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Dear Kelly,

**RE: ABORIGINAL CULTURAL HERITAGE DUE DILIGENCE ADVICE FOR
HENRY PARKES DRIVE (LOT 442, DP1201831), KIAMA DOWNS, NEW SOUTH
WALES**

Austral Archaeology (Austral) has been engaged by Indesco to provide Aboriginal Cultural Heritage Due Diligence Advice for the proposed subdivision at, Henry Parkes Drive, Kiama Downs, New South Wales (NSW) [the study area] (Figure 1, Figure 2 and Figure 3). The study area consists of the entirety of Lot 442, DP1201831, the cadastral information of the lots surrounding the study area is shown in Figure 4.

The proposed impacts are likely to consist of cut and fill works throughout the study area, construction of roadways, subterranean piping and construction related excavations for the development of a residential subdivision. This advice is intended to assist Indesco in determining their obligations with regards to the *National Parks and Wildlife Act 1974* (NPW Act) and to determine whether the project will involve activities that may harm Aboriginal objects or places. Where an activity is likely to harm Aboriginal objects or places, consent in the form of an Aboriginal Heritage Impact Permit (AHIP) is required.

Section 87 of the NPW Act makes it a strict liability offence to knowingly or unknowingly harm Aboriginal objects or declared Aboriginal places without an AHIP. Harm is defined under the NPW Act as “*any act or omission that destroys, defaces or damages the object or place or in relation to an object, moves the object from the land on which it had been situated*”. The NPW Act allows for a person or organisation to exercise due diligence in determining whether their actions will or are likely to impact upon Aboriginal objects or places. Any person or organisation who can demonstrate that they have exercised due diligence has a defence against prosecution under the strict liability provisions of the NPW Act.

The *National Parks and Wildlife Regulation 2009* (NPW Regulation) adopted the *Due diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW 2010a) [the Code], which sets out the reasonable and practicable steps which individuals and organisations need to take in order to:

- Identify whether Aboriginal objects are, or are likely to be, present within the study area.
- If Aboriginal objects are present, or are likely to be present, determine whether the proposed activities are likely to cause harm.
- Determine whether further assessment or an AHIP application is required for the activity to proceed.

This advice has been formulated to provide a robust assessment that will identify whether Aboriginal objects or places are present or are likely to be present within the study area. This has been achieved through the completion of a desktop review and archaeological survey of the study area. The Code provides a series of questions that clarify whether a due diligence assessment is applicable to a proposed project. These questions are addressed in Table 1.



Table 1 Applicability of the Code to the proposed activity.

Question	Response
Is the activity a declared project under Part 3A of the <i>Environmental Planning and Assessment Act 1979</i> ?	No
Is the activity an exempt activity listed in the NPW Act or other legislation?	No
Will the activity involve harm that is trivial or negligible?	No
Is the activity in an Aboriginal place or are you already aware of Aboriginal objects on the land?	No
Is the activity a low impact activity for which there is a defence in the NPW Regulation?	No
Do you want to use an industry specific code of practice?	No
Do you wish to follow your own procedure?	No

The proposed activity is not considered to be a low impact activity under Clause 80B(g)(iii) of the NPW Regulation. As a result, it is necessary to ensure that due diligence is fully established through use of the series of five steps from the Code outlined below.

Step 1: Will the activity disturb the ground surface or any culturally modified trees?

The activity will disturb the ground surface and therefore consideration of Steps 2a and 2b of the Code is required. The study area does not contain old growth vegetation and as such no culturally modified trees will be impacted by the proposed activity.

Step 2a. Search the Aboriginal Heritage Information Management System (AHIMS) database and use any other sources of information of which you are already aware

An extensive search of the AHIMS database was conducted on 29 January 2020 (Client Service ID: 480088). The search identified 59 Aboriginal archaeological sites within a five kilometre radius centred on the study area (Table 2)(Figure 5). None of these registered sites are located within the study area (Figure 6).

Table 2 AHIMS sites identified within five kilometres of the study area.

Site feature(s)	Occurrence	Frequency (%)
Artefact	24	40.7
Artefact; Potential Archaeological Deposit (PAD)	5	8.5
Burial	1	1.7
Grinding Groove	1	1.7
Modified Tree (Carved or Scarred)	2	3.4
Potential Archaeological Deposit (PAD)	5	8.5
Restricted	1	1.7
Shell	1	1.7
Shell; Artefact	19	32.2
Total	59	100

A review of the reports held by AHIMS identified several archaeological studies which have been undertaken in close vicinity of the study area. These are summarised in Table 3.



Table 3 Archaeological studies undertaken in the vicinity of the study area.

Author	Year	Results of the assessment
Godden Mackay Logan	2012	<p>Performed a Due Diligence Assessment for the rezoning of land along Jamberoo Road. The assessment was carried out via desktop assessment and walking survey. Which identified no aboriginal artefacts within the study area.</p> <p>The lack of Aboriginal evidence on the site was attributed to the low soil exposure, as no artefacts could be seen due to the thick grass covering the surface. Extensive land clearing was evident, which a process that can high disturb artefacts. The area also had very shallow soils, low soil integrity and an undesirable landform. All these aspects combined to create an area unlikely to contain Aboriginal relics.</p>
AHMS	2014	<p>Performed a walking survey as part of Aboriginal Cultural Heritage Due Diligence Assessment (ACHDDA). No Aboriginal relics were found as the ground surface visibility was very poor due to extensive grass coverage. However, the walking survey was deemed ineffective and thus some areas of the site were identified as PADs, based on the location's close relationship with the nearby creek (<50m). It was predicted that the test excavations on this site will have low density, low frequency isolated surface and subsurface finds, which are indicative of occasional use and casual discard.</p>
Biosis	2016	<p>Performed test excavations as part of an ACHA on Golden Valley Way in Jamberoo. The excavations consisted of 29 test pits, locate within two PADs that were identified in an earlier survey. The first PAD was located on the hillcrest of a ridgeline and the second PAD was located on a terrace within a valley flat.</p> <p>The first PAD contained a total of 59 artefacts, which were primarily flakes made of silcrete and chert. Densities in each pit were relatively low with one to five artefacts found in each pit. The depths of pits were roughly 0.3m, with half of all artefacts found in the second spit.</p> <p>The second PAD contained a total of two artefacts which came from separate pits. This area was thought to be a background scatter from the larger scatter of the first PAD.</p> <p>The first PAD was assumed to have shown a moderate number of artefacts as the ridgeline it sits on was likely a pathway from escarpment to the Minnamurra River. Which could suggest that the area was used as a short-term campsite, where tool maintenance occurred.</p>
Biosis	2018	<p>Performed a walking survey of a study area that ran along the bank of the Minnamurra River. The survey found four areas of potential archaeological deposit and a possible burial site. All the PADs were found on similar landforms and showed visible sandy deposits on the surface and were undisturbed. The possible burial was identified outside the study area, but through the knowledge of the local Indigenous stakeholders, it became clear that the Minnamurra River was a place of great importance to the people of the Illawarra. As such, there is a chance that there may be more burials in the area including the burial of William Walker Woolongoolow, the King of the clans from Wollongong to Nowra.</p> <p>The study area had been greatly disturbed by the construction of the Princes Highway bridge and its associated supports. The disturbances from the construction of the bridge were likely to have redeposited all surface and some subsurface artefacts, in the general area of the bridge. Biosis also found that the flow of the river had been altered by the bridge which was likely to have contributed to erosion along the banks, and some artefacts would have been lost to the subsiding ground surface.</p>



Austral has undertaken a desktop review of information that may indicate the presence of Aboriginal objects within the study area. This includes an assessment of information relating to ethnography, soils, geology, landform, disturbance and resource information pertinent to the study area. A summary of this information is presented in Table 4.

Table 4 Review of sources that may indicate the presence of Aboriginal objects.

Source	Summary
Ethnographic	<p>Limited accounts of Aboriginal groups by early settlers in the Illawarra were once the largest basis for all information on the Aboriginal population size and land use in the area. However, with the recent development of the Illawarra region, many archaeological investigations have been performed, expanding the physical evidence for occupation. Archaeological sites in Burrill Lake and Bass Point have been dated back to 20,000 and 18,000 years respectively (Kohen 1997, p.7). Suggesting that Aboriginal groups have been present in the Illawarra for over 20,000 years.</p> <p>The Department of Environment and Conservation (DEC) Illawarra Region Aboriginal Heritage Study (IRAHS) identified the Dharawal speaking Wodi Wodi group as the Aboriginal custodians of the Illawarra region. Dharawal is spoken from Botany Bay in the north, Campbelltown in the west to the Shoalhaven River and Jarvis Bay in the South (Department of Environment and Conservation 2005, p.6). However, there are examples of the language spreading even wider than this (Organ & Speechley 1997, p.7). Dharawal people are sub-divided into smaller groups based on the environment they live in, such as fresh water, bitter water and salt water people (Department of Environment and Conservation 2005, p.6).</p> <p>Estimations of the populations of Aboriginal groups in the area are notoriously difficult as the Indigenous people actively avoided the early settlers. This is further complicated by diseases early settlers brought, such as smallpox and influenza which decimated the local population. James Backhouse noted in 1843 that "[t]he Blacks in this district are not numerous...many of whom are afflicted with sores" (Backhouse 1843, p.423). This was accompanied by the widespread land clearing associated with settlement which destroyed Aboriginal land uses and food sources, pushing the original land owners to the fringes of their territory (Department of Environment and Conservation 2005, p.25). As such, early accounts of population size are likely incorrect, with records indicating in 1820 there were 3,000 Aboriginal people in the Illawarra region spread down to the Shoalhaven River. However, it is likely that the area was of one the most densely populated in Australia with 2 to 4 people per square kilometre. Numbers dwindled over time with records indicating only 82 Aboriginal people in Wollongong in 1846 (Organ & Speechley 1997, pp.1–11). One can be fairly certain the same thing had happened to the local Indigenous people in Kiama. With a report in the <i>Illawarra Mercury</i> from 1858, about blankets being given to the local Aboriginals in Kiama a tradition that would continue, and notes that numbers are dropping in their population and shall soon become extinct. Another report in 1869 describes a rapidly diminishing Aboriginal population in the area, and by 1882 only 39 blankets were given out (Organ 1990, pp.116,143 & 149).</p> <p>Conflict between the local Indigenous people and the settlers was common and often fought in small guerrilla battles. Resistance generally occurred via intimidation and sabotage of the farms of the Europeans, with the violence sometimes escalating to deadly struggles. Theft was common as much of the Aboriginal people's food sources had been destroyed to make way for pastoralists and farming land, which became a common source of conflict as the traditional owners did not share the same concept of ownership. There were some instances where resistance was successful, with one notable example from 1835-6 when a group of Aboriginal people prevented the destruction of a birthing tree that was set to be cleared to make way for the Princes Highway, in what is now known as Figtree (Department of Environment and Conservation 2005, pp.18–20). However, more often than not these resistances were not successful with at least two massacres occurring along the Minnamurra River, which were committed by local farmers and their workers (Kiama Independent 2017).</p> <p>There a few historical accounts of the Indigenous people that lived in the area surrounding Kiama. One account from the 1830s places the local Aboriginal clan living along the Minnamurra River, from where they moved down to Kendall's Beach and traded cabbage tree brooms and boomerangs with the settlers of the area (Organ 1990, p.88). In 1833, a local Aboriginal man assisted the police with apprehending a group of bushrangers near Gerringong (Organ 1990, p.93). Another account from 1904 describes a small group of Aboriginals travelling from Minnamurra to Port Kembla after a group of missionaries called the Kiama Endeavourers had turned one of the men onto God (Organ 1990, pp.222–224). King Mickey Johnstone was a famous local Indigenous man, and married to 'Queen Rosie' the two lived at the Minnamurra Aboriginal Camp, he is noted to have died at the camp in 1906 (Organ 1990, p.227).</p>



Source	Summary
Landform	<p>The study area is located within two Mitchell Landscapes, the Lake Illawarra Alluvial Plains and the Lake Illawarra Barrier. The Alluvial Plains take up approximately two-thirds of the study area, with the Barrier making up the remaining third as can be seen in Figure 7.</p> <p>The Lake Illawarra Alluvial Plains is made up of the quaternary sand, silt and clay brought in by the floodplains of the streams entering Lake Illawarra. Again, the area has been mostly cleared for the same reasons as above (Mitchell 2002, p.115). But the fertile soils that surround these creeks and rivers would have provided great sources of fresh water, flat dry places to camp and ample flora and fauna to eat. Making this an ideal place for Indigenous people to live in the warmer and dry months of the year.</p> <p>The Lake Illawarra Barrier is made up of quartz sand dunes which form beach-ridges with an elevation of 0-25m. However, these areas have been altered a great deal due to development. They are suitable sites for both grey mangroves and salt marsh and are commonly found next to swamps and wetlands, which is exemplified by the study area (Mitchell 2002, p.109).</p> <p>As can be seen in Figure 13, the study area is located on a sloping block in which landforms can be described by Navin Officer performed a study on the Indigenous Archaeology of the area surrounding Shellharbour and found that ridgelines and spurs offered pathways through the environment and were likely to contain larger and more important sites (Navin Officer 2000, pp.51–52). As the study area is located along a sloping ridgeline, there is a good chance that Aboriginal people were interacting with the site on a semi-permanent basis.</p> <p>Much of the site is located on a sloping block, which would make it difficult for a comfortable camp to be erected. However, the centre section of the site contains a flat, relatively undisturbed area that could possibly contain artefacts.</p>
Geology	<p>The study area is located within two separate geological types. The first being Bumbo Latite, which is characterised by dark grey to black basalt (Hazelton et al. 1992, p.43).</p> <p>The second type makes up one quarter of the northern section of the study area and located within an alluvial floodplain. Alluvial floodplains are characterised by very fine to medium grained silt along with quartz-rich sand and clay (Hazelton et al. 1992, p.131) The geology of the area makes the generation of rock suitable for artefact creation likely, especially in the northern quarter of the study area. Alluvial floodplains are great sources of silcrete, which are the most commonly used lithic in the area for the creation of tools.</p> <p>Therefore, based on the geology of the area, it is possible that silcrete was collected from the northern section of the study area or nearby outcrops and carried away from the river to be worked in the southern section.</p>
Soils	<p>The study area is located within the Mangrove Creek and Bombo soil landscapes, see Figure 8.</p> <p>Mangrove Creek soils are commonly over 1.5 meters deep and consist of topsoil mc1, which is a organic mottled dark brown silty loam. There are three different types of subsoil consisting of mc2 a shelly organic black sandy loam, mc3 a shelly greyish yellow sand and mc4 a gray mottled sandy clay.</p> <p>In mangrove flats 0.3m of mc1 overlies less than 0.5m of mc2, which then overlies 1.0m of mc3. The boundaries between the layers are gradual. This soil profile is greater than 2.0m.</p> <p>In salt marshes up to 0.2 mc1 overlies less than 0.2m of mc2 and less than 0.5m of mc3 which in turn overlies greater than 2.0m of mc4. Again, the boundaries between layers is gradual. This soil profile is greater than 3.0m (Hazelton et al. 1992, pp.132–133)</p> <p>Bombo soils are usually less than 1.0m deep and consist of bo1 a topsoil of friable reddish brown sandy clay loam or bo2 a hardsetting brownish black sandy loam. There are then three types of subsoil bo3 a reddish brown light medium clay, bo4 a reddish brown sandy clay and bo5 a brown strongly pedal medium clay.</p> <p>On midslopes 0.1m of bo2 overlies less than 0.15m of bo4 and 0.35m of bo3 which in turn overlies up to 0.4m of bo5. The boundaries between layers are clear to gradual, with a total soil profile depth of less than 1.2m (Hazelton et al. 1992, pp.44–45)</p>



Source	Summary
Hydrology	<p>The study area is located within the Minnamurra River catchment and borders on an unnamed fourth order perennial tributary of the river as can be seen in Figure 9.</p> <p>One of the most useful predictors of the likelihood of finding Aboriginal archaeological remains is the stream orders of the nearby waterways. Distance to water and the associated suitable landforms are both important factors in the potential for Aboriginal artefacts to be in the study area. As rivers provided fresh water to drink and abundant food sources, people were likely to stay in these areas when the climate was suitable.</p> <p>As the study area borders on a fourth order stream, it is a site of likely settlement based on stream order alone. Which suggests if Aboriginal remains are evident, they would be complex and indicative of relatively permanent and repeated occupation (McDonald. 2000a, p.19). However, due to the site's landform on a low to mid-slope with relatively few flat areas, this is an unlikely site of permanent settlement.</p> <p>Whilst permanent settlement is improbable, there is evidence nearby of both stone working and shell middens in similar locations on similar landforms, see Figure 6. This suggests that this would be a likely place for the collection and consumption of resources, especially foodstuffs, along with working tools in the shade of the trees along the riverbank.</p> <p>Creek junctions are focused areas of site activity, with the junction of the Minnamurra River and the unnamed stream located 600 metres to the north, it is likely that there was permanent aboriginal occupation near the study area (McDonald. 1997a). As such, the study area is a likely location of past activity.</p> <p>A flood study has not been performed on the Minnamurra River, however, due to the floodplains extant within the study area it is likely that floods have occurred in the past. Floods can be very damaging to Aboriginal cultural heritage lying on the surface. As such, there is a possibility that surface artefacts in the northern section of the study area may have been removed by flooding and erosion. This does not discount the possibility of subsurface artefacts remaining in situ. Most of this area will not be developed as can be seen in Figure 12, as such most of the artefacts, if present, will be located within the design footprint and will be affected by the development.</p>
Resources	<p>Prior to the removal of native vegetation, for farming and pastoral activities, the ecological diversity of the area would have provided a wide range of resources for the Aboriginal people frequenting the area. The Minnamurra River, and the tributary that the study area abuts would have attracted many animal species to the area, including possums, pademelons and a wide range of bird life. The rivers would have had a healthy amount of fish, crustaceans and shellfish which the indigenous people could catch. The nearby alluvial plains also contain soils which are high in nutrients for the surrounding plant life. This would have produced many native plants and tubers which could be eaten, used as medicinal remedies or crafted into tools, transport and housing materials.</p> <p>Animal materials were also highly sought after for the multiple uses, not just as a source of nutrition. Possum skins were highly valued to make cloaks for colder months, animal sinew and bone was also sought after for making tools such as cords or awls.</p> <p>The area prior to European settlement would have consisted of cabbage tree palms, which the locals used to create brooms and likely other tools, along with many other useful trees and vegetation such as Cherries, Gums, Cedars, Tea Trees, Swamp Oak, Celery Wood, Black Apples along with Moreton Bay and Port Jackson figs (Hazelton et al. 1992, pp.43–44).</p> <p>The area is unsuitable for rock shelters or art sites, as it does not include the required geology (Austral Archaeology Pty Ltd 2010, pp.31–32).</p>



Source	Summary
Disturbance	<p>The study area has been extensively cleared of vegetation for pastoral purposes, land clearing is quite destructive to soils and tends to churn the area around the trees that were removed. Whilst not completely destructive to the artefacts themselves, it tends to move the artefacts from their original position removing some temporal and associative information that can be gained through archaeological investigation.</p> <p>Other than the initial land clearing, it can be seen through the 1961 historical image of the study area (Figure 10), the land has remained untouched from development. agricultural uses, especially those that involve livestock tend to cause little disturbance to subsurface artefacts, and as such there is a good chance of finding artefacts intact if they were not previously disturbed by the removal of trees.</p> <p>Whilst a bridge has been constructed nearby to the study area, it is likely that any disturbances from the construction of the bridge were far enough away to have not destroyed any cultural heritage within the study area. The altered flow of the river, due to the construction of bridge may have had effect of the banks of the river increasing erosion and thus some of the artefacts contained within the site may have been washed into the water during heavy flows.</p>

Step 2b. Activities in areas where landscape features indicate the presence of Aboriginal objects

A multitude of studies have been undertaken that have established a general criterion for predicting the location of Aboriginal sites in landforms associated with the Illawarra escarpment and the NSW coast as well (Kohen 1997, Navin Officer 2000, McDonald. 2000, Biosis Pty Ltd 2018a, Austral Archaeology Pty Ltd 2010). These studies combined with the results from Step 2a of the Code make it possible to develop a series of predictive statements. These indicate the type and character of Aboriginal cultural heritage sites that are likely to exist within the study area and where they are more likely to be located. These predictive statements indicate that:

- Sites would most commonly be found near creeks, and on high ground near water, as well as along ridge-lines and spurs with flat or gently sloping crests.
- High levels of past disturbances within the study area mean that the general archaeological landscape is not suitable for conservation.
- Stone artefact sites may be present on flat terrain adjacent to creeks, however disturbances including land clearance, ploughing, or flooding events may relocate these objects.
- Scarred trees are unlikely to be present within cleared and regrowth areas.
- Grinding grooves are unlikely to be present due to a lack of suitable requirements (i.e. exposed bedrock near to a water source).
- Ceremonial grounds are unlikely to be present due to their general rarity within New South Wales.
- Burials are unlikely to be present, due the lack of deep sandy locations suitable for burial.
- Shell middens are unlikely to be present due to the distance from Lake Illawarra and the coast.
- Stone arrangements are unlikely to be present due to their general rarity within New South Wales.
- Aboriginal sites may be found in areas with moderate to high disturbance, such as cleared and ploughed fields, however it is unlikely that these sites will contain intact archaeological deposits.

Based upon the above, as the study area is located in close proximity to known water sources and high ground, the potential of past Aboriginal interaction with the site is high. Whilst unlikely to be a site of permanent or long-term settlement, judging by sites in the surrounding area, there is a good chance this was an activity centre for people living along the Minnamurra River. There is historical evidence for the area along the river being a common camp for the Indigenous group living in the area.

The site's location makes it a decent location for fishing and collecting of shellfish, which were commonly eaten where they were found, suggesting that middens may be found on the site, if they have not been removed by erosion. The vibrant ecosystem surrounding the river would have given the local people a vast variety of resources to exploit. As such, the concentration of activity



would have been close to the river, with interaction with the study area decreasing as one moves south, away from the river. However, there is a possibility of pockets of dense remains that relate to settlement centres. These centres are likely to be located in the southern section of the block on flat ground, not too far from the river.

The sloping landform that is evident on the site is generally unsuitable for long term occupation, however, short term camps, or workshops are possible. With the flat area of the hillcrest landform in the centre of the study area making a good location for this. As the site is sloping up toward a ridgeline, this is also a possible access route to the river from other campsites. The ridgelines and spurs around the study area were likely to contain larger and more permanent sites, and as such the section to the south has the possibility to contain discarded artefacts related to the larger camps in the area or even possibly a small camp.

The rest of the study area is affected by floodplains and a slope that is too steep to allow for settlement. The section in the centre of the block is a suitable location for a camp, and as such has a moderate chance of Aboriginal cultural heritage being found on the site.

Step 3. Can you avoid harm to the object or disturbance of the landscape feature?

It is not possible to avoid harm to the landscape features within the study area.

Step 4. Desktop assessment and visual inspection

Based upon the results of Step 2a, it was necessary to conduct a visual inspection in order to ground truth the predictive statements outlined in Step 2b. A visual inspection of the study area was undertaken on 31 January 2019 by Miles Robson (Senior Archaeologist, Austral). The visual inspection consisted of a systematic survey of the study area to identify and record any Aboriginal archaeological sites visible on the surface, or areas of Aboriginal archaeological potential and cultural sensitivity. The archaeological survey was conducted on foot. The methods used during the visual inspection conformed to the Code (DECCW 2010b).

The study area has a downward slope from south to north with a gradient ranging between 5 and 15 degrees, with some sections quite steep. The hill slope is present from the southern boundary of the study area until approximately 50-70 metres south of the northern boundary of the study area. The slope is not consistent in its gradient and is quite undulated with a relatively flat area present in the middle of the study area (which is the area of moderate potential).

The northern portion of the study area is relatively flat at the base of the hillslope. This area lies within the flood plains and contains small scrubs and longer grass that are indicative of it laying within the flood zone.

The study area has been extensively cleared of vegetation, with only a few trees currently present within the study area. The remainder of the study area contains short grass, with some areas of exposures that may be as a result of previous farming activities in the study area.

The study area shows minimal signs of disturbance. These disturbances include evidence of livestock and cattle grazing present in the study area from previous farming activities. A cattle feed container is present in the northern portion of the study area at the base of the slope. Other evidence of minor disturbances are two mounds of basalt rock and boulders present in the middle of the study area. The nature and reason for these mounds of rocks could not be determined during the survey, however building materials including brick and small fragments of cement are present within the mounds of rock.

In terms of archaeological potential, the majority of the study area contains low potential due to the steep sloping topography of the land in the southern and central portion of the study area, while the northern portion of the study area lays within a floodzone. There is however a small area of moderate potential located on a hill crest in the centre of the study area. This small area on the crest of a hill is relatively flat with a gradient of approximately 3-5 degrees, which in addition to the minimal levels of disturbance within this portion of the study area and its vicinity to Minnamurra River, a perennial water source, makes it an optimum spot for previous Aboriginal occupation and the potential location for sub-surface Aboriginal cultural material.

The results of the visual inspection are depicted in Figure 13 and Figure 14.



Step 5: Further investigations and impact assessment

Based upon the outcome of Steps 1 to 4 of the Code, it has been determined that Aboriginal objects are likely to occur within the study area and further assessment is therefore warranted. The following recommendations apply:

1. An Aboriginal Cultural Heritage Assessment (ACHA) should be undertaken in order to further assess the area of moderate archaeological potential within the study area prior to any ground disturbance. The ACHA will involve consultation with the local Aboriginal community in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010a) [the consultation requirements].
2. The ACHA should further investigate the area of archaeological potential in the form of archaeological test excavations undertaken in accordance with the Code of Practice for archaeological investigation for Aboriginal objects in NSW (DECCW 2010b).
3. Should these excavations identify Aboriginal objects, then an Aboriginal Heritage Impact Permit (AHIP) will be required prior to impacts occurring.
4. Should any Aboriginal objects be encountered by during any stage of works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal object the archaeologist will provide further recommendations.
5. If human remains are encountered during any on-ground works, all works should be ceased immediately and the New South Wales Police must be notified as soon as possible. If the remains are suspected to be of Aboriginal origin the Environmental Protection hotline should be contacted.

Please do not hesitate to contact me on 0490 190 290 if you wish to discuss any aspect of this submission.

Yours sincerely,

Alexander Beben

Director

Austral Archaeology

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REFERENCES

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Figure 1



Figure 1 Location of the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 2



Figure 2 Topography of the Study Area and Surrounds

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 3



Figure 3 Aerial Imagery of the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 4

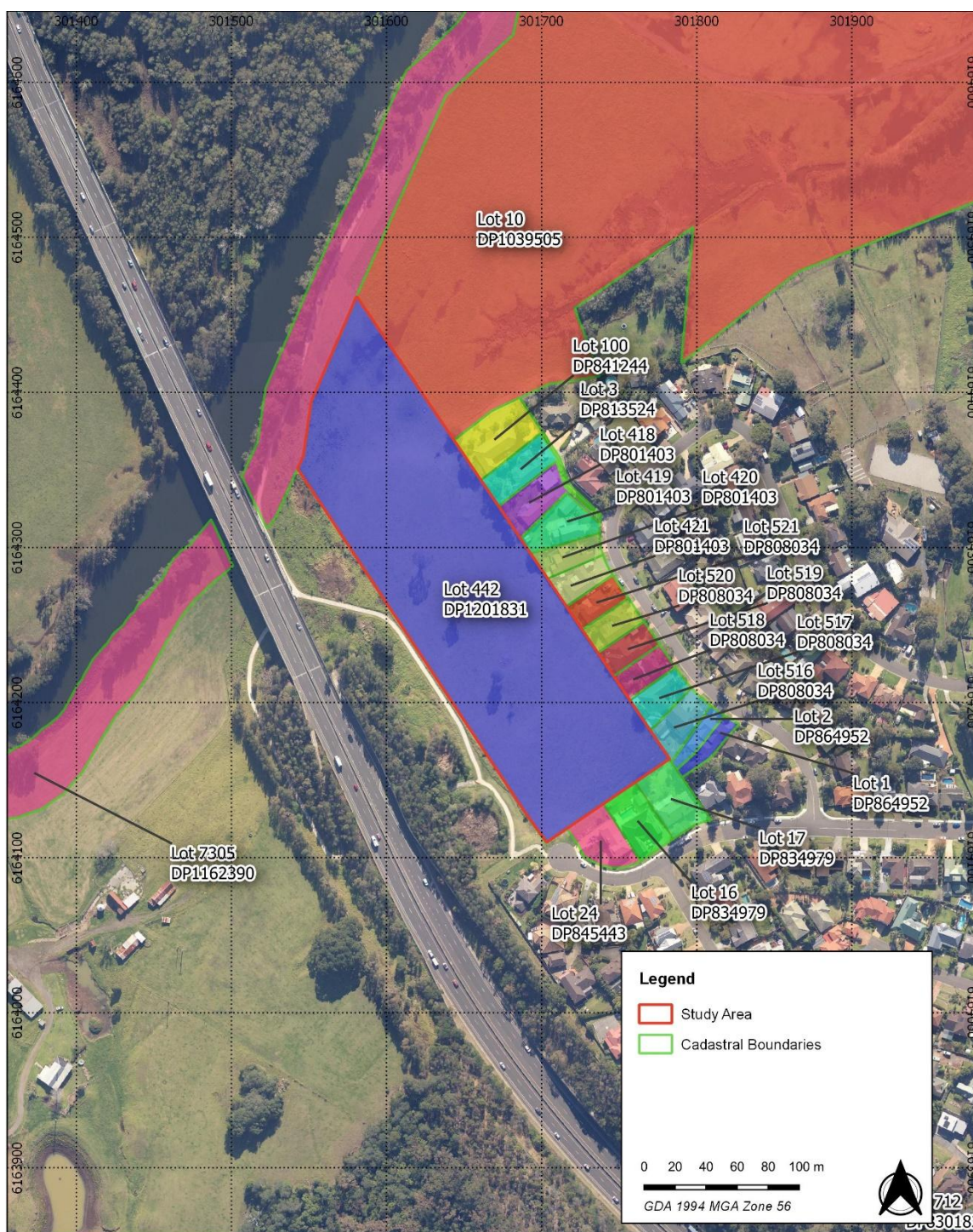


Figure 4 Cadastral Information Surrounding the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 5

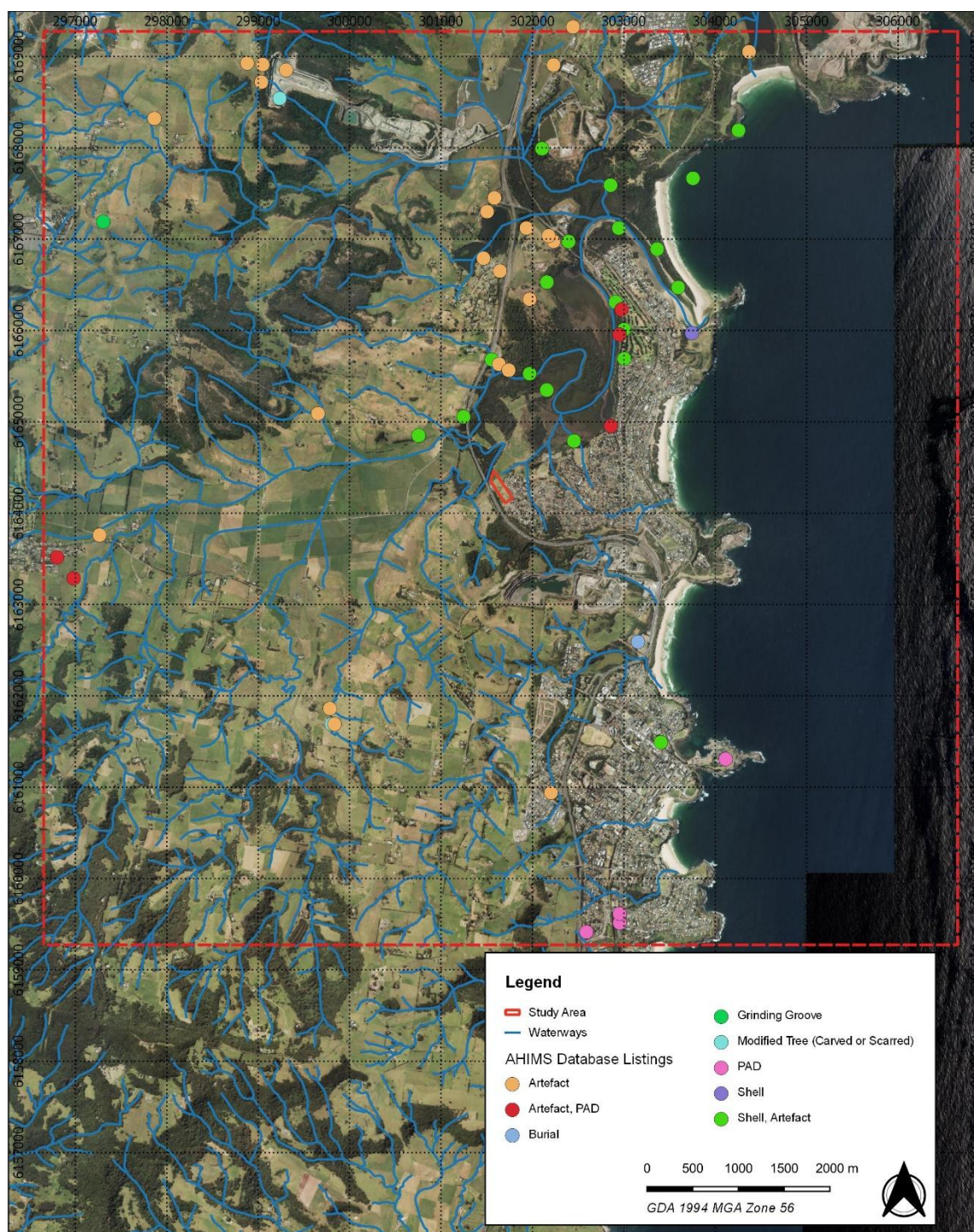


Figure 5 AHIMS Sites Within Five Kilometres of the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 6



Figure 6 AHIMS Sites Close to the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 7

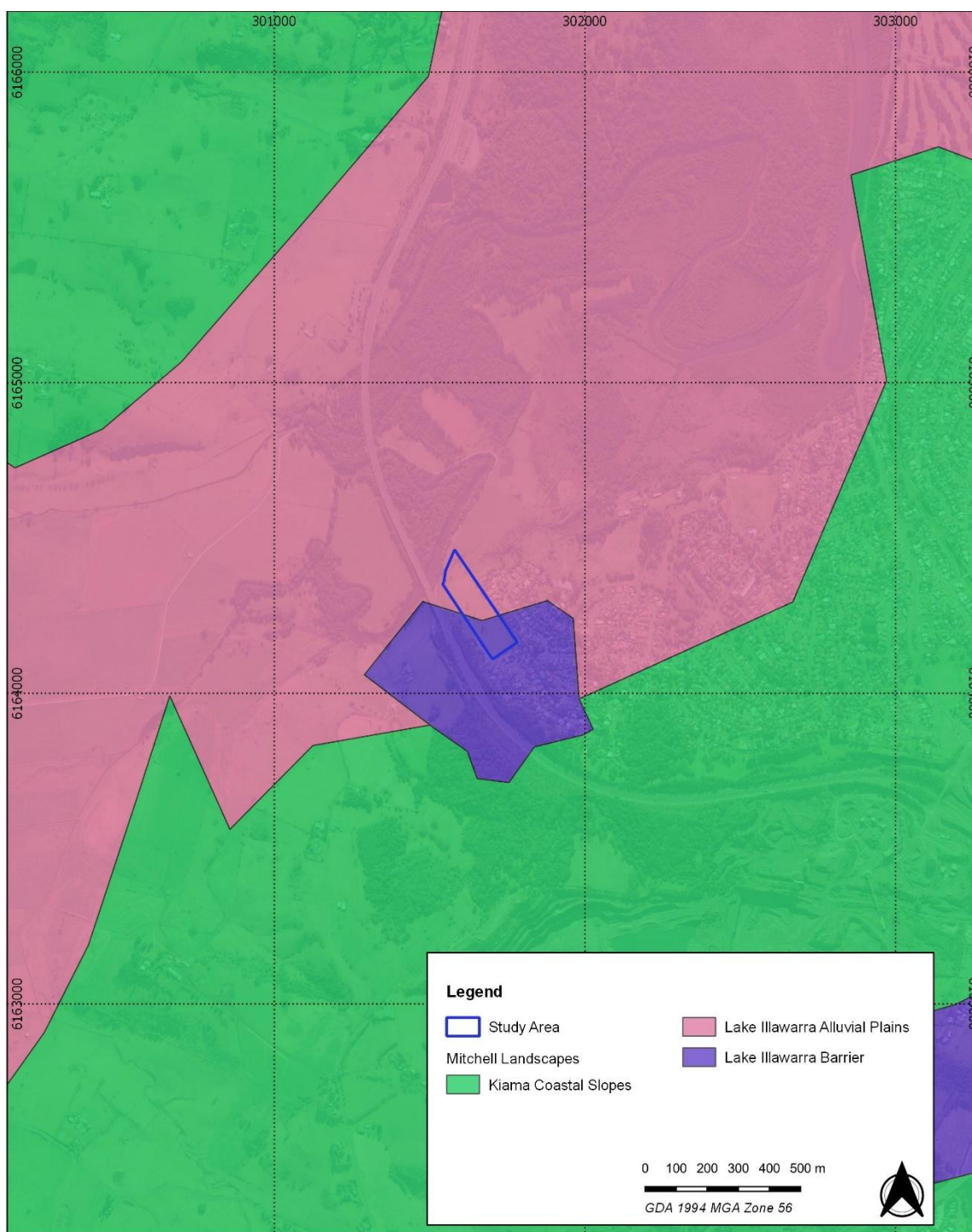


Figure 7 Mitchell Landscapes Surrounding the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 8

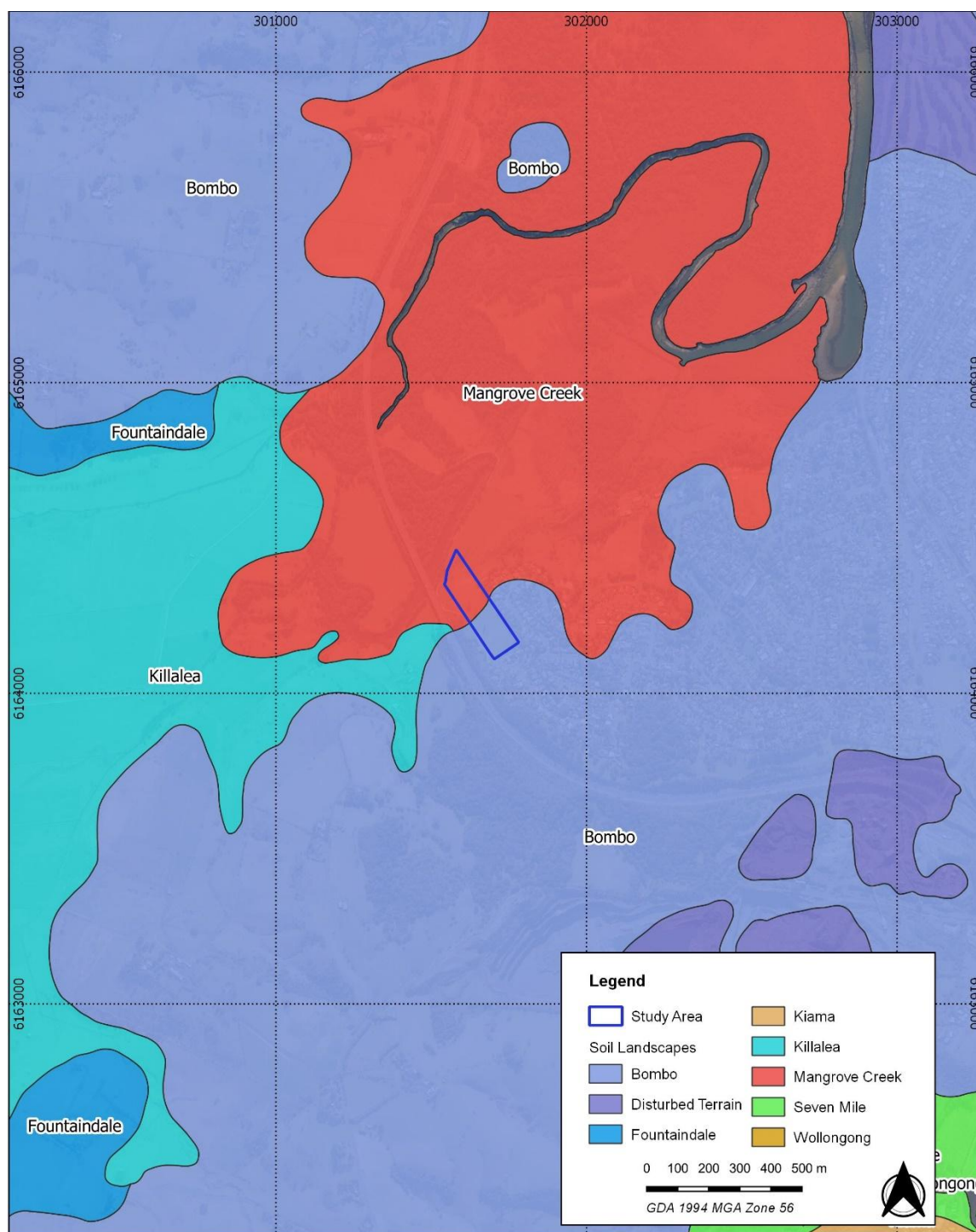


Figure 8 Soil Landscapes Surrounding the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 29/01/2020





Figure 9

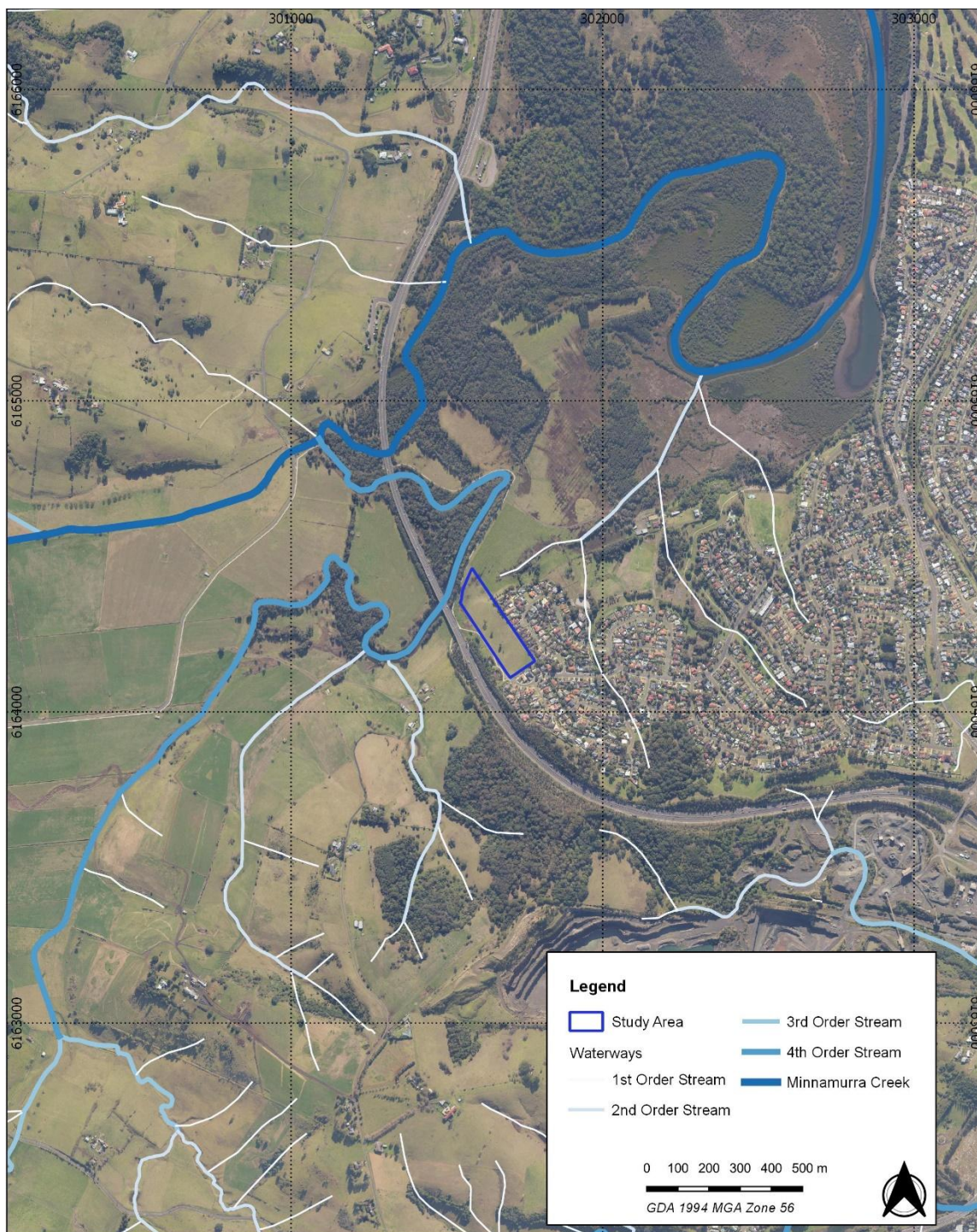


Figure 9 Waterways Surrounding the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Department of Lands Aerial Drawn by: WA Date: 30/01/2020





Figure 10

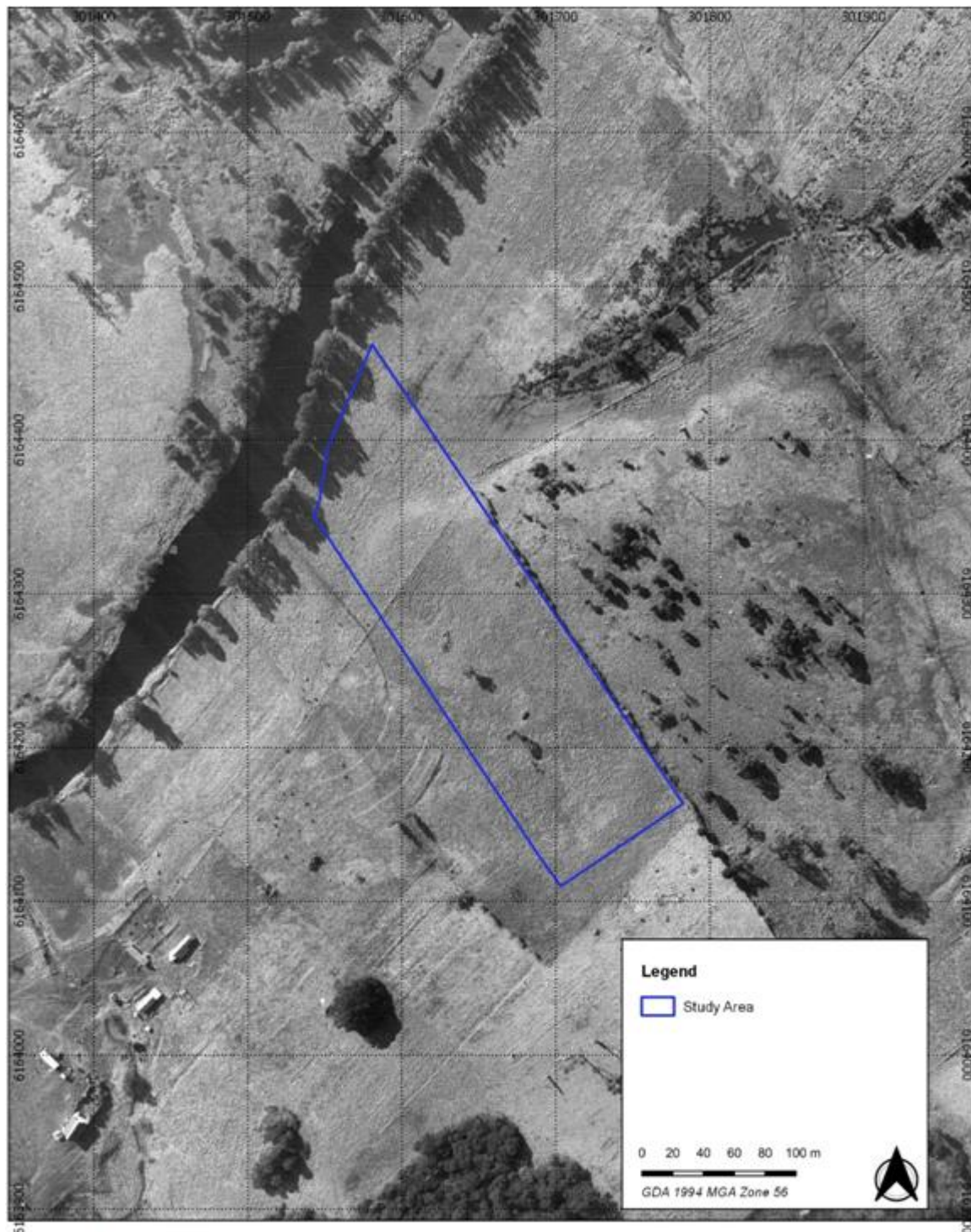


Figure 10 1961 Historic Aerial Imagery

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: Wollongong City Council

Drawn by: WA Date: 30/01/2020





Figure 11

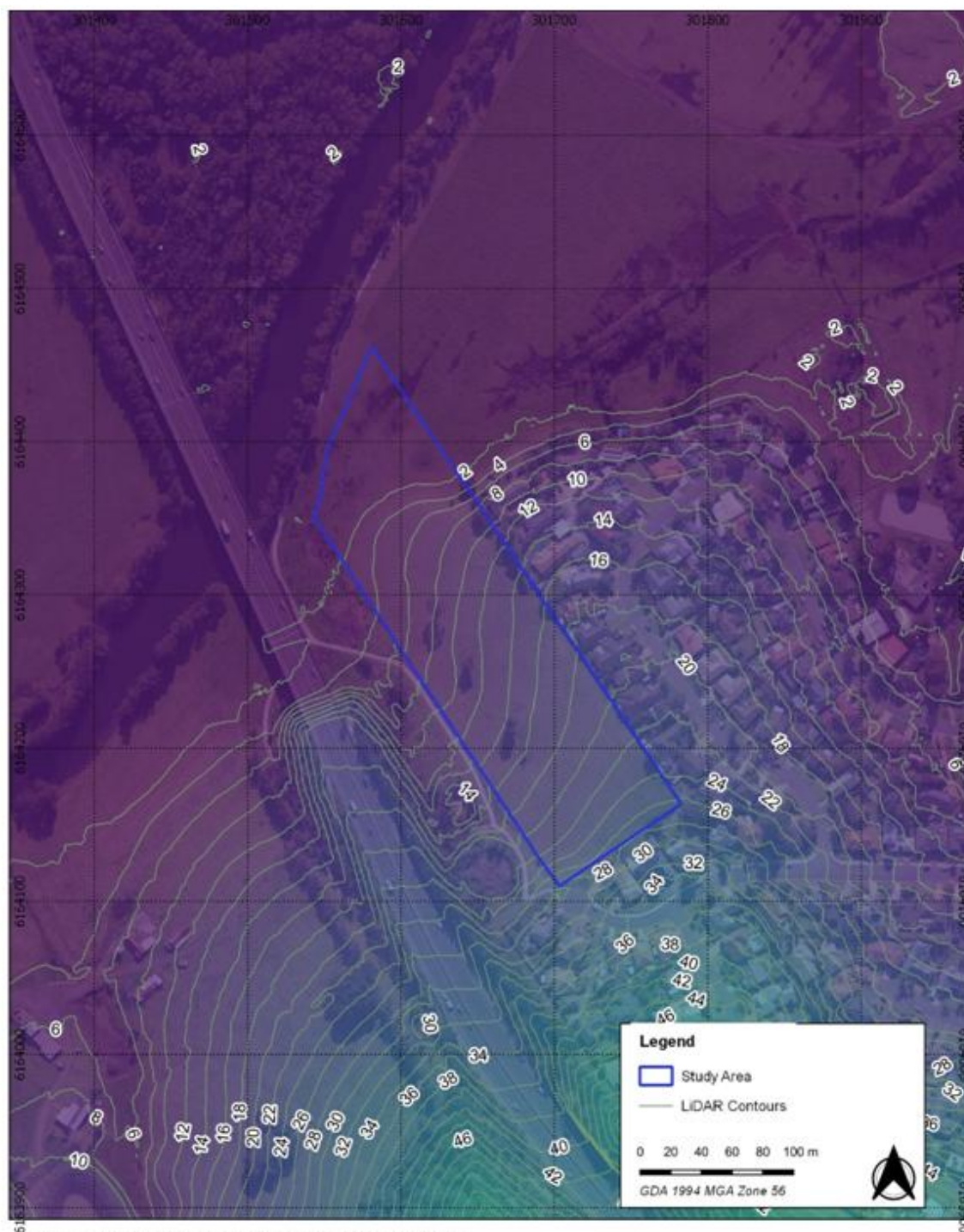


Figure 11 Elevation Data of the Study Area

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: NSW Spatial Services LIDAR

Drawn by: WA Date: 30/01/2020





Figure 12



Figure 12 INDESCO Provided Plan

Henry Parkes Drive, Jamberoo, NSW

Aboriginal and Historical Heritage Advice

Source: INDESCO ISC00072 SK01

Drawn by: WA Date: 31/01/2020



Figure 13



Figure 13 Landforms Evident within the Study Area

Henry Parkes Drive, Jamberoo, NSW
Aboriginal and Historical Heritage Advice

Source: NSW DFSI Aerial

Drawn by: WA Date: 03/02/2020



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Figure 14



Figure 14 Visual Inspection Results

Henry Parkes Drive, Jamberoo, NSW
Aboriginal and Historical Heritage Advice
Source: NSW DFSI Aerial

Drawn by: WA Date: 03/02/2020





Figure 15 View facing north towards Minnamurra River, thick ground coverage evident.



Figure 16 South-east facing view towards new housing developments, note the steep incline southwards.



Figure 17 View to the north of Basalt dumping area.



Figure 18 View north showing the floodplain and associated flora at the north end of the study area.



Figure 19 View south of cattle feeder, evidence of pastoral use of the study area.



Figure 20 View south showing the hill crest evident in the centre of the study area.



Figure 21 View west of another Basalt dumping ground.



Figure 22 View North of flat area on hill crest, a site of moderate potential.