legal Status	Count	Info
Acanthizidae						
	☐	Pyrrholaemus sagittatus	Speckled Warbler	V	7	
Accipitridae						
	☐	Hieraaetus morphnoides	Little Eagle	V	12	
	☐	Lophoictinia isura	Square-tailed Kite	V	1	
Burhinidae						
	☐	Burhinus grallarius	Bush Stone-curlew	E1	1	
Cacatuidae						
	☐	Callocephalon fimbriatum	Gang-gang Cockatoo	V	1	
	☐	Calyptorhynchus lathami	Glossy Black-Cockatoo	V	1	
Ciconiidae						
	☐	Ephippiorhynchus asiaticus	Black-necked Stork	E1	1	
Estrildidae						
	☐	Stagonopleura guttata	Diamond Firetail	V	1	
Meliphagidae						
	☐	Melithreptes gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	1	
	☐	Xanthomyza phrygia	Regent Honeyeater	E1	8	
Neosittidae						
	☐	Daphoenositta chrysoptera	Varied Sittella	V	24	
Petroicidae						
	☐	Petroica boodang	Scarlet Robin	V	1	
	☐	Petroica phoenicea	Flame Robin	V	3	
Psittacidae						
	☐	Glossopsitta pusilla	Little Lorikeet	V	1	
	☐	Lathamus discolor	Swift Parrot	E1	15	
Strigidae						
	☐	Ninox connivens	Barking Owl	V	1	
Tytonidae						
	☐	Tyto novaehollandiae	Masked Owl	V	1	

Gastropoda	Map	Scientific Name	Common Name	Legal Status	Count	Info
Camaenidae						

http://wildlifedata.environment.nsw.gov.au/wildlife/atlas/wildatlasSpecies.jsp 28/07/2010

	Map	Scientific Name	Common Name	Legal Status	Count	Info
	☐	Meridolum corneovirens	Cumberland Plain Land Snail	E1	214	i
Mammalia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Dasyuridae						
	☐	Dasyurus maculatus	Spotted-tailed Quoll	V	9	i
Molossidae						
	☐	Mormopterus norfolkensis	Eastern Freetail-bat	V	20	i
Phascolarctidae						
	☐	Phascolarctos cinereus	Koala	V	1	i
Pteropodidae						
	☐	Pteropus poliocephalus	Grey-headed Flying-fox	V	59	i
Vespertilionidae						
	☐	Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	7	i
	☐	Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V	33	i
	☐	Myotis macropus	Southern Myotis	V	12	
	☐	Scoteanax rueppellii	Greater Broad-nosed Bat	V	9	i

* Exotic (non-native) species

Choose up to 3 species to map.

DISCLAIMER: The Atlas of New South Wales Wildlife contains data from a number of sources including government agencies, non-government organisations and private individuals. [illegible]

[Atlas of NSW Wildlife Home]

[illegible]

our environment it's a living thing

Lot A in DP 392643 Burley Road
Horsley Park Employment Precinct

Concept Plan & Concurrent Project Application
for
Employment Lands & Stage 1 Industrial Development

Ecological Issues & Assessment Report

Appendix B
EPBC Act Matters of National Environmental Significance

25th August 2010

Whelans InSites Pty Ltd
Level 12/80 Clarence Street Sydney NSW 2000
ph: 02 – 8234 8300 fax: 02 – 9262 6511
email: dfanning@insites.com.au

Protected Matters Search Tool

You are here: Environment Home > EPBC Act > Search

29 July 2010 12:29

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Search Type: Point

Buffer: 10 km

Coordinates: -33.83544287,150.8185600

Report Contents: Summary
Details
- Matters of NES
- Other matters protected by the EPBC Act
- Extra Information

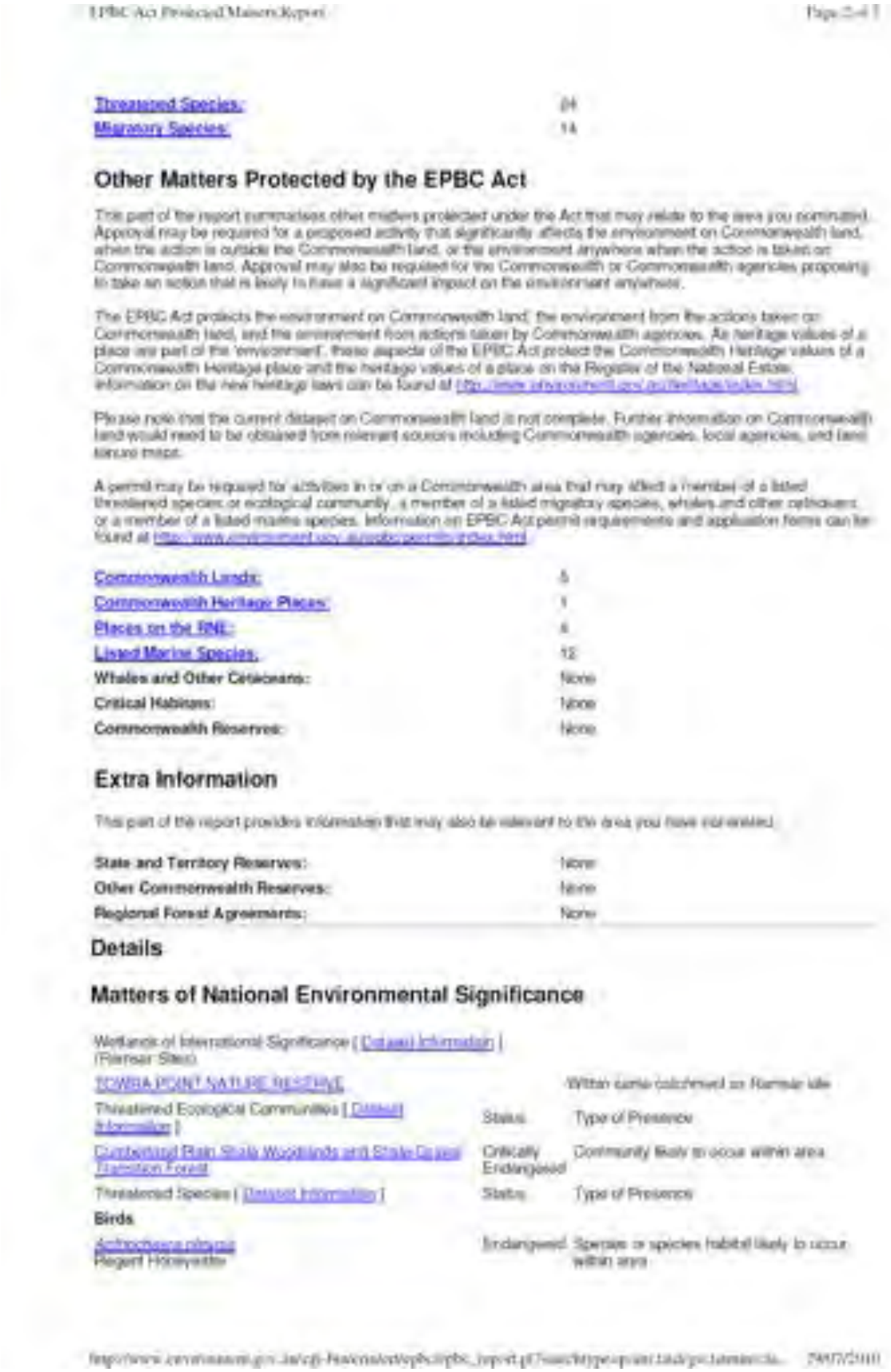
Caveat
Acknowledgments

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance: (Ramsar Sites)	1
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	1



EPBC Act Protected Matters Report

Threatened Species:	24
Migratory Species:	14

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html

Commonwealth Lands:	5
Commonwealth Heritage Places:	1
Places on the RNE:	4
Listed Marine Species:	12
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

Wetlands of International Significance (Ramsar Sites)

TOWRA POINT NATURE RESERVE		Within same catchment as Ramsar site
Threatened Ecological Communities	Status	Type of Presence
Cumberland Plain Shale Woodlands and Shale Gravel Transition Forest	Critically Endangered	Community likely to occur within area
Threatened Species	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater	Endangered	Species or species habitat likely to occur within area

Lathamus discolor Swift Parrot	Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria aurea Green and Golden Bell Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog	Vulnerable	Species or species habitat may occur within area
Mixophyes iteratus Southern Barred Frog, Giant Barred Frog	Endangered	Species or species habitat likely to occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby	Vulnerable	Species or species habitat may occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland)	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus Grey-headed Flying-fox	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Ray-finned fishes		
Macquaria australasica Macquarie Perch	Endangered	Species or species habitat may occur within area
Prototroctes maraena Australian Grayling	Vulnerable	Species or species habitat may occur within area
Reptiles		
Hoplocephalus bungaroides Broad-headed Snake	Vulnerable	Species or species habitat likely to occur within area
Plants		
Acacia pubescens Downy Wattle, Hairy Stemmed Wattle	Vulnerable	Species or species habitat likely to occur within area
Cynanchum elegans White-flowered Wax Plant	Endangered	Species or species habitat likely to occur within area
Dillwynia tenuifolia	Vulnerable	Species or species habitat likely to occur within area
Grevillea parviflora subsp. parviflora Small-flower Grevillea	Vulnerable	Species or species habitat likely to occur within area
Persoonia nutans	Endangered	Species or species habitat likely to occur within area
Pimelea curviflora var. curviflora	Vulnerable	Species or species habitat may occur within area
Pimelea spicata	Endangered	Species or species habitat may occur within area
Pomaderris brunnea Rufous Pomaderris	Vulnerable	Species or species habitat likely to occur within area
Pultenaea parviflora	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence

Migratory Terrestrial Species

Birds

Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Migratory	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Migratory	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Migratory	Breeding likely to occur within area
Rhipidura rufifrons Rufous Fantail	Migratory	Breeding may occur within area
Xanthomyza phrygia Regent Honeyeater	Migratory	Species or species habitat likely to occur within area

Migratory Wetland Species

Birds

Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Migratory	Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area

Migratory Marine Birds

Apus pacificus Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species | Dataset Information |	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly	Species or species habitat may occur within area

	marine area	
Lathamus discolor Swift Parrot	Listed - overfly marine area	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
Rhipidura rufifrons Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area

Commonwealth Lands [Dataset Information]

Communications, Information Technology and the Arts - Australian Postal Corporation

Communications, Information Technology and the Arts - Telstra Corporation Limited

Defence

Defence - Defence Housing Authority

Unknown

Commonwealth Heritage Places [Dataset Information]

Orchard Hills Cumberland Plain Woodland NSW

Places on the RNE [Dataset Information]
Note that not all Indigenous sites may be listed.

Historic

Horsley Garden NSW

Horsley Homestead, Outbuildings and Surrounds NSW

Hoxton Park Airport NSW

Manor and Curtilage NSW

St Mary Magdalene Anglican Church & Cemetery NSW

The Homestead NSW

Natural

Kemps Creek Natural Area NSW

Orchard Hills Cumberland Plain Woodland NSW

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant to determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "Type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the migratory and marine provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some threatened species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seabirds which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium

- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUCIM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Department of the Environment, Water, Heritage and the Arts
GPO Box 787 Canberra ACT 2601 Australia
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Last updated: Thursday, 20-Nov-2008 14:17:56 EST

Lot A in DP 392643 Burley Road
Horsley Park Employment Precinct

Concept Plan & Concurrent Project Application
for
Employment Lands & Stage 1 Industrial Development

Ecological Issues & Assessment Report

Appendix C
Flora species list

25th August 2010

Whelans InSites Pty Ltd
Level 12/80 Clarence Street Sydney NSW 2000
ph: 02 – 8234 8300 fax: 02 – 9262 6511
email: dfanning@insites.com.au

APPENDIX C Flora species list on the Subject Site at Horsley Park.

KEY	
Status	
*	Exotic species
**	Noxious species listed in the Baulkham Hills Shire Council LGA
+	Native but not endemic
V	Listed as "*vulnerable*" on the TSC Act

STATUS	SCIENTIFIC NAME	COMMON NAME
	Alismataceae	
	Alisma plantago-aquatica	Water Plantain
	Apiaceae	
	Centella asiatica	Pennywort
*	*Daucus carota*	Wild Carrot
	Asteraceae	
*	*Aster subulatus*	Wild Aster
*	*Bidens pilosa*	Cobbler's Pegs
*	*Cirsium vulgare*	Spear Thistle
*	*Conyza bonariensis*	Flaxleaf Fleabane
*	*Conyza sumatrensis*	Tall fleabane
	Cotula australis	Common Cotula
*	*Cotula coronopifolia*	Water Buttons
*	*Gamochaeta americana*	Cudweed
*	*Hypochaeris radicata*	Catsear
*	*Senecio madagascariensis*	Fireweed
*	*Soliva sessilis*	Bindii
*	*Sonchus oleraceus*	Common Sowthistle
*	*Taraxacum officinale*	Dandelion
*	*Xanthium spinosum*	Bathurst Burr
	Basellaceae	
*	*Anredera cordifolia*	Madeira Vine
	Caryophyllaceae	
*	*Spergularia marina*	-
	Casuarinaceae	
	Casuarina glauca	Swamp Oak
	Chenopodiaceae	
	Atriplex semibaccata	Creeping Saltbush
*	*Chenopodium murale*	Nettle-leaf Goosefoot
	Einadia hastata	Berry Saltbush
	Convolvulaceae	
	Dichondra repens	Kidney Weed
	Cyperaceae	
*	*Cyperus brevifolius*	-
*	*Cyperus eragrostis*	Umbrella Sedge
	Cyperus gracilis	Slender Flat-sedge
	Eleocharis sphacelata	Tall Spike Rush
	Fabaceae (Faboideae)	
	Desmodium varians	Slender tick trefoil
	Glycine clandestina	-
	Hydrocharitaceae	
	Ottelia ovalifolia	Swamp Lily
	Juncaceae	
*	*Juncus acutus*	Sharp Rush
	Juncus planifolius	-
	Juncus usitatus	-
	Juncaginaceae	
	Triglochin procerum	Water Ribbons
	Lamiaceae	
*	*Stachys arvensis*	Stagger Weed

APPENDIX C Flora species list on the Subject Site at Horsley Park.

STATUS	SCIENTIFIC NAME	COMMON NAME
	Malvaceae	
*	*Malva parviflora*	Small-flowered Mallow
*	*Sida rhombifolia*	Paddy's Lucerne
	Myrsinaceae	
*	*Anagallis arvensis*	Scarlet/Blue Pimpernel
	Myrtaceae	
	Angophora subvelutina	Broad-leaved Apple
	Eucalyptus amplifolia subsp. amplifolia	Cabbage Gum
	Eucalyptus crebra	Narrow-leaved Ironbark
	Eucalyptus tereticornis	Forest Red Gum
	Melaleuca decora	White Feather Myrtle
	Oleaceae	
*	*Ligustrum lucidum*	Large-leaved Privet
	Oxalidaceae	
*	*Oxalis corniculata*	Creeping Oxalis
*	*Oxalis pes-caprae*	Soursob
	Plantaginaceae	
	Plantago debilis	Slender Plantago
*	*Plantago lanceolata*	Lamb's Tongues
	Poaceae	
	Austrodanthonia tenuior	-
*	*Axonopus fissifolius*	Narrow-leaved Carpet Grass
*	*Briza subaristata*	-
*	*Bromus cartharticus*	Prairie Grass
*	*Chloris gayana*	Rhodes Grass
	Chloris virgata	Feathertop Rhodes Grass
	Cynodon dactylon	Common Couch
*	*Dactylis glomerata*	Cocksfoot
*	*Eleusine tristachya*	Goose Grass
*	*Eragrostis curvula*	African Lovegrass
	Eragrostis leptostachya	Paddock Lovegrass
*	*Eragrostis tenuifolia*	Elastic Grass
*	*Lolium perenne*	Perennial Ryegrass
	Microlaena stipoides var. stipoides	-
*	*Paspalum dilatatum*	Paspalum
	Paspalum distichum	Water Couch
*	*Paspalum urvillei*	Vasey Grass
*	*Pennisetum clandestinum*	Kikuyu Grass
	Phragmites australis	Common Reed
*	*Setaria gracilis*	Slender Pigeon Grass
*	*Sporobolus africanus*	Parramatta Grass
	Sporobolus creber	Slender Rat's Tail Grass
	Themeda australis	Kangaroo Grass
*	*Vulpia bromoides*	Squirrel Tail Fesque
*	*Vulpia myuros*	Rat's Tail Fescue
	Polygonaceae	
	Persicaria decipiens	Slender Knotweed
*	*Rumex crispus*	Curled Dock
	Ranunculaceae	
	Ranunculus plebeius	-
	Rosaceae	
*	*Rubus fruticosus* complex	Blackberry
	Rubiaceae	
	Asperula conferta	Common Woodruff
	Solanaceae	
*	*Cestrum nocturnum*	Lady-of-the-night
*	*Lycium ferocissimum*	African Boxthorn
*	*Solanum linnaeanum*	Apple of Sodom
*	*Solanum nigrum*	Black-berry Nightshade

APPENDIX C Flora species list on the Subject Site at Horsley Park.

STATUS	SCIENTIFIC NAME	COMMON NAME
	Typhaceae	
	Typha orientalis	Broad-leaved Cumbungi
	Urticaceae	
*	*Urtica urens*	Small Nettle
	Verbenaceae	
*	*Verbena bonariensis*	Purpletop
	Violaceae	
	Viola hederacea	Ivy-leaved Violet

Lot A in DP 392643 Burley Road
Horsley Park Employment Precinct

Concept Plan & Concurrent Project Application
for
Employment Lands & Stage 1 Industrial Development

Ecological Issues & Assessment Report

Appendix D
Fauna species list

25th August 2010

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APPENDIX D Fauna species list on the subject site at Horsley Park.

STATUS	COMMON NAME	SCIENTIFIC NAME	HABITAT on SITE
	AVES		
	Anatidae		
	Australasian Grebe	*Tachybaptus novaehollandiae*	Farm Dams
	Australasian Shoveler	*Anas rhynchotis*	Farm Dams
	Australian Wood Duck	*Chenonetta jubata*	Farm Dams
	Black Swan	*Cygnus atratus*	Farm Dams
	Grey Teal	*Anas gracilis*	Farm Dams
	Hardhead	*Aythya australis*	Farm Dams
	Hoary-headed Grebe	*Poliocephalus poliocephalus*	Farm Dams
	Pacific Black Duck	*Anas superciliosa*	Farm Dams
	Ardeidae		
	White-faced Heron	*Egretta novaehollandiae*	Edges of Farm Dams
	Rallidae		
	Dusky Moorhen	*Gallinula tenebrosa*	Edges of Farm Dams
	Eurasian Coot	*Fulica atra*	Edges of Farm Dams
	Purple Swamphen	*Porphyrio porphyrio*	Edges of Farm Dams
	Recurvirostridae		
	Black-winged Stilt	*Himantopus himantopus*	Edges of Farm Dams
	Threskiornithidae		
	Sacred Ibis	*Threskiornis molucca*	Edges of Farm Dams
	Charadriidae		
M	Masked Lapwing	*Vanellus miles*	Grasslands
	Cacatuidae		
	Long-billed Corella	*Cacatua tenuirostris*	Grasslands
	Motacillidae		
	Richard's Pipit	*Anthus novaeseelandiae*	Grasslands
	Columbidae		
	Crested Pigeon	*Ocyphaps lophotes*	Grasslands
	Rock Dove	*Columba livia*	Woodlands and Grasslands
	Spotted Turtle-Dove	*Streptopelia chinensis*	Woodlands and Grasslands
	Sylviidae		
	Tawny Grassbird	*Megalurus timoriensis*	Grasslands
	Little Grassbird	*Megalurus gramineus*	Grasslands
	Sturnidae		
	Common Starling	*Sturnus vulgaris*	Grasslands
	Common Myna	*Acridotheres tristis*	Woodlands and Grasslands
	Psittacidae		
	Eastern Rosella	*Platycercus eximius*	Woodlands and Grasslands
	Red-rumped Parrot	*Psephotus haematonotus*	Woodlands and Grasslands
	Rainbow Lorikeet	*Trichoglossus haematodus*	Woodlands and Grasslands
	Maluridae		
	Superb Fairy-wren	*Malurus cyaneus*	Woodlands and Grasslands
	Pardalotidae		
	Striated Pardalote	*Pardalotus striatus*	Woodlands
	Meliphagidae		
	Noisy Miner	*Manorina melanocephala*	Woodlands and Grasslands
	Dicruridae		
	Magpie-lark	*Grallina cyanoleuca*	Woodlands and Grasslands
	Willie Wagtail	*Rhipidura leucophrys*	Woodlands and Grasslands
	Artamidae		
	Australian Magpie	*Gymnorhina tibicen*	Woodlands and Grasslands
	Corvidae		
	Australian Raven	*Corvus coronoides*	Woodlands and Grasslands

APPENDIX D contd Fauna species list on the subject site at Horsley Park.

STATUS	COMMON NAME	SCIENTIFIC NAME	HABITAT on SITE
	Hirundinidae		
	Welcome Swallow	*Hirundo neoxena*	Aerial
	Iconidae		
	Brown Falcon	*Falco berigora*	Woodlands and Grasslands
	Australian Kestrel	*Falco cenchroides*	Grasslands
Reptiles			
	Scincidae		
	Grass Sun-skink	*Lampropholis delicata*	Woodlands and Grasslands
Amphibians			
	Hylidae		
	Common Eastern Froglet	*Crinia signifera*	Farm Dams
	Myobatrachidae		
	Stripe Marsh Frog	*Limnodynastes peronii*	Farm Dams
	Pink Striped Frog	*Limnodynastes salmini*	Farm Dams
Mammals			
	Eastern Grey Kangaroo	*Macropus gigantues*	Woodlands and Grasslands