APPENDIX 3

Vegetation survey of the proposed site for a poultry fired power station at Muchea

by

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Vegetation Survey
of the proposed site
for a poultry fired power station
at
Muchea

FOR

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i. SUMMARY

Blair Fox Generation WA Pty Ltd, a company owned by the WA Broiler Growers and Blair Fox Pty Ltd, plan to develop a poultry litter fired power station on a site approximately 5km north of the Muchea townsite.

A vegetation survey of the site was undertaken on 31st March 2000. No Rare or Priority Plant species were located. Five vegetation communities were described, one being degraded pasture. It is intended that the degraded pasture will continue to be grazed with the development of the power station. The condition of the remnant bushland communities varied from good to totally degraded.

The two *Banksia* sp. Woodlands were in good condition with a dense to open upper stratum and an open to dense middle or lower stratum. Only a few weed species were recorded including Arum lily and Rose pelargonium. This Vegetation Association is Community Type 23b of Gibson *et. al.* (1994), which is unreserved and of susceptible conservation status. It is recommended that the fencing be maintained in its current good condition.

Vegetation Association 3 is Community Type 4 of Gibson *et. al.* (1994) which is well reserved and of low risk conservation status. The condition varied from an open upper stratum with open to dense understorey to a dense upper stratum with no understorey. However it is recommended that an area to the east of the Vegetation Communities 2A and 2B be fenced.

Vegetation Association 1 is Community Type 14 of Gibson *et. al*. (1994), which is unreserved and has insufficiently known conservation status. There is only a remnant of this association on the proposed site and it is recommended that it be fenced.

The infrastructure site will be built up to 1m with sand prior to construction. A list of recommended local native species to be used as screen plants was included.

As the infrastructure and roads will be developed at the southeastern corner of the site there will be no damage to any remnant vegetation. Consideration should be given to transplanting any trees (mainly *Melaleuca preissiana*), which are removed for development, and using these for screening. A list of species for screening the infrastructure was provided, using mainly local native species but also others known to occur in the area.

1. INTRODUCTION

Blair Fox Generation WA Pty Ltd, a company owned by the WA Broiler Growers and Blair Fox Pty Ltd, plan to develop a poultry litter fired power station on a site approximately 5km north of the Muchea townsite. This site is opposite the Tiwest facility on the Brand Highway.

The proposed site occurs within the Drummond Botanical Subdistrict (commonly referred to as the Swan Coastal Plain) of the Southwest Province (Beard, 1990). Beard describes the area as "Mainly low *Banksia* Woodland on leached sands with *Melaleuca* swamps where ill-drained; woodland of tuart (*Eucalyptus gomphocephala*), jarrah (*E. marginata*) and marri (*Corymbia calophylla*) on less leached soils". The Swan Coastal Plain is divided into subregions and the proposed development occurs within the Northern Bassendean Unit.

The Bassendean Unit consists of a belt 15km wide and consists of low, vegetated hills of quartz sand with numerous interdunal swamps and lakes. There is no organised drainage except where rivers cross the plain (Beard, 1990). The sands are yellow at depth, bleached white at the surface. The trees of the Woodland reach 6-8m tall, and comprise *Banksia attenuata, B. menziesii* and on wetter sites, *B. ilicifolia* together with lesser numbers of *Eucalyptus todtiana* and *Nuytsia floribunda*.

2. METHODS

An aerial photograph of the proposed development site indicated that most of the site was pasture with scattered trees and only a few pockets of remnant vegetation. The proposed site was surveyed on 31st March 2000 by selectively traversing the area on foot. The resulting vegetation communities identified were compared with the Community Types listed in Gibson *et al.* (1994).

3. RESULTS

The pockets of vegetation varied from degraded to good condition. The largest pocket of vegetation, at the western perimeter, is fenced, ensuring its good condition is maintained. Adjacent to the western boundary fence a section has previously been excavated for sand, resulting in a low lying, water holding pit. On the northern perimeter there is another section of vegetation in reasonable condition, and in three other locations remnant vegetation pockets remain. These are described in 3,3 below and illustrated in Figure 3.1.

The poultry litter fired power station will be developed in the south east corner of the site. This is currently pasture with scattered *Melaleuca preissiana* trees and is not near any of the remnant vegetation.

3.1 FLORA

A total of 69 taxa in 58 genera and 28 families were identified from the proposed development site. Few annual taxa and no geophytes were identified due to the season of collection with a spring survey locating additional species. However an additional spring survey is not required, as the area intended for the infrastructure development is in the south east corner, and the areas of remnant vegetation will not be developed.

The dominant vascular plant families are listed in Table 3.1 and represent 50% of the total species recorded from the site.

Table 3.1. Dominant plant families collected from the proposed development site.

Family	Genera	Native taxa	Introduced taxa	Total taxa
Myrtaceae	12	14	0	14
Poaceae	6	1	5	6
Papilionaceae	3	2	3	5
Restionaceae	5	5	0	5
Asteraceae	4	1	3	4
Proteaceae	2	4	0	4
Total number (percentage of total flora)				
6 (21.5% of families)	32 (55% of genera)	27 (60% of native taxa)	11 (46% of introduced taxa)	38 (50% of all taxa)

3.2 RARE AND PRIORITY FLORA

No Rare or Priority flora species were located from the site.

3.3 VEGETATION

Five vegetation communities were located; *Eucalyptus rudis* Woodland, *Banksia* sp. Woodland, *Melaleuca preissiana* Woodland, *Juncus pallidus* Sedgeland and Pasture.

Eucalyptus rudis Woodland

1. Dense to Open Woodland of *Eucalyptus rudis* over Dense Shrubland of *Astatea* affin. ***fascicularis*.** Pale grey sand.

Upper stratum >5m
Eucalyptus rudis, Melaleuca preissiana with scattered *Corymbia calophylla, Acacia saligna*
Middle stratum <2m
Astartea affin. *fascicularis, Regelia ciliata*

(affin. indicates the plant most closely resembles that species)

Banksia sp. Woodland

2A. Dense Woodland of *Banksia attenuata – Banksia menziesii* over a Dense to Open Sedgeland dominated by *Harperia lateriflora* and *Hypolaena exsulcata*. Pale grey sand.

Upper stratum >8m
Banksia attenuata, B. ilicifolia, B. menziesii, Corymbia calophylla, Eucalyptus todtiana, Nuytsia floribunda
Middle stratum 1-4m
Jacksonia floribunda, J. sternbergiana, Kunzea ericifolia, Xanthorrhoea preissii
Lower stratum <1m
Shrubs: *Acacia pulchella, Adenanthos cygnorum, Calothamnus quadrifidus, Eremaea purpurea, Hibbertia hypericoides, Macarthuria apetala, Melaleuca incana* subsp. *incana, *Pelargonium capitatum, Scholtzia involucrate, *Solanum nigrum*
Herbs: **Acetosella vulgaris, *Briza maxima*, *Conostylis aculeata, Dasypogon obliquifolius, *Ehrharta calycina, Hibbertia huegeliana, H. subvaginata, Patersonia occidentalis, Podotheca gnaphaloides, *Pelargonium capitatum, *R. crispus*, *Solanum nigrum, *Zantedeschia aethiopica*
Sedges: *Austrostipa sp., Desmocladus flexuosus, Harperia lateriflora, Lepidosperma squamatum, Hypolaena exsulca, Lyginia barbata, Schoenus curvifolius*

(* = introduced (weed) species)

2B. Open Woodland of *Banksia attenuata, B.menziesii, Corymbia calophylla* and *Eucalyptus marginata* subsp. *marginata* over a Dense to Open Shrubland dominated by *Xanthorrhoea preissii* and *Harperia latifolia*. Pale grey sand.

Upper stratum > 8m
Banksia attenuata, B. ilicifolia, B. menziesii, Corymbia calophylla, Eucalyptusmarginata subsp. *marginata, E. todtiana, Kunzea ericifolia*
Middle stratum 1-8m
Jacksonia floribunda, Regelia ciliata, *Xanthorrhoea preissii*
Lower stratum <1m
Shrubs: *Hypocalymma angustifolia*
Herbs: *Harperia lateriflora*, *Hypolaena exsulca*, *Patersonia occidentalis, *Zantedeschia aethiopica*

This vegetation association occurred at the eastern perimeter of Association 2A.

Melaleuca preissiana Woodland

3. Open to Dense Woodland of *Melaleuca preissiana* over an Open Shrubland or Sedgeland or bare ground.

Upper stratum >3m
Melaleuca preissiana, Eucalyptus rudis, Cassytha ? glabella
Middle stratum >50cm
Astartea affin. *fascicularis*

Lower stratum <50cm
Dielsia stenostachya, weeds listed for the pasture association

(? indicates insufficient or no fertile material was collected to positively identify this plant)

Three different stages of degradation of this woodland were recorded (Figure 3.1).
3A. To the east of the fence surrounding Vegetation Communities 2A and 2B the woodland had an open to dense understorey of *Astartea* affin. *fascicularis, Dielsia stenostachya* and introduced species. However this section had the best understorey of all the *Melaleuca preissiana* Woodland and if fenced off from the cattle could regenerate quite well.
3B. To the east of this pocket the *Melaleuca preissiana* Woodland degraded into an understorey of scattered *Dielsia stenostachya* and weeds.
3C. The Melaleuca Woodland to the north east of the block is nearly completely devoid of understory species, except for occasional pockets of *Astartea* affin. *fascicularis*. There is a water hole surrounded by *Melaleuca preissiana* with *Lemna dispersa* in the shallow water on the margins. The trees are dense forming excellent shade, but some are relatively heavily infested with *Cassytha ? glabella*, resulting in the death of some trees. Some sections of this area may regenerate with fencing off from the cattle but it is a source of water for the animals.

Juncus pallidus Sedgeland

4. Open to Dense Sedgeland of *Juncus pallidus* over **Cynodon dactylon* (Couch) and **Cyperus polystachyus*. Low lying area, previously excavated for sand removal.

Middle stratum >50cm
Juncus pallidus, Pericalymma ellipticum, **Eragrostis curvula*, *Astartea* affin. *fascicularis, Melaleuca preissiana* (juvenile only)
Lower stratum <50cm
**Cyperus polystachyus, *Cynodon dactylon, Lobelia alata, *Lythrum hyssopifolia, *Pennisetum clandestinum, Podotheca gnaphalioides*

On the raised banks above the depression the following plants were recorded.
*Adenanthos cygnorum,*Cynodon dactylon, Drosera* sp., **Epilobium* sp., **Eragrostis curvula*, **Hypochoeris glabra, Kunzea ericifolia, *Lupinus angustifolius, *L. consentinii, *Lythrum hyssopifolia, *Pennisetum clandestinum*, *Podotheca gnaphaloides, *Rumex crispus*

Pasture - degraded

5. Introduced species with scattered trees of *Corymbia calophylla, Eucalyptus rudis* or *Melaleuca preissiana.*

Trees >3m
Corymbia calophylla, Eucalyputs rudis, Melaleuca preissiana
Lower stratum <30cm
**Acetosella vulgaris* (Dock), **Briza maxima* (Blowfly grass), ***Chenopodium pumilio* (Goosefoot), **Citrullus lanatus* (Paddy melon), **Cynodon dactylon* (Couch), **Erodium* sp. (Storksbill), **Lotus suaveolens* (Lotus), *Lythrum hyssopifolia* (Lesser lossestrife), ***Pennisetum clandestinum* (Kikuyu), *Podotheca gnaphaloides,* **Portulaca oleracea* (Pigweed), **Romulea rosea* (Guildford grass), **Rumex crispus* (Curled dock), **Solanum nigrum* (Black berry nightshade), **Spergularia diandra* (Sand spurry), **Zantedeschia aethiopica* (Arum lily)

3.4 SIGNIFICANT VEGETATION COMMUNITIES

Most of the proposed development site (about 70%) is pasture with scattered trees with only small pockets of moderate to good condition vegetation. Vegetation Communities 2A,2B and 4 are included in the fenced area and have not recently been grazed by stock. All areas of Vegetation Association 4 are degraded to some extent and where the understorey is not dense have been heavily trampled by stock.

Vegetation Association 2A is Community Type 23b of Gibson *et. al,* (1994), Northern *Banksia attenuata – B. menziesii* Woodland. This Community Type is unreserved and of susceptible conservation status. The aerial photograph of the surrounding areas indicates there are extensive, relatively undisturbed areas of this association to the west. In the proposed development site this area is fenced and thus is conserved against further degradation provided the fence is maintained.

Vegetation Association 3 is Community Type 4 of Gibson *et. al,* (1994), *Melaleuca preissiana* Damplands which is well reserved and of low risk conservation status. However at the proposed development site this Vegetation Association is degraded with only a small pocket in reasonable condition.

Vegetation Association 1 is Community Type 14 of Gibson *et. al,* (1994), Wet forest and woodlands which is unreserved and has insufficiently known conservation status. The area of this association remaining on the proposed development site is very small, cut by a track and the Dampier to Bunbury gas pipeline with its associated control station. The trees remaining in this Association are small, of 10-20 years regrowth. Only a few very large trees were present. However it is recommended that this area be fenced to encourage natural regeneration.

Perth's Bushplan (Environmental Protection Authority, 1998) does not extend to Muchea. However Rosella Road Bushland, Bullsbrook and the Department of Defence, Muchea Air Weapons Range Bushland at Pinjar are listed as Bushplan sites. Rosella Road is to the west of the proposed development and Muchea Air Weapons Range is to the south. Rosella Road includes Community Type 23b and Muchea Air Weapons Range Bushland includes Community Type 4 (Gibson *et al*.,1994).

Ellen Brook is also included as a Bushplan site and the proposed development is included within the Ellen Brook catchment but not within the Bushplan site which follows the brook both north and south. However it does require that any

development be undertaken in an environmentally sensitive manner to ensure the catchment of the Ellen Brook is not altered.

3.5 INTRODUCED VASCULAR PLANT SPECIES

With the flora and vegetation survey being undertaken in March, even after reasonable rainfall, not all introduced species were identifiable and it is possible several had not germinated. However a total of 24 species were recorded as listed below.

Araceae: *Zantedeschia aethiopica* (Arum Lily)
Asteraceae: *Arctotheca calendula* (Capeweed), *Dittricha graveolens* (Stinkwort), *Hypochoeris glabra* (Flatweed)
Chenopodiaceae: *Chenopodium pumilio* (Goosefoot)
Cucurbitaceae: *Citrullus lanatus* (Paddy melon)
Cyperaceae: *Cyperus polystachyos*
Geraniaceae: *Erodium* sp. (Storksbill), *Pelargonium capitatum* (Rose pelargonium)
Iridaceae: *Romulea rosea* (Guildford grass)
Lythraceae: *Lythrum hyssopifolia* (Lesser loosestrife)
Onagraceae: *Epilobium* sp.(Willowherb)
Papilionaceae: *Lotus suaveolens* (Lotus), Lupinus angustifolius (Narrowleaf lupin), L. consentinii (Western Australian blue lupin)
Poaceae: *Briza maxima* (Blowfly grass) , *Cynodon dactylon* (Couch), *Ehrharta calycina* (Perennial veldtgrass), *Eragrostis curvula* (African lovegrass), *Pennesitum clandestinum* (Kikuyu) ,
Polygonaceae: *Acetosella vulgaris* (dock), *Rumex crispus* (Curled dock),
Portulaceae: *Portulaca oleracea*(Pigweed)
Solanaceae: *Solanum nigrum* (Black berry nightshade)

Arum lily is a Declared Plant under the Agriculture and Related Resources Protection Act administered by Agriculture Western Australia. This requires controlling of this species on the proposed development site. The method most successful so far has been to use a non-selective herbicide eg glyphosate based herbicide, but care must be taken with its application as all plants within the spray drift area will be killed. Where the plant grows in sandy soil, dipping up the plants has been relatively successful.

Very few Arum lilies occurred within Vegetation Communities 2A and 2B, most occurred in the wetter areas of the pasture and Vegetation Association 4.

An Environmental Weed Strategy (CALM, 1999) lists weeds according to invasiveness, distribution and their environmental impacts. Invasiveness is the ability of the weed species to invade bushland in excellent condition; distribution is a measure of how widespread it is including other countries; its environmental impact is a measure of its ability to change the structure, function and composition of ecosystems. Table 3.2 lists the weeds occurring in the remnant bushland and their potential to degrade the bushland even further.

Table 3.2 . Weeds occurring in the remnant bushland and assigned a ranking in the Environmental Weeds Strategy (CALM, 1999)

Weed species	Invasiveness	Distribution	Impacts
Ehrharta calycina	✔	✔	✔
Eragrostis curvula	✔	✔	✔
Lupinus consentinii	✔	✔	✔
Pelargonium capitatum	✔	✔	✔
Zantedeschia aethiopica	✔	✔	✔
Arctotheca calendula	✔	✔	
Cynodon dactylon	✔	✔	
Lythrum hyssopifolium	✔	✔	
Solanum nigrum	✔	✔	
Lupinus angustifolius		✔	
Rumex crispus		✔	

✔ indicates it affects the bushland

Of the above species *Cynodon dactylon*, *Ehrharta calycina* and *Pennisetum curvula* are controlled by a selective spray eg Fuselade, Certin**.** There were only a few plants of *Lupinus angustifolius, L. consentinii* and *Solanum nigrum* in the fenced area so these should be pulled out. *Pelargonium capitatum* is a difficult species to control. It is best to pull out the plants when the soil is moist and retreat if necessary with glyphosate. This is possibly the most important of the species to treat in the fenced bushland area as currently only a few plants exist. It left the numbers could multiply considerably.

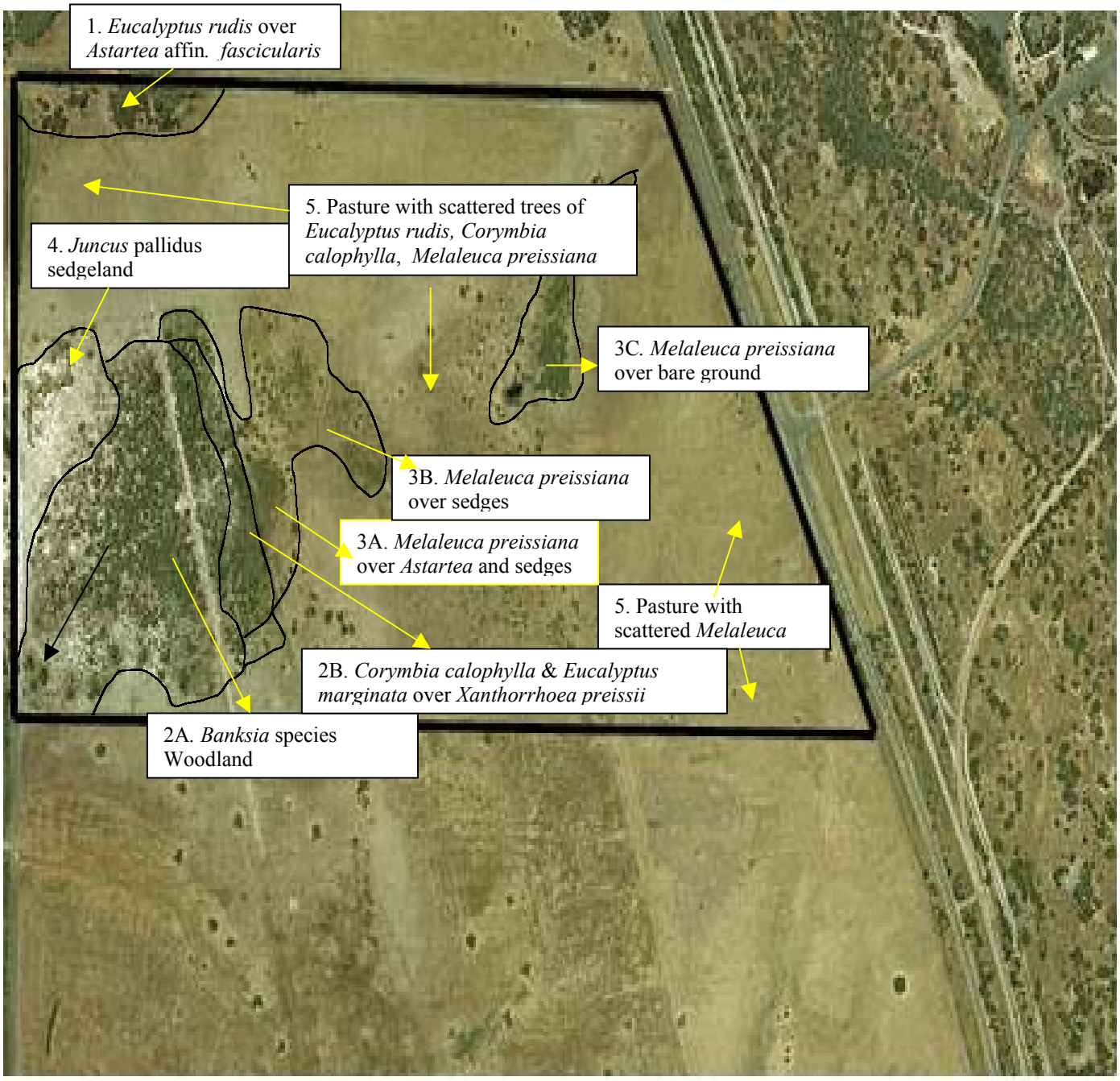

Figure 3.1. Vegetation communities at the proposed poultry litter fired station site.

3.6 SCREEN PLANTING

The infrastructure will be constructed in the south eastern corner of the block, a degraded site. Possibly a few small trees need to be removed, mainly *Melaleuca preissiana* as sand to a depth of 1m will be placed on the current soil surface to raise it sufficiently above the water table. None of the remnant vegetation will be destroyed with the construction of the infrastructure or the proposed access road.

To ensure the infrastructure is hidden from the Brand Highway screen planting of native species is proposed. The possibility of transplanting any mature trees removed in construction for use in screening should be considered and costed. Screening planting should be to a width of 5-10m. The following local species are suggested for use as screening plants.

On the sand pad, the species of Vegetation Communities 2A and 2B can be cultivated.

Trees
Acacia saligna, Banksia attenuata, B. ilicifolia, B. menziesii, Eucalyptus todtiana
Shrubs >1m
Eremaea pauciflora[1], *Jacksonia floribunda, J. sternbergiana*, *Kunzea ericifolia, Regelia ciliata, Templetonia retusa*[1]
Shrubs <1m
Acacia pulchella, *Adenanthos cygnorum, Calothamnus quadrifidus, Grevillea preissii*[1], *Hypocalymma angustifolia, Patersonia occidentalis, Scholtzia involucrata*
Ground cover
Kennedia prostrata[1]

On the low lying natural ground the following can be cultivated.

Trees
Acacia calophylla, Corymbia calophylla, Eucalyptus rudis, Melaleuca preissiana
Shrubs >1m
Grevillea biternata[1]**,** *Kunzea ericifolia ,Melaleuca teretifolia*[1], *Regelia ciliata, Viminaria juncea*[1]
Shrubs <1m
Astartea fascicularis, Beaufortia squarrosa[1], *Hypocalymma angustifolia, Pericalymma ellipticum*
Ground cover
Kennedia prostrata[1]

[1] = species not recorded from the proposed development site, but occur within the region.

4. DISCUSSION

Five vegetation communities were recorded from the proposed development site. No Declared Rare Flora or Priority Flora were recorded.

The proposed infrastructures for the poultry litter fired power station near Muchea will be constructed on pasture. Currently cattle graze over the whole lease area, the only restriction being the fenced off section at the western edge of the lease. The area for the power station will be built up to a height of 1m with sand to assist with drainage. This area will be fenced off but cattle will continue to graze over the remainder.

The fenced section at the western edge includes remnant bushland in good condition. These are two Banksia Woodland communities, Dense Woodland of *Banksia attenuata, B. menziesii* and Open Woodland of *Banksia attenuata, B.menziesii, Corymbia calophylla* and *Eucalyptus marginata* subsp. *marginata.* These are Association Type 23b of Gibson *et. al,* (1994), Northern *Banksia attenuata, B. menziesii* Woodland which is listed as unreserved and of susceptible conservation status. With development this area should continue to be fenced and thus not be affected by any development. Currently the Dampier to Bunbury gas pipeline passes through the vegetation.

The Dense to Open Woodland of *Eucalyptus rudis* on the north western boundary, is also in good condition and it is recommended that this be fenced. Currently the *Astartea* affin. *fascicularis* shrubs are very dense, not allowing penetration by the cattle, but this could alter with disturbance eg. fire. Although it is only small in area, it is in good condition and worthy of preservation. It is also recommended that the current fence on the eastern side of the Banksia Woodlands be extended about 15m to the east to include a section of the *Melaleuca preissiana* Woodland. This area is the best of the *Melaleuca preissiana* Woodlands on the site and if fenced it should allow natural rehabilitation of this Woodland.

Arum lily is a Declared Plant under the Agriculture and Related Resources Protection Act administered by Agriculture Western Australia. It is a requirement of land owners that this plant be eradicated. Five weed species are listed in the Environmental Weed Strategy (CALM, 1999) as being invasive, widely distributed and having environmental impact; a further four with being invasive and widely distributed and two with a wide distribution. *Pelargonium capitatum,* only recorded from vegetation communities 2A and 2B, is a difficult weed to control and should be removed to ensure the good condition of these communities is maintained.

5. REFERENCES

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Appendix A.
List of vascular plant species from the site

FAMILY		GENUS	SPECIES
Araceae	*	*Zantedeschia*	*aethiopica*
Asteraceae	*	*Arctotheca*	*calendula*
	*	*Dittricha*	*graveolens*
	*	*Hypochoeris*	*glabra*
		Podotheca	*gnaphalioides*
Chenopodiaceae	*	*Chenopodium*	*pumilio*
Cucurbitaceae	*	*Citrullus*	*lanatus*
Cyperaceae	*	*Cyperus*	*polystachyos*
		Lepidosperma	*squamatum*
		Schoenus	*curvifolius*
Dasypogonaceae		*Dasypogon*	*obliqufolius*
Dilleniaceae		*Hibbertia*	*huegelii*
		Hibbertia	*hypericoides*
		Hibbertia	*subvaginata*
Droseraceae		*Drosera*	sp.
Geraniaceae	*	*Erodium*	sp.
	*	*Pelargonium*	*capitatum*
Haemodoraceae		*Conostylis*	*aculeata*
Iridaceae		*Patersonia*	*occidentalis*
	*	*Romulea*	*rosea*
Juncaceae		*Juncus*	*pallidus*
Lauraceae		*Cassytha*	*? glabella*
Lemnaceae		*Lemna*	*dispersa*
Lobeliaceae		*Lobelia*	*alata*
Loranthaceae		*Nuytsia*	*floribunda*
Lythraceae	*	*Lythrum*	*hyssopifolia*
Mimosaceae		*Acacia*	*pulchella*
		Acacia	*saligna*
Myrtaceae		*Astartea*	affin. *fascicularis*
		Calothamnus	*quadrifidus*
		Corymbia	*calophylla*
		Eremaea	*purpurea*
		Eucalyptus	*marginata* subsp. *marginata*
		Eucalyptus	*rudis*
		Eucalyptus	*todtiana*
		Hypocalymma	*angustifolia*
		Kunzea	*ericifolia*
		Melaleuca	*incana* var. *incana*
		Melaleuca	*preissiana*
		Pericalymma	*ellipticum*
		Regelia	*ciliata*
		Scholtzia	*involucrata*
Onagraceae	*	*Epilobium*	sp.
Papilionaceae		*Jacksonia*	*floribunda*
		Jacksonia	*sternbergiana*
	*	*Lotus*	*suaveolens*
	*	*Lupinus*	*angustifolius*
	*	*Lupinus*	*consentinii*

FAMILY		GENUS	SPECIES
Poaceae		*Austrostipa*	*sp.*
	*	*Briza*	*maxima*
	*	*Cynodon*	*dactylon*
	*	*Ehrharta*	*calycina*
	*	*Eragrostis*	*curvula*
	*	*Pennisetum*	*clandestinum*
Polygonaceae	*	*Acetosella*	*vulgaris*
	*	*Rumex*	*crispus*
Portulaceae	*	*Portulaca*	*oleracea*
Proteaceae		*Adenanthos*	*cygnorum*
		Banksia	*attenuata*
		Banksia	*ilicifolia*
		Banksia	*menziesii*
Restionaceae		*Desmocladus*	*flexuosus*
		Dielsia	*stenostachya*
		Harperia	*lateriflora*
		Hypolaena	*exsulca*
		Lyginia	*barbata*
Solanaceae	*	*Solanum*	*nigrum*
Xanthorrhoeaceae		*Xanthorrhoea*	*preissii*