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Flora and Fauna Assessment

Western Sydney Parklands Proposed Billboard Sites
Fairfield Local Government Area

Total Earth Care Pty Ltd
November 2012

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Fairfield Local Government Area

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Flora and Fauna Assessment
Western Sydney Parklands Proposed Billboard Sites

1 INTRODUCTION

The Western Sydney Parklands Trust (WSPT) proposes to install a number of new billboards along main roadsides within the Western Sydney Parklands, including four sites in the Fairfield local government area (Fairfield LGA). Complete Urban Pty Ltd has been given the responsibility of project managers and is acting as concept design consultants. Some vegetation removal may be required to facilitate the construction and ongoing maintenance of these billboards.

As a planning requirement of any development application that may cause adverse harm, an ecological assessment to evaluate the impact of a proposed development on biodiversity should be carried out.

In summary this ecological assessment will:

1. Determine whether any native vegetation which occurs on the site constitutes a native vegetation community;
2. Identify the type, and map the extent of the vegetation community/s present on the site using the Tozer (2003) methodology and/or using the descriptions of communities as listed under the *Threatened Species Conservation Act 1995* (TSC Act), the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and any other relevant documents. Describe the process used and include a plant species list;
3. Determine whether the site contains known or potential habitat for any Threatened or Migratory species or populations listed under the TSC Act or the EPBC Act;
4. Undertake a sufficient level of survey for Threatened or Migratory species or populations on the site and describe and justify the suitability of the survey methods employed.

For the purpose of this report, the subject sites comprise the areas of land directly affected by the development proposals. This includes areas required for access roads associated with the proposals and any access roads associated with the ongoing maintenance of the billboard sites. Areas required for construction include both billboard footprints, areas required for swing arm of construction machinery and turning circles. The study area comprises the subject site in addition to any surrounding land that may be potentially indirectly affected by the development, including any immediate contiguous vegetation in the Western Sydney Parklands or other neighbouring native vegetation or potential habitat for threatened entities listed under the TSC Act or the EPBC Act. The locality encompasses a larger area that includes neighbouring properties and includes sections of native biodiversity values in the wider Western Sydney Parklands and patches of native vegetation in surrounding suburbs.

2 AIMS AND OBJECTIVES

The aims of the flora and fauna assessment for the current proposal are to:

- survey and describe the existing flora and fauna within the subject site;
- determine the presence or likely occurrence of threatened species, populations and ecological communities (or their habitats), as listed under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *NSW Threatened Species Conservation Act 1995* (TSC Act);
- assess the potential impacts of the proposed development on the existing flora and fauna, and their habitats having regard to *Threatened species assessment guidelines. The assessment of significance* (DECC, 2007) if required; and
- determine areas that are of conservation significance and should be either excluded or constrain development as part of the current or future proposals.

3 METHODS

3.1 Desktop Research

Prior to field surveys, records of all threatened species, populations and endangered ecological communities (EEC) previously recorded within a 5km radius of the subject sites were obtained from the NSW Office of Environment and Heritage (OEH) Wildlife Atlas database.

Threatened species, threatened populations, threatened communities, or their habitats, were targeted during the field survey. Recent existing reports of the biodiversity of the study area and locality were also reviewed prior to field surveys and these are briefly summarised in following sections of this report.

3.2 Flora

General botanical surveys were conducted on the subject sites and adjoining areas (together termed the 'study area') on 28th of November 2012 involving:
the identification of native and exotic plant species according to *Field Guide to the Native Plants of Sydney* (Robinson 2003) and the *Flora of NSW* (Harden 1992, 1993, 2000, 2002), with reference to recent taxonomic changes;
the identification and mapping of plant communities (where present) according to the structural definitions of Specht & Specht (1999), and to previous broad-scale mapping of the Cumberland Plain by NPWS (2003); and of the Penrith 1:100,000 map sheet by Benson & Howell (1994);
targeted searches for plant species of conservation significance according to the "random meander" method (Cropper 1993).

The conservation significance of plant species and plant communities was determined according to: TSC Act for significance within NSW; and EPBC Act for significance within Australia.

All flora species were recorded and an inventory of species was compiled (Appendix A).

3.3 Resilience and Condition Classes

The methodology to map resilience and condition of the native plant communities on the subject site is based on a dichotomous bracketed key differentiating positive or negative qualitative assessments of the vegetation based upon soil condition, number of vegetation layers declining through weed competition and through anthropomorphic removal and degree of seedling/reshooting recruitment. Four potential classes of vegetation resilience and condition have been allocated through this methodology; Very High, High, Medium and Low as per Table 1 - Native Vegetation Resilience and Condition Classes Key.

This assessment methodology is configured to account for the maximum potential range of resilience and condition to enable it to be applied in the future and to more meaningfully measure change over time. The methodology has been derived to ensure low subjectivity in order to reduce variances in results from different survey efforts. Ecological processes given primary consideration within the key are natural processes such as both native and weed plant species recruitment, and weed competition impacts. Non natural impacts such as mowing, slashing, clearing and large scale soil disturbance are given secondary consideration in terms of hierarchical importance within the key. Natural ecological impacts such as fire and storm damage are accounted for within the key as non-affirmative considerations due to their predictable but significant impacts upon community condition.

Table 1 Native Vegetation Resilience and Condition Classes Key

1	Soil profile intact for regeneration pathways (possible original soil profile and possible soil stored seed, seed rain or underground plant parts capable of reshooting)	
	2 Virtually weed or exotic free and all vegetation layers present (except if due to natural causes eg. fire, storm)	**VERY HIGH**
	2* Some minor weed/exotic growth or layers absent	
	3 Minor weed infestations or exotic species but no layers absent	**HIGH**
	3* Weed infestations/exotic species or disturbance leading to decline of at least one layer	
	4 Loss or strong decline of at least one layer but some active resilience at ground layer	**MEDIUM**
	4* Loss or strong decline of at least two layers with no or little active resilience at ground layer	**LOW**
1*	Soil profile NOT intact for regeneration pathways (No possibility of original soil profile nor any possibility for regeneration of soil stored seed, seed rain or underground plant parts capable of reshooting)	**NOT NATIVE VEGETATION OR NATIVE SPECIES**

3.4 Fauna

General incidental fauna and fauna habitat observations were made on the subject site during the day of 28th of November 2012. Weather conditions were mild, with a light wind and no rain. The diurnal surveys involved incidental observations of animal activity, habitat identification and searches for indirect evidence of fauna (such as scats, nests, burrows, hollows, tracks, scratches and diggings). Surveys for avifauna and amphibians involved visual detection and aural recognition of bird and frog calls. Where suitable potential habitat for the threatened snail species *Meridolum corneovirens* Cumberland Plain Land Snail was observed, targeted searches were made for evidence of this species including searches for live animals or their shells under fallen timber and in leaf-litter particularly around the bases of trees.

The conservation significance of fauna species and populations was determined according to:
TSC Act for significance within NSW; and
EPBC Act for significance within Australia.

3.5 Limitations

Field surveys were conducted over 1 day during late Spring 2012. In addition to the surveys undertaken, the full spectrum of flora and fauna species and ecological processes likely to occur on the site were considered by identifying potential habitats for such species and assessing the potential for these species to occur on the site based on previous records, the type and condition of habitats present, the land use of the site and its landscape context.

4 RESULTS

4.1 Previous Studies and Reports

Native Vegetation of the Cumberland Plain

At a regional scale The native vegetation of the Cumberland Plain, western Sydney: systematic classification and field identification of communities (Tozer, 2003), provides a survey of vegetation communities occurring on the Cumberland Plain and adjacent plateaus characterised by Wianamatta Shale soils. This study recognises that most of the native vegetation communities of the Cumberland Plain and neighbouring Wianamatta Shales are listed as endangered under the Threatened Species Conservation Act 1995 (Tozer, 2003). As such, part of the rationale for the survey was to address the need for quantitative data to assist in the identification of native plant communities and provide an assessment of the conservation value of vegetation remnants.

The aim of the survey was to revise the existing plant community classification to take account of; recently described communities and other communities warranting recognition; provide quantitative data for characteristic species in each community (frequency of occurrence and relative abundance); identify species showing high fidelity to each community as a basis for diagnosing community type in the field; estimate the present cover of native vegetation; and derive a spatial model as a basis for predicting the vegetation type and conservation value of all remaining remnants (Tozer, 2003). In classifying communities interpreted in light of previous publications and EEC listed under the TSC Act, Tozer (2003) recognises and describes more than one unit for some community types, including Cumberland Plain Woodland which includes Shale Hills Woodland and Shale Plains Woodland.

The survey incorporated systematic, stratified field sampling to record floristic structure and composition, a classification procedure based on hierarchical, agglomerative clustering analysis; spatial modelling of community distributions using geological, climatic and topographic variables; and the interpretation of patterns in canopy composition and remnant condition in aerial photographs. The resulting *Native Vegetation of the Cumberland Plain, Western Sydney – 1:25 000 Map Series* (NPWS, 2003) incorporates the subject sites listed below

4.2 Current Study

4.2.1 Subject Site 1

WSPT land north of Redmayne Rd (north of The Horsley Drive)
Lot 6 DP 1021711
73-83 Chandos Rd, Horsley Park

This subject site is north of Redmayne Road, Horsley Park. An access route from the south on Redmayne Road heading directly north via the route tracks would avoid significant areas of native vegetation. The billboard construction site will be on exotic grassland.

The entire site, including both access and construction zone is considered in this report as the one zone as the construction site and the access route both show disturbance. Resilience for the access site has been assessed as "Low", and resilience for the construction site have been assessed as "No Native Vegetation or Native Species". Low habitat values have been recorded across the subject site, although intermittent standing water is present with associated weedy vegetation near the suggested access route entrance

The suggested access route of approximately 115 metres will make use of a network of already cleared and disturbed tracks. These tracks do not currently support a native vegetation community with local native trees restricted to the Redmayne Road edge on either side of the access entrance..

The construction site occupies an area supporting exotic grassland. This grassland is dominated by the exotic grass *Paspalum dilatatum* Paspalum and the exotic forbs *Plantago lanceolata* Plantain and *Trifolium repens* White Clover.

Flora -Plant Species

No native plant species were recorded within the immediate access route of construction site during the flora survey, however the areas adjacent to the suggested access route entrance M7 batter include planted native local tree species *Corymbia maculata* Spotted Gum with a largely weedy understorey There are no species listed as threatened under the NSW TSC Act 1995 or the EPBC Act occurring within the study area.

Of the 15 introduced species, none were recorded as noxious, as listed under the *NSW Noxious Weeds Act 1993* for the Fairfield LGA .

Plant Communities

Two plant communities were identified within the subject site.

- Exotic Grassland
- Disturbed Woodland

Previous broad-scale mapping of the native vegetation of the Cumberland Plain and adjacent areas by (2003) has not identified any native vegetation cover for the study area, although Shale Hills Woodland (canopy cover <10%) was mapped nearby on the M7 land.

Threatened Plant Species

There were no threatened plant species listed under the TSC Act, or the EBPC Act, recorded on the subject site in the current investigation.

Additionally a search of the DECCW Wildlife Atlas identified 7 threatened plant species occurring within 10 km of the site (Table 1). No suitable habitat was identified for any of these species within the study area.

Table 1 Threatened flora species previously recorded within the locality (10km search) on the DECCW Wildlife Atlas.

Scientific Name	TSC Act Status[1]	EPBC Act Status[2]
Acacia pubescens	V	V
Cynanchum elegans	E1	E
Dillwynia tenuifolia	V	V
Grevillea juniperina ssp. juniperina	V	-
Marsdenia viridiflora subsp. viridiflora (population)	E2	-
Pimelea spicata	E1	E
Pultenaea parviflora	E1	V

[1] E1 – endangered (Schedule 1 of the TSC Act); E2 – Endangered population; E4 – presumed extinct; E4A – Critically Endangered (Schedule 1A of the TSC Act) V – vulnerable (Schedule 2 of the TSC Act).
[2] E – endangered, V – vulnerable, Ex- Extinct

Resilience

Soil profiles of the access route are disturbed with some evidence of original soil profiles but native species only adjacent to the entrance of the recommended access route entrance. It has been assessed as 'Low' resilience. The resilience in the construction zones contains no native species, and is an exotic dominated grassland and has been assessed as 'Not Native Vegetation or Native Species'.

Fauna habitats

Fauna habitats of the subject site and study area are assessed in two main categories for the current survey. Fauna habitat features and resources at a locality scale form part of the broader landscape of the study area. Site specific fauna habitat features and resources provide the key elements required by native fauna for the maintenance of life cycles. Fauna habitats identified in the current survey and associated general fauna are summarised in Table 2.

The subject site supports poor habitat resources that may be utilised by common protected or threatened fauna occurring in the locality.

Table 2 Fauna habitat types and resources.

Area	Habitat Feature	Habitat Resources and Fauna
Locality	Broad areas of remnant treed and associated lower vegetation in public open space such as parks and reserves.	Foraging, nesting, roosting and sheltering for birds, reptiles, amphibians, arboreal and terrestrial mammals and bat species.
	Landscape planted and street trees	Foraging, nesting, roosting and sheltering for birds, arboreal and terrestrial mammals and bat species.
	Drainage corridors and dams	Foraging, nesting, roosting and sheltering for small, medium and large birds, arboreal mammals, reptiles and amphibians.
Subject Site	Regrowth shrubland and remnant trees	Foraging, nesting, roosting and sheltering for small, medium and large birds, reptiles, arboreal mammals, megachiropteran and microchiropteran bat species
	Highly modified groundcover	Foraging for small and medium birds, reptiles, amphibians and terrestrial mammals.
	Open areas including tracks and bare soil	Foraging for birds
	Access roads and pathways	Foraging and flyways for microchiropteran bat species.
	Drainage channels and intermittent pools	Foraging for small and medium birds, reptiles, amphibians and terrestrial mammals. breeding sites for aquatic invertebrates and amphibians.

Currently the subject site is a highly modified landscape that lacks most of the natural habitat features and resources that are important in the maintenance of native fauna diversity and life cycles, including fully structured vegetation, a diverse shrub layer for food sources and protection, leaf litter and loose surface soils. In addition to the altered nature of fauna habitats, current human activities within the subject site and surrounding area, including high levels of night light, noise and vehicular traffic, are likely to reduce fauna habitat potential. Current onsite and neighbouring landuse such as mown exotic grassland, unvegetated tracks and feral animals such as rabbits, would further dissuade native fauna habitat potential. There is some limited connectivity to the bushland corridor running north-south to the east via the poorly vegetated road edge of Redmayne Road. Due to the absence of native vegetation on the subject site and the absence of most habitat features and resources as described above, the subject site has a low level of fauna habitat value.

Wildlife Corridors

At a locality scale the study area and broadly contiguous pattern of native canopy vegetation are offering some habitat resources and contribute to a fragmented corridor extending and connecting the Western Sydney Parklands and adjacent areas of native and exotic in the locality. The site is considered to be part of a moderate wildlife corridor for the movement and dispersal of native flora and fauna for the locality due to the limited habitat structure of the vegetation community within the study area and existing fragmentation within the locality. The nearby occurrence of an intact remnant of CPW approximately 250 metres to the east offers a high potential for the subject site to be connected to a wildlife corridor but the absence of any significant contiguous native vegetation on the subject site reduces most of this potential.

4.2.2 Subject Site 2

WSPT land south of Redmayne Rd (north of The Horsley Drive)
Lot 7 DP 1021711
54-64 Chandos Rd, Horsley Park

This subject site is south of Redmayne Road, Horsley Park. An access route from the north on Redmayne Road heading directly south via the open paddock would avoid any native vegetation. The billboard construction site will be entirely on exotic grassland.

The entire site, including both access and construction zone is considered in this report as the one zone as the construction site and the access route both show disturbance. Resilience for the access site has been assessed as "Low", and resilience for the construction site have been assessed as "No Native Vegetation or Native Species". Low habitat values have been recorded across the subject site, although standing water to the immediate west in the subject site is present in a narrow detention basin with associated native aquatic vegetation.

The suggested access route of approximately 80 metres will make use of an already cleared and disturbed exotic grassland along approximately. This route does not currently support a native vegetation community.

The construction site occupies an area supporting exotic grassland. This grassland is dominated by the exotic grasses *Pennisetum clandestinum* Kikuyu and *Chloris gayana* Rhodes Grass and the exotic forbs *Plantago lanceolata* Plantain and *Verbena boariensis* Verbena.

Flora -Plant Species

No native plant species were recorded within the immediate access route of the construction site during the flora survey, however the detention basin immediately adjacent to the subject on the M7 land does support native aquatic vegetation dominated by *Typha orientalis* Bullrush. There are no species listed as threatened under the NSW TSC Act 1995 or the EPBC Act occurring within the study area.

Of the 13 introduced species, none were recorded as noxious, as listed under the *NSW Noxious Weeds Act 1993* for the Fairfield LGA .

Plant Communities

Two plant communities were identified within the subject site.

- Exotic Grassland
- Artificial Wetland

Previous broad-scale mapping of the native vegetation of the Cumberland Plain and adjacent areas by NPWS (2003) has not identified any native vegetation cover for the study area, although Shale Plains Woodland (canopy cover <10%) was mapped approximately 300 metres to the east in the vegetated corridor.

Threatened Plant Species

There were no threatened plant species listed under the TSC Act, or the EBPC Act, recorded on the subject site in the current investigation.

Additionally a search of the DECCW Wildlife Atlas identified 7 threatened plant species occurring within 10 km of the site (Table 3). No suitable habitat was identified for any of these species within the study area.

Table 3 Threatened flora species previously recorded within the locality (10km search) on the DECCW Wildlife Atlas.

Scientific Name	TSC Act Status[1]	EPBC Act Status[2]
Acacia pubescens	V	V
Cynanchum elegans	E1	E
Dillwynia tenuifolia	V	V
Grevillea juniperina ssp. juniperina	V	-
Marsdenia viridiflora subsp. viridiflora (population)	E2	-
Pimelea spicata	E1	E
Pultenaea parviflora	E1	V

[1] E1 – endangered (Schedule 1 of the TSC Act); E2 – Endangered population; E4 – presumed extinct; E4A – Critically Endangered (Schedule 1A of the TSC Act) V – vulnerable (Schedule 2 of the TSC Act).
[2] E – endangered, V – vulnerable, Ex- Extinct

Resilience

Soil profiles of the access route and construction site show some evidence of original soil profiles but no native species were noted on the suggested access route. The suggested access route has been assessed as 'Not Native Vegetation or Native Species'.

The resilience in the construction zone contains no native species, and is an exotic dominated grassland and has been assessed as 'Not Native Vegetation or Native Species'.

Fauna habitats

Fauna habitats of the subject site and study area are assessed in two main categories for the current survey. Fauna habitat features and resources at a locality scale form part of the broader landscape of the study area. Site specific fauna habitat features and resources provide the key elements required by native fauna for the maintenance of life cycles. Fauna habitats identified in the current survey and associated general fauna are summarised in Table 4.

The subject site supports poor habitat resources that may be utilised by common protected or threatened fauna occurring in the locality.

Table 4 Fauna habitat types and resources.

Area	Habitat Feature	Habitat Resources and Fauna
Locality	Broad areas of remnant treed and associated lower vegetation in public open space such as parks and reserves.	Foraging, nesting, roosting and sheltering for birds, reptiles, amphibians, arboreal and terrestrial mammals and bat species.
	Landscape planted and street trees	Foraging, nesting, roosting and sheltering for birds, arboreal and terrestrial mammals and bat species.
	Drainage corridors and dams	Foraging, nesting, roosting and sheltering for small, medium and large birds, arboreal mammals, reptiles and amphibians.
Subject Site	Highly modified groundcover	Foraging for small and medium birds, reptiles, amphibians and terrestrial mammals.
	Open areas including tracks and bare soil	Foraging for birds
	Access roads and pathways	Foraging and flyways for microchiropteran bat species.
	Drainage channels and intermittent pools	Foraging for small and medium birds, reptiles, amphibians and terrestrial mammals. breeding sites for aquatic invertebrates and amphibians.

Currently the subject site is a highly modified landscape that lacks most of the natural habitat features and resources that are important in the maintenance of native fauna diversity and life cycles, including fully structured vegetation, a diverse shrub layer for food sources and protection, leaf litter and loose surface soils. In addition to the altered nature of fauna habitats, current human activities within the subject site and surrounding area, including high levels of night light, noise and vehicular traffic, are likely to reduce fauna habitat potential. Current onsite and neighbouring landuse such as mown exotic grassland, unvegetated tracks and feral animals such as rabbits, would further dissuade native fauna habitat potential. There is limited poor connectivity to the bushland corridor running north-south to the east via the exotic grassland to the east of the study area. Due to the absence of native vegetation on the subject site and the absence of most habitat features and resources as described above, the subject site has a low level of fauna habitat value.

Wildlife Corridors

At a locality scale the study area and broadly contiguous pattern of native canopy vegetation are offering some habitat resources and contribute to a fragmented corridor extending and connecting the Western Sydney Parklands and adjacent areas of native and exotic in the locality. The site is considered to be part of a moderate wildlife corridor for the movement and dispersal of native flora and fauna for the locality due to the limited habitat structure of the vegetation community within the study area and existing fragmentation within the locality. The nearby occurrence of an intact remnant of CPW approximately300 metres to the east offers some potential for the subject site to be connected to a wildlife corridor but the absence of any contiguous native vegetation on the subject site or reduces most of this potential.

4.2.3 Subject Site 3

WSPT land near the Sydney Equestrian Centre
Lot 19 DP 1022008
372 Wallgrove Rd, Horsley Park

This subject site is approximately 250 metres north-west of the Saxony Road entrance to the Sydney Equestrian Centre. It is immediately adjacent to the Equestrian Centre's internal road running parallel to the M7. The access would along this road via the Saxony Road entrance. The billboard construction site will be on exotic grassland with a small number of small planted native trees.

Resilience for the access site has been assessed as "No Native Vegetation or Native Species" as it is an existing sealed road. Resilience for the construction site has been assessed as 'Low' as it is a derived and simple community of a mown exotic grassland with occasional planted native trees. Low habitat values have been recorded across the subject site, although a small patch of planted low shrubby woodland occurs approximately 50 metres to the east.

The suggested access route of approximately 250 metres of already will make use of an already cleared sealed road.

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The construction site occupies an area supporting exotic grassland with occasional planted small trees. This grassland is dominated by the exotic grass *Pennisetum clandestinum* Kikuyu and the planted trees are the local native species *Eucalyptus mollucana* Grey Box. Up to six of these *Eucalyptus mollucana* Grey Box trees may need to be removed as part of the construction and ongoing maintenance of the billboard.

Flora -Plant Species

One native plant species was recorded within the immediate access route of construction site during the flora survey. This species, *Eucalyptus mollucana* Grey Box, occurs as a scattered grove of small planted individuals approximately 3 - 5 metres tall. There are no species listed as threatened under the NSW TSC Act 1995 or the EPBC Act occurring within the study area.

Of the 16 introduced species, none were recorded as noxious, as listed under the *NSW Noxious Weeds Act 1993* for the Fairfield LGA .

Plant Communities

One plant community was identified within the subject site.

- Exotic Grassland with Planted Native Trees

Previous broad-scale mapping of the native vegetation of the Cumberland Plain and adjacent areas by NPWS (2003) has not identified any native vegetation cover for the study area, although a small patch of Shale Hills Woodland (canopy cover < 10%) was mapped approximately 50 metres to the east.

Threatened Plant Species

There were no threatened plant species listed under the TSC Act, or the EBPC Act, recorded on the subject site in the current investigation.

Additionally a search of the DECCW Wildlife Atlas identified 7 threatened plant species occurring within 10 km of the site (Table 5). No suitable habitat was identified for any of these species within the study area.

Table 5 Threatened flora species previously recorded within the locality (10km search) on the DECCW Wildlife Atlas.

Scientific Name	TSC Act Status[1]	EPBC Act Status[2]
Acacia pubescens	V	V
Cynanchum elegans	E1	E
Dillwynia tenuifolia	V	V
Grevillea juniperina ssp. juniperina	V	-
Marsdenia viridiflora subsp. viridiflora (population)	E2	-
Pimelea spicata	E1	E
Pultenaea parviflora	E1	V

[1] E1 – endangered (Schedule 1 of the TSC Act); E2 – Endangered population; E4 – presumed extinct; E4A – Critically Endangered (Schedule 1A of the TSC Act) V – vulnerable (Schedule 2 of the TSC Act).
[2] E – endangered, V – vulnerable, Ex- Extinct

Resilience

Soil profiles of the access route are disturbed with some evidence of original soil profiles but altered soil levels. No native species occur on the recommended access route entrance. It has been assessed as 'Low' resilience. The resilience in the construction zones contains one native species, planted *Eucalyptus mollucana* Grey Gum within an exotic grassland and has been assessed as 'Low' resilience.

Fauna habitats

Fauna habitats of the subject site and study area are assessed in two main categories for the current survey. Fauna habitat features and resources at a locality scale form part of the broader landscape of the study area. Site specific fauna habitat features and resources provide the key elements required by native fauna for the maintenance of life cycles. Fauna habitats identified in the current survey and associated general fauna are summarised in Table 6.

The subject site supports poor habitat resources that may be utilised by common protected or threatened fauna occurring in the locality.

Table 6 Fauna habitat types and resources.

Area	Habitat Feature	Habitat Resources and Fauna
Locality	Broad areas of remnant treed and associated lower vegetation in public open space such as parks and reserves.	Foraging, nesting, roosting and sheltering for birds, reptiles, amphibians, arboreal and terrestrial mammals and bat species.
	Landscape planted and street trees	Foraging, nesting, roosting and sheltering for birds, arboreal and terrestrial mammals and bat species.
	Drainage corridors and dams	Foraging, nesting, roosting and sheltering for small, medium and large birds, arboreal mammals, reptiles and amphibians.
Subject Site	Planted trees	Foraging, nesting, roosting and sheltering for small, medium and large birds, reptiles, arboreal mammals, megachiropteran and microchiropteran bat species
	Highly modified groundcover	Foraging for small and medium birds, reptiles, amphibians and terrestrial mammals.
	Open areas including tracks and bare soil	Foraging for birds
	Access roads and pathways	Foraging and flyways for microchiropteran bat species.

Currently the subject site is a highly modified landscape that lacks most of the natural habitat features and resources that are important in the maintenance of native fauna diversity and life cycles, including fully structured vegetation, a diverse shrub layer for food sources and protection, leaf litter and loose surface soils. In addition to the altered nature of fauna habitats, current human activities within the subject site and surrounding area, including high levels of night light, noise, pedestrian and vehicular traffic, are likely to reduce fauna habitat potential. Current onsite and neighbouring landuse such as mown exotic grassland, unvegetated tracks and feral animals such as rabbits, would further dissuade native fauna habitat potential. There is some limited connectivity to the bushland and planted native woodland corridor running north-south to the east via the patchy and floristically simplistic vegetation that characterises the Sydney Equestrian Centre. Due to the absence of naturally occurring native vegetation on the subject site and the absence of most habitat features and resources as described above, the subject site has a low level of fauna habitat value.

Wildlife Corridors

At a locality scale the study area and broadly contiguous pattern of native canopy vegetation are offering some habitat resources and contribute to a fragmented corridor extending and connecting the Western Sydney Parklands and adjacent areas of native and exotic in the locality. The site is considered to be part of a moderate wildlife corridor for the movement and dispersal of native flora and fauna for the locality due to the limited habitat structure of the vegetation community within the study area and existing fragmentation within the locality. The nearby occurrence of a planted patch of planted low woodland the east offers a low potential for the subject site to be connected to a wildlife corridor for all but the most abundant and adaptable common urban species.

4.2.4 Subject Site 4

WSPT land south of Kosovich Place (east side)
Lot 14 DP 1021940
144 Wallgrove Drive, Cecil Hills

Access during field assessment was constrained on the date of the survey, with locked fences erected. Access was made from the north-east and assessments were made from this side of the subject site only. This subject site is immediately adjacent to an unnamed sealed residential access road off Wallgrove Road. No access road construction is required, and therefore no assessment of any access road vegetation was undertaken. The immediate area proposed for the billboard construction includes a mature specimen of *Corymbia maculata* Spotted Gum along with 4 younger specimens underneath its canopy. These young specimens of *Corymbia maculata* Spotted Gum all have a diameter at breast height of less than 200 mm. A small grove of *Populus alba* White Poplar and a patch of *Rubus fruticosus* Blackberry and occasional *Olea europaea ssp cuspidata* African Olive dominate any areas of woody understorey. The study area is largely cleared of woody vegetation and exotic forbs and grasses predominate with common species including *Pennisetum clandestinum* Kikuyu, *Trifolium repens* White Clover, *Senecio madagascarensis* Fireweed, *Solanum nigrum* Blackberry Nightshade and *Paspalum dilatatum* Paspalum.

For this subject site there is no classified extant native overstorey vegetation mapped by NPWS (2003). *Corymbia maculata* Spotted Gum is listed as a characteristic species in the NSW Scientific Committee's Final determination for the Critically Endangered Ecological Community Cumberland Plain Woodland (CPW). While there is a mature specimen of this species occurring in the study area, the lack of other native plant species and attendant lack of a structured native community has led the current report to find that CPW, or any native plant community, does not occur in the study area. The study area has been mapped in the current report as Cleared and Disturbed Open Woodland.

Flora - Plant Species

A total of 15 plant species were recorded within the study area during the flora field survey, including one native species and 14 introduced species (Appendix A). There was one locally indigenous species – *Corymbia maculata* Spotted Gum. There are no species listed as threatened under the NSW TSC Act 1995 or the EPBC Act occurring within the study area.

Of the 14 introduced species, one was recorded as noxious, as listed under the *NSW Noxious Weeds Act 1993* for the Liverpool LGA (Table 7).

Table 7 Plant species recorded within the study site listed under the NSW Noxious Weeds Act 1993 for Liverpool LGA (Order No.20).

Control Class[1]	*Common Name*	Scientific Name
4	Blackberry	*Rubus fruticosus*

[1] Noxious weed control categories (pursuant to the *NSW Noxious Weeds Act 1993*):

Class 1 State Prohibited Weeds. The plant must be eradicated from the land and the land must be kept free of the plant.

Class 2 Regionally Prohibited Weeds. The plant must be eradicated from the land and the land must be kept free of the plant.

Class 3 Regionally Controlled Weeds. The plant must be fully and continuously suppressed and destroyed.

Class 4 Locally Controlled Weeds. The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority.

Class 5 Restricted Plants. The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with.

Flora - Plant Communities

One plant community was identified within the subject site:

- Cleared and Disturbed Open Woodland

Previous broad-scale mapping of the native vegetation of the Cumberland Plain and adjacent areas by NPWS (2003) has not identified any native plant communities directly on the subject site.

Threatened Plant Species

There was no threatened plant species listed under the TSC Act, or the EBPC Act, recorded on the subject site in the current investigation. Additionally a search of the DECCW Wildlife Atlas identified 7 threatened plant species occurring within 10 km of the site (Table 8). No suitable habitat was identified for any of these species within the study area.

Table 8 Threatened flora species previously recorded within the locality (10km search) on the DECCW Wildlife Atlas.

Scientific Name	TSC Act Status[1]	EPBC Act Status[2]
Acacia pubescens	V	V
Cynanchum elegans	E1	E
Dillwynia tenuifolia	V	V
Eucalyptus scoparia	E1	V
Grevillea juniperina ssp. juniperina	V	-
Marsdenia viridiflora subsp. viridiflora (population)	E2	-
Pimelea spicata	E1	E

[1] E1 – endangered (Schedule 1 of the TSC Act); E2 – Endangered population; E4 – presumed extinct; E4A – Critically Endangered (Schedule 1A of the TSC Act) V – vulnerable (Schedule 2 of the TSC Act).
[2] E – endangered, V – vulnerable, Ex- Extinct

Resilience

Soil profiles, while disturbed, show some influence of local origin. The native canopy species *Corymbia maculata* Spotted Gum is present as a probable remnant specimen with four younger individuals growing under its canopy spread, likely as the mature individual's progeny. Apart from the seed rain to be expected from the mature *Corymbia maculata*, no other native species were observed

in the study area which is characterised at all sub-canopy levels by a poor structure of weedy species. The resilience for this study area has been determined as 'Low'.

Fauna Habitats

Fauna habitats of the subject site and study area are assessed in two main categories for the current survey. Fauna habitat features and resources at a locality scale form part of the broader landscape of the study area. Site specific fauna habitat features and resources provide the key elements required by native fauna for the maintenance of life cycles. Fauna habitats identified in the current survey and associated general fauna are summarised in Table 9.

The subject site supports a limited variety of habitat resources that may be utilised by common protected or threatened fauna occurring in the locality, although these are limited in extent and variety.

Exotic Grassland areas dominate the subject site and provide limited fauna habitat, as such areas are generally lower in habitat complexity. Cleared mown areas offer foraging habitat for terrestrial mammals such as *Oryctolagus cuniculus* Rabbit. There is an absence of fully structured vegetation, large trees supporting hollows, limited leaf litter and loose surface soils, no sandstone outcrops or ledges, few loose rocks and an absence of logs and rotting stumps.

Table 9 Fauna habitat types and resources.

Area	Habitat Feature	Habitat Resources and Fauna
Locality	Broad areas of remnant treed and associated lower vegetation in public open space such as parks and reserves.	Foraging, nesting, roosting and sheltering for birds, reptiles, amphibians, arboreal and terrestrial mammals and bat species.
	Landscape planted and street trees	Foraging, nesting, roosting and sheltering for birds, arboreal and terrestrial mammals and bat species.
	Drainage corridors	Foraging, nesting, roosting and sheltering for small, medium and large birds, arboreal mammals, reptiles and amphibians.
Subject Site	Very Broken canopy of isolated single native and/or exotic trees	Foraging, nesting, roosting and sheltering for small, medium and large birds, reptiles, arboreal mammals, megachiropteran and microchiropteran bat species.
	Absent native midstorey and understorey and sparse exotic midstorey	Foraging, nesting, roosting and sheltering for small and medium birds, reptiles, arboreal mammals and arboreal frogs.
	Highly modified groundcover	Foraging for small and medium birds, reptiles, amphibians and terrestrial mammals.
	No occurrence of stags and tree hollows	No value
	Open mown areas	Foraging for small and large terrestrial mammals and birds
	Access roads and pathways	Foraging and flyways for microchiropteran bat species.

Currently the subject site is a highly modified landscape that lacks many of the natural habitat features and resources that are important in the maintenance of native fauna diversity and life cycles, including

fully structured vegetation, a diverse shrub layer for food sources and protection, leaf litter and loose surface soils. In addition to the altered nature of fauna habitats, current human activities within the subject site and surrounding area, including high levels of night light, noise and vehicular or human traffic, are likely to reduce fauna habitat potential. Domestic pets and feral animals such as rabbits would further dissuade native fauna habitat potential. Relative to the condition of native vegetation on the subject site, limited connectivity to bushland and the absence of many habitat features and resources as described above, the subject site has a low level of fauna habitat value.

Wildlife Corridors

Natural corridors provide connections within the landscape between larger areas of habitat. Corridors facilitate the movement and genetic exchange of flora and fauna, which allows the continuation of viable populations. The importance of wildlife corridors, such as drainage lines and fully or partially contiguous vegetation cover, is well documented (eg Recher *et al*, 1986). At a locality scale the study area and broadly contiguous pattern of native canopy vegetation are offering some habitat resources and contribute to a fragmented corridor extending as an arc through the north-west to north-east of the locality. However the site is not considered to be part of a significant wildlife corridor for the movement and dispersal of native flora and fauna for the locality due to the limited habitat structure of the vegetation community within the study area and existing fragmentation within the locality.

5 CONCLUSION

The construction and ongoing maintenance of the four billboards in the Western Sydney Parklands within Fairfield Council local government area will have minimal impact upon native vegetation communities and fauna habitats.

More specifically, no Threatened Species, Threatened Communities or Threatened Populations listed under the *NSW Threatened Species Conservation Act 1995* (TSC Act) or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) were noted within the subject sites (including both construction sites and access routes) described above for the four proposed billboards. Additionally, no known or potential habitat for any Threatened or Migratory species or populations listed under the TSC Act or the EPBC Act was noted on the subject sites.

Some vegetation will be removed as part of the proposal, including the removal of up to six small planted trees of the local native species *Eucalyptus mollucana* Grey Box in Site 3. These trees are not considered part of a native vegetation community as per the TSC Act or the EPBC Act. Compensatory planting for the removal of these six trees will occur nearby within Western Sydney Parklands. Compensatory plantings will occur at a rate of five trees planted for each removed.

No areas of conservation significance within the subject sites were identified as constraints to the proposal.

As no parts of the proposal were deemed to impact upon listed entities under the TSC Act or EPBC Act, no assessments of significance were required.

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Appendix

Flora Inventory

Western Sydney Parklands

General Status

* Exotic (not native to Australia)

N( ) Noxious weed with class

Abundance

c Common, species occur all over the site

o Occasional, species occur over the survey area but not in large numbers at any occurrence

u Uncommon, species occur only once or twice during the survey

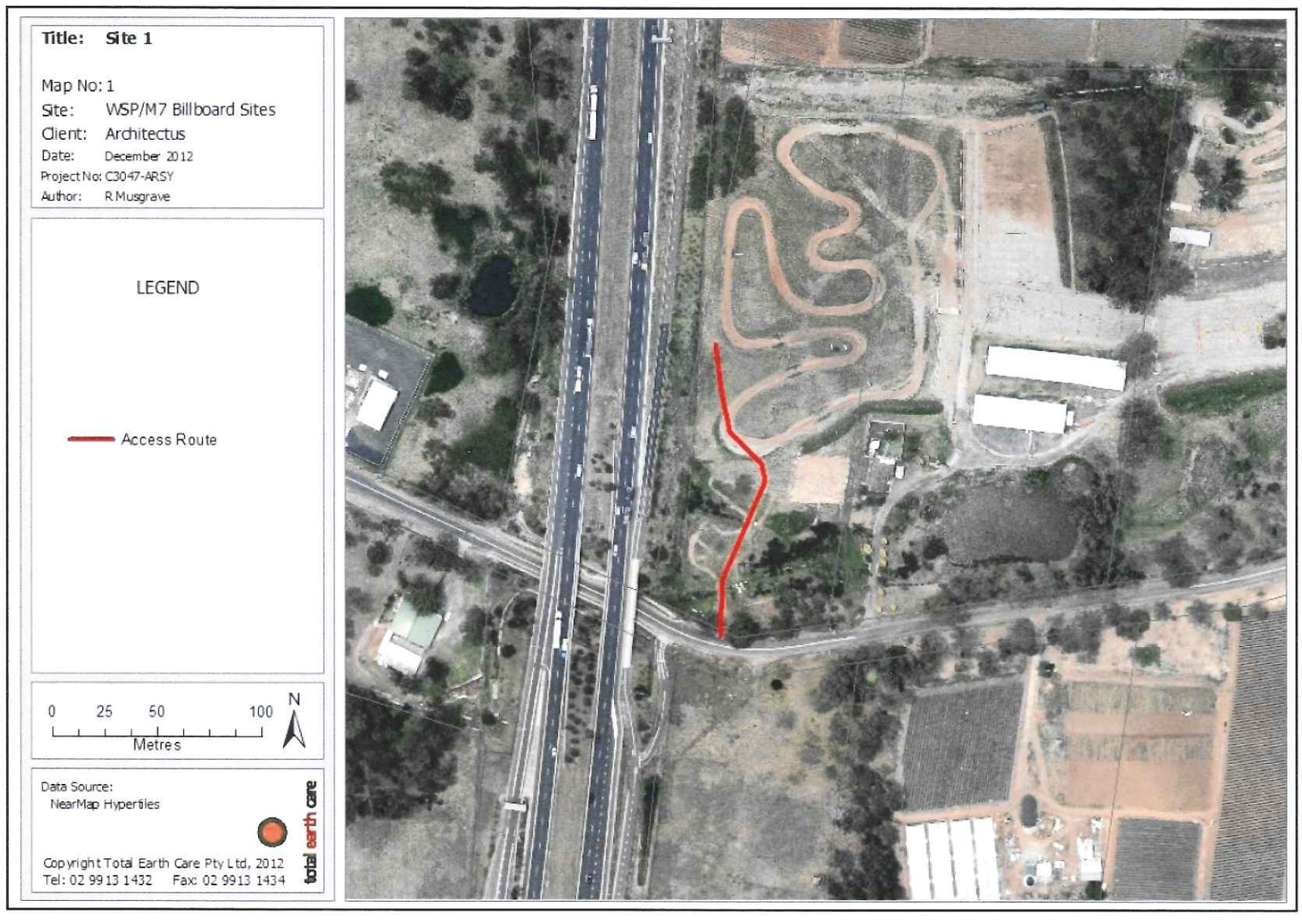
Status	Family	Genus species	Common Name	Site 1	Site 2	Site 3	Site 4
*	Apiaceae	*Cyclospermum leptophyllum*	Slender celery			u	
*	Apiaceae	*Foeniculum vulgare*	Fennel			u	
*	Apocynaceae	*Araujia sericifera*	Moth Vine				
*	Asteraceae	*Aster subulata*	Aster			u	
*	Asteraceae	*Cirsium vulgare*	Spear Thistle			u	o
*	Asteraceae	*Conyza sp*	Fleabane				o
*	Asteraceae	*Hypochaeris radicata*	Catsear		o		o
*	Asteraceae	*Lactuca serriola*	Prickly Lettuce				
*	Asteraceae	*Senecio madagascariensis*	Fireweed	o		u	c
*	Asteraceae	*Sonchus oleraceus*	Sowthistle			u	
*	Brassicaceae	*Brassica napus*	Rape				
*	Cyperaceae	*Cyperus sp.*	Cyperus			u	
*	Fabaceae - Faboideae	*Trifolium pratense*	Red clover			o	
*	Fabaceae - Faboideae	*Trifolium repens*	White Clover	c		o	c
*	Fabaceae - Faboideae	*Vicia sativa*	Vetch				
	Fabaceae - Mimosoideae	*Acacia implexa*	Hickory Wattle				
*	Gentianaceae	*Centaurium tenuiflorum*	Centaury	o			
*	Juncaceae	*Juncus* sp.	Juncus	u			

*	Liliaceae	*Asparagus officianalis*	Asparagus		u		
*	Liliaceae	*Nothoscordum borbonicum*	Onion Weed		u		
	Myrtaceae	*Corymbia maculata*	Spotted Gum				c
	Myrtaceae	*Eucalyptus moluccana*	Grey Box			c	
*	Oleaceae	*Olea europaea ssp cuspidata*	African Olive				o
*	Plantaginaceae	*Plantago lanceolata*	Lamb's Tongues	c	o	o	o
*	Poaceae	*Avena barbata*	Bearded Oats				
*	Poaceae	*Avena fatua*	Wild Oats	o			o
*	Poaceae	*Axonopus fisifolius*	Carpet Grass			u	
*	Poaceae	*Briza minor*	Dwarf Shivering Grass		u		
*	Poaceae	*Bromus catharticus*	Prarie Grass	o	o	u	
*	Poaceae	*Chloris gayana*	Rhodes Grass		c		
*	Poaceae	*Cynodon dactylon*	Couch	o			
*	Poaceae	*Lolium perenne*	Ryegrass	o			
	Poaceae	*Microlaena stipoides var stipoides*	Weeping Grass				
*	Poaceae	*Paspalum dilatatum*	Paspalum	c		u	c
*	Poaceae	*Sporobolus africanus*	Parramatta Grass			u	
*	Poaceae	*Pennisetum clandestinum*	Kikuyu Grass	u	c	c	c
*	Polygonaceae	*Rumex crispus*	Dock			u	
*	Primulaceae	*Anagallis arvensis*	Scarlet Pimpernel				
*N(4)	Rosaceae	*Rubus fruticosus agg sp*	Blackberry				
*	Salicaceae	*Populus alba*	White Poplar				
*	Solanaceae	*Solanum nigrum*	Black-berry Nightshade				
*	Verbenaceae	*Verbena bonariensis*	Purpletop	o	c		o

Appendix B

Maps

Western Sydney Parklands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Project No: C3047-ARSY
Author: R Musgrave
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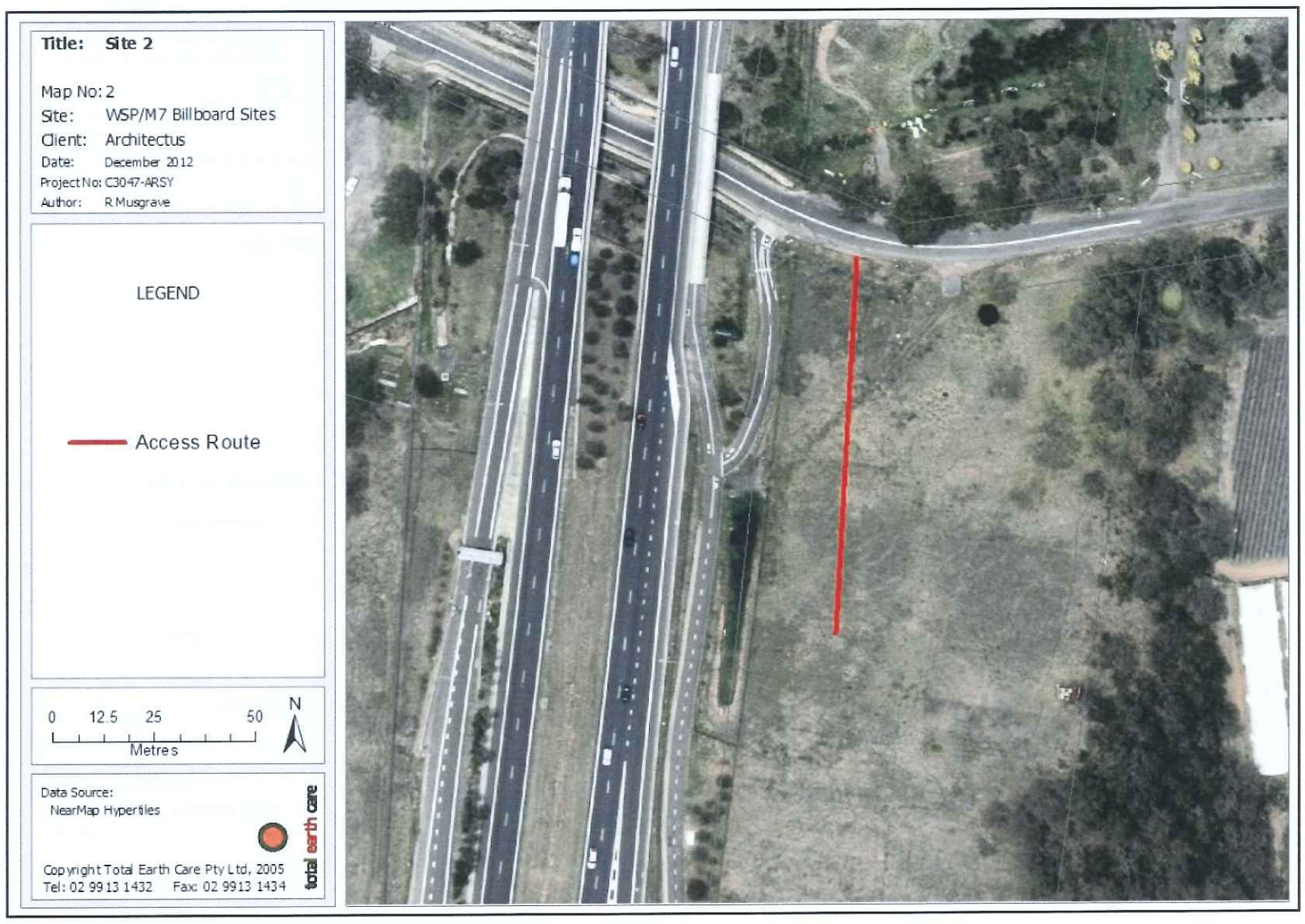
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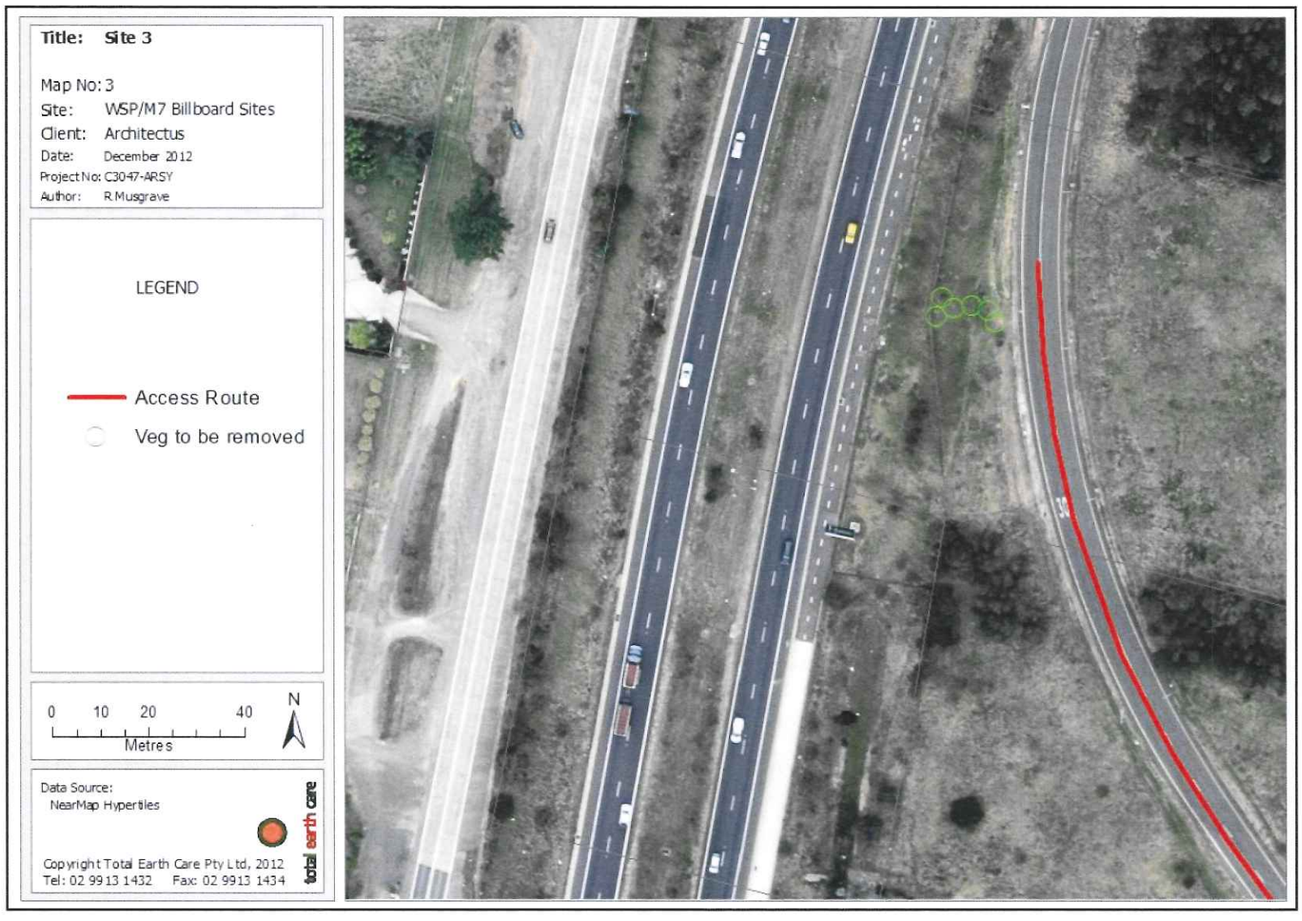
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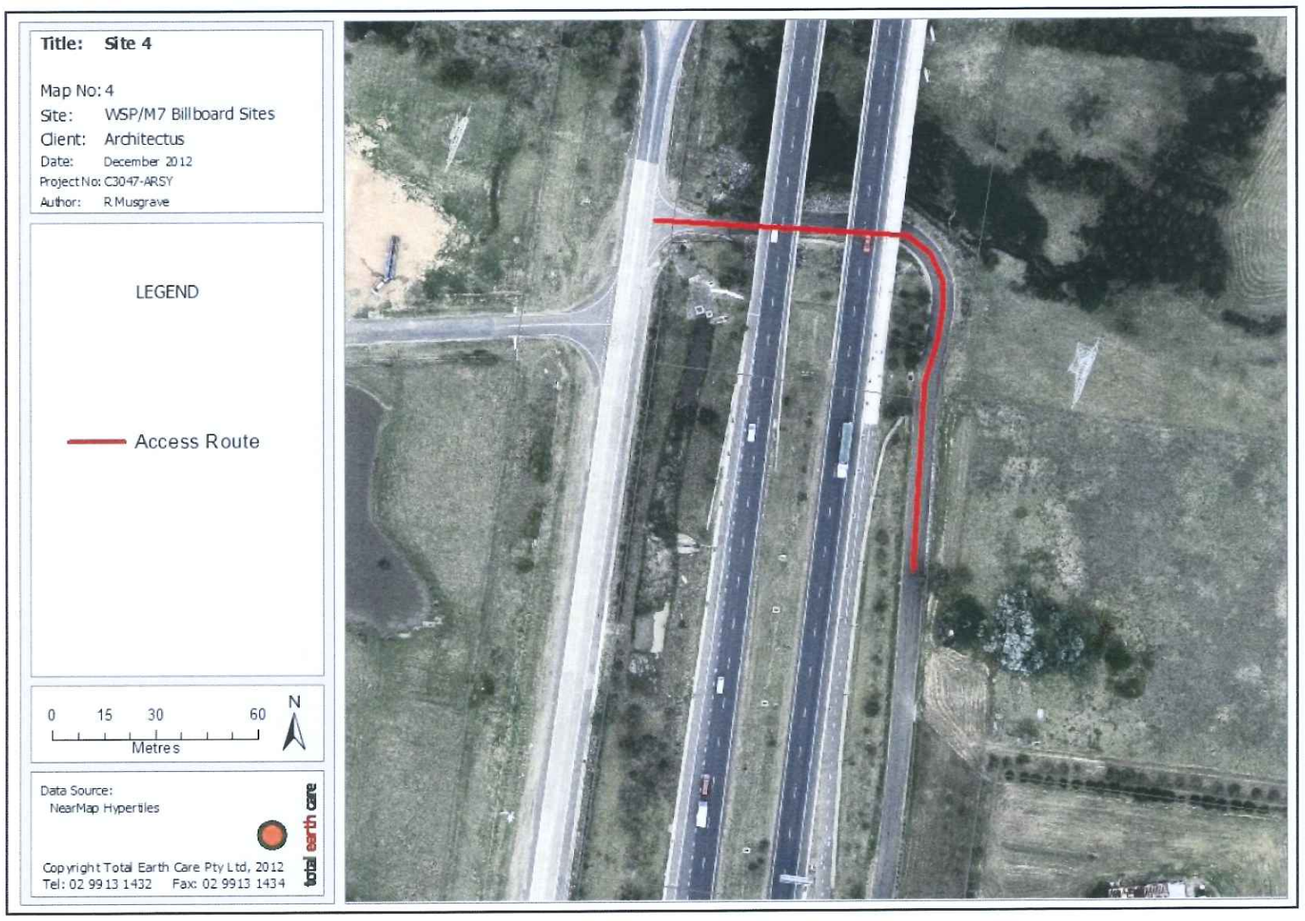
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