CLIENTS | PEOPLE | PERFORMANCE

Terminals Australia Pty Ltd

Parkes Intermodal Terminal DA & Masterplan

Ecological and Bushfire Assessment

January 2006

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

Contents

Table Index

Figure Index

Appendices

1. Introduction

1.1 Purpose

GHD was commissioned to undertake a flora and fauna and bushfire risk assessment of a site proposed for location of an intermodal terminal at Parkes, Western NSW. Figure 1 illustrates the location of the site and Figure 2 the site boundary. Figure 3 shows the proposed layout. Key ecological issues that required consideration at the site included:

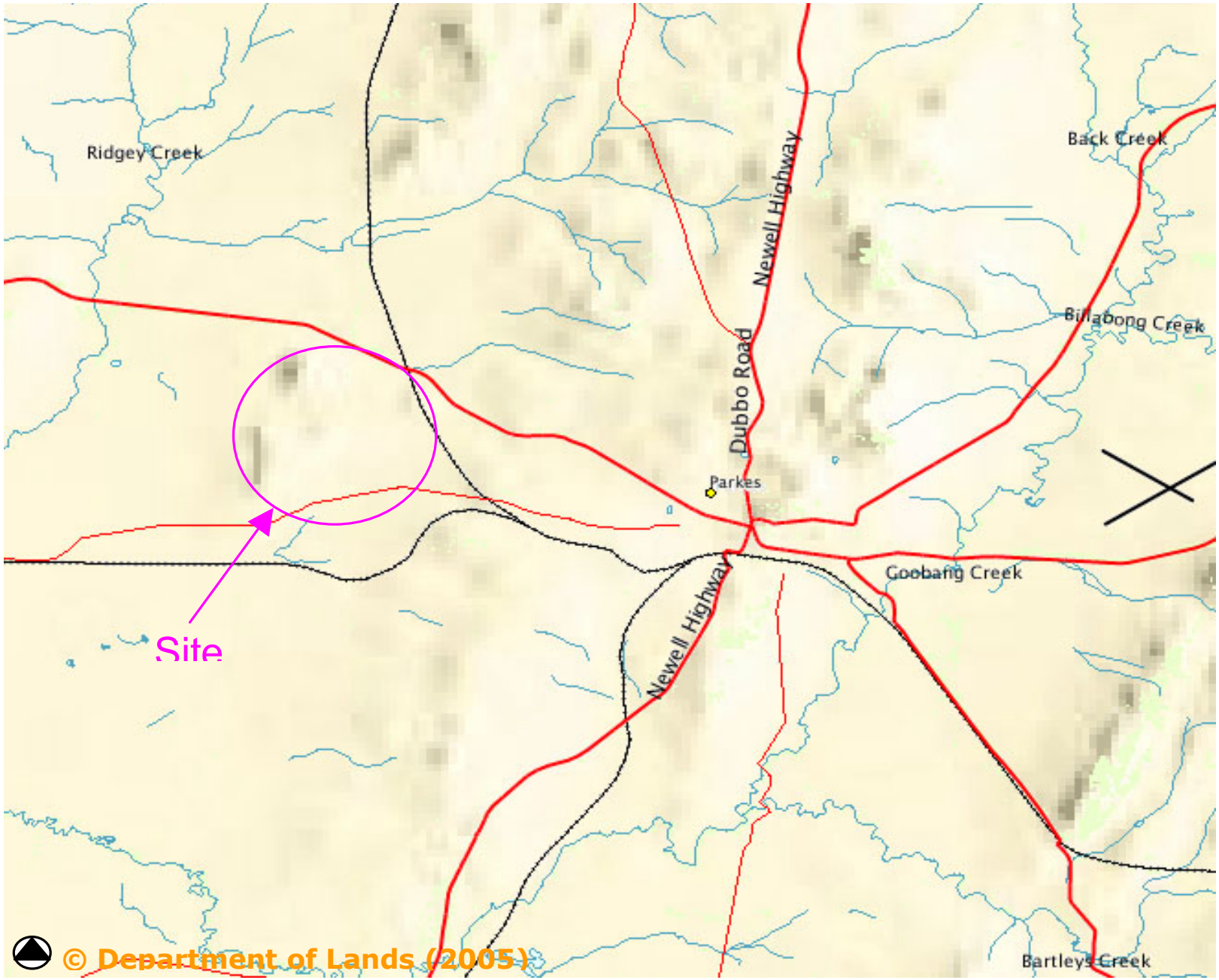
- The potential presence of any threatened species or their habitat listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act);
- The potential presence of any Matter of National Environmental Significance (NES) listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- Potential corridor or vegetation management and conservation options; and
- Potential bushfire hazards.

1.2 Background

The site is located in Parkes, western NSW. It is bound to the north by Condoblin Road and grazing land, the east by the current existing railway, part of the south by Brolgan Road and grazing land lays to the east. Small parcels of land to the south west of Brolgan Road and north east of the current Parkes-Narromine railway were also incorporated as part of the site as shown in Figure 1. The majority of the site had been cleared in the past for cattle grazing and crops. The south eastern and central parts of the site had recently been sown for crops at the time of the site inspection and other areas were heavily grazed. Open woodland supporting a canopy of Yellow Box (*Eucalyptus melliodora*), White Box (*Eucalyptus albens*) and White Cypress Pine (*Callitris glaucophylla*) occurred in the north western corner of the site and also supported a heavily grazed understorey dominated by exotic species. The small parcel of land in the north east of the site supported White Box with a highly disturbed understorey and very little ground cover.

1.3 Soils and Topography

The site was predominantly flat, sloping up to a small ridge line in the north of the site. Soils were primarily sandy loam.



GHD
MANAGEMENT
ENGINEERING
ENVIRONMENT

10 Bond Street
SYDNEY NSW 2000
Telephone (61 2) 9239 7100
Facsimile (61 2) 9239 7193
Email: sydmail@ghd.com.au
Web Site: www.ghd.com.au

N

Figure 1: Site Location

CLIENT: Terminals Australia

PROJECT: Parkes Intermodal Terminal

VERSION: DRAFT

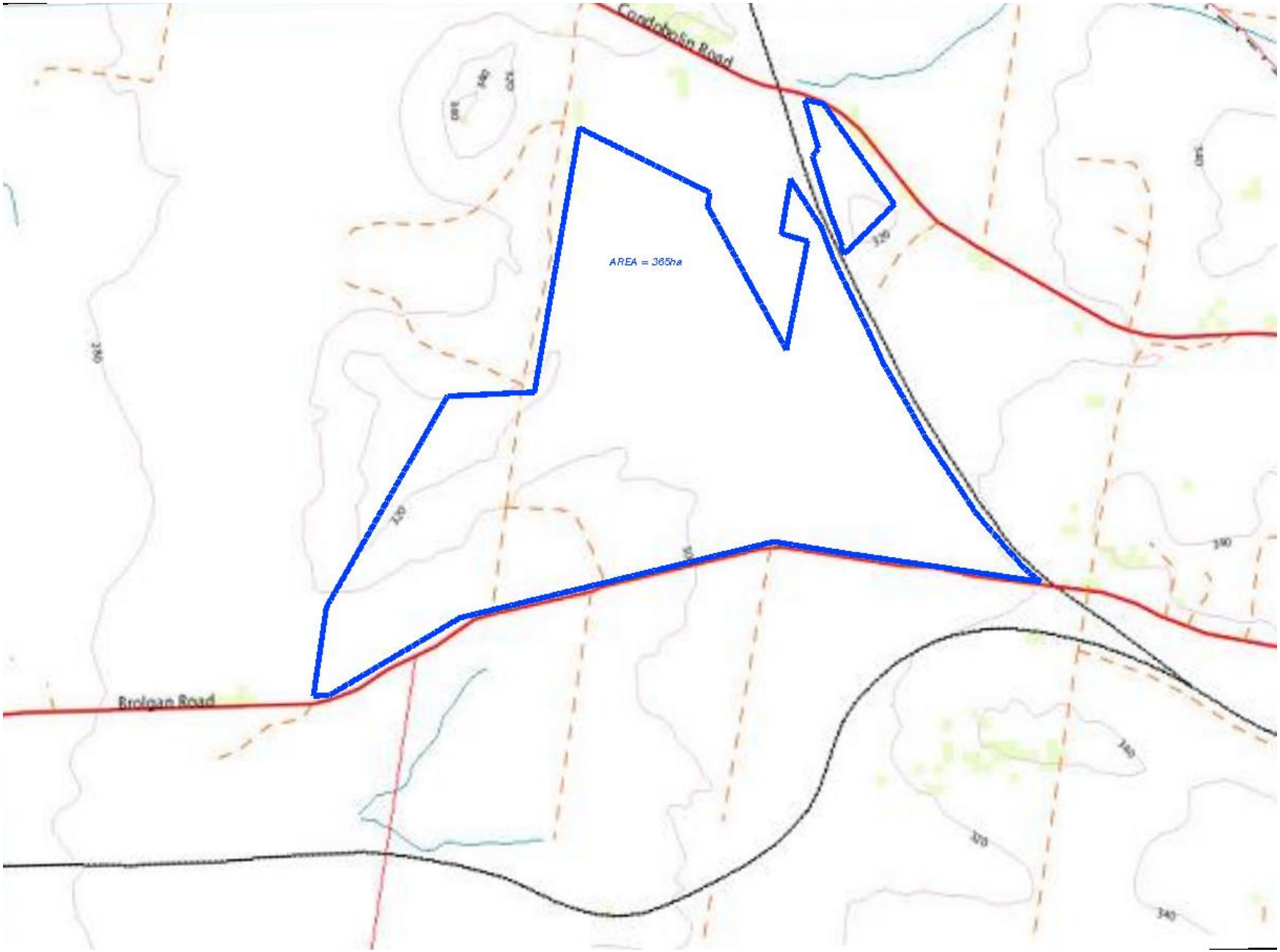
PROJECT NO: 21-13701

MAP NO: 21-13701-Z001

DRAWN: CW

DATE: 22/12/05

Document (MXD): G:\Projects\21\13701\GIS\Map Documents\Z001.mxd



GHD
MANAGEMENT
ENGINEERING
ENVIRONMENT

10 Bond Street
SYDNEY NSW 2000
Telephone (61 2) 9239 7100
Facsimile (61 2) 9239 7193
Email: sydmail@ghd.com.au
Web Site: www.ghd.com.au

N

Figure 2: Site Boundary

CLIENT: Terminals Australia

PROJECT: Parkes Intermodal Terminal

VERSION: DRAFT

PROJECT NO: 21-13701

MAP NO: 21-13701-Z002

DRAWN: CW

DATE: 22/12/05

Document (MXD): G:\Projects\21\13701\GIS\Map Documents\Z002.mxd

EXISTING LEVEL CROSSING WITH TYPE 'F' SIGNALS TO BE UPGRADED TO INCLUDE ADVANCED WARNING

TO NARROMINE

NEW INTERSECTION TO RTA SPECIFICATIONS

MR61 (CONDOBOLIN ROAD)

GRADE SEPARATED CROSSING

PROPOSED NORTHERN ACCESS ROAD

98
DP750179

PROPOSED MASTER SIDING

PROPOSED PROTECTED LEVEL CROSSING AT GRADE

SITE BOUNDARY

4 x 500-800m WAGON STORAGE SIDINGS WITH OPTIONAL MIN. 900m EXTENSIONS

HEAVY ENGINEERING FACILITY
AREA = 2.5ha
4 x 600m SIDINGS

6
DP857631

TRAIN REFUELLING & SANDING FACILITY AREA = 0.5ha.

CONTAINERISED FUEL STORAGE FACILITY
AREA = 3.5ha (700m x 50m)
2 x 800m SIDINGS

EXISTING RAIL LINE

PROPOSED SIDING

PROPOSED LANDSCAPING

18
DP658361

INTERMODAL TERMINAL CONTAINER STORAGE
ULTIMATE STAGE = 42ha

INTERMODAL TERMINAL CONTAINER STORAGE
ULTIMATE STAGE = 42ha

INTERMODAL TERMINAL SIDINGS
4 x 1800m AT ULTIMATE STAGE

GANTRY RAILS

POTENTIAL ADDITIONAL WAREHOUSING
AREA = 12ha

ULTIMATE WAREHOUSING AREA = 3ha

INITIAL WAREHOUSING AREA = 2ha

ULTIMATE WAREHOUSING AREA = 3ha

BROLGAN ROAD 40.235 WIDE

BROLGAN ROAD TO BE UPGRADED FROM PROPOSED LEVEL CROSSING TO WEST LIME ROAD FOR HEAVY VEHICLES

EXISTING LEVEL CROSSING TO BE UPGRADED TO TYPE 'F' SIGNALS WITH BOOMS AND WIDENED

RESTRICTED ACCESS BY AUTHORISED VEHICLES ONLY

MULTIPLE SITE ACCESS AT BROLGAN ROAD AS REQUIRED FOR EACH WAREHOUSE FACILITY & TERMINAL ADMIN OFFICE/MAINTENANCE FACILITY

TERMINAL ADMINISTRATION OFFICE (INCL. PARKING)
AREA = 0.5ha

TERMINAL PLANT REFUELLING & MAINTENANCE FACILITY
AREA = 0.5ha

EXPAND EXISTING DAM FOR ON SITE DETENTION #1 (OSD#1)

PROPOSED LEVEL CROSSING AT GRADE WITH TYPE 'F' SIGNALS WITH BOOMS

DRAINAGE CULVERT UNDER BROLGAN ROAD

DAM

Wide Shearing Shed

OVERFLOW PIPE FROM OSD#1 TO OSD#2

30.175 WIDE

COOPERS ROAD

200
DP627302

PROPOSED EASEMENT

EXPAND EXISTING DAM FOR ON SITE DETENTION #2 (OSD#2)

OVERFLOW PIPE FROM OSD#2 TO GOOBANG CREEK

TO BROKEN HILL

EXISTING RAIL LINE

30.175 WIDE

DRAINAGE CULVERT OR BORED PIPE UNDER RAIL LINE

OVERFLOW PIPE TO GOOBANG CREEK

TO PARKES

BROLGAN ROAD

TO PARKES

ORANGE BROKEN HILL RAILWAY

NOTE:
STORMWATER DRAINAGE CONCEPT OMITTED FOR CLARITY.
REFER TO DRAWING No.21-13701-R0200 REV A FOR DETAILS

PRELIMINARY

GHD | CLIENTS | PEOPLE | PERFORMANCE
10 Bond Street, Sydney, NSW 2000 Australia
T 61 2 9239 7100 F 61 2 9239 7199
E sydmail@ghd.com.au W www.ghd.com.au

Scale	1:5000	DO NOT SCALE	
Drawn	CT	Designed	CC
Drafting Check	CC	Design Check	KT
Approved	D ROBERTS		
Date	18/01/06		

This Drawing must not be used for Construction unless signed as Approved

Client: TERMINALS AUSTRALIA PTY LTD
Project: PARKES INTERMODAL TERMINAL
Title: FIGURE 3 : PROPOSED CONCEPT LAYOUT PLAN AT ULTIMATE STAGE

Original Size: A0
Drawing No: 21-13701-R020 (Fig.3)
Rev: A

2. Methodology

Given that the proposal was to be located on a site that was highly disturbed and support limited habitat for threatened flora and fauna, no detailed surveys were undertaken. A site inspection was conducted on July 8 2005 to assess the vegetation present at the site and the potential for the site to provide habitat for threatened flora and fauna species. Methodology used for the assessment is outlined below.

2.1 Literature Review

Available literature pertaining to the site and locality was reviewed prior to the site inspection to identify those species that may occur at the site or for which potential habitat was present. These findings were ground-verified during the site inspection. Literature reviewed included:

- Department of Environment and Conservation (DEC) Threatened Species Database Search for threatened species recorded within the locality (i.e. 10 km radius of the site);
- Department of Environment and Heritage (DEH) Protected Matters Search Tool for Matters of National Environmental Significance likely to occur in locality;
- Royal Botanic Gardens Threatened Flora Database Records; and
- Birds Australia Atlas of Threatened Species Records.

2.2 Site Inspection

A site inspection was undertaken to verify vegetation communities and fauna habitat at the site. No detailed flora and fauna surveys were undertaken. However, broad flora surveys were undertaken using the Random Meander technique.

A general fauna habitat assessment was conducted. Habitat assessments comprised an assessment of the nature and condition of habitats, specific resources and features of relevance for native fauna. In addition, indirect evidence of fauna (i.e. scats, feathers, fur, tracks, dens, nests, scratches, chew marks and owl wash) was recorded.

2.3 Limitations

Given that no detailed surveys were undertaken at the site and a half day site inspection was undertaken, limitations to this assessment exist. There is the potential for some species such as mobile species to occur at the site but to have not been recorded during the site inspection as they may periodically visit the site but were absent during the site inspection. Furthermore, the site inspection was undertaken outside the flowering season of many plants and therefore the potential for detection of cryptic species such as orchids was limited.

The drought conditions and heavy grazing at the site made flora species identification difficult as the ground cover in most areas not sown had been grazed down to ground level.

3. Results

3.1 Literature Review

Results of the literature review indicated that a number of threatened flora and fauna had been recorded within the locality or had the potential to occur within the locality. The results of the DEC, Royal Botanic Gardens and Birds Australia Database searches are shown in Figure 4 and Figure 5 and the results of the site inspection are detailed below.

3.2 Flora

Much of the site had been cleared and was currently used for crops or cattle grazing. The only vegetated areas at the site occurred in the north western corner and the small parcel of land in the north east. The north western corner supported vegetation largely characteristic of the endangered ecological community, White Box Yellow Box Blakely's Red Gum Woodland. It had an open woodland structure supporting a canopy of Yellow Box, White Box and White Cypress Pine. Although the understorey was disturbed and currently grazed by sheep, the canopy species are characteristic of this community. In areas not grazed by sheep along Brolgan Road native grass species such as Wallaby Grass (*Austrodanthonia bipartita*) occurred, suggesting that the site may have once supported intact White Box Yellow Box Blakely's Red Gum Woodland. This community was not present in any other areas of the site and would not be impacted by the proposal. The small parcel of land in the north east of the site supported White Box with a highly disturbed understorey and very little ground cover.

The majority of the soil across the remainder of the site had been sown with crops and therefore did not contain any native groundcover. However, native trees such as White Cypress were scattered across these areas. A row of Yellow Box also occurred along the western boundary and Yellow Box and White Box trees were scattered throughout the disturbed and sown areas.

3.2.1 Endangered Ecological Communities

The site supported a remnant of open woodland vegetation characteristic of the endangered ecological community White Box Yellow Box Blakely's Red Gum Woodland. This community is listed under the NSW TSC Act. The community is also potentially characteristic of a disturbed remnant of the Commonwealth EPBC Act listed Grassy White Box Woodland. Although named differently under State and Commonwealth legislation, these communities have similar characteristics. White Box and Yellow Box were present at the site and are key diagnostic species for these communities. The understorey was largely absent and the ground cover appeared to support a mixture of native and exotic species. However, the drought conditions and heavy grazing made species identification difficult. This community would not be directly impacted by the proposal and indirect impacts would be mitigated. Therefore further consideration of this community was not deemed necessary.

3.2.2 Threatened Flora

A number of threatened flora species have been recorded within the locality (Figure 4 & Figure 5) and these are listed in Table 1 together with their conservation status and an assessment of the likelihood of them occurring at the site. Given that the site was highly disturbed and in most areas the soil had been sown with crops, it is unlikely that any of these species would occur.

Table 1 Threatened Flora Recorded within the Locality (DEC & RBG 2005)

Family	Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Likelihood of Occurring at Site
Fabaceae - faboideae	*Swainsona sericea*	Silky Swainson-pea	V		Potential habitat present in woodland.
Goodeniaceae	*Goodenia macbarronii*	MacBarron's Goodenia	V	V	Unlikely. No potential habitat.
Poaceae	*Austrostipa wakoolica*		E		Potential habitat present in woodland.
Rutaceae	*Philotheca ericifolia*		V	V	Unlikely. No potential habitat.

Note: E = Endangered, V = Vulnerable;

TSC Act = *Threatened Species Conservation Act 1995*; and

EPBC Act = *Environment Protection and Biodiversity Conservation Act 1999*.

3.3 Fauna

The site supports limited habitat for fauna as the majority had been cleared of vegetation and only scattered tree cover remained. However, the woodland area on the north western part of the site is likely to provide potential nesting and foraging habitat for a variety of bird species. No habitat for ground-dwelling or arboreal mammals was recorded at the site as the site did not support an understorey and the woodland area was sparse. However, the few hollow-bearing trees scattered across the site may provide habitat for some species of bats and birds. Two dams were present at the site and these have the potential to provide habitat for common frog species.

A small rocky area occurred south of the woodland along the western boundary of the site and may provide potential habitat for some reptiles such as skinks.

3.3.1 Threatened Fauna

A number of threatened fauna have been recorded within the locality (DEC 2005 & Birds Australia 2005, Figure 4 & Figure 5) and some have the potential to occur at the site. The woodland in the north western corner may provide foraging habitat for a number of threatened birds including the Grey Falcon (*Falco hypoleucos*) which has been recorded north of the site along Condobolin Road (Birds Australia 2005). Table 2 lists those species recorded within a 20 km radius of the site, their conservation status and outlines the likelihood that they could occur at the site. Given that the woodland at the site would not be removed as part of the proposal and some areas of pasture would also remain, it is considered unlikely that the removal of a small number of scattered trees have a significant impact on any of these species.

3.4 Corridors

The site does not form part of any recognisable fauna corridors throughout the locality. The site is isolated and disturbed, as is the majority of the vegetation around the site. Limited connectivity is evident in the north to vegetation along Condobolin Road. The woodland in the north western part of the site is likely to provide some connectivity in the form of stepping-stones for mobile species such as bats and birds throughout the locality. No corridors would be isolated or fragmented as a consequence of the proposal.

Table 2 Threatened Fauna Recorded within a 20 km radius of the Site (DEC 2005)

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Likelihood of Occurring at Site
Birds				
Calyptorhynchus lathami	Glossy Black-Cockatoo	V		Unlikely. No potential habitat.
Climacteris picumnus	Brown Treecreeper	V		Unlikely. No potential habitat.
Falco hypoleucos	Grey Falcon	V		Potential habitat present and has been recorded north of the site on Condobolin Road.
Hamirostra melanosternon	Black-breasted Buzzard			Potential foraging habitat present.
Lathamus discolor	Swift Parrot	E	E	Limited potential foraging habitat in the woodland supporting White Box.
Limosa limosa	Black-tailed Godwit	V		Unlikely. No potential habitat.
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subsp.)	V		Limited potential foraging habitat present.
Neophema pulchella	Turquoise Parrot	V		Potential foraging habitat present.
Ninox connivens	Barking Owl	V		Potential foraging habitat present.
Polytelis swainsonii	Superb Parrot	V	V	Potential foraging and limited nesting habitat present.
Pomatostomus temporalis temporalis	Grey-crowned Babbler (eastern subsp.)	V		Potential habitat present in woodland.
Pyrrholaemus sagittatus	Speckled Warbler	V		Potential habitat present in woodland.

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Likelihood of Occurring at Site
Stagonopleura guttata	Diamond Firetail	V		Potential habitat present.
Stictonetta naevosa	Freckled Duck	V		Unlikely. No potential habitat.
Xanthomyza phrygia	Regent Honeyeater	E	E	Potential foraging habitat present in form of Yellow Box.
Mammals				
Phascolarctos cinereus	Koala	V		Unlikely. No potential habitat.

Note: E = Endangered, V = Vulnerable;

TSC Act = *Threatened Species Conservation Act 1995*; and

EPBC Act = *Environment Protection and Biodiversity Conservation Act 1999*.

Flora

Austrostipa wakoolica
Goodenia macbarronii
Philotheca ericifolia

Fauna

Calyptorhynchus lathami Glossy Black-Cockatoo
Climacteris picumnus Brown Treecreeper
Falco hypoleucos Grey Falcon
Lathamus discolor Swift Parrot
Limosa limosa Black-tailed Godwit
Melithreptus gularis gularis Black-chinned Honeyeater (eastern subsp.)
Neophema pulchella Turquoise Parrot
Ninox connivens Barking Owl
Phascolarctos cinereus Koala
Polytelis swainsonii Superb Parrot
Pomatostomus temporalis temporalis Grey-crowned Babbler (eastern subsp.)
Pyrrholaemus sagittatus Speckled Warbler
Stagonopleura guttata Diamond Firetail
Stictonetta naevosa Freckled Duck
Xanthomyza phrygia Regent Honeyeater

20km radius
NPWS Estate
State Forest

Goobang National Pa
Goobang National Park
Goobang National Park
Monumea Gap
Monumea Gap
Warregal
Cookamidgera
Yarragong
Gunning Gap

VERSION: 1/5/05

PROJECT NO:211370105

0 5 10 15
Kilometres

N

GHD
MANAGEMENT
ENGINEERING
ENVIRONMENT
10 Bond Street
SYDNEY NSW 2000
Telephone (61 2) 9239 7100
Facsimile (61 2) 9239 7193
Email: sydmail@ghd.com.au
Web Site: www.ghd.com.au

Client: Terminals Australia

Project: **Parkes Intermodal Terminal Ecological Assessment**

Figure 4: DEC Threatened Species Recorded within the Locality (20km)

VERSION: 29/7/05

PROJECT NO:211370105

GHD
MANAGEMENT
ENGINEERING
ENVIRONMENT
10 Bond Street
SYDNEY NSW 2000
Telephone (61 2) 9239 7100
Facsimile (61 2) 9239 7193
Email: sydmail@ghd.com.au
Web Site: www.ghd.com.au

Client: Terminals Australia

Project: **Parkes Intermodal Terminal Ecological Assessment**

Figure 5: Royal Botanic Gardens and Birds Australia Records (2005)

4. Impact Assessment

4.1 Assessment Under Part 3 of the EP&A Act

Pursuant to the NSW *Environment Planning and Assessment Act 1979* (EP&A Act) an assessment of the impacts of the proposed works on land that is critical habitat or is likely to significantly affect threatened species, populations or ecological communities, or their habitats, was undertaken. If the assessment concludes that a significant impact is likely on threatened species or endangered ecological communities then a Development Application must be accompanied by a Species Impact Statement (SIS).

In accordance with DEC *Draft Guidelines for Threatened Species Assessment* (July 2005), the assessment of potential impacts of the proposal on threatened species are set out in Annex A. Assessment of potential impacts for threatened species and endangered ecological communities has been undertaken for the following threatened species as these species have the potential to nest at the site due to the presence of a small number of mature and hollow-bearing trees and stags.

» Grey Falcon; and

» Superb Parrot.

There is also the potential for other mobile species to periodically use the site during foraging activities, but the impacts on these species are likely to be limited as removal of a small number of scattered trees and sown/pasture lands are proposed and therefore are not considered further.

4.2 Assessment Under the EPBC Act

The Superb Parrot is listed as vulnerable under the EPBC Act. However, in line with the findings of the assessment of potential impacts under Part 3A of the NSW EP&A Act, it is considered that the proposal would be unlikely to have a significant impact on this species. Therefore, a Referral to the Department of Environment and Heritage (DEH) is not required, as the proposal is unlikely to constitute a controlled action.

5. Ecological Recommendations

5.1 Ecological Recommendations

In order to prevent and mitigate potential indirect impacts of the proposal on the endangered ecological community and potential habitat for flora and fauna at the site the following management measures are recommended:

- Clear definition of development area boundary to prevent construction works breaching the site boundaries and potentially impacting adjacent vegetation;
- Installation of sediment detention basins, or similar, to prevent untreated runoff entering adjacent areas;
- Placement of stockpiles away from the woodland at the site; and
- Placement of soil that may contain seeds of exotic species away from the woodland where they could be spread during wind or rainfall events;
- Where possible avoid the removal of mature and hollow-bearing trees at the site;
- Removal of stock from the remaining woodland at the site to allow natural regeneration; and
- Initial and continual treatment of weeds within the woodland and potential rehabilitation.

6. Bushfire Risk Assessment

6.1 Bushfire Legislative Requirements

6.1.1 NSW Environmental Planning and Assessment Act 1979 and Rural Fire Services Act 1997

The proposal does not require referral to the NSW Rural Fire Service under section 79BA of the *Environmental Planning and Assessment Act 1979* (EP&A Act) nor section 100B of the *Rural Fires Act 1997* (RF Act) as neither residential nor rural residential development are proposed for the study area.

Under section 100B of the RF Act authorisation is required for the subdivision of bushfire prone land that could lawfully be used for residential or rural residential purposes or development of land for special fire protection purposes.

However in accordance with section 79C of the EP& A Act, the Department of Planning may choose to refer the application to the Rural Fire Service.

6.1.2 Planning For Bushfire Protection 2001

Whilst the proposed development is not required to comply with *Planning for Bushfire Protection* (PBP), it is recommended that the principles of this document be applied to the proposal where appropriate in order to reduce the threat at the site and on adjacent lands and property. Principles considered within the document include:

- setbacks and asset protection zones;
- siting and access;
- water supply; and
- vegetation management.

6.1.3 Special Protection Developments

There are several classes of development that are constrained by the presence of “high bushfire hazard,” including developments such as aged care facilities, disabled people care facilities, schools and institutions for the mentally disabled. Specific fire-safety requirements are associated with such developments and these need to be considered by a consent authority when assessing development applications. State Environmental Planning Policies (eg. SEPP 5 Seniors Living, SEPP 9 Group Homes) have been introduced to allow councils to disallow such developments on land that has a “high bushfire hazard.” Given that the site it proposed for industrial development these provisions would not apply.

6.2 Methodology

6.2.1 Site Inspection

During the site inspection the potential bushfire risks associated with the site were determined. The guidelines for bushfire risk assessment as set out in PBP were used to determine these potential bushfire risks.

6.2.2 Vegetation Communities

Vegetation typically provides the principle source of fuel for bushfires. As vegetation types vary in their ability to provide fuel, PBP provides a number of vegetation type descriptions, each of which is linked to particular hazard ratings. The vegetation of the site and surrounding areas was classed on the basis of an assessment of the vegetation structure based on PBP.

6.2.3 Slope

Slopes affect the speed and intensity of bushfires, with steep upslopes carrying a greater hazard than flatter slopes or downslopes. Land on the site was classified into slope classes (as per PBP) on the basis of angle over a distance of 140 m. The gradient considered to be the most likely to influence fire behaviour was used to calculate the bushfire risks.

6.3 Results

6.3.1 Vegetation Class

Vegetation groups are classified in accordance with the likely flammability of each vegetation type and are based on factors such as likely fuel loads, vegetation composition and presence of sclerophyllous species. Vegetation communities are assigned to three categories with Group 1 presenting the greatest fire hazard and Group 3 the least. Two vegetation classes were present at the site, Open Woodland (Group 3) and Grassland (Pasture) (Group 3).

6.3.2 Slope

The slope of the site was generally flat and was less than 5°. Given the vegetation classes at the site the slope is not considered a major factor influencing fire behaviour.

6.4 Bushfire Recommendations

Recommended fire management measures have been outlined below and include the provision of adequate Asset Protection Zones (APZs), site access and water sources.

6.4.1 Asset Protection Zones

Asset Protection Zones act as a buffer between the development and the hazard and are the principal protection mechanism. APZs reduce the vulnerability to fires through construction and maintenance of a protection areas (PlanningNSW 2001).

Vegetation types (eg. woodland or forest) present different levels of fire hazard. The level of fire hazard also varies with slope and aspect. Slope and aspect are unlikely to significantly affect fire behaviour at the site due to the vegetation type.

Based on the vegetation class present at the site an APZ of 20 m is recommended. Road and fire trails may form part of the APZ and therefore reduce the need for further vegetation clearance. Any vegetation within the APZ, which in this case is likely to be grasses, should be managed through regular mowing.

If a fire trail is incorporated into the APZ it will provide:

» easier access for firefighters allowing more efficient use of fire fighting resources;

» a safe retreat for fire fighters; and

» a clear control line from which to conduct back-burning operations if necessary.

The fire trail will need to have the following attributes.

» located within a minimum 6 m wide reserve (4 m wide trail and 1 m wide cleared area each side of the trail);

» constructed in accordance with design criteria outlined in Section 5.2.2 of PBP;

» be trafficable by firefighting vehicles under all weather conditions;

» appropriate drainage and erosion controls;

» not traverse any wetlands or other land potentially subject to periodic inundation;

» should link to Brolgan Road;

» be maintained in a serviceable and accessible condition at all times; and

» have passing bays at regular intervals of 200 m.

6.5 Site Access

Access to the site should be established and maintained and include a perimeter fire trail. This is a managed fire trail surrounding the buildings and incorporated within the 20 m APZ measured from the edge of the building. If Brolgan Road is within 20 m of the building and meets the bushfire standards, then construction of a perimeter access trail on this side of the building is not required.

The access trails should have the following attributes:

» a minimum trafficable width of 4 m with an additional 1m wide strip on each side of the road kept clear of bushes and long grass;

» the road should have a passing bay about every 200 m where possible, which should be 20 m long by 3 m wide, making a minimum trafficable width of 7 m at the passing bay;

» the capacity of the road should be sufficient to carry fully loaded firefighting vehicles (approximately 28 tonnes or 9 tonnes per axle);

» a minimum vertical clearance of 6 m to any overhanging obstructions, including tree branches;

» curves should have a minimum inner radius of 6 m and be minimal in number to allow for rapid access and escape;

» the minimum distance between inner and outer curves should be 6 m;

» roads should provide sufficient width to allow firefighting vehicle crews to work with firefighting equipment around the vehicle.

If possible two access roads to the site are recommended along paths that are unlikely to be cut by simultaneously by fire and therefore ensure there is at least one safe evacuation point.

6.6 Water Supply

Appropriate watering points should be provided along the perimeter trail from a series of fire hydrants. These hydrants should meet the requirements of Australian Standard 2419–*Fire Hydrant Installation* and be delivered by a ring main system.

7. References

Birds Australia 2005 **Atlas of Threatened Species Records**.

DEC 2005 **Draft Guidelines for Threatened Species Assessment**. Department of Environment and Conservation and Department of Primary Industries.

DEC 2005 **Threatened Species Database Search**. Department of Environment and Conservation, Hurstville.

DEH 2005 **Protected Matters Search Tool for Matters of National Environmental Significance.** Department of Environment and Heritage Online search http://www.deh.gov.au/erin/ert/epbc/index.html

Pizzey G & Knight F 2003 **The Field Guide to the Birds of Australia.** 7th Ed. Harper Collins Publishers, Australia.

PlanningNSW 2001 **Planning for Bushfire Protection.** Planning and Environmental Services, NSW Rural Fire Service and PlanningNSW.

Sydney Royal Botanic Gardens 2005 **Threatened Flora Database Records**.

Appendix A

Assessment of Significance Under Part 3 of the EP&A Act

Potential impacts of the proposal on the lifecycle of threatened species or populations

The Superb Parrot is a partially migratory species, endemic to the Murray-Darling Basin. It occurs mainly in the River Red Gum (*Eucalyptus camaldulensis*) and Black Box (*Eucalyptus largiflorens*) woodlands of the Riverina and northern Victoria. It migrates to over-winter along the Namoi and Castlereagh rivers in north-western New South Wales. The birds return from wintering sites to the South-west Slopes, Murrumbidgee Valley and Barmah-Millewa Forests have been identified as the major breeding areas. This species has been sighted in the Parkes area in White Box woodland.

Given that the Superb Parrot prefers large hollows for nesting and breeding, there is only limited potential for it to be nesting or breeding on site. Only a small number, if any, hollow-bearing trees would be removed for the proposal and some will remain at the site. Therefore it is unlikely that the proposal would have a detrimental impact on the lifecycle of this species.

The Grey Falcon is a sedentary species, breeding from August to November in refurbished nests of other raptor or corvid species, usually high in leafy eucalypts on watercourses or waterholes. Habitats include lightly treed inland plains, gibber deserts, sandridges, pastoral lands and timbered watercourses (Pizzey and Knight 1999).

Although there is potential for this species to nest and forage at the site, the most suitable areas of nesting habitat would not be disturbed and only a small number of scattered trees would be removed. Furthermore given that this species forages widely, it is considered unlikely that the proposal would significantly impact on the lifecycle for this species.

Potential Impacts of the proposal on habitat for threatened species, populations or ecological communities

The Superb Parrot nests in the hollows of large eucalypts, in River Red Gums and Black Box forests, foraging in adjacent mallee-spinifex, *Callitris* sp., farmlands, weedy clearings, vineyards, crops and stubble (Pizzey and Knight 1999). This species has also been observed nesting in Yellow Box and White Box hollows.

There is limited potential for the Superb Parrot to nest on the site, due to the minimal occurrence of suitable hollows. The species may nest in adjacent remnants and forage at the site. However it is unlikely that the development will significantly alter foraging or nesting habitat in the area.

The Grey Falcon inhabits lightly treed inland plains, gibber deserts, sandridges, pastoral lands and timbered watercourses. Nesting sites are primarily in previously occupied nests of other raptors (Pizzey and Knight 1999).

The main areas of potential habitat for the Grey Falcon would be conserved at the site and foraging habitat would also remain. The removal of only a small number of scattered trees and pasture areas is proposed. Therefore it is considered unlikely that the development would significantly alter prey-species habitat values in the area.

Known distribution of threatened species and endangered ecological communities at the site

Given the presence of Yellow Box and White Box in the same area, there may be potential for the presence of a small area of highly degraded White Box Yellow Box Blakely's Red Gum (*Eucalyptus albens – Eucalyptus melliodora – Eucalyptus blakelyi*) Endangered Ecological Community. The site assessment revealed a highly degraded understorey with no shrub layer and dominated by exotic herbs. However, this area would not be directly impacted by the proposal and potential indirect impacts would be mitigated.

The Superb Parrot and Grey Falcon have not been recorded on site, and given their broad distribution in the area, their presence would not indicate that the site is at the edge of their range.

Potential impacts of the proposal on current disturbance regimes

The site is currently highly disturbed, with a recently cropped and/or grazed understorey in all areas. Given that the site is currently cropping and grazing land, the proposal will not alter current management regimes.

Potential impacts on habitat connectivity

Given that the development involves the removal of scattered trees and cropped/pasture land, there is no potential impact on habitat connectivity in this instance.

Potential impacts on critical habitat

There are no areas identified as critical habitat present at the site.

GHD Pty Ltd ABN 39 008 488 373

10 Bond Street Sydney NSW 2000

-

T: 2 9239 7100 F: 2 9239 7199 E: sydmail@ghd.com.au

Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
	T. Haslehurst	A. Hunt	A. Hunt			