Indigenous Heritage Impact Statement
Western Sydney Parklands:
Bungarribee Precinct Project

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Report prepared for APP on behalf of Landcom and DoP

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1 INTRODUCTION

This Heritage Impact Statement (HIS) has been prepared for the Parklands and Doonside Parcel (Bungarribee Precinct Project) as a part of the Director General's Requirements for an Environmental Assessment (EA) under Part 3a of the Environmental Planning and Assessment Act 1979. The purpose of the HIS is to assess the impacts of the proposed development on Indigenous heritage as identified in the initial archaeological assessment of the Western Sydney Parklands (JMcD CHM 2006). This report should be read in conjunction with the earlier report, as much of the background information is not repeated here.

This report was prepared for APP on behalf of Landcom and DoP.

1.1 Summary of findings and recommendations

There are fourteen sites and two areas of PAD identified within the proposed Parklands development areas. Six of these sites have high potential for containing intact archaeological deposit, four sites have moderate potential for containing intact archaeological deposit, and four sites have low archaeological potential. All areas of PAD that will be impacted by the development proposed in the Parklands concept plan have mixed archaeological potential.

There are nine sites and one area of PAD that will be impacted by the development currently proposed within the Doonside Parcel. None of these sites have high potential for containing intact archaeological deposit; eight of these sites have moderate potential for containing intact archaeological deposit, and one of these sites has low archaeological potential. The area of PAD has mixed archaeological potential.

The current concept plan for the Bungarribee Precinct of the Western Sydney Parklands has identified areas which are to provide a conservation outcome for Indigenous heritage. These are located within the existing Doonside and Parklands parcels. The current Concept Plan has the potential for conservation of c.150 ha of Zone 1 land. This is an effective conservation of 73% of land with high archaeological potential.

It is recommended that:

- Parklands: Sites 45-5-3020, WSP/07, WSP/08 and WSP/10 been assessed as having low archaeological potential. Sites 45-5-0454, 45-5-0455, 45-5-0465 and WSP/16 have moderate archaeological potential. Sites 45-5-0453, 45-5-0459, 45-5-0469, WSP/06, WSP/09 and WSP/11 have been assessed as having high archaeological potential;

- Doonside Parcel: Sites OTC/5 has been assessed as having low archaeological potential. Sites WSP/04, 45-5-2360, WSP/01, 45-5-0460, OTC/4, WSP/05, 45-5-0452 and OTC/8 have been assessed as having moderate archaeological potential.

- All impacted areas of PAD have mixed archaeological potential based on differential disturbance to the landscape. Overall, PAD WSP1 has moderate to high archaeological potential, PAD WSP3 has moderate archaeological potential and PAD WSP4 has high archaeological potential.

- Using a 'whole of development' approach, certain landscapes within the Parklands and Doonside Parcel are considered to have higher potential for containing intact archaeological deposit. Where these areas fall outside of the Conservation Areas, salvage excavation should be conducted in order to provide archaeological context for the Conservation Areas and mitigate against the destruction of land with archaeological potential in the Parklands and Doonside development areas;

- It is recommended that the following archaeological features be subject to salvage excavation as part of the overall strategic management strategy for Indigenous heritage within the Bungarribee Precinct Project:

    - The area of PAD WSP1 on the east bank of Eastern Creek at the junction of Eastern and Bungarribee Creeks (Doonside Parcel);

    - the area of PAD WSP1 on the west bank of Eastern Creek at the junction of Eastern and Bungarribee Creeks;

    - the area of PAD WSP1 on the west bank of Eastern Creek at the junction of PAD WSP1 and PAD WSP3;

- across the area of good / moderate potential associated with PAD WSP3 (sports precinct);

- the area of PAD WSP1 along the margins of the swamp.

- A Statement of Commitments should be prepared to accompany the Concept Plan reflecting a commitment to maintaining the proposed Conservation Area and undertaking salvage at these five identified locations within the Parklands;

- An Aboriginal Heritage Conservation Management Plan should be prepared for the Bungarribee Precinct Conservation Area.

1.2 Report authorship

This report was written by Amy Stevens with management input from Jo McDonald.

2 ABORIGINAL COMMUNITY INVOLVEMENT

The study area falls within the boundaries of the Deerubbin Local Aboriginal Land Council (DLALC). The Darug Custodial Aboriginal Corporation (DCAC), the Darug Tribal Aboriginal Corporation (DTAC) and Darug Aboriginal Cultural Heritage Assessments (DACHA) also have an interest in heritage issues within the study area.

All of these groups have been consulted with and had representatives participate in the original survey of the Western Sydney Parklands (as documented in JMCD CHM 2005). All groups will be providing independent reports on the cultural significance of the Western Sydney Parklands to the Aboriginal groups and their views on the proposed management recommendations for the area.

3 THE STUDY AREA

The Parklands and Doonside Parcels are located within Precinct 2 (Bungarribee Precinct) of the Western Sydney Parklands. Precinct 2 comprises 456ha of land acquired by the Department of Planning along Eastern Creek, bounded by Eastern and Doonside Roads to the north and east, the M7 to the west and the M4 motorway to the south.

The Bungarribee Precinct is one of nine precincts that make up c.5,500ha of the Western Sydney Parklands, covering 27km between Quakers Hill and Leppington. This precinct of the Parklands is described in greater detail in The Western Parklands Management Vision: November 2004, published by the Department of Planning.

The Bungarribee Development Precinct includes:

- A c.300ha site, along Eastern Creek, reserved as Parklands with some areas to be developed for recreational purposes;
- A c.88ha site, adjoining the Parklands at Doonside, of which 79.2sqm will be developed for residential purposes;
- A c.56ha site, adjoining the Parklands at West Huntingwood, to be developed for employment purposes; and
- A c.11ha site, north of Eastern Road, to be developed for residential purposes.

An archaeological investigation of the Western Sydney Parklands was undertaken (JMcD CHM 2006). This recorded 52 Indigenous sites and five Potential Archaeological Deposits (PADs) across the Parklands and development parcels. This investigation recommended a conservation outcome as well as the implementation of the Strategic Management Model (SMM) for management of identified sites and landscapes within the Western Sydney Parklands.

A comprehensive review of the regional and local archaeological context is included in the initial archaeological report for the Western Sydney Parklands (JMcD CHM 2006). There are 132 known sites and PADs within 1.5km of the subject land, 52 of these within Bungarribee Precinct 2 of the Western Sydney Parklands. The general picture of archaeological evidence is for a continuous background scatter of artefactual stone, interspersed with higher density activity foci.

Parklands

The Parklands comprises c.300ha of proposed open parkland within Precinct 2 of the Western Sydney Parklands. It is bounded by Eastern Road, the Doonside development parcel and Doonside Road to the north and east, the M7 to the west and the M4 and West Huntingwood development parcel to the south.

The current Concept Plan for the Parklands identifies seven distinct areas of proposed development (Figure 1). The likely impact of these developments varies according to the identified locations and these are discussed below. A total of 33 surface sites and three areas of PAD have been identified within the Parklands Parcel. Fourteen of these sites and all three areas of PAD will be impacted by the development proposed within the Parklands.

Doonside Parcel

The Doonside Residential Parcel is c.88ha of land located at the north east extent of the Bungarribee Parklands Precinct, bounded by Eastern and Doonside Roads. Approximately 55 ha of the total area is to be developed for residential housing (Figure 2).

A total of seventeen sites and two areas of PAD have been identified within the Doonside Precinct. Nine of these sites and no areas of PAD will be impacted by the proposed development as outlined in Figure 2.

3.1 Landscape Parameters

The major watercourses within the Bungarribee Precinct are Eastern Creek and Bungarribee Creek. Bungarribee Creek is a second order stream at this point and Eastern Creek is a third order stream through the entire study area.

There are numerous tributaries to both of these creeks, largely located within the Parklands, a number of which are likely to be directly impacted by the development proposal for the Parklands.

To the west of Eastern Creek and within the Parklands is a very prominent palaeo-channel system that is now a meandering line of swampy ground. This area represents an earlier course of Eastern Creek and its associated levee has good potential for the location of older Aboriginal sites (Figure 3).

Figure 1: Proposed development areas within the Parklands Parcel, Bungarribee Precinct, WSP.

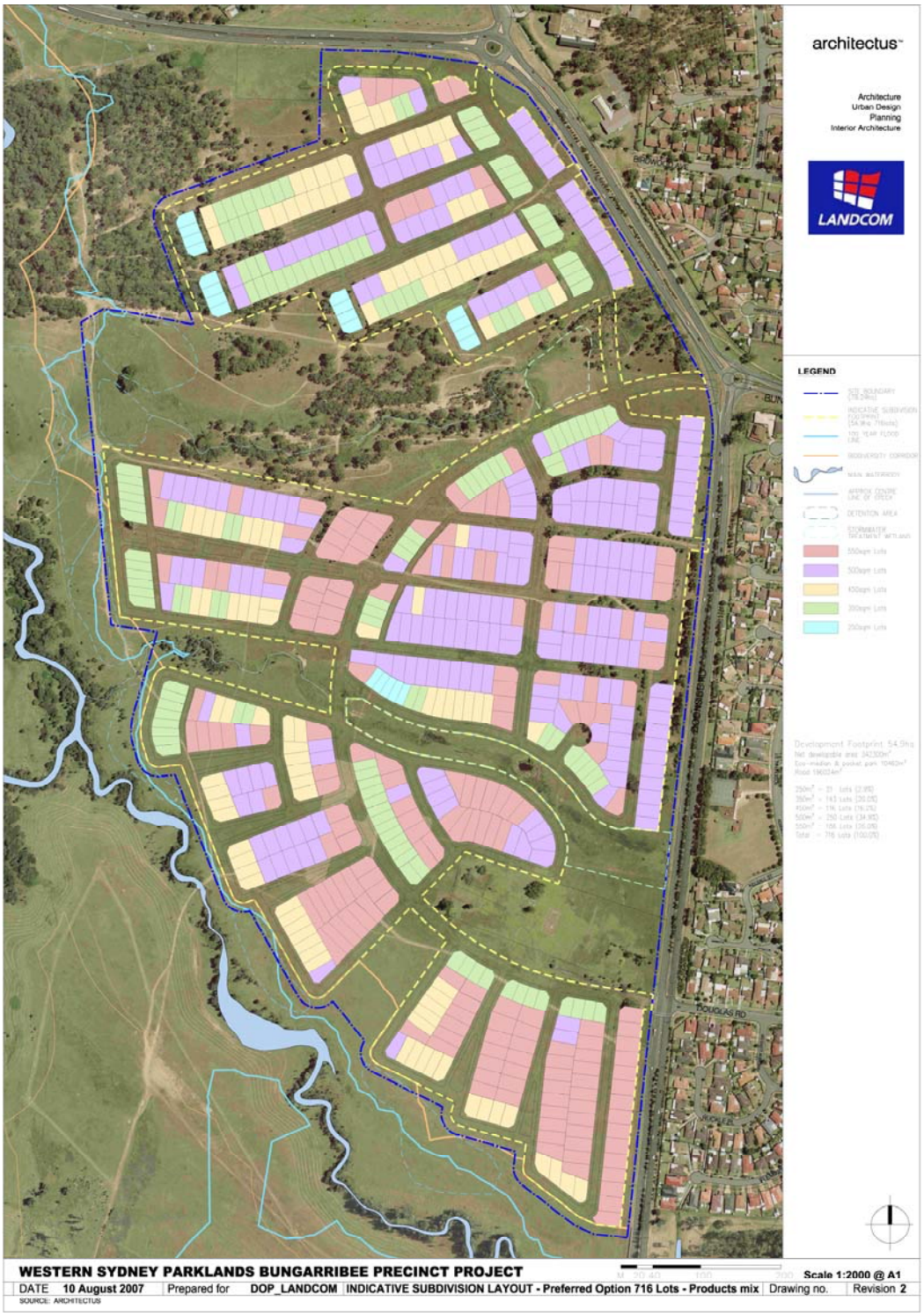


Figure 2: Proposed development within the Doonside Parcel, Bungarribee Precinct, WSP.

3.2 Geology and Topography

The Western Sydney Parklands is located largely on a bedrock of Bringelly shale, which is a part of the Wianamatta Group. The areas within the floodplain of Eastern Creek are located on a Quaternary alluvial deposit comprised of fine-grained sand, silt and clay.

The eastern side of the study area is located on a series of low ridges of c.40 m AHD contour that slope down towards Eastern and Bungarribee Creeks to an elevation of c.30 m AHD. The topography to the west of Eastern Creek is affected by The Rooty Hill, which borders the study area to the northwest. There is significant slope from The Rooty Hill through the western extent of the study area, which then levels out onto the Eastern Creek floodplain at c.30 m AHD.

3.3 Land-use impact assessment

In order to assess the significance and potential of Aboriginal sites and subsurface deposits within the study area, a land-use impact assessment was prepared, looking at the existing levels of disturbance throughout the Parklands. This assessment was undertaken through an analysis of aerial photos, ortho-photomaps and an inspection of these locations during field survey.

The sections of land with the greatest potential for intact archaeological deposit are those that have had the least previous disturbance. Disturbance characteristics can be reinterpreted as sensitivity zones (Figure 3).

The majority of the WSP Parklands has suffered moderate to high previous land use impact. A small area of land adjacent to Brabham Drive has suffered relatively low levels of previous disturbance, though the distribution of intact deposits is patchy and does include some areas of localised, higher levels of disturbance.

These areas of existing land-use impact are important in assessing the potential of the land within the study area to contain intact archaeological deposits – and areas which may have conservation potential. This information, combined with an assessment of representative landscapes within the Parkland lands, formed the basis for conclusions about the conservation of cultural landscapes within the study area (see below).

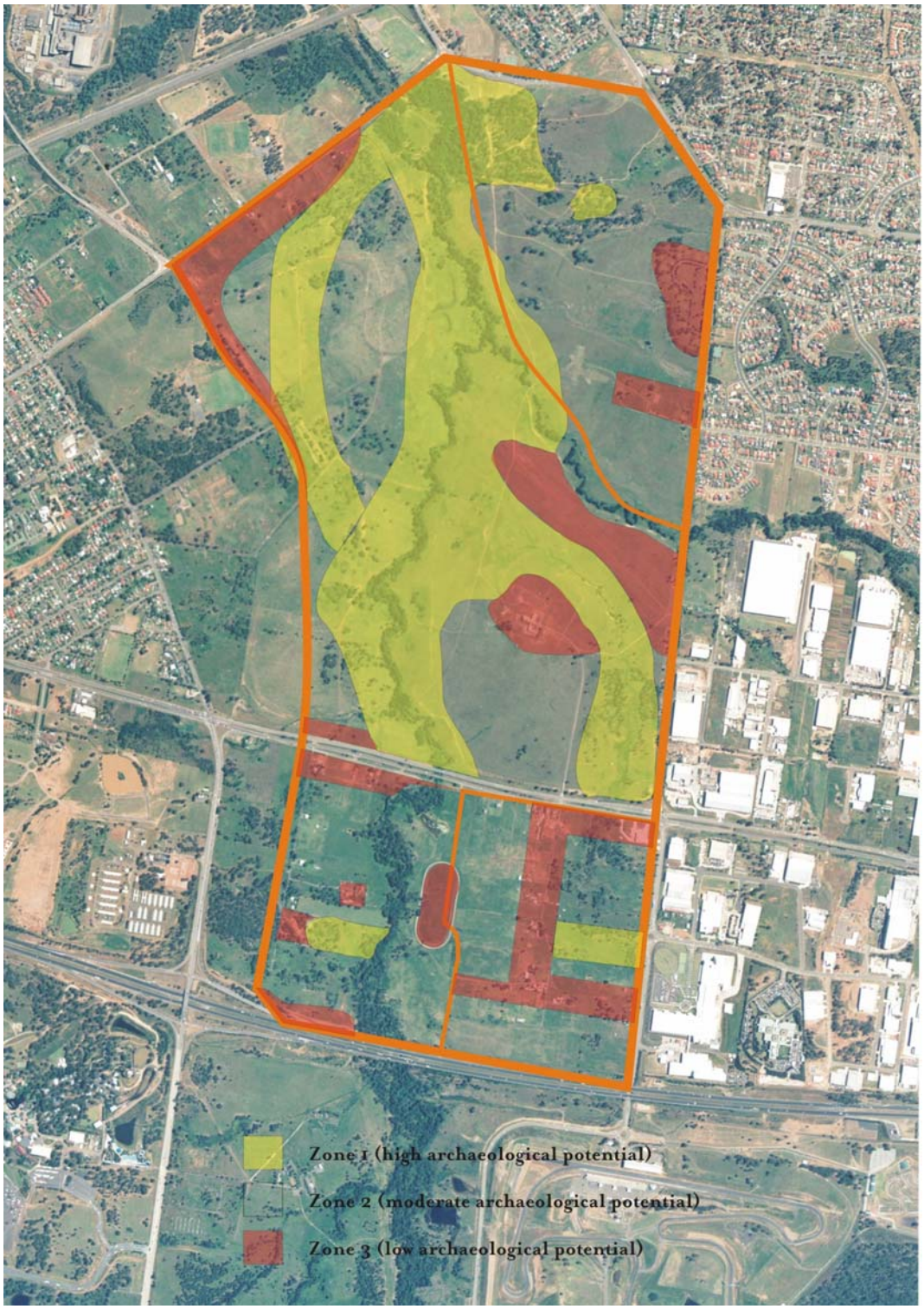


Figure 3: Archaeological sensitivity based on landuse impact assessment for the study area: Zones 1, 2 and 3.

4 INDIGENOUS HERITAGE IMPACTS

The general picture of archaeological evidence within the Western Sydney Parklands is for a continuous background scatter of artefactual material, interspersed with higher density activity foci. There are a total of 52 sites and five areas of PAD within Precinct 2 of the Western Sydney Parklands. Of these 52 sites, there is one scarred tree, two isolated finds and the remaining sites are all open campsites.

There are 34 surface sites located within the Parklands, and three extensive areas of potential archaeological deposit (PAD). These sites are all open lithic scatters, and given the high density of sites within Western Sydney Parklands generally, are probably exposures of an extensive archaeological landscape or site complex. Fourteen of the sites located within the Parklands are likely to be affected by the development or proposed use of areas within the Parklands.

The potential of archaeological sites and PADs has been assessed on the basis of existing land use / disturbance and predictive modelling.

4.1 Parklands: Potentially Impacted Sites

45-5-0453 Open camp site 302680E 6258870N

This surface artefact scatter was originally recorded by Jim Kohen in 1985. The site is described as 20m x 5m site comprised of one silcrete core, three silcrete flakes and one quartz bipolar eroding from a bank of a small tributary to Bungarribee Creek. Artefacts were collected from this site by Kohen in 1984.

The site was relocated and is within a winding line of swampy ground associated with an old tributary to Eastern Creek. Additional artefacts were observed along the banks of this tributary and in areas of visibility within the swampy ground surrounding the tributary. Total area of additional artefacts observed was c.170m x 100m. Artefacts included

1 x quartzite flake
1 x silcrete core
7 x silcrete flakes
1 x silcrete distal flake
c.20 x silcrete and tuff flaked fragments

Given the continuous low-density scatter of artefacts throughout this area, this larger exposure of the site encompasses sites 45-5-0469 and OTC/10.

All of these sites appear to be within the tributary channel (45-5-0453) or the slightly undulating landscape adjacent to the channel (45-5-0469 and OTC/10).

The entire area of swampland associated with this tributary is relatively undisturbed, with the exception of woodland regeneration efforts being undertaken c.25m west of the main channel. This area and the three identified sites located within it are considered to have moderate – high potential for intact archaeological deposit and are located within a landscape that is also considered to have high potential for the recovery of archaeological material. This site is considered to have high archaeological potential.

45-5-0454 Open camp site 302590E 6258990N

Jim Kohen originally recorded this site in 1985. The site is described as being on the eastern side of a ridge top under trees and comprised of one silcrete core, one small quartzite hammerstone and two silcrete flakes within a 15m x 5m area. Kohen collected artefacts from this site in 1984.

The site was relocated and additional artefacts were observed on the eastern edge of the road from the Great Western Highway. Artefacts recorded in the current survey included

1 x tuff flake
6 x silcrete and tuff flaked fragments

The site is located quite close to the junction of two gravel tracks, one headed north from the Great Western Highway, and one headed generally west from Doonside Road. There appears to have been some clearing of trees since the site was first recorded and given the site's proximity to the OTC structure site and the building rubble and rubbish associated with it's demolition, the site is considered to have been subject to a moderate - high level of disturbance. Based on land use mapping, the site is considered to have moderate archaeological potential.

45-5-0455 Open camp site 302520E 6259380N

Jim Kohen originally recorded this site in 1985. The site is described as a 2m x 1m area comprising of a utilised chert point, a chert flake and a silcrete flake, located on the

western side of the road from the Great Western Highway. Kohen collected artefacts from the site in 1984.

The site was relocated and additional artefacts recorded. Low-density scatters of artefacts were observed within this area and for c.50m south of the originally recorded site, along both sides of the gravel track from the Great Western Highway. Artefacts included

4 x silcrete cores
c.15 x tuff and silcrete flaked fragments

The site has been subject to some disturbance in relation to the track from the Great Western Highway and the imported gravel road base. There also appears to be some drainage cut along the western side of the road. Based on land use mapping, the site is considered to have moderate archaeological potential.

45-5-0459 Open camp site 302650E 6259380N

Jim Kohen originally recorded this site in 1985. The site is described as a scatter of 13 chert and silcrete artefacts eroding from an area 50m x 5m, on the western bank of a small tributary to Bungarribee Creek. Kohen collected artefacts from the site in 1984.

The site was relocated and additional artefacts recorded. Artefacts were observed eroding from the edges of the tributary and within the tributary where it was dry. Artefacts included

1 x basalt core
2 x tuff flakes
9 x tuff and silcrete flaked fragments

The area is relatively undisturbed, although there does appear to have been some clearing of trees. The site is located within an identified PAD area, and given the low level of disturbance and the high likelihood of archaeological deposit within this landscape, the site is considered to have high potential.

45-5-0465 Open camp site 302320E 6258930N

Jim Kohen originally recorded this site in 1985. The site is described as a utilised slab of local igneous rock, silcrete flake and two silcrete chips on a mound beside a ditch running SW between The Entrance Rd and Eastern Creek. Kohen collected artefacts from this site in 1984.

This site was not relocated during the archaeological field survey in 2005 (JMcD CHM 2005). The probable location of this site was relocated. A SW running ditch was located east of Eastern Creek, but the entire area was overgrown with dense groundcover grasses and there was no visibility along the length of the ditch. Based on land use mapping, the site is considered to have moderate archaeological potential.

45-5-0469 Open camp site 302750E 6258800N

Jim Kohen originally recorded this site in 1985. The site is described as five silcrete flakes / chips within an area 2m x 1m, within an erosion scar 50m west of Doonside Road. Kohen collected artefacts in 1984. Additional artefacts were recorded for this site by Haglund (2000) and the site was extended to include an artefact c.75 m SW of the original site located in a similar scald on the opposite side of the swamp.

The site was relocated and is within a winding line of swampy ground associated with an old tributary to Eastern Creek. Additional artefacts were observed along the banks of this tributary and in areas of visibility within the swampy ground surrounding the tributary. Total area of additional artefacts observed was c.170m x 100m. Artefacts included

1 x quartzite flake
1 x silcrete core
7 x silcrete flakes
1 x silcrete distal flake
c.20 x silcrete and tuff flaked fragments

Given the continuous low-density scatter of artefacts throughout this area, this larger exposure of the site encompasses sites 45-5-0453 and OTC/10. All of these sites appear to be within the tributary channel (45-5-0453) or the slightly undulating landscape adjacent to the channel (45-5-0469 and OTC/10).

The entire area of swampland associated with this palaeo-channel is relatively undisturbed, with the exception of woodland regeneration efforts being undertaken c.25m west of the main channel. This area and the three identified sites located within it are considered to have moderate to high potential for intact archaeological deposit and are located within a landscape that is also considered to have high potential for the recovery of archaeological material. Overall, this site is considered to have high archaeological potential.

45-5-3020 Open camp site 301654E 6258414N

Matthew Kelleher originally recorded this site in 2004. The site is recorded as being 12 silcrete and one chert artefact located at the southeast end of Pikes Lane. The site is located over a 1200 m² area along a dirt track, c.200 m north of site 45-5-2654.

Whilst the site was relocated, not all of the artefacts recorded in the initial survey were relocated. There appears to have been a substantial amount of disturbance due to the gas pipeline, the realignment of the sewer carrier and construction works associated with the M7 overpass. Artefacts observed here were very small flakes and fragments. Given the existing land use disturbance, the site is considered to have low archaeological potential.

WSP/06 Lithic scatter 302519E 6259730N

A low-density lithic scatter over a large area, south of Bungarribee Creek and east of Eastern Creek. Total area of site is 200m x 100m. Artefacts were recorded quite close to both Bungarribee and Eastern Creeks (50m from the bank), but there were no artefacts visible close to the junction of Bungarribee and Eastern Creeks. Vegetation is quite dense along the entire length of both creeks and consists primarily of pines and gums, with melaleuca and wattle. The site is located amidst a very recent woodland regeneration project.

Artefacts include

11 x silcrete flakes
1 x quartzite flake
3 x silcrete core
21 x silcrete and quartz flaked fragments

The entire area was also littered with large silcrete cobbles and >100 non-diagnostic silcrete fragments.

The majority of the area associated with site WSP/06 is disturbed by the recent woodland regeneration project mentioned above. There are also frequent areas of sandstone and gravel road base, dumped sporadically across the site and the site is immediately north of the old WWII airstrip, where Plumpton Ridge gravels are known to have been used to firm up the road. Given the existing levels of disturbance, the potential for intact deposit across most of the site is considered to be low – moderate,

though the area closer to the junction of Bungarribee and Eastern Creeks appear significantly less disturbed and is considered to have high archaeological potential.

WSP/07 Lithic scatter 302290E 6259842N

Low-density lithic scatter located on the junction of two dirt tracks, one running NW-SE and the other N-S. Artefacts were located within a 40m x 60m area, on a silty, sandy deposit on a very flat low ridge between Bungarribee and Eastern Creeks. The site is located 120m from Bungarribee Creek and the nearest vegetation is regenerating gums, pines and wattle.

Artefacts include

6 x silcrete flake
1 x silcrete backed artefact
3 x silcrete cores
8 x silcrete flaked fragments (1 with retouch)

The entire area was also littered with >50 non-diagnostic silcrete fragments.

The site is situated on the location of the old WWII airstrip. It is known that Plumpton Ridge gravels were brought onto the site and used to firm up the strip. Given the existing land-use disturbance to this site, it is considered to be of low archaeological potential.

WSP/08 Lithic scatter 302503E 6259292N

High-density lithic scatter located on tracks and clearing associated with the old OTC structure site. Artefacts were located within a 130m x 120m area on a very disturbed surface, although the site does extend into less disturbed exposures off the main tracks and into the dens groundcover surrounding. The site is c.70m from a small tributary to Eastern Creek and c.250m from Eastern Creek itself. Nearest vegetation consists primarily of sporadic gums and a small grove of regenerating wattle.

Artefacts include

3 x tuff flakes
1 x tuff core
4x silcrete cores
10 x silcrete flakes
1 x quartz flake
2 x quartzite flakes

22 x silcrete flaked fragments

The entire area is also littered with non-diagnostic silcrete and quartz fragments.

WSP/08 is located on a very disturbed area associated with the demolished OTC structure. The area has poor surface integrity and given the existing land-use disturbance, the site is considered to have low archaeological potential.

WSP/09 Lithic scatter 302283E 6259422N

Low-density artefact scatter located within an erosion gully 3m off a dirt track running NW-SE from the old OTC structure site towards Eastern Creek. Artefacts are located within a 5m x 20m area in a very sandy deposit, with no visibility beyond the edges of the erosion gully. Eastern Creek is c.200 m to the west and vegetation consists of mostly gums associated with the creek and a small grove of gums c.100 m west.

Artefacts include

2 x tuff flakes
1 x silcrete core
2 x tuff flaked fragments
20 x silcrete flaked fragments

On the basis of land use mapping, the site is assessed as having high archaeological potential.

WSP/10 Lithic scatter 302267E 6259337N

Low-density artefact scatter located on a very roughly formed track running E-W up a small hill and in areas of patchy visibility up to 30m off track. Artefacts are located within a 100m x 80m area on a sandy silty deposit immediately west of the old OTC structure site. WSP/10 is c.200m from Eastern Creek. A grove of gums is within the extent of the site and there is a small grove of regenerating wattle c.40m to the north.

Artefacts include

2 x tuff flakes
2 x silcrete cores
1 x tuff core
3 x silcrete flakes
10 x silcrete flaked fragments
3 x tuff flaked fragments

WSP/10 is located on a relatively steep hill slope. Land-use effects include significant clearing, excavation and dumping of rubbish and building rubble associated with the OTC structure site. Given the high disturbance to the site and its location within a landscape with a low likelihood for containing archaeological material, WSP/10 is assessed as having low archaeological potential.

WSP/11 Lithic scatter 302025E6260394N

Low-density artefact scatter located on the bank of a swampy depression associated with an old palaeo-channel system. Artefacts are located within a 10m x 10m area at the NE end of the depression, on a low-slope drainage into the swamp and along the significantly eroded edges of the depression. Eastern Creek is c.100m to the east. There is one large old gum growing on the eroding edge of the palaeo-channel and a number of burnt tree stumps within 10 m of the extent of the lithic scatter.

Artefacts include

1 x silcrete core
1 x silcrete flaked fragment with retouch
3 x silcrete weathered flaked fragments

WSP/11 is located within the boundaries of identified PAD attributed to an old palaeo-channel system. This PAD has been identified as one likely to be associated with older archaeological sites. The area has been subject to clearing, but given the relatively undisturbed nature of the deposit and the high likelihood of finding archaeological sites within this landscape, the site is considered to have high archaeological potential.

WSP/16 Lithic scatter 301910E 6260703N

Low-density artefact scatter located on bund running N-S c.300m from Phillip Parkway. Artefacts are eroding from the top and sides of a small bund amidst a grove of low shrubs, 20m NE of a small grove of gums and 75m south of dense regenerating gum vegetation. Eastern Creek is c.200m to the east.

Artefacts include

1 x silcrete flake
7 x silcrete and tuff flaked fragments

The area around WSP/16 has been extensively cleared and ploughed as well as being subject to significant erosion of the deposit by vehicles. There is a large amount of

yellow clay dumped on the ground surface c.30m west of the site. Given the existing level of land use effects and the likelihood of locating intact deposit, the site is assessed as having moderate archaeological potential.

PAD WSP1

This area of PAD is a discontinuous low levee along the main stream. The PAD area has been extended where relevant to incorporate remnant swamps and billabongs and the higher ground at stream junctions, where there is a high potential for recovery of archaeological material. The area is on floodplain and minor hill slope (spanning a 3 m contour), and includes areas that are of lesser potential due to various land-use impacts or erosion.

PAD WSP1 consists mostly of land designated as Parklands, though this PAD does extend into Parcel 3. The PAD is located on quaternary alluvial deposit and given the proximity of the area to the permanent water of Eastern Creek, the potential for archaeological sites within the area is high. There are a number of areas throughout the PAD the have been disturbed due to the recent woodland regeneration project, the construction of dams, bridges, underground services associated with or close to Eastern Creek and substantial clearing of vegetation.

Given the landscape context of this PAD and its mixed land-use effects, PAD WSP1 is assessed as having moderate - good archaeological potential.

PAD WSP3

This area of PAD is a meandering line of swampy ground located west of Eastern Creek and ascribed to an old palaeo-channel system. The boundary of the PAD follows the old banks of the channel and includes areas that are of lesser potential. There has been localised, quite substantial disturbance to areas of land within the PAD, including the cutting of dams, the construction of heavy vehicle roads and bridges / drains across the channel. This PAD is located within land designated Parklands and requires consideration in terms of proposed recreational developments.

Given the landscape context of this PAD and its mixed land-use effects, PAD WSP3 is assessed as having moderate archaeological potential.

PAD WSP4

This area of PAD is a part of the low levee along Eastern Creek identified as PAD north of the Great Western Highway. South of the Great Western Highway, areas immediately adjacent to Eastern Creek have been much more intensively impacted, particularly in terms of access along the creek for vehicles, pedestrians and stock. The PAD includes areas that are of lesser potential, including a small (10m x 10m) ploughed area at the northeast extent of the PAD. The remaining area does not appear to have been extensively cleared or ploughed. PAD WSP4 is located within land designated as Parklands and requires consideration in terms of proposed recreational developments. This PAD poses no constraint to the currently proposed developments within Parcels 3 and 4.

Site WSP/14 is located within this PAD, and the majority of artefacts associated with the site have obviously been brought to the surface by very recent disturbance. A collapsed tree within the PAD and the subsequent exposure of the subsurface deposit suggests a depth of deposit to at least one metre. Moreover, the location of artefactual stone amidst the root system of the collapsed tree strongly indicates an artefact bearing subsurface deposit.

Given the landscape context of this PAD and the low land-use disturbance associated with it, PAD WSP4 is assessed as having high archaeological potential.

4.2 Doonside Parcel: Potentially Impacted Sites

45-5-0452 Open camp site 302690E 6259970N

Site not relocated.

This surface scatter of artefacts was originally recorded by Jim Kohen in 1985. The site is described as two silcrete flakes 15m apart on a track running NW from Eastern Creek to the hill where Bungarribee House was originally located. Based on the sketch included in the site card and the position of Bungarribee house in relation to Eastern Creek, the site is more likely to be on a track running NW from Bungarribee Creek to the old Bungarribee House site. Artefacts were collected from this site by Kohen in 1984 and no additional material has been found in subsequent surveys.

Based on land use mapping, this site is assessed as having moderate archaeological potential.

45-5-0460 Open camp site 302580E 6260440N

Site relocated.

Jim Kohen originally recorded this site in 1985. The site is described as two silcrete flakes (one yellow, one red) within deep erosion scars, c.500m from the eastern bank of Bungarribee Creek. Kohen collected artefacts from this site in 1984. Additional artefacts were observed by Haglund (2000) at the intersection of a firebreak, pipeline and the tributary and were interpreted as being a part of the same site.

The site was relocated and two additional artefacts observed 25 m south of Kohen's original GPS location. The erosion scars and tributary were overgrown with extremely dense ground cover grasses and visibility was restricted to small patches within the erosion scars. Artefacts included

1 x red silcrete flake
1 x red silcrete flaked fragment

The site is located immediately west of a track over the small tributary to Eastern Creek and is in an area that has been completely cleared of vegetation. Based on land use mapping, the site is considered to have moderate archaeological potential.

45-5-2360 Open camp site 302800E 6260750N

Site relocated.

Kerry Navin originally recorded this site in 1993. The site is described as a low-density artefact scatter on both sides of the eroded bank of the upper reaches of a drainage channel.

The site was relocated and additional artefacts recorded. Artefacts include

1 x silcrete flake
1 x silcrete flaked fragment

Based on land use mapping, the site is assessed as having high archaeological potential.

OTC/4 Open camp site 302400E 6260360N

Site relocated.

Helen Brayshaw and Laila Haglund originally recorded this site in 1997. The site was described as an artefact scatter within a 110m x 11m area in the surface of a firebreak cutting across the crest of a low spur.

The site was relocated but was quite overgrown with dense grasses. The main areas of visibility were on the edges of a rough track running parallel to Bungarribee Creek and patchy areas of visibility up to 30 m from the track. Actual area of site appears to extend further than the original recorded area and is c.200 x 30 m. Artefacts recorded include

3 x silcrete flakes
1 x silcrete core
6 x silcrete flaked fragments
1 x quartz flaked fragment

There is a very rough track cutting through site OTC/4, a small firebreak west of this track and disturbance is considered to be low. The site is within an area of identified PAD and is likely to contain intact archaeological deposit. Based on land use mapping, the site is assessed as having moderate archaeological potential.

OTC/5 Open camp site 302950E 6260470N

Site relocated.

Helen Brayshaw and Laila Haglund originally recorded this site in 1997. The site was described as 100m x 5m area, with three flake fragments and one blade located on a dirt track once used for service housing, within a narrow belt of trees that sets the site apart from the cleared fields below.

The site was relocated and additional artefacts recorded. Artefacts were observed embedded in the track and on both sides of the track along its entire length. Artefacts included

3 x red and yellow silcrete flakes
2 x red silcrete cores
1 x quartzite fragment
1 x tuff flaked fragment

23 x silcrete flaked fragments

There was also a lot of natural silcrete on and to the sides of the track, >100 fragments of non-artefactual silcrete. This has probably been brought onto the site as road base when the area was used for service housing. The area is extremely disturbed and it is unlikely there is intact archaeological deposit here. Based on land use mapping, the site is assessed as having low archaeological potential.

OTC/8 Open camp site 302900E 6259840N

Site not relocated.

Laila Haglund originally recorded this site in 1997. The site was recorded as a 300m x 15m firebreak area along Doonside Road near Bungarribee Creek. Six artefacts were recorded scattered sporadically down a steep slope.

The area of site OTC/8 was relocated, but there was limited visibility and no artefacts were observed. The entire area appears highly disturbed by ploughing and clearing. Based on land use mapping, the site is assessed as having moderate archaeological potential.

WSP/01 Lithic scatter 302680E 6260560N

A high-density lithic scatter located along and to the sides of a dirt track running E-W from Doonside Road. Total area of exposure is 10m x 120m, with artefacts eroding from a silty, sandy deposit. Dense groundcover grasses off the track limit visibility, though artefacts are evident where there are patches of visibility. The site is located on an upper hill slope c.300 m east of Eastern Creek and c.200 m south of a small tributary to Eastern Creek. The track runs south of a dense grove of gums and pines, with a mostly cleared area to the south.

Artefacts include

1 x yellow silcrete flake
1 x red silcrete flake
1 x white quartz flake
2 x tuff flakes
1 x red silcrete core
1 x grey tuff core
>20 silcrete, quartz and tuff flaked fragments

There was also a large amount of natural silcrete, >50 small fragments of non-artefactual silcrete.

Site WSP/01 is located in an area affected by moderate disturbance from a well-formed track and substantial clearing of vegetation to the south of the site. There may be more intact topsoil in areas off the track, but it is likely that this area has been impacted upon by the laying of sewer mains running E-W c.25 m to the north and meeting a sewer main running N-S c.75 m to the west. Based on land use mapping, the site is assessed as having moderate archaeological potential.

WSP/04 Lithic scatter 302513E 6261084N

A low-density artefact scatter located on a hill slope within a ploughed and burnt off area in the northeastern corner of the study area. Total area of exposure is 50m x 10m, with artefacts exposed on topsoil, probably brought to the surface by ploughing. The site is located c.400m from Eastern Creek, 50m east of a dense grove of vegetation that extends to Eastern creek and consists of mostly gums, pines with occasional melaleuca and wattle.

Artefacts include

2 x red silcrete flakes
1 x white tuff flake
7 x silcrete flaked fragments
3 x silcrete fragments with cortex.

The area of site WSP/04 has been extensively cleared and ploughed, with obvious disturbance to the topsoil. Given the land use effects and distance from water, the site is considered to have moderate archaeological potential.

WSP/05 Lithic scatter 302837E 6260017N

A low-density artefact scatter located on a track south of Bungarribee House site. Total area of the site was a 3m x 50m corridor along the track, with no visibility beyond the edges of the track itself. The site was located 150m from Bungarribee Creek and the closest vegetation was that associated with Bungarribee Creek to the northwest.

Artefacts included

1 x red silcrete flake
1 x yellow silcrete core

8 x silcrete, tuff and quartz flaked fragments

The entire corridor along the track was littered with non-artefactual silcrete, >100 fragments of naturally broken silcrete.

Site WSP/05 is subject to a high degree of disturbance. The track that now exists was once a bitumen road that has now been removed. Bungarribee House and associated buildings were located 20 m to the northwest of the site and there has been substantial clearing of the entire area, as well as ploughing associated with the firebreak along Doonside Road. The site is considered to have moderate archaeological potential based on land use mapping.

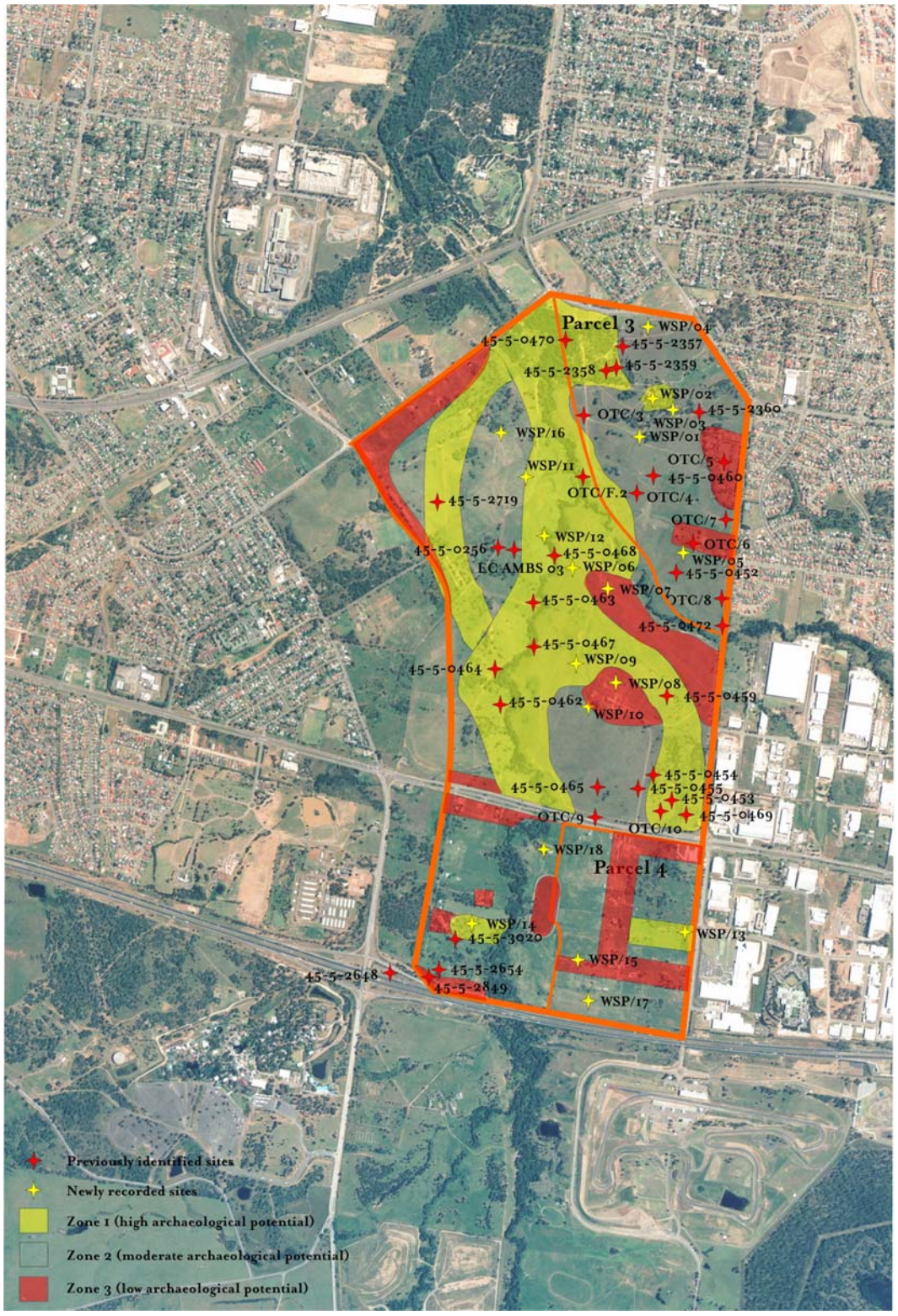


Figure 4: Identified surface sites and areas of PAD within the Parklands and Doonside Parcels, Bungarribee Precinct, WSP.

Summary of results

Parklands

There are fourteen sites identified within the proposed Parklands development impact areas. There are also several areas of PAD that will be affected by the proposed developments (Figure 5). Six of these sites have high potential for containing intact archaeological deposit, four sites have moderate potential for containing intact archaeological deposit, and four sites have low archaeological potential. All areas of PAD that will be impacted by the development proposed in the Parklands concept plan have mixed archaeological potential.

Table 1: Sites and PADs that may be impacted by proposed development within the Parklands: assessed archaeological potential.

Site ID	Landform	Site Type	Impact	Archaeological Potential
45-5-0453	Creek bank	Open camp site	Y	HIGH
45-5-0454	Hill slope	Open camp site	Y	MODERATE
45-5-0455	Ridge top	Open camp site	Y	MODERATE
45-5-0459	Creek bank	Open camp site	Y	HIGH
45-5-0465	Hill slope	Open camp site	M?	MODERATE
45-5-0469	Beside swamp	Open camp site	Y	HIGH
45-5-3020	Flood plain	Open camp site	Y	LOW
WSP/06	Flood plain	Open camp site	M?	HIGH
WSP/07	Flood plain	Open camp site	Y	LOW
WSP/08	Hill slope	Open camp site	M?	LOW
WSP/09	Flood plain	Open camp site	Y	HIGH
WSP/10	Upper hill slope	Open camp site	M?	LOW
WSP/11	Flood plain	Open camp site	Y	HIGH
WSP/16	Flood plain	Open camp site	Y	MODERATE

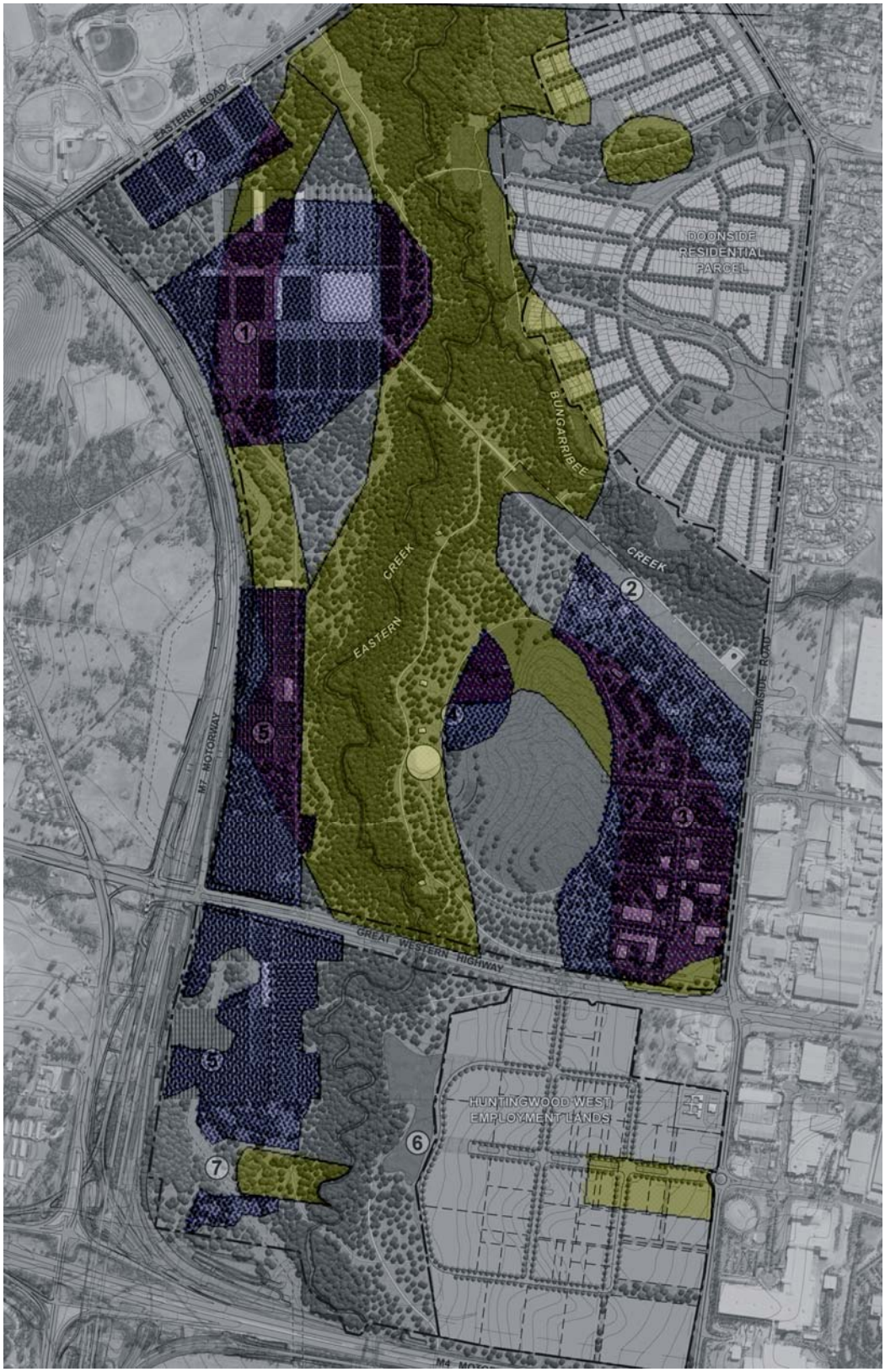


Figure 5: Areas of high PAD impacted by the proposed development within the Parklands, Bungarribee Precinct. Yellow = Zone 1 lands. Blue = development impact. Purple = impacted Zone 1 lands.

Doonside Parcel

There are nine sites likely to be impacted by the development identified within the proposed Doonside Parcel. Both areas of PAD are likely to be affected by the proposed developments (Figure 6). Eight of these sites have moderate potential for containing intact archaeological deposit, and one site has low archaeological potential.

Table 2: Sites and PADs that may be impacted by proposed development within the Doonside Parcel: assessed archaeological potential.

Site ID	Landform	Site Type	Impact	Archaeological Potential
45-5-0452	Hill slope	Open camp site	Y	MODERATE
45-5-0460	Creek bank	Open camp site	Y	MODERATE
45-5-2360	Hill crest	Open camp site	Y	MODERATE
OTC/4	Hill crest	Open camp site	Y	MODERATE
OTC/5	Hill crest	Open camp site	Y	LOW
OTC/8	Ridge slope	Open camp site	Y	MODERATE
WSP/01	Hill slope	Open camp site	Y	MODERATE
WSP/04	Hill slope	Open camp site	Y	MODERATE
WSP/05	Ridge top	Open camp site	Y	MODERATE

Figure 6: Areas of high PAD impacted by the proposed development within the Doonside Parcel, Bungarribee Precinct. Yellow = Zone 1 lands. Blue = development impact. Red = impacted Zone 1 lands.

5 DISCUSSION

In order to appropriately manage the Indigenous heritage values of the Bungarribee Precinct of Western Sydney Parklands and adjoining Doonside Residential parcels, these need to be assessed for their archaeological and social significance. The original report on the Indigenous archaeological investigation for the Bungarribee Precinct of the Western Sydney Parklands documents identified archaeological values based on surface survey and landuse analysis. Discussions with the Aboriginal community have attempted to identify socially significant locations and/or landscapes.

The identification of conservation values involves the identification of lands with the greatest potential to contain intact archaeological deposit (i.e. only minimally disturbed by previous land-use impact), and those that are locally (and regionally) threatened by existing urban development. These two factors contribute to the assessment of high conservation potential.

The land-use mapping has been reinterpreted as one of archaeological sensitivity (Figure 3), which has been further considered in terms of the predictive model and landscape parameters in order to identify the areas with the best potential for significant archaeological sites and/or landscapes.

It is notable that no area within the study area is identified as having High Archaeological potential on the basis of land use mapping [e.g. as was identified in the former ADI Site in western Sydney (JMcD CHM 1997, 2003)]. The entire area has been cleared in the past and a range of previous uses has impacted much of this. Within most of the lands identified as having good potential, there are patches of disturbance that lower the overall conservation potential. By overlapping this landuse mapping with the predictive model for site location (i.e. where "best" sites are likely to be located) certain points along Eastern Creek are identified as having higher sensitivity (Figure 5). The yellow PAD Area on the Map indicates the lands that are identified as having good archaeological potential.

Regional Landscape analysis

Previous analyses have shown that the following landscapes and topographic elements, in relatively good condition, are rare across the Cumberland Plain. These represent higher value landscapes, in terms of local heritage conservation requirements.

Aboriginal sites located in these landscapes would have intrinsically higher conservation potential, because the number of such sites likely to be remaining in the Cumberland Plain is low. The high value landscapes are:

- shale hillslopes (Minchinbury and to a slightly lesser degree, Ashfield);
- first order tributary creeklines; and,
- shale ridges and low ridgetops (particularly Minchinbury and Bringelly)

There are few locations within the Bungarribee Precinct of the Western Sydney parkland lands where there are landscapes in good condition with high regional and local conservation needs (e.g. hillslopes, ridges or first order streams: see Figure 3). The identification of areas with high conservation values here (i.e. good archaeological potential), are based on levels of existing (low) disturbance.

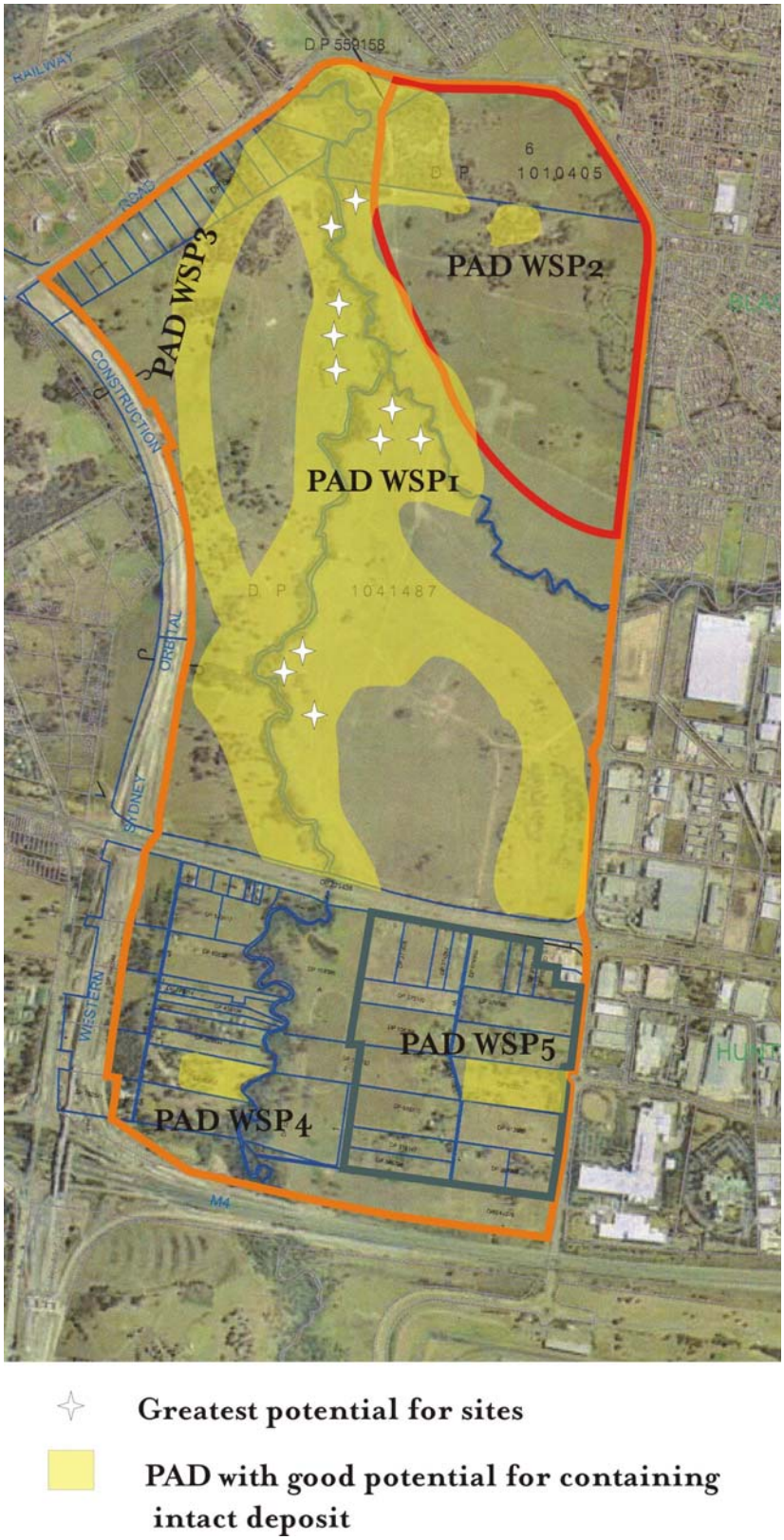


Figure 7: Archaeological sensitivity zones within the study area. Yellow = good potential; Greatest potential is along the discontinuous low levee along the main stream, around the margins of swamps and billabongs and on the higher ground at the stream junctions. These are marked with the white stars.

In the Parklands we can also identify which landscapes are 'threatened' in terms of the proportions that have already been heavily impacted. None of the proposed Parklands area remains in pristine condition. Some of the landscapes here have been more heavily impacted than others. Much of the Eastern Creek floodplain is in good condition, however. The hillslopes throughout the Parklands have been subject to a range of previous land-use disturbances.

When we consider those landscapes that are considered 'threatened' in the regional and local (i.e. Eastern Creek) context – hillslopes, ridgetops and first order creeklines, there are few landscapes within the Parklands that have intrinsically higher significance from an archaeological conservation perspective.

Developing an Indigenous heritage conservation strategy

An Indigenous heritage conservation strategy and outcome has been proposed for the Western Sydney Parklands. This strategy is based both on scientific and cultural (or social) values. By identifying the range of representative landscapes with the best conservation potential, and by adding to this identified areas of Aboriginal significance, a meaningful management outcome would be anticipated. A similar approach has been used – with the concurrence of the Aboriginal community and DECC (formerly NPWS) NSW - at the former ADI Site at St Mary's (JMcD CHM 1997), in the SEPP59 lands at Eastern Creek (JMcD CHM 2003) and in the Rouse Hill Development Area (JMcD CHM 2005a).

The overriding aim of a strategic Indigenous heritage management strategy is the preservation of a representative sample of intact landscapes, to ensure that a range of human responses, as represented by the archaeology, can be protected.

5.1 Conservation Management Strategy

One of the aims of cultural heritage management is a sustainable management outcome for Indigenous heritage. The Bungarribee Precinct Project – with its associated residential and industrial parcels –aims to have an Indigenous heritage conservation strategy and outcome. Significant heritage areas should be conserved to enhance the character of the Parklands.

Any identified conservation area should include a representative set of landscapes, most of which should have the best conservation potential. Areas of identified Aboriginal significance should also be accommodated in the conservation outcome. A conservation area defined on this basis would achieve a meaningful management outcome.

A conservation management plan is required to ensure that the identified conservation areas are managed appropriately and that the heritage values are identified and maintained throughout the development and use of the Parklands and associated development parcels.

It is envisaged that no development – or archaeological investigation – would take place within the defined conservation areas but that these will be managed into the future on the basis of their Aboriginal (and other) heritage values.

Protocols and strategies still need to be developed for the management of these conservation areas.

The land falling outside the defined conservation areas would be deemed developable – ands may be subject to a range of development impacts.

In summary, the Indigenous conservation management strategy for the Western Sydney Parklands and development parcels is based on the following principles:

- A set of representative landscapes with high potential to contain intact archaeological deposit should be contained in the conservation areas;
- The conservation area(s) should also contain sites and or areas with high cultural (or social) value;
- The selection of the conservation area should be achieved by considering a range of environmental values and development requirements (i.e. development yield, best/requisite location of infrastructure, conservation outcome, and etc.);
- The conservation management strategy needs to consider the long term management of the identified conservation areas;

- Once the conservation areas within the study area have been defined the remainder of the land should be considered as developable;

- Archaeological sites/landscapes falling within the developable lands are not a constraint to development. However, these sites should be managed in accordance with a defined set of management principles (see below). High value sites in a representative set of landscape should be salvaged to mitigate against their destruction.

5.2 Western Sydney Parklands Conservation Area

A conservation area has been proposed within the 'existing vegetation' corridor for the Bungarribee Precinct of the Western Sydney Parklands (Figure 1). This conservation area should be selected from the c.113ha of land with high archaeological potential that are not to be impacted by the proposed developments. This conservation area should include a representative set of landscapes and areas of identified Aboriginal significance. A conservation area defined on this basis would achieve a meaningful management outcome. Thought needs to be put into how and who will manage this land and such issues as edge-effect would need to be considered.

A conservation management strategy is required to ensure that the identified conservation areas are managed appropriately and that the heritage values are identified and maintained throughout the development and use of the Parklands and associated development parcels. It is envisaged that no development, or archaeological investigation, would take place within the defined conservation areas but that these will be managed into the future on the basis of their Aboriginal (and other) heritage values. A Plan of Management would need to be written to ensure that the conservation values in this area are maintained through time.

Lands which could be incorporated into the Conservation Zone are shown (Figure 6). This could incorporate a range of landscape units, including main creeklines, minor creeklines and hillslopes in good condition. It also incorporates some lands with moderate potential to avoid conservation 'islands' in development areas. It is envisaged that ground breaking impacts in this area must be avoided and that conservation would be the principle aim of this land. It may be necessary – given the range of proposed

activities within the Parklands to make the conservation area a smaller area within this proposed area, in order to ensure activities are limited as appropriate.

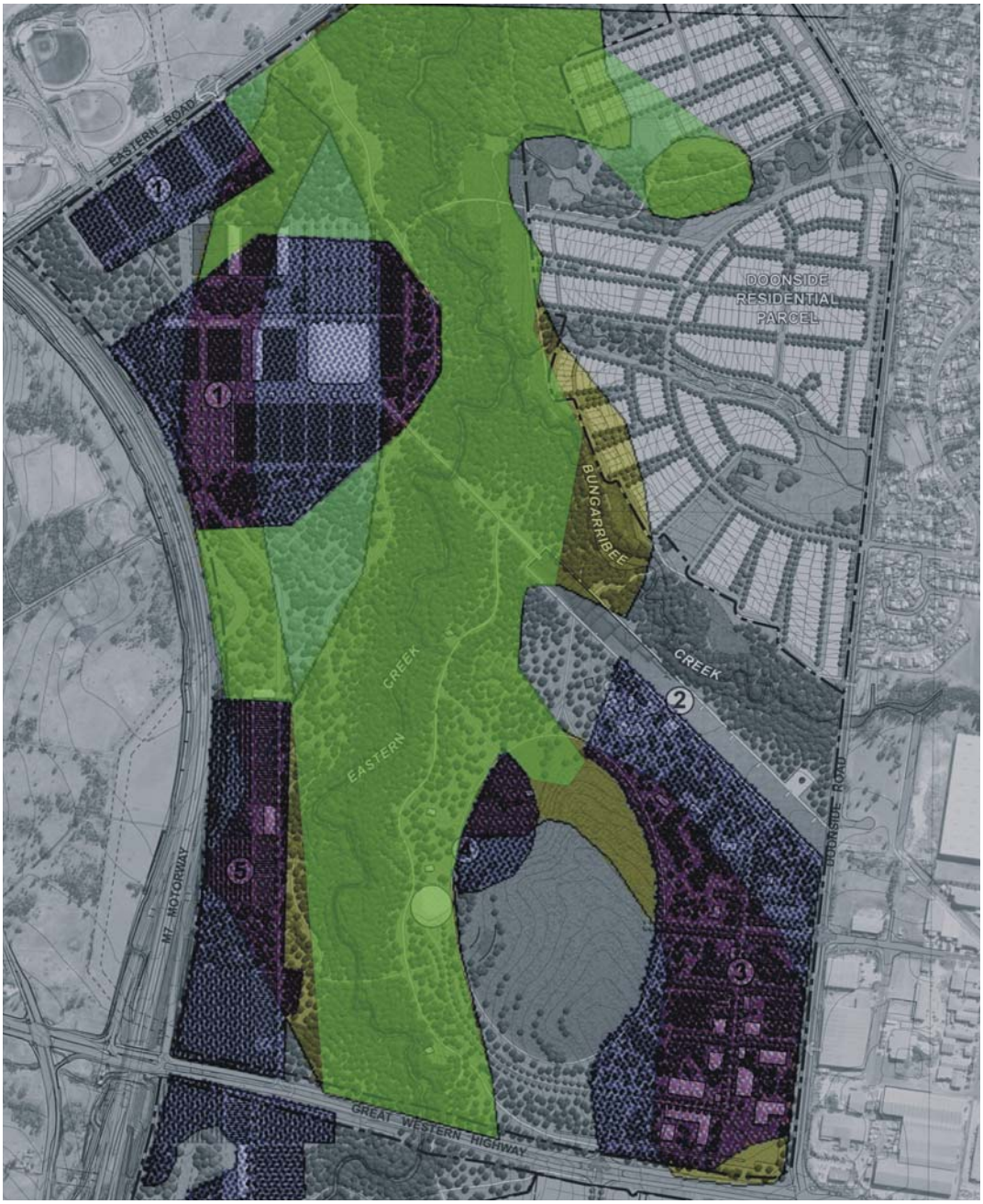


Figure 8: Proposed conservation area which includes remaining areas of high archaeological potential deposit not impacted by proposed development. Blue: development impact. Yellow: PAD. Purple: PAD impacted by development. Green: Land which could be incorporated into a Conservation Zone.

Given the current Concept Plan and the strategic management model being employed within the Bungarribee Precinct, salvage will need to be undertaken in several areas with high archaeological potential which will be impacted by the proposed development.

It is recommended that salvage excavation within the Parklands be undertaken:

- The area of PAD WSP1 on the east bank of Eastern Creek at the junction of Eastern and Bungarribee Creeks (Doonside Parcel: Figure 9);
- the area of PAD WSP1 on the west bank of Eastern Creek at the junction of Eastern and Bungarribee Creeks (Figure 10);
- the area of PAD WSP1 on the west bank of Eastern Creek at the junction of PAD WSP1 and PAD WSP3 (Figure 10);
- across the area of good / moderate potential associated with PAD WSP3 (sports precinct: Figure 10);
- the area of PAD WSP1 along the margins of the swamp (Figure 10).

44.6ha of the 48.2ha of good potential archaeological deposit to be impacted by development would thus be subject to sampling through salvage excavation.

5.3 Statement of Heritage Significance

The appropriate management of cultural heritage items is usually determined on the basis of their assessed significance as well as the likely impact of the proposed development. Scientific, cultural and public/education significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of a site, place or area are resolved.

Cultural significance

This type of assessment indicates the importance of a site, place or feature to the relevant cultural group – in this case the Aboriginal community. Aspects of cultural significance include assessment of sites, items, and landscapes that are traditionally significant or that have contemporary importance to the Aboriginal community. This

importance involves both traditional links with specific areas as well as an overall concern by Aboriginal people for their sites generally and the continued protection of these. This type of significance may not be in accord with interpretations made by the archaeologist - a site may have low scientific significance but high Aboriginal significance (or *vice versa*).

The **cultural significance** of the area will be addressed by the Deerubbin LALC (DLALC), the Darug Tribal Aboriginal Corporation (DTAC), the Darug Custodians Aboriginal Corporation (DCAC) and Darug Aboriginal Cultural Heritage assessments (DACHA). Representatives of each group have participated in a survey of the study area and all groups have been offered the opportunity to address the cultural significance of sites in this area. All groups have indicated they will write a report on this aspect of significance; however, at the time of finalising this draft report, we had not received any reports. Reports will ultimately be included in Appendix 2.

Scientific significance

Assessing a site in this context involves placing it into a broader regional framework, as well as assessing the site's individual merits in view of current archaeological discourse. This type of significance relates to the ability of a site to answer current research questions. It is also based on a site's condition (integrity), information potential and representativeness and/or rarity (see above).

The **scientific *significance*** of the open site and PADs cannot be easily assessed on the basis of their surface manifestation(s). Instead, a ranking of archaeological *potential* is made, based on the land-use mapping (and subsequent zoning for archaeological sensitivity), localised disturbance factors and the predictive model.

Public significance

Sites that have public significance do so because they can educate people about the past. By reducing ignorance about why sites are important to the Aboriginal and scientific community, our human heritage can be protected from ignorant or inadvertent destruction. For a site to have high public significance it should contain easily identifiable and interpretable elements, and be relatively easily accessed.

Figure 9: Proposed salvage locations within the Doonside Parcel, Bungarribee Precinct. Yellow: Zone 1 lands. Blue: development impact. Red: impacted Zone 1 lands.

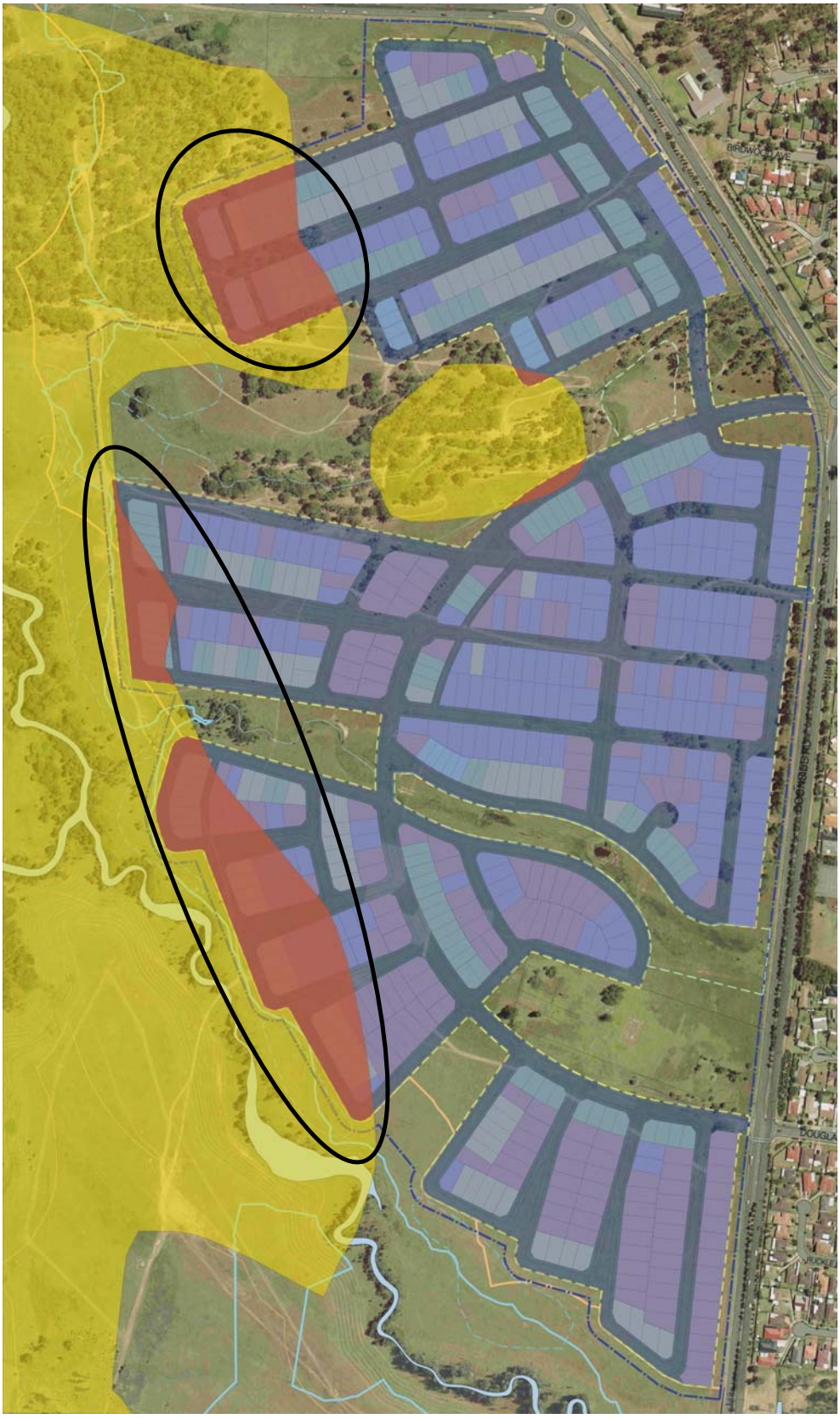
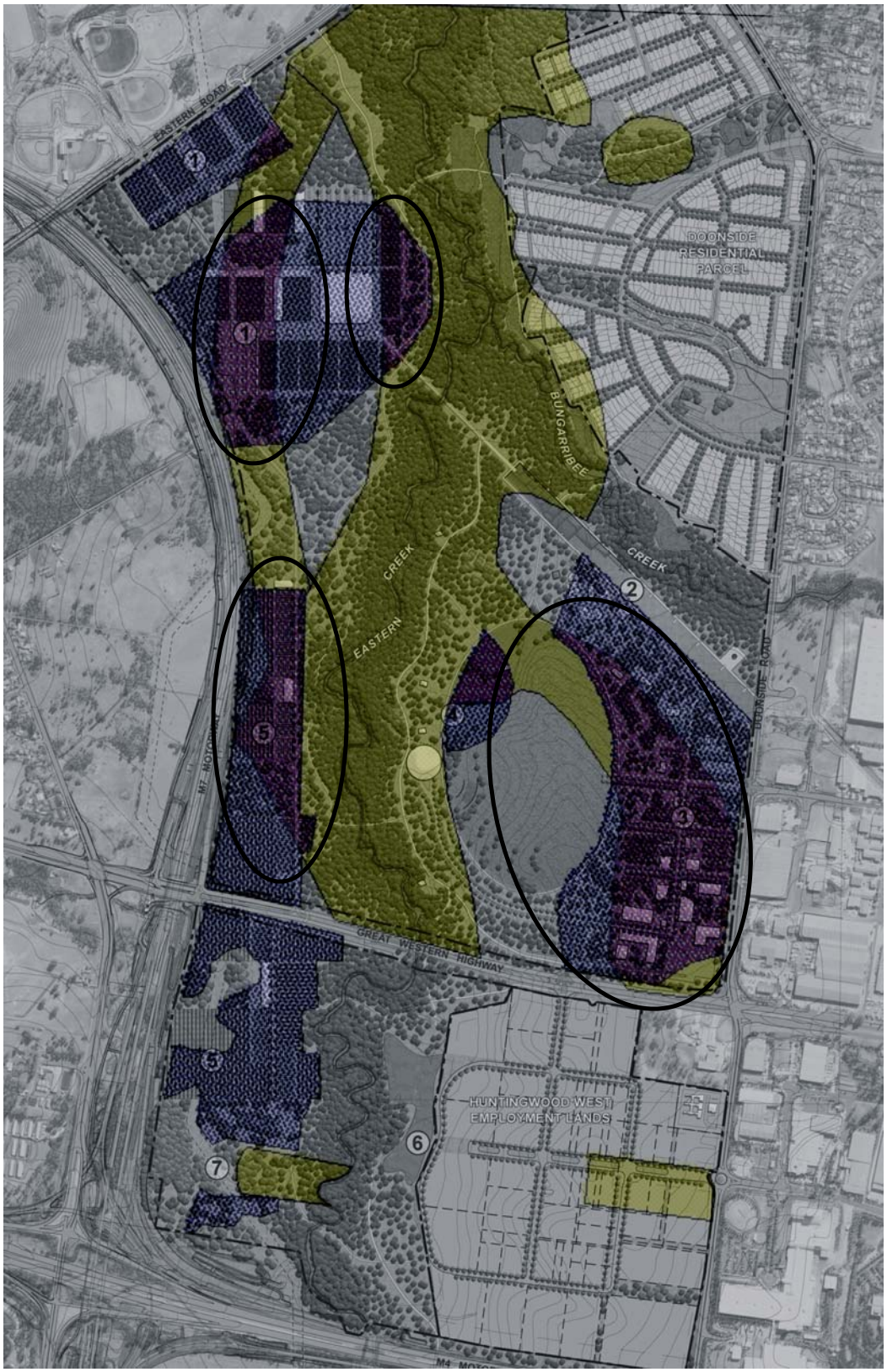


Figure 10: Proposed salvage locations within the Parklands, Bungarribee Precinct. Blue: development impact. Yellow: PAD. Purple: PAD impacted by development.



The **public significance** of the sites/archaeological features within the Parklands parcel is assessed as being generally low on the basis of their poor surface manifestations. Open sites are extremely difficult to appreciate by a lay-public due to the 'invisibility' of the evidence present.

Strategic Management Model

The Strategic Management Model (SMM) is a strategy for managing identified sites and landscapes within the Parklands and Development Parcels. The management strategy for the study area is predicated on a landscape-based philosophy. Rather than targeting only sites of known extent or known significance (e.g. by surface manifestation or through sub-surface investigation), zones based on landscape parameters have been defined. These areas should be managed on the basis of their archaeological sensitivity.

Within the Parklands, there are three areas of PAD identified as being within Zone 1. Much of WSP PAD1 is preserved within the proposed Western Sydney Parklands conservation zone (CZ). Given the extensive conservation outcome in the parklands, the remaining Parklands area should be considered developable land.

Further archaeological investigation is required in high sensitivity areas (e.g. residual Zone 1, and possibly Zone 2) which fall within the Doonside Residential area. Archaeological evidence should be salvaged here from a representative range of landscapes as these occur within the overall study area. This salvage will provide archaeological evidence and context for the conservation areas and mitigate against the destruction by development of 84 hectares of land with archaeological potential. Of this land, c.17 ha is identified as having high archaeological sensitivity.

Zone 3 (c. 90 hectares) is assessed as having minimal or no archaeological potential. There is no constraint to development in these areas, and further archaeological works will not be undertaken in these areas. It should be noted that the Aboriginal community may wish to monitor development which takes place in this zone, particularly along stream lines and waterways.

Management Principles in the developable lands

The following general management principles apply for sites and landscapes with Aboriginal heritage values which occur within the developable lands. These principles are predicated on there being a conservation outcome within the Parklands.

- Sites and/or landscapes with good archaeological potential or Aboriginal significance should be subject of further investigation prior to their destruction. Selection of salvage areas should be landscape based and made on the basis of a 'whole of development' approach;

- Sites and/or landscapes with moderate archaeological potential or Aboriginal significance should be managed on the basis of their assessed significance. If representative landscapes fall within this zone which are absent from Zone 1 lands, then these should be the target of salvage excavation;

- Sites and/or landscapes of low or no archaeological potential or Aboriginal significance do not require planning consideration or further archaeological investigation in relation to the proposed development;

- A suite of impacts have been identified within the Parklands and development parcels and salvage excavations should be undertaken within these areas. This should be made on the basis of a 'whole of development' approach.

- The Deerubbin LALC, DTAC, DCAC and DACHA may wish to collect any surface artefacts prior to their destruction and monitor the initial construction activity across the developable lands.

- According to the Statement of Commitments prepared by the proponent, salvage excavation will be required within the Parklands. This will provide a background against which the destruction of sites in other developable land without further archaeological investigation can be justified.

The development proposed for the Doonside Residential and Bungarribee Parklands involves seven distinct areas of impact (Figure 2). Three of these proposed

development precincts (Sports Precinct, Potential Institutional Precinct and production based landscaping) will have an unavoidably high impact on the sub-surface deposit in these locations. Development within the proposed recreational hub and the Huntingwood West (Parklands) parcel are likely to have a high, more localised impact on the subsurface deposit within these areas from the construction of shelter, seating, BBQ and picnic facilities. Proposed development in the Airstrip area is likely to have a low overall impact on the subsurface deposit. The exception to this may be construction of habitats and Parklands access. Further information on proposed development within the potential Parklands Commercial Recreation precinct is necessary before a statement can be made on potential impacts.

6 RECOMMENDATIONS

The following recommendations are made on the basis of:

- the Director General's Requirements for the Environmental Assessment of the proposed Huntingwood West Parcel;
- the interests of the Deerubbin Local Aboriginal Land Council, the Darug Tribal Aboriginal Corporation, Darug Custodian Aboriginal Corporation and Darug Aboriginal Cultural Heritage Assessments;
- the findings of the current and previous surveys and the current investigation of Indigenous heritage values across the Western Sydney Parkland lands;
- the nature of the sensitivity areas defined during this study.

It is recommended that:

- Parklands: Sites AHIMS# 45-5-3020, WSP/07, WSP/08 and WSP/10 been assessed as having low archaeological potential. Sites AHIMS# 45-5-0454, 45-5-0455, 45-5-0465 and WSP/16 have moderate archaeological potential. Sites AHIMS# 45-5-0453, 45-5-0459, 45-5-0469 and sites WSP/06, WSP/09 and WSP/11 have been assessed as having high archaeological potential;
- Doonside Parcel: Sites OTC/5 has been assessed as having low archaeological potential. Sites WSP/04, AHIMS# 45-5-2360, WSP/01, AHIMS# 45-5-0460,

OTC/4, WSP/05, AHIMS# 45-5-0452 AND OTC/8 have been assessed as having moderate archaeological potential.

- All impacted areas of PAD have mixed archaeological potential based on differential disturbance to the landscape. Overall, PAD WSP1 has moderate to high archaeological potential, PAD WSP3 has moderate archaeological potential and PAD WSP4 has high archaeological potential.

- Using a 'whole of development' approach, certain landscapes within the Parklands and Doonside Parcel are considered to have higher potential for containing intact archaeological deposit. Where these areas fall outside of the Conservation Areas, salvage excavation should be conducted in order to provide archaeological context for the Conservation Areas and mitigate against the destruction of land with archaeological potential in the Parklands and Doonside development areas;

- It is recommended that the following archaeological features be subject to salvage excavation as part of the overall strategic management strategy for Indigenous heritage within the Bungarribee Precinct Project (see figures 9 and 10):

    - The area of PAD WSP1 on the east bank of Eastern Creek at the junction of Eastern and Bungarribee Creeks and the extended development to the west (Doonside Parcel);

    - the area of PAD WSP1 on the west bank of Eastern Creek at the junction of Eastern and Bungarribee Creeks;

    - the area of PAD WSP1 on the west bank of Eastern Creek at the junction of PAD WSP1 and PAD WSP3;

    - across the area of good / moderate potential associated with PAD WSP3 (sports precinct);

    - the area of PAD WSP1 along the margins of the swamp.

- A Statement of Commitments should be prepared by the proponent to accompany the Concept Plan reflecting a commitment to maintaining the proposed Conservation Area and undertaking salvage at these four identified locations within the Parklands;

- An Aboriginal Heritage Conservation Management Plan should be prepared for the Bungarribee Precinct Conservation Area.

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