



185, 195 & 203 Turner Road, Currans Hills NSW

Aboriginal Heritage Rezoning Assessment

Prepared for
Turner Road Developments and Ken Broome

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Abbreviations

Abbreviation	Description
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
CHL	Commonwealth Heritage List
CoP	Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales
DA	Development Application
DEC	(former) Department of Environment and Conservation, NSW Government
DECCW	(former) Department of Environment, Climate Change and Water, NSW Government
DoE	Department of the Environment, Australian Government
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
LES	Local Environment Study
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)
OEH	Office of Environment and Heritage, NSW Government
PAD	Potential Archaeological Deposit
RNE	Register of the National Estate
SHI	State Heritage Inventory
SHR	State Heritage Register

1 Introduction

1.1 Project background

Eco Logical Australia (ELA) was engaged by Turner Road Developments and Ken Broome to prepare an Aboriginal heritage rezoning assessment for 185, 195 and 203 Turners Road, Curran's Hill, NSW. The purpose of this assessment is to determine if there are any Aboriginal heritage constraints on the property and any subsequent management required.

1.2 Study area

The study area is residential allotment at 185, 195 and 203 Turners Rd Curran's Hill, in the Camden Local Government Area (LGA) (**Figure 1**). The land is known legally as Lots 1 and 2 DP 28024. The property is approximately 550 m long by 220 m wide (121,000 m² or 12.1 hectares (ha) in area). Curran's Hill is located on the southern Cumberland Plain, 44 km south of Sydney.

1.3 Proposed development

Subject to rezoning, it is proposed to develop the majority of the subject site for residential subdivision (refer to **Appendix A** for details of the proposal). The development of the subject site will involve the construction of new roads, houses and associated infrastructure such as water and electricity. This will change the nature of the land from its current semi-rural setting and involve excavation and levelling of land.

1.4 Purpose and aims of this report

This report follows the due diligence Code of Practice as set out in the Office of Environment and Heritage's (OEH) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (hereafter referred to as 'CoP') (DECCW 2010). The CoP determines whether Aboriginal objects will be harmed by future or proposed development work, as required under Part 6 of the NSW *National Parks and Wildlife Act 1974* (NSW). The CoP applies where future development would impact the ground surface.

The CoP sets out the reasonable and practicable steps which individuals and organisations need to take in order to:

1. Identify whether or not Aboriginal objects are, or area likely to be, present in an area;
2. Determine whether or not their activities are likely to harm Aboriginal objects (if present); and
3. Determine whether an Aboriginal Heritage Impact Permit (AHIP) is required.

No Aboriginal community consultation has been undertaken as part of this due diligence process as it is not required under the CoP for the current level of assessment. As such no cultural assessment has been prepared nor considered. The local Aboriginal land council or traditional owner groups may be contacted regarding cultural values in the area.

The aims of the current due diligence assessment are therefore to:

- Undertake a search of the Aboriginal Heritage Information Management System (AHIMS) register maintained by the OEH to establish if there are any previously recorded Aboriginal objects or places on the properties;

- Undertake a search of the NSW State Heritage Inventory and Australian Heritage Database to determine if there any places of Aboriginal significance at the properties;
- Check for and evaluate landscape features which may indicate past Aboriginal activity and the likely presence of Aboriginal objects;
- Undertake a desktop review of relevant previous archaeological assessments to understand the local archaeological context and assist in predicting the likely occurrence of unrecorded archaeological sites;
- Undertake a one-day site inspection to verify the findings of the desktop review, to check any areas identified in the background review as having the potential to retain archaeological evidence and to note any factors that may influence the presence of archaeological sites; and
- Prepare a stand-alone archaeological due diligence report determining if known objects are present or additional unrecorded objects are likely to occur as well indicate whether further assessment and/or an AHIP is required. The report would include a map of any Aboriginal objects or places identified in the assessment.

1.5 Legislative framework

The conservation and management of Aboriginal cultural heritage takes place in accordance with relevant Commonwealth, State or local government legislation. The study area is affected by a number of statutory controls for the planning and management of natural and cultural heritage. Statutory requirements for the study area are summarised below.

1.5.1 *National Parks and Wildlife Act 1974 (NSW)*

Aboriginal cultural heritage is afforded protection under the provisions of the *National Parks and Wildlife Act 1974* (NSW) [NPW Act]. The Act is administered by the OEH which has responsibilities under the legislation for the proper care, preservation and protection of 'Aboriginal objects' and 'Aboriginal places'.

Under the provisions of the NPW Act, all Aboriginal objects are protected irrespective of their level of significance or issues of land tenure. Aboriginal objects are defined by the Act as "any deposit, object or material evidence (that is not a handicraft made for sale) relating to Aboriginal habitation of NSW, before or during the occupation of that area by persons of non-Aboriginal extraction" (and includes Aboriginal remains). Aboriginal objects are limited to physical evidence and may be referred to as 'Aboriginal sites', 'relics' or 'cultural material'. Aboriginal objects can include scarred trees, artefact scatters, middens, rock art and engravings, as well as post-contact sites and activities such as fringe camps and stockyards.

The NPW Act also affords protection to Aboriginal places, which are defined as a place that is or was of special significance to Aboriginal culture. It may or may not contain Aboriginal objects. Aboriginal places can only be declared by the Minister.

AHIMS database

The Aboriginal Heritage Information Management System (AHIMS) is a statutory register managed by the OEH under section 90Q of the NPW Act. The AHIMS manages information on known Aboriginal sites, including objects as defined under the Act. A search of the AHIMS database was undertaken as part of the due diligence process (refer to **Section 2.4**).

The due diligence process

Part 6 of the NPW Act provides specific protection for Aboriginal objects and places by making it an offence to destroy, deface, damage, or move them from the land. The CoP as adopted by the *National Parks and Wildlife Regulation 2009* (NPW Regulation) made under the NPW Act, provides guidance to individuals and organisations to exercise due diligence when carrying out activities that may harm

Aboriginal objects and to determine whether they should apply for consent in the form of an Aboriginal Heritage Impact Permit (AHIP). This CoP can be used for all activities across all environments. The NPW Act provides that a person who exercises due diligence in determining that their actions will not harm Aboriginal objects has a defence against prosecution for the strict liability offence if they later unknowingly harm an object without an AHIP. However, if an Aboriginal object is encountered in the course of an activity work must cease and an application should be made for an AHIP.

AHIPs may be issued in relation to a specified Aboriginal object, Aboriginal place, land, activity or person or specified types or classes of Aboriginal objects, Aboriginal places, land, activities or persons. Applications for an AHIP must be accompanied by an Aboriginal Cultural Heritage Assessment report, as set out the guidelines of the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH 2011). Applications for an AHIP must provide evidence of consultation with the Aboriginal communities as required under Part 8A of the NPW Regulation 2009 and in accordance with OEH's Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW 2010b). An Aboriginal Cultural Heritage Assessment Report documents the process of investigation, consultation and assessment undertaken.

Table 1 provides a summary of CoP steps and where these steps are addressed in the structure of this report.

Table 1: Due diligence process

Due Diligence Code of Practice Process	Where each step is addressed in this report
Step1: Will the activity disturb the ground surface?	Yes, Section 1.3
Step 2a: Search the AHIMS database and use any other sources of information of which you are already aware	Sections 2.4, 2.5, 2.6 and 2.7.
Step 2b: Consider if activities are proposed in areas where landscape features indicate the presence of Aboriginal objects. If the proposed activity is : <ul style="list-style-type: none"> • within 200m of waters • located within a sand dune system • located on a ridge top or headland • located within 200m below or above a cliff face • within 20m of or in a cave, rock shelter or cave mouth and is on land that is not disturbed#, go to Step 3.	Sections 2.2, 4.
Step 3. Can you avoid harm to the object or disturbance of the landscape feature?	Section 4
Step 4. Desktop assessment and visual inspection	Section 3 and 4
Step 5: Further investigations and impact assessment	Sections 4 and 5

Disturbed land or land already disturbed by previous activities is described in the CoP definitions as:

Land is disturbed if it has been the subject of human activities that has changed the land's surface, being changes that remain clear and observable. Examples include ploughing, construction of rural infrastructure (such as dams and fences), construction of roads, trails and tracks (including fire trails and tracks walking tracks), clearing vegetation, construction of buildings and the erection of other structures, construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipeline, stormwater drainage and other similar infrastructure) and construction of earthworks.

The CoP process flowchart is presented in **Figure 2**. The results of the due diligence assessment are presented in Section 5.

1.5.2 Heritage Act 1997 (NSW)

The NSW *Heritage Act 1977* is a statutory tool designed to conserve the environmental heritage of NSW and is used to regulate development impacts on the state's heritage places, buildings, works, relics, moveable objects or precincts that are important to the people of NSW. These include items of Aboriginal and non-Aboriginal heritage significance. The state heritage inventory contains over 25,000 heritage items on statutory lists in NSW, including items listed on the State Heritage Register (SHR) under the NSW *Heritage Act 1977* and heritage items local government and state agencies.



Figure 1: Study area: 185, 195 and 203 Turners Road, Currans Hill (ELA 2015)

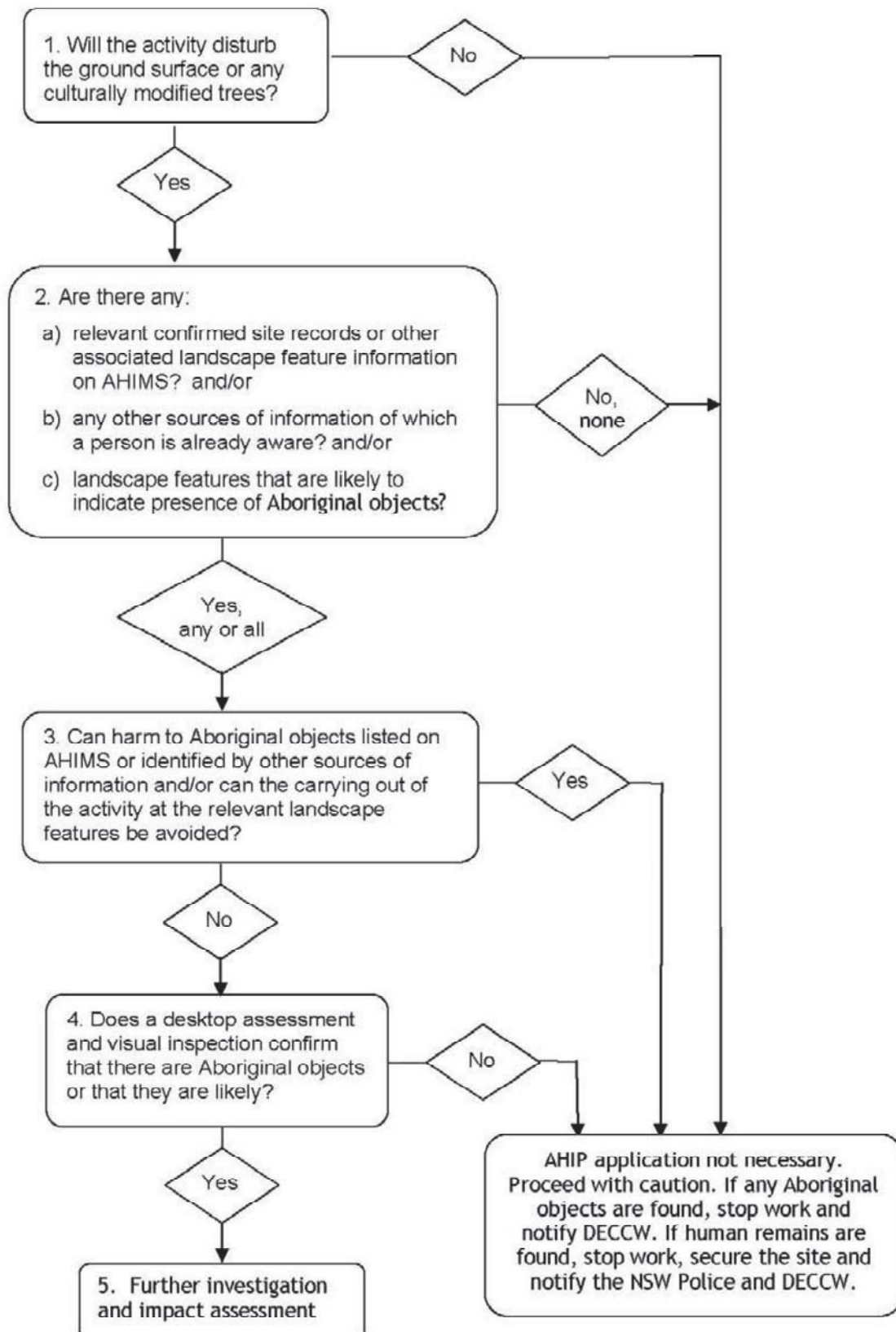


Figure 2: Generic due diligence process (OEH 2010)

2 Environmental and archaeological context

2.1 Introduction

An understanding of the physical landscape is important in identifying the interface between humans and their environment. This is particularly true of Indigenous communities where a close relationship has historically existed between people and their surroundings. Environmental factors and resources can also have considerable influence upon the distribution of people (and thus the archaeological remains of their sites) across the landscape. The following section presents a brief overview of the environmental and archaeological context including results of the searches of the heritage databases.

2.2 Landscape context

Turner Road, Currans Hill is located within the Western Sydney region of New South Wales. It lies within the Cumberland Plain and comprises exotic pasture across undulating hills, with some small pockets of remnant native vegetation. The landscape is characterized by a broad hillcrest in the north-western corner with an upper slope grading into a concave lower slope with a broad drainage depression of a second order stream of South Creek and valley flat. Higher elevations of up to 18% are found in the north-western corner of the property. The central and south-eastern areas of the property have a lower landscape with a gradient of <5%.

Soil landscapes are largely determined by the underlying geology. The dominant soil type is clay based, originating from Wianamatta Shale and includes the Blacktown Soil Landscape. The Cumberland Plain Woodland (CPW) is the associated vegetation type. Small pockets of alluvial soil in drainage areas support River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions. The study area consists mostly of cleared grassland and weeds with areas of native vegetation along the creek. The study area is composed of 11.5 hectares of pasture grasses with scattered paddock trees and 0.2 hectares of River-Flat Eucalypt Forest.

The soil landscapes within to the project area has distinct morphological and topographical characteristics, and they provide terrain units to summarise archaeological potential and surface detectability of archaeological sites. In general, Wianamatta Group-derived soils are characterised by low fertility and high soil acidity (Tozer 2003). The project area is within Blacktown Soil Landscape.

- The Blacktown Soil landscape and associated landforms have undulating rises with slopes usually less than 5%. This landscape consists of up to four soil horizons with shallow to moderately deep red to brown sandy clay soils on crests, upper slopes and well drained areas, and deep yellow sand and clay soils on lower slopes and localised areas of poor drainage (Hazelton & Tille 1990).

Application to the Project Area's Archaeological Record

Soil landscapes can affect the degree to which archaeological materials are preserved, remain *in situ*, and are detectable on the ground surface. The predominance of the stable Blacktown Soil Landscape, with generally low slope gradients (taking into account previous landform modelling) indicates Aboriginal sites can be expected in almost all localities of the subject area.

2.3 Land use history and disturbances

A large proportion of the project area has been cleared, agricultural activities have disturbed soils and the construction of tracks, roads and farm dams has occurred. The vegetation that remains consists of scattered patches of Cumberland Plain Woodland, narrow bands of River-flat Eucalypt Forest along the creek line and areas of native grasslands (refer to **Figure 3**). Introduced vegetation exists in broad areas across the project area. Within the catchment area there is an absence of permanent water, some major modifications of the original creek systems due to damming and diverting of drainage flows, and major stripping of a large proportion of the riparian vegetation. Within the project area, South Creek forms a 2nd order stream which ultimately drains to the Nepean River to the south-west of the project area. The property is currently grazing land, proposed for subdivision and residential development. The riparian corridor is associated with 2nd order (South) creek flowing from the Turner Road Precinct upstream to a residential development downstream. Camden Council has rezoned this riparian corridor as E2. With all of the contributing creeks upstream of the Driver Property now gone (road drainage and bio-retention), the hydrology of the 2nd order creek is likely to be highly modified. Further, because the creek downstream of the Driver Property is a constructed grass swale and narrow riparian corridor (approx. 13 m wide including channel).

2.4 AHIMS search results

An advanced search of the AHIMS register was undertaken by ELA on the 16 June 2015 (refer to **Appendix B**). The search revealed there was one registered site within the study area 52-2-2122 a surface artefact scatter. The advanced search shows two Aboriginal Heritage Impact Permits (AHIP) issued against the site (AHIP 2576 and AHIP 2838). Copies of these AHIPs were requested by ELA to the OEH. The OEH sent a copy of AHIP 2838 (on 17 July 2015) which was a consent to destroy four sites including site 52-2-2221 dated 6 December 2007 for five years. It is understood from the OEH that AHIP 2576 is superseded by AHIP 2838. The site visit demonstrated that site 52-2-2221 has not been impacted and development has not occurred in this area. The AHIP 2838 is now expired and is no longer valid for impacts to this site.

The location of site 52-2-2122 is shown in **Figure 4** and **Figure 5**.

The AHIMS search also identified 56 recorded Aboriginal sites and objects within 2 km of the study area. By far the largest number of these site types / features are open sites with artefacts some with large numbers of artefacts, representing 85% of the total sites. There were a total of 6 potential archaeological deposits recorded, representing 10% of the total sites. Modified or scarred trees totalled 3 or 5% of sites. A breakdown of the site types is presented in **Table 2**.

Table 2 : Aboriginal Site types in the vicinity of the Study area

Site Type / Feature	Frequency	Percentage
Artefact	47	85%
Potential archaeological deposits and artefact	6	10%
Modified Tree	3	5%
Total	56	100%

2.5 Australian heritage database search results

A search was undertaken of the Australian heritage database on 30 June 2015. The property at 187, 195 and 203 Turner Rd Curran's Hill is not on the World Heritage List, National Heritage List, Commonwealth Heritage List or RNE. As such there are no implications for this study.

2.6 State heritage inventory search results

The State Heritage Inventory (SHI) contains over 25,000 heritage items on statutory lists in NSW, including some of Aboriginal heritage significance. The SHI, including items listed on the State Heritage Register (SHR) under the NSW Heritage Act 1977 and heritage items local government and state agencies. A search of the SHI by ELA on 30 June 2015 did not identify any SHR places or heritage items of Aboriginal heritage significance on or nearby to the study area.

2.7 Previous archaeological assessments

There have been a number of archaeological assessments completed in the surrounding area of Curran's Hill which form relevant background information for the current due diligence. A summary of the key findings of these studies is presented below.

Archaeological investigation of the Turner Road and Oran Park Precincts within the South West Growth Centre, Camden, NSW. Report to APP on behalf of the Growth Centres Commission and Camden City Council. (McDonald CHM 2001)

This report was commissioned by APP on behalf of the Growth Centres Commission (GCC) and Camden Council. It documented the Stage 1 assessment of the Oran Park and Turner Road Precincts. This report summarised the existing information, identified knowledge gaps and detailed further work to be undertaken in both Precincts. Preliminary mapping of previous land use impacts indicated that there has been a significant amount of prior disturbance across the majority of the Oran Park and Turner Road Precincts. Land identified as having primarily agricultural land use was identified as having the highest potential for containing intact archaeological sites. The land with the highest archaeological sensitivity was mapped. The report recommended that the Oran Park and Turner Road Precincts should be surveyed on foot in order to identify the presence of surface archaeological sites and to ground-truth the results of sensitivity mapping. It further recommended that fieldwork should focus on areas identified as having particular potential for retaining intact archaeological sites across the study area such as:

- Land identified as having a primarily agricultural land use and areas of good to high potential to contain archaeological deposit as identified through sensitivity mapping;
- Original water holes at the junction of higher order streams;
- Fluvial erosional benches above third and fourth order channels; and that

This report predicted that in the middle reaches of minor tributaries (second-order creeks) there will be archaeological evidence for sparse but focused activity (e.g. one-off camp locations, single episode knapping events). This report also indicated that the degree of prior disturbance has limited the archaeological potential across the majority of the study areas. Agricultural land is likely to have the highest potential for retaining intact archaeological sites and this is subject to localised areas of low to very high disturbance throughout.

Archaeological survey for Aboriginal sites, proposed extension area to Manooka Valley rural residential area subdivision, Curran Hill, NSW. (McDonald CHM 2001)

The following account is taken from AHIMS site card for 52-2-2122 located in the survey area

Eight stone artefacts were recorded at this small, open artefact scatter on the lower hillslope. The site is located in the central/northern portion of the Driver property adjacent to the eastern boundary fence line of the extension area (refer to **Figure 4** and **Figure 5**). The artefacts were located in two small clusters on an area of sheetwash erosion and along a stock track about eighty metres east of the main (second order creekline) (**Figure 6**). All of the artefacts, apart from a flaked piece of silicified tuff are silcrete flaking debitage. The average artefact density was low at 1 artefact/3m². The ground surface visibility on the exposures (totalling ca.84m²) was moderate (50-70%) obscured by shale gravel, leaf litter and rabbit droppings. There was limited ground surface visibility (0-30%) in the surrounding area due to thin grass cover which may be the result of previous clearing and grading. A grader scrape (ca.10-15cm depth) and a large windrow (consisting of soil and vegetation, with numerous rabbit burrows) were observed immediately to the north of the site. The surrounding area has mostly been cleared for grazing and is covered with sparse, scattered older growth Forest Red Gums (*E. teriticornis*) and Box Eucalypts (*E. molluccana*), with young regrowth Eucalypts and Acacia in the immediate vicinity of the scatter. Apart from the evidence of previous grading/clearing, other forms of disturbance in the area include the nearby fence line and transmission line, erosion and stock activity. Considering the degree of previous disturbance in the area and the predictive model, the potential for intact, sub-surface archaeological deposit in the vicinity is low-moderate.

McDonald assessed the site was located within a proposed open space of the proposed development area and would not be impacted. McDonald assessed that no further archaeological work was required though the site should be protected from indirect or inadvertent damage during the construction of the proposed road. A representative from the Tharawal Local Aboriginal Land Council was present during the survey undertaken by McDonald CHM and the site was considered important by this representative. The development proposal assessed by McDonald has since changed and the site is now considered to be within the development zone.

The following studies were undertaken within the Cumberland Plain within a few kilometres of the study area and are considered here as they inform on site types in the region in similar landscape areas to Curran's Hill.

Central Hills Rezoning Aboriginal Heritage Assessment (AMBS 2006)

AMBS prepared a report on an archaeological survey of the Central Hills study area. The study area included eight open camp sites (80%) consisting entirely of stone artefacts (comprising of more than one stone artefact), two isolated finds (20%) and one scarred tree. The report indicates the nature of archaeological site types in the study area including their density, distribution and artefact raw material is typical of the Cumberland Plain Aboriginal archaeology demonstrated by previous archaeological studies undertaken throughout this region. Across the study area artefact density for the open camp sites was low. The highest number of artefacts (11) were dispersed across an area of several square meters. Silcrete was the dominant artefact raw material in the assemblage, comprising 86.2% of the artefacts encountered. Silicified tuff, quartzite, chert and quartz each comprised smaller proportions of the raw materials used (each at 3.4%). The isolated finds and open camp sites identified in the study area were located in several landform contexts, including low-moderate slopes, flats and principally 1st order streams. Two of the sites were identified as having been disturbed by man-made features, such as a dam and golf course.

The scarred tree was identified in an area of remnant bushland, although the presence of some new growth vegetation indicates that clearance activities had taken place. The identification of one PAD demonstrated the presence of a limited area of undisturbed subsurface archaeological deposit within the Central Hills study area. The significant features of the PAD included its strategic location near a creek line and available riparian resources and its location on an elevated landform. Large portions of the study area exhibited little or no archaeological potential due to previous land use and disturbance, and were classified as having low archaeological significance.

El Caballo Blanco & Gledswood, NSW Rezoning: Aboriginal Heritage Assessment (AMBS 2008)

AMBS was commissioned to undertake an Aboriginal heritage assessment as part of the LES for land formerly referred to as 'Central Hills', Camden and to provide input into the planning process for the future development of the area with regard to Aboriginal heritage. The objectives of this Aboriginal heritage study were to:

- summarise Aboriginal heritage works previously undertaken for the study area;
- review and assess the impact of the development's revised footprint on previously identified sites and places of Aboriginal heritage significance;
- provide updated strategies for the ongoing management of any identified Aboriginal heritage, if necessary; and
- identify the process for undertaking a subsequent detailed investigation of Aboriginal heritage significance, should the review of the previous reporting identify the need for more detailed investigations.

Consultation was undertaken with the Aboriginal community in accordance with Department of Environment and Climate Change (DECC) guidelines during a previous Aboriginal heritage assessment (AMBS 2006a). Archaeological assessment of the study area demonstrated the presence of seven archaeological sites (CH7-13), as well as four areas assessed as having a moderate level of archaeological potential (PADs 1-4). The study area was shown to represent a relatively intact cultural landscape and AMBS recommended that the conservation of representative portions of that landscape was a desirable outcome, particularly remnant and intact landscape features, and areas of archaeological sensitivity and potential including low to moderate slopes, and potentially ridge lines. PADs 3 and 4 were assessed as having potential to containing intact subsurface archaeological deposits, requiring a Section 90 consent from DECC including a program of test excavation carried out under a Section 87 permit.

Catherine Fields (part) Precinct, South West Growth centre: Aboriginal Heritage Assessment (Kelleher Nightingale Consulting (KNC 2012))

KNC identified 16 Aboriginal archaeological sites within the Catherine Fields (part) Precinct. Sites consisted of open artefact scatters, isolated artefacts and registered locations of potential archaeological deposit (PAD). These results were consistent with predictions for the study area. Sites ranged from low to moderate scientific significance. Six isolated finds, three Potential archaeological deposits and seven artefact scatters were recorded during the assessment. It was recommended in this assessment that mitigation measures (salvage excavation and collection of objects) were required to mitigate harm to Aboriginal objects and the loss of value resulting from development of the part precinct. Mitigation measures were recommended for those sites of moderate archaeological or high cultural value in the form of an AHIP from the DECC.

East Leppington Heritage Report (Godden Mackay Logan (GML) 2012)

The archaeological survey identified Aboriginal objects at twelve locations across the northern study area. These expressions of objects have been described as GML1-12. Of particular note was site GML12-EL-AS5 located in an open cultivated field that had been highly impacted from vegetation stripping and ploughing, resulting in low soil integrity. The artefact assemblage comprised a range of technological classes, including cores, flakes, blades, and retouched pieces made on a variety of raw materials. In addition to the flaked stone assemblage, a flaked and ground stone axe was recovered. Archaeological test excavation was undertaken in collaboration with registered Aboriginal stakeholders. A total of 533 test units (TU) were excavated across the study area yielding a total of 531 Aboriginal objects (an average density of four objects per metre square (GML 2012: 7)

2.8 Aboriginal site types

A wide range of Aboriginal site types can be encountered during archaeological investigations and these reflect the range of activities carried out by Aboriginal people in the past. AHIMS sets out twenty site types which are defined by the cultural activities associated with the use of a place. The main site types which may be present in the study area are summarised in **Table 3** below along with a prediction of likelihood of these sites types to be present. This summary is based on previous archaeological research and predictive models, as well as the assessment of landforms and environment within the study area.

Table 3: Aboriginal site types for the study area

Site Type	Description
Open Camp Sites / Stone Artefact Scatters / Isolated Finds	<p>Open camp sites represent past Aboriginal subsistence and stone knapping activities, and include archaeological remains such as stone artefacts and hearths. This site type usually appears as surface scatters of stone artefacts in areas where vegetation is limited and ground surface visibility increases. Such scatters of artefacts are also often exposed by erosion, agricultural events such as ploughing, and the creation of informal, unsealed vehicle access tracks and walking paths. These types of sites are often located on dry, relatively flat land along or adjacent to rivers and creeks. Camp sites containing surface or subsurface deposit from repeated or continued occupation are more likely to occur on elevated ground near the most permanent, reliable water sources. Flat, open areas associated with creeks and their resource-rich surrounds would have offered ideal camping areas to the Aboriginal inhabitants of the local area.</p> <p>Isolated finds may represent a single item discard event, or be the result of limited stone knapping activity. The presence of such isolated artefacts may indicate the presence of a more extensive, in situ buried archaeological deposit, or a larger deposit obscured by low ground visibility. Isolated artefacts are likely to be located on landforms associated with past Aboriginal activities, such as ridgelines that would have provided ease of movement through the area, and level areas with access to water, particularly creeks and rivers.</p> <p>Artefact scatter sites are less common in coastal areas than in inland areas such as the Cumberland Plain where they dominant.</p>
Potential Archaeological	Potential Archaeological Deposits (or PADs) are areas where there is no surface expression of stone artefacts, but due to a landscape feature there is a strong likelihood that the area will contain buried deposits of stone artefacts. Landscape features which

Site Type	Description
Deposit and shelter sites	<p>may feature in PADs include proximity to waterways, particularly terraces and flats near 3rd order streams and above, ridge lines and ridge tops and sand dune systems.</p> <p>PADs may also occur in shelter sites, such as deposits of shell, stone artefacts or remains of hearths. Shelters may also contain art sites in the region.</p>
Scarred or Carved Trees	<p>Tree bark was utilised by Aboriginal people for various purposes, including the construction of shelters (huts), canoes, paddles, shields, baskets and bowls, fishing lines, cloaks, torches and bedding, as well as being beaten into fibre for string bags or ornaments. The removal of bark exposes the heart wood of the tree, resulting in a scar. Trees may also have been scarred in order to gain access to food resources (e.g. cutting toe-holds so as to climb the tree and catch possums or birds), or to mark locations such as tribal territories. These sites most often occur in areas with mature, remnant native vegetation. The locations of scarred trees often reflect historical clearance of vegetation rather than the actual pattern of scarred trees. Carved trees generally marked areas for ceremonial purposes, or the locations of graves.</p> <p>The limited number of old native trees in the study area means this site type is unlikely to be present.</p>
Axe Grinding Grooves	<p>Grinding grooves are the physical evidence of tool making or food processing activities undertaken by Aboriginal people. The manual rubbing of stones against each other creates grooves in the rock, which are usually found on flat areas of soft rock such as sandstone, in areas of creek beds and other water sources. They are often associated with rock pools in creek beds and on platforms to enable the wet-grinding technique.</p> <p>Sandstone outcropping in the study area should be inspected for possible grinding grooves.</p>
Quarries	<p>Aboriginal quarry sites are sources of raw materials, primarily for the manufacture of stone tools, but also for ochre procurement. They are only found where raw materials (stone or ochre) occur within the landscape, and where these have been exploited in the past. Such sites are often associated with stone artefact scatters and stone knapping areas. Raw materials can be sourced to these sites and provide evidence for Aboriginal movement and/or exchange. There is low potential for quarries given the local sandstone geology. Sandstone is generally not suitable for stone knapping.</p>
Bora/Ceremonial	<p>Aboriginal ceremonial sites are locations that have spiritual or ceremonial values to Aboriginal people. Aboriginal ceremonial sites may comprise natural landforms and, in some cases, will also have archaeological material. Bora grounds are a ceremonial site type, usually consisting of a cleared area around one or more raised earth circles, and often comprised two circles of different sizes, connected by a pathway, and accompanied by ground drawings or mouldings of people, animals or deities, and geometrically carved designs on the surrounding trees.</p> <p>Agricultural and pastoral activities are likely to damage or destroy raised earth features. Vegetation growth and exposure to weather would also be impacting factors. It is unlikely that any bora or ceremonial grounds remain within the study area, if indeed they</p>

Site Type	Description
	once existed in this part of the landscape. The steep slope of the land also means this site type would be less likely.
Natural Mythological (Ritual) sites	<p>These types of sites are usually identified by the local Aboriginal community as locations of cultural significance, and they may not necessarily contain material evidence of Aboriginal associations with the place.</p> <p>These sites are generally determined through community consultation. There is no information to suggest that the property contains such sites.</p>
Burial	<p>Aboriginal burial of the dead often took place relatively close to camp site locations. This is due to the fact that most people tended to die in or close to camp (unless killed in warfare or hunting accidents), and it is difficult to move a body long distances. Soft, sandy soils on, or close to, rivers and creeks allowed for easier movement of earth for burial; and burials may also occur within rock shelters or middens. Aboriginal burial sites may be marked by stone cairns, carved trees or a natural landmark. Burial sites may also be identified through historic records, or oral histories.</p> <p>Some burial sites are known on the coastal sand dunes in the Illawarra region to the south. Burial sites are considered highly unlikely in the study area.</p>
Contact / Historical Sites	<p>These types of sites are most likely to occur in locations of Aboriginal and settler interaction, such as on the edge of pastoral properties or towns. Artefacts located at such sites may involve the use of introduced materials such as glass or ceramics by Aboriginal people, or be sites of Aboriginal occupation in the historical period. There is no information to suggest that the property is the location of a contact site.</p>

2.9 Predictive model and archaeological implications for area

Archaeological implications for the study area based on previously recorded sites, archaeological investigations in the region, predictive models, and the site's environmental characteristics are as follows:

- From the AHIMS search results and previous reporting for the Curran's Hill area, open sites containing artefacts are by far the most recorded on the Cumberland Plain and the most common site within 2 km of the study area representing some 86% of all sites recorded.
- Grinding groove sites while less common are generally located on exposed sandstone outcrops in open areas.
- Other site types such as scarred trees and quarries are generally rare in the region, however are known to occur within 2 kilometres of the study area comprising 5% of all sites.
- Human burials would be highly unlikely in the area.



Figure 3: 1961 aerial image of the Turner Rd property showing vegetation communities and urban development on neighbouring properties (ELA 2015).



Figure 4: AHIMS sites within 2km of the Turner Rd property (ELA 2015 with data from AHIMS)



Figure 5: AHIMS sites within proximity of the Turner Rd property (ELA 2015 with data from AHIMS). Note AHIMS site 52-2-2122 falls within the subject site.



Figure 6: AHIMS site 52-2-2122 falls within the study area. Photo from AHIMS site card (McDonald CHM 2001). Note proximity to fence and transmission line. Regrowth Eucalypts now absent from area (ELA 2015).

3 Site Inspection

3.1 Aims of site inspection

The aims of the site inspection were as follows:

- Identify Aboriginal objects which may be present on the property including the recorded AHIMS site;
- Identify any landscape features which may indicate the presence or likelihood of Aboriginal objects;
- Inspect mature native trees for possible Aboriginal cultural scarring;
- Inspect rock outcrops for possible grinding grooves, engravings and quarries; and
- Consider the level of past soil and landscape disturbance.

3.2 Methods of site inspection

The following standard methods for archaeological assessment were employed during the site visit:

- The property was subject to a pedestrian site walk over to identify any sites and areas of archaeological potential based on landform and any areas of historical land use and disturbance;
- Any identified Aboriginal sites and / or PADS within the project area would be recorded using a GPS and photographed using an IFRAO scale and standardised recording forms
- Any new Aboriginal sites would require the completion of an Aboriginal heritage site recording form (AHIMS Site Card) as required by OEH.

3.3 Site inspection findings

A site inspection was undertaken by ELA Senior Archaeologist Andrew Roberts on 1 July 2015. The weather conditions were fine during the site visit. The key findings of site inspection were:

- No Aboriginal objects were located during the site visit;
- The artefacts from the registered AHIMS sites 52-2-2122 on the property could not be relocated during the site visit.
- Trees were inspected for cultural scarring and none were identified;
- The property was found to contain small areas of sandstone outcropping, particularly in the middle sections of the land on the banks of the ponded 2nd order stream (**Figure 7**). This outcropping was inspected for engravings and grinding grooves and none were identified;

3.3.1 Areas of disturbance identified

- The residential area to the north-west of the property on the hillcrest had substantially disturbed soils that were retained by brick retaining walls (**Figure 8**);
- The property was found to be largely clear of vegetation. There was a stand of small Eucalypt species around the 2nd order creek with a limited understorey. Approximately 20 other mature Eucalypts were located across the middle section of the property (**Figure 8**);
- Overall one of the main features of the property was the moderate slope of the land with a southerly aspect. The slope increased in gradient on its westerly and northern perimeters (**Figure 9**);

- The level of disturbance was consistent across the northern, western and southern areas of the property. There has been a considerable amount of topsoil grading/raking that has reformed the soils across the property eradicating micro-relief on the slopes. This reforming has also moved soils downslope (**Figure 9**);
- The western bank of the ponded area of the second order creek has been subject to this reforming right up to its banks (**Figure 7**);
- Further evidence of high disturbance was noted on the southern perimeter where three dams and a drainage channel have been constructed (**Figure 10**);
- Further to this there has been building on the southern margins of the property adjacent to the dams. These buildings have been demolished leaving a considerable amount of debris and disturbing soils over a large area (**Figure 11**);
- There have also been peripheral impacts from the neighbouring property where building debris emanates from the western slope. This is widely spread across the western side of the property and includes rubble, broken tiles and concrete (**Figure 12**);
- The access road to the property skirts along this western perimeter. This has significantly disturbed any existing topsoils (**Figure 13**);
- There was generally less soil disturbance on the slopes of the property, however towards the western boundary the land was moderately steep and exposed soils appeared shallow (**Figure 8**);
- Bioturbation from rabbit burrows in the vicinity of the ponded stream was noted (**Figure 14**).

3.3.2 Area of archaeological sensitivity identified around registered site 52-2-2122

To the east of the ponded area there appeared to be greater soil integrity and therefore archaeological sensitivity between it and the reported location of AHIMS site 52-2-2122. This area archaeological sensitivity is mapped in **Figure 15**.



Figure 7: View to north-east of ponded 2nd order stream showing reformed and graded banks. Note small area of outcropping sandstone in foreground (ELA 2015).



Figure 8: View from the top (north-western end) of the study area looking south-east towards 2nd Order stream. Note the large areas of improved pasture, residential development and Eucalyptus species on banks of stream. View from residence in north-western corner showing retaining walls and reformed slope. (ELA 2015)



Figure 9: View from the top (north-western end) of the study area looking east showing moderate slope (ELA 2015)



Figure 10: View of one of three constructed dams on the property (ELA 2015)



Figure 11: View of building site at southern end of property and disturbed soils (ELA 2015)



Figure 12: Peripheral impacts from the neighbouring property indicates building debris emanate from the western slope (ELA 2015).



Figure 13: The access road to the property skirts along its western perimeter.



Figure 14: Bioturbation was noted to be present in the vicinity of the creek banks.



Figure 15: Archaeologically sensitive area

4 Due Diligence Assessment Summary

Due diligence is defined in the CoP as “taking reasonable and practical steps to determine whether a person’s actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm”. The following discussion relates to the generic due diligence process as applied to the study area.

Step 1 – Will the activity disturb the ground surface or any culturally modified trees? – If there is future development of the property, ground disturbance will occur.

It is understood that the residential development proposal would generate significant ground disturbance. This would include the grading and levelling of the land, construction of multiple houses or buildings, roads, driveways and underground utilities (refer to **Appendix A**). No culturally modified trees were located in the study area.

Step 2 – Are there any relevant confirmed site records of other associated landscape features on AHIMS, other sources of information or landscape features that are likely to indicate presence of Aboriginal objects?

A search of the AHIMS register identified a previously recorded (AHIMS) sites within the study area (52-2-2122). This site is an open site containing a small artefact scatter on the eastern perimeter of the property within a few metres of a fenceline and adjacent electricity transmission line.

A ponded 2nd order stream of South Creek is located on the property approximately 80 metres to the west of site 52-2-2122.

Step 3 – Can harm to Aboriginal objects listed on AHIMS be identified by other sources of information and/or can carrying out of the activity at the relevant landscape features be avoided?

The desktop assessment indicated that site 52-2-2122 was located a short distance from the ponded creek. After reviewing the site card from AHIMS however the site was relocated to approximately eighty metres east of the creek line (refer to **Figure 6**). Soils in the area between the ponded creek and the AHIMS site location appeared to have suffered less impact than those to the west and north of the ponded area and have archaeological sensitivity (**Figure 15**).

Step 4 – Does the desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?

The site visit did not locate any Aboriginal objects and the artefacts from the registered site 52-2-2122 could not be relocated. The following site types were considered - stone artefacts, scarred/carved trees, potential archaeological deposits, grinding grooves, however none were located.

This assessment considers the impacts of a large scale residential development in an area where Aboriginal objects have been previously recorded (site 52-2-2122).

The site visit revealed the level of disturbance was high over much of the study area, particularly on the western banks of the ponded area from the grading of slopes and reforming of the drainage line of the creek. There was evidence of on the ground of bioturbation from rabbits. The upper (north-western) part of the study area contained shallow soils and obvious soil disturbance was encountered throughout. This area is similarly unlikely to have any archaeological integrity. Where building and road construction had

occurred in the lower (southern) section, any archaeological material that may exist in this area is likely to be disturbed and out of context with low site integrity.

The central eastern part of the study area between the ponded stream and the registered archaeological site 52-2-2122 does however contain soils that are likely to retain some integrity. Due to the presence of this registered archaeological site within the development zone and based on the information reviewed in this due diligence assessment and a field visit, further assessment is recommended in this area (**Figure 15**).

5 Recommendations

According to the requirements of the NPW Act, the due diligence investigation and assessment of Aboriginal cultural heritage is undertaken to explore the potential harm of a proposed activity on Aboriginal objects and declared Aboriginal places and landscape features that are likely to indicate the presence of Aboriginal objects.

Based on the results of this Aboriginal heritage due diligence assessment the following is recommended:

- A search of the AHIMS register confirmed a registered Aboriginal archaeological site (52-2-2122) is known to exist on the property. The advanced search shows the site as valid, indicating it has not been destroyed. The advanced search shows two permits issued against the site 2576 and 2838. Copies of these permits were requested by ELA to the OEH. The OEH sent a copy of permit 2838, which was a consent to destroy four sites including site 52-2-2221 dated 6 December 2007 for five years. It is understood from the OEH that permit 2576 is superseded by permit 2838. The site visit demonstrated that site 52-2-2221 has not been impacted and development has not occurred in this area. The AHIP is now expired and is no longer valid for future impacts to this site.

Whilst no surface Aboriginal objects or sites were relocated during the site visit, the extent of the proposed development has the potential to impact on this previously recorded Aboriginal site. The soils in the vicinity of site 52-2-2122 retain low to moderate integrity and should therefore be the subject of further assessment. The site 52-2-2122 and area of archaeological sensitivity is within an area proposed for development (**Appendix A**) but should be considered for conservation by the proponent.

- If conservation of the site 52-2-21211 and area of sensitivity cannot be achieved, further assessment and an application for an *Aboriginal Heritage Impact Permit* (AHIP) under section 90A of the *National Parks and Wildlife Act 1974* will be required.
- Applications for an AHIP must be accompanied by an Aboriginal Cultural Heritage Assessment report, as set out the guidelines of the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011). Applications for an AHIP must provide evidence of consultation with the Aboriginal communities as required under Part 8A of the NPW Regulation 2009 and in accordance with *OEH's Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010b). An Aboriginal Cultural Heritage Assessment Report documents the process of investigation, consultation and assessment undertaken.
- The ponded 2nd order stream located to the west of the registered site has the potential to retain sub surface soils that have not been impacted by channel reforming and grading particularly on the eastern margins. As part of the further assessment, a limited program of archaeological test excavations should be undertaken on the eastern side of the ponded area and between it and the reported AHIMS site (52-2-2122) to confirm the extent of the subsurface archaeological material (**Figure 15**), being the area bounded by lots 19-25, 27 and 47 on the proposed layout (refer to **Appendix A**).

- Due to the steep nature of the property, shallow soils and past soil disturbance, it is assessed that there is a low likelihood for Aboriginal objects to occur in upper slope areas or those areas disturbed by residential development and the construction of dams and drainage channels. Therefore, no further archaeological assessment is recommended in these areas.
- If suspected Aboriginal objects, such as stone artefacts are located during future works, works must cease in the affected area and an archaeologist called in to assess the finds. If the finds are found to be Aboriginal objects, the OEH must be notified under section 89A of the NPW Act. Appropriate assessment and management should be sought and may include approvals under a section 90 AHIP should objects be moved or harmed.
- In the extremely unlikely event that human remains are found, works should immediately cease and the NSW Police should be contacted. If the remains are suspected to be Aboriginal, the OEH may also be contacted at this time to assist in determining appropriate management.

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Appendix B : AHIMS search results

Included in separate file, not suitable for public exhibition

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