View of #10-3-0063 and scar.

ABORIGINAL DUE DILIGENCE ARCHAEOLOGICAL ASSESSMENT

East–West Bypass, Moree

Moree Plains LGA

January 2019

Report Prepared by

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Acknowledgement

OzArk acknowledge Traditional Owners of the area on which this assessment took place and pay respect to their beliefs, cultural heritage and continuing connection with the land. We also acknowledge and pay respect to the post-contact experiences of Aboriginal people with attachment to the area and to the elders, past and present, as the next generation of role models and vessels for memories, traditions, culture and hopes of local Aboriginal people.

EXECUTIVE SUMMARY

OzArk Environmental & Heritage Management (OzArk) has been engaged by Moree Plains Shire Council (the proponent) to complete a due diligence archaeological assessment for the proposed East–West Bypass Moree. This report examines proposed works associated with the proposed East–West Bypass and realignment of the Gwydir Highway and upgrading parts of the North–South Link Road east of the Newell Highway (the proposal). The proposal is situated within the Moree Plains Local Government Area.

The visual inspection of the study area was undertaken by OzArk archaeologist, Philippa Sokol, on Tuesday 18 December 2018 and Wednesday 19 December 2018. Mehi French, a representative of the Native Title Claim of the Gomeroi Peoples, was present during the visual inspection. One Aboriginal site was identified (Halls Creek IF-1 [#10-3-0073]) and two previously recorded AHIMS sites (BBS Moree LALC Mehi River TSR 1 [#10-3-0062] and BBS Moree LALC Mehi River TSR 2 [#10-3-0063]) were located during the visual inspection.

The undertaking of the due diligence process resulted in the conclusion that the proposed works will have an impact on the ground surface and two Aboriginal sites recorded during the visual inspection. This moves the proposal to the following outcomes:

1) The proponent should consider realignment options so as to avoid the Aboriginal sites Halls Creek IF-1 (#10-3-0073) and BBS Moree LALC Mehi River TSR 2 (#10-3-0063) with appropriate measures applied as outlined in **Section 4.2** to avoid harming the sites during works.
2) If realignment to avoid Halls Creek IF-1 (#10-3-0073) or BBS Moree LALC Mehi River TSR 2 (#10-3-0063) is not possible, then 'further investigation and impact assessment' of the study area will need to be undertaken in order to apply for an AHIP. Integral to the application for an AHIP is the preparation of an ACHAR and community consultation following the OEH ACHCRs. The NPW Act is complemented by the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* that set out the requirements for archaeological investigation in NSW where an application for an AHIP is likely to be made.
3) If the realignment option follows the Mehi River Alternative Alignment, the proposal will not impact either of the two AHIMS sites (#10-3-0062 and #10-3-0063), though #10-3-0062 is close to the edge of the realignment boundary.
    a. BBS Moree LALC Mehi River TSR 1 (#10-3-0062) is close to the edge of the alternative alignment and precautions to avoid inadvertently impacting the site are outlined in **Section 4.2**.
4) There are no other Aboriginal cultural heritage constraints to the proposal; however, the following precautions should be taken:

a. The location of previously recorded sites within the vicinity of the study area (#10-6-0041 and #10-6-0039 are 58 m south; #10-3-0036 is 170 m east; and #10-6-0040 is 160 m east) should be noted and the sites avoided by all impacts (see **Table 4-1** for locations).
b. All land-disturbing activities must be confined to within the assessed study area. Should the parameters of the proposed work extend beyond the assessed area, then further archaeological assessment may be required.
c. This assessment has concluded that there is a low likelihood that the proposal will adversely harm Aboriginal cultural heritage items or sites outside those listed above. However, during the course of works, if Aboriginal artefacts or skeletal material are noted, all work should cease and procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) should be followed.
d. Construction staff should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts (see **Appendix 3**) and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the *Unanticipated Finds Protocol* (**Appendix 2**).

5) The information presented here meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.

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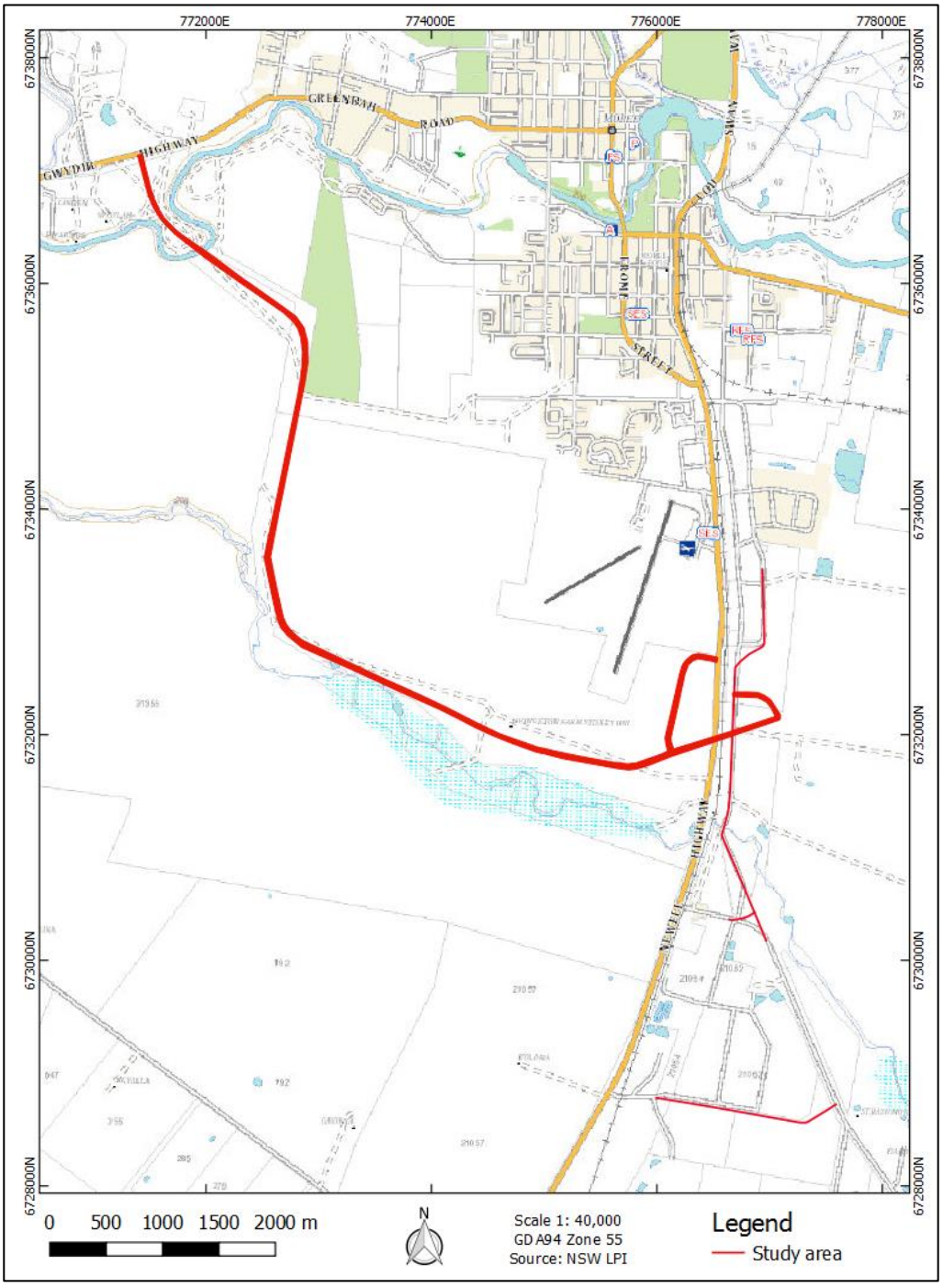
1 INTRODUCTION

1.1 BRIEF DESCRIPTION OF THE PROPOSAL

OzArk Environmental & Heritage Management (OzArk) has been engaged by Moree Plains Shire Council (the proponent) to complete a due diligence archaeological assessment for the proposed East–West Bypass Moree. This report examines proposed works associated with the East–West Bypass and realignment of the Gwydir Highway and upgrading parts of the North-South Link Road east of the Newell Highway (the proposal). The proposal is situated within the Moree Plains Local Government Area (LGA) (**Figure 1-1**).

Figure 1-1: Location of the proposal.



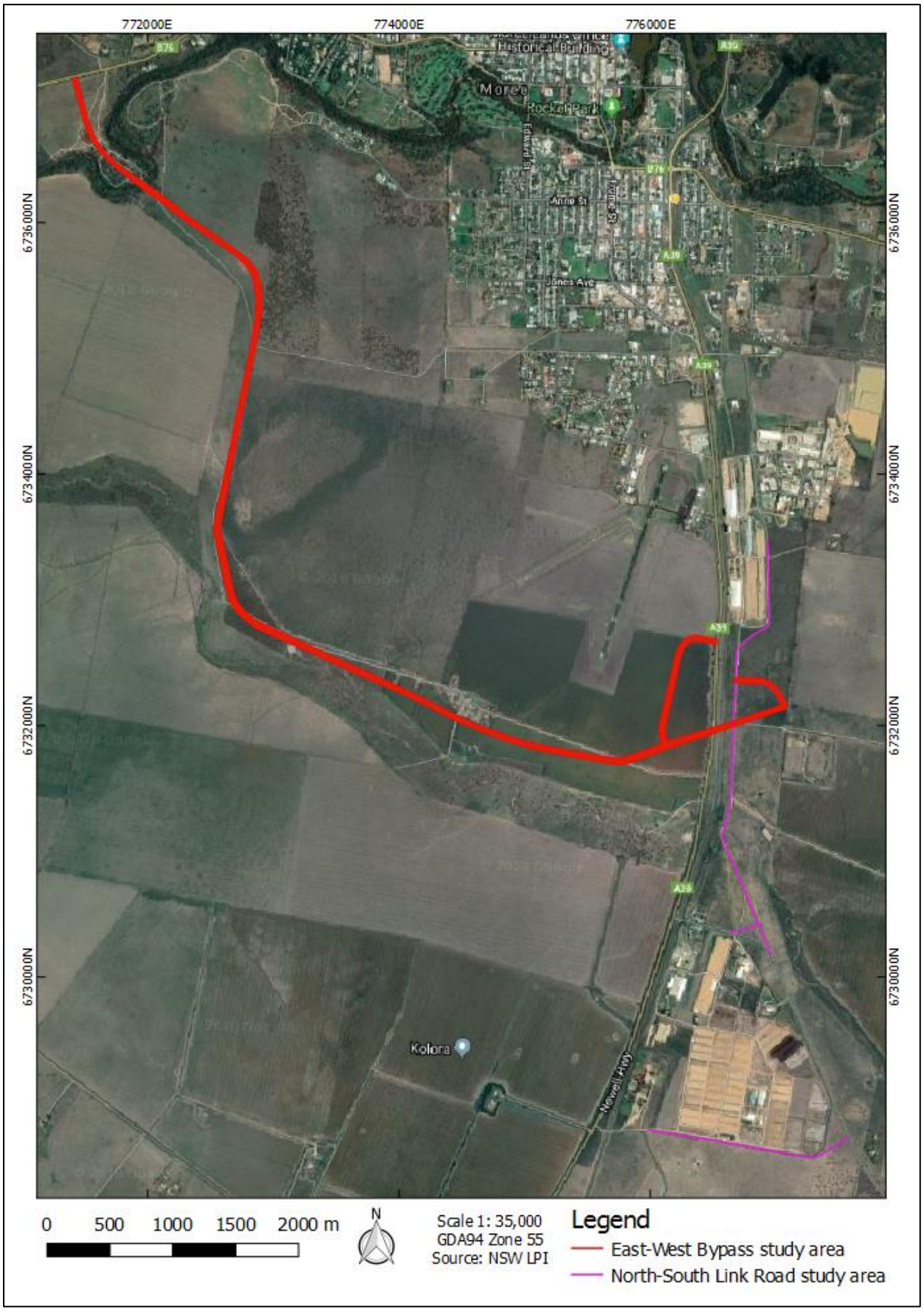
1.2 STUDY AREA

The study area covers the proposed east–west realignment of the Gwydir Highway through private land and crown reserves so as to bypass Moree. The proposed route crosses the Mehi River and runs adjacent to Halls Creek. The study area also covers part of the North-South Link Road east of the Newell Highway. **Figure** 1-2 illustrates the boundary of the study area and differentiates between the East–West Bypass and the North-South Link Road. The East–West Bypass covers a length of approximately 11 kilometres (km), while the North-South Link Road is approximately 5 km. As such, the assessed study area totals a distance of approximately 16 km with a width of approximately 40–50 metres (m).

1.3 ASSESSMENT APPROACH

The desktop and visual inspection component for the study area follows the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (Due Diligence; DECCW 2010). The field inspection followed the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in New South Wales* (OEH 2011).

Figure 1-2: Aerial showing the study area.



2 DUE DILIGENCE ASSESSMENT

2.1 INTRODUCTION

The National Parks and Wildlife Regulation 2009 (NPW Regulation) made under the *National Parks and Wildlife Act 1974* (NPW Act) advocates a due diligence process to determining likely impacts on Aboriginal objects. Carrying out due diligence provides a defence to the offence of harming Aboriginal objects and is an important step in satisfying Aboriginal heritage obligations in NSW.

2.2 DEFENCES UNDER THE NPW REGULATION 2009

2.2.1 Low impact activities

The first step before application of the due diligence process itself is to determine whether the proposed activity is a "low impact activity" for which there is a defence in the NPW Regulation. The exemptions are listed in Section 80B (1) of the NPW Regulation (DECCW 2010: 6).

The activities of Moree Plains Shire Council is not considered a 'low-impact activity' and so the due diligence process must be applied.

2.2.2 Disturbed lands

Relevant to this process is the assessed levels of previous land-use disturbance.

The NPW Regulation Section 80B (4) (DECCW 2010: 18) define disturbed land as follows:

> *Land is disturbed if it has been the subject of a human activity 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 and 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 pipelines, stormwater drainage and other similar infrastructure) and construction of earthworks.*

As sections of the proposed work are located in previously cleared landforms which have been extensively grazed and cropped, it could be considered that the proposed work is occurring in 'disturbed land'. However, portions of the study area are in landforms where the land's surface has not been changed in a clear and observable manner and the due diligence process must be applied.

2.3 APPLICATION OF THE DUE DILIGENCE CODE OF PRACTICE TO THE PROPOSAL

To follow the generic due diligence process, a series of steps in a question/answer flowchart format (DECCW 2010: 10) are applied to the proposed impacts and the study area, and the responses documented.

2.3.1 Step 1

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

Yes. The activity will disturb the ground surface and, if present, any culturally modified trees.

The proposed works include:

- The creation of a road built to highway standard to allow for future use as a heavy vehicle road (the East–West Bypass section of study area).
- Upgrading the North–South Link Road to a highway standard for use as a heavy vehicle road.
- Clearing of some native vegetation and possible impact on a riparian zone.

The proposed works will impact the ground surface through the East–West Bypass section of the study area and likely along the North–South Link Road as well.

2.3.2 Step 2a

Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?

Yes. AHIMS information indicates that there is one Aboriginal site and the potential for more within the study area.

A search of the Office of the Environment and Heritage (OEH) administered Aboriginal Heritage Information Management System (AHIMS) database completed on 6 December 2018 returned 36 records for Aboriginal heritage sites within a 20 by 20 km search area that includes the study area (GDA Zone 55, Eastings: 766104–786104, Northings: 6724243–6744243 with no buffer). The results are summarised in **Table 2-1** and site locations and types are plotted in **Figure 2-1** in relation to the study area. There is one AHIMS site, a scarred tree, within the East-West Bypass study area: BBS Moree LALC Mehi River TSR 2 (#10-3-0063).

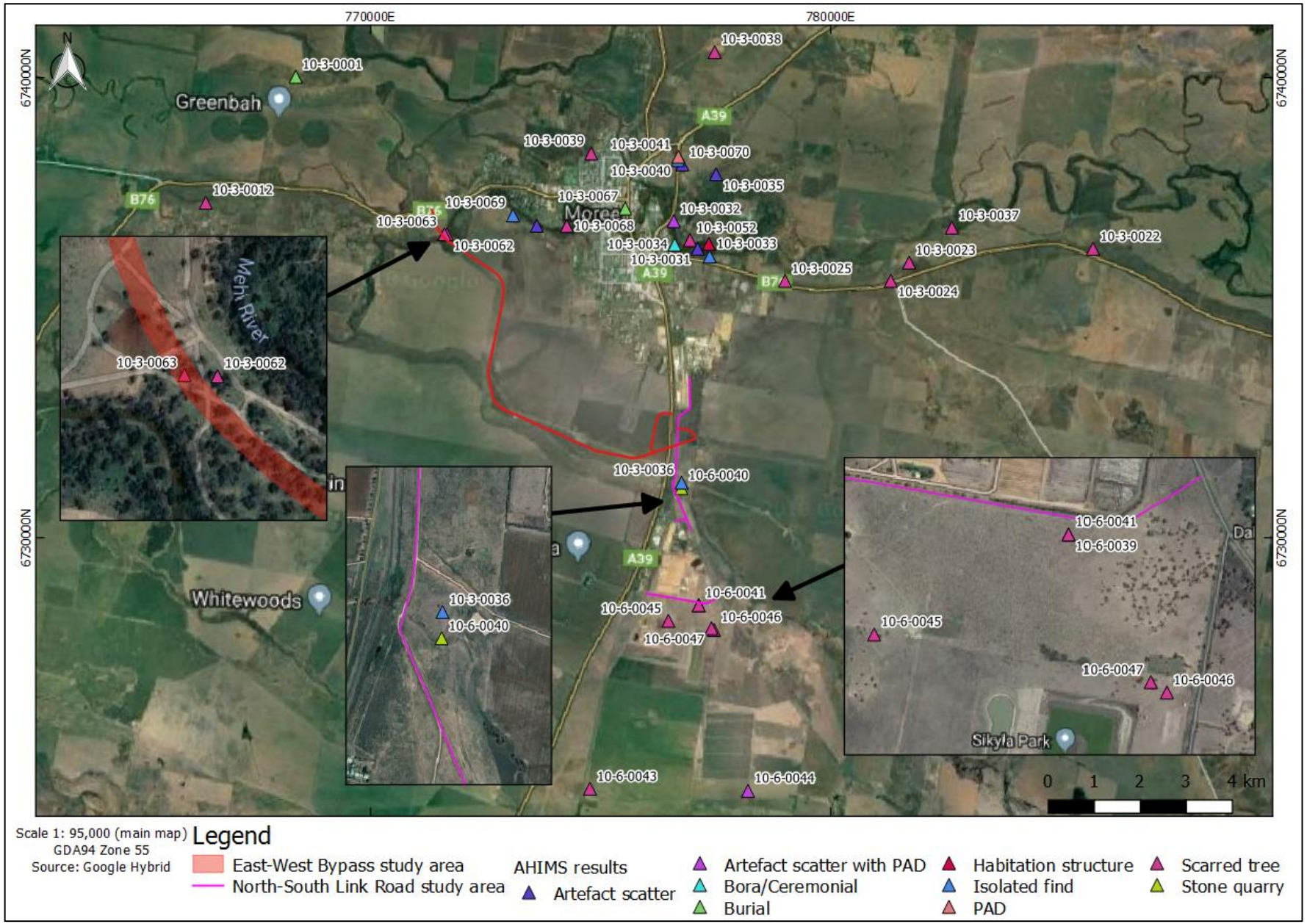
The most frequent type of recorded site is scarred trees (56%) followed by artefact scatters and isolated finds (11% each). Most the sites recorded within the search area are located in proximity to the Gwydir or Mehi Rivers or Halls Creek.

Table 2-1: AHIMS site types and frequencies.

Site Type	Number	% Frequency
Scarred trees	20	56
Artefact scatter	4	11
Isolated find	4	11
Artefact scatter with PAD	2	6
Burial	2	6
PAD	1	2.5
Ceremonial ring (stone or earth)	1	2.5
Stone Quarry	1	2.5
Habitation structure	1	2.5
Total	**36**	**100%**

Based on the results of the AHIMS search, scarred trees are likely to be located where native vegetation remains in the study area in proximity to either Mehi River or Halls Creek. It is also possible that isolated artefacts will be identified in the study area.

Figure 2-1: The study area in relation to previously recorded sites.



2.3.3 Step 2b

Are there any other sources of information of which a person is already aware?

Yes. Archaeological investigations in the region show that there is a further possibility of Aboriginal objects to be located within the study area.

2.3.3.1 Ethno-historic sources of regional Aboriginal culture

According to Tindale's (1974; **Figure 2-2**) and Horton's (1994) maps of 'tribal' boundaries, the study area is located within the boundaries of Kamilaroi (also Gamilaraay) ethno-linguistic group (see also Austin et al.1980; **Figure 2-3**). It is acknowledged that use of the term 'tribe' and the delineation of 'tribal boundaries' on maps is problematic, although distinctive ethno-linguistic groups are known to exist.

Figure 2-2: A portion of Tindale's (1974) map showing the location of ethno-linguistic groups in relation to the study area.

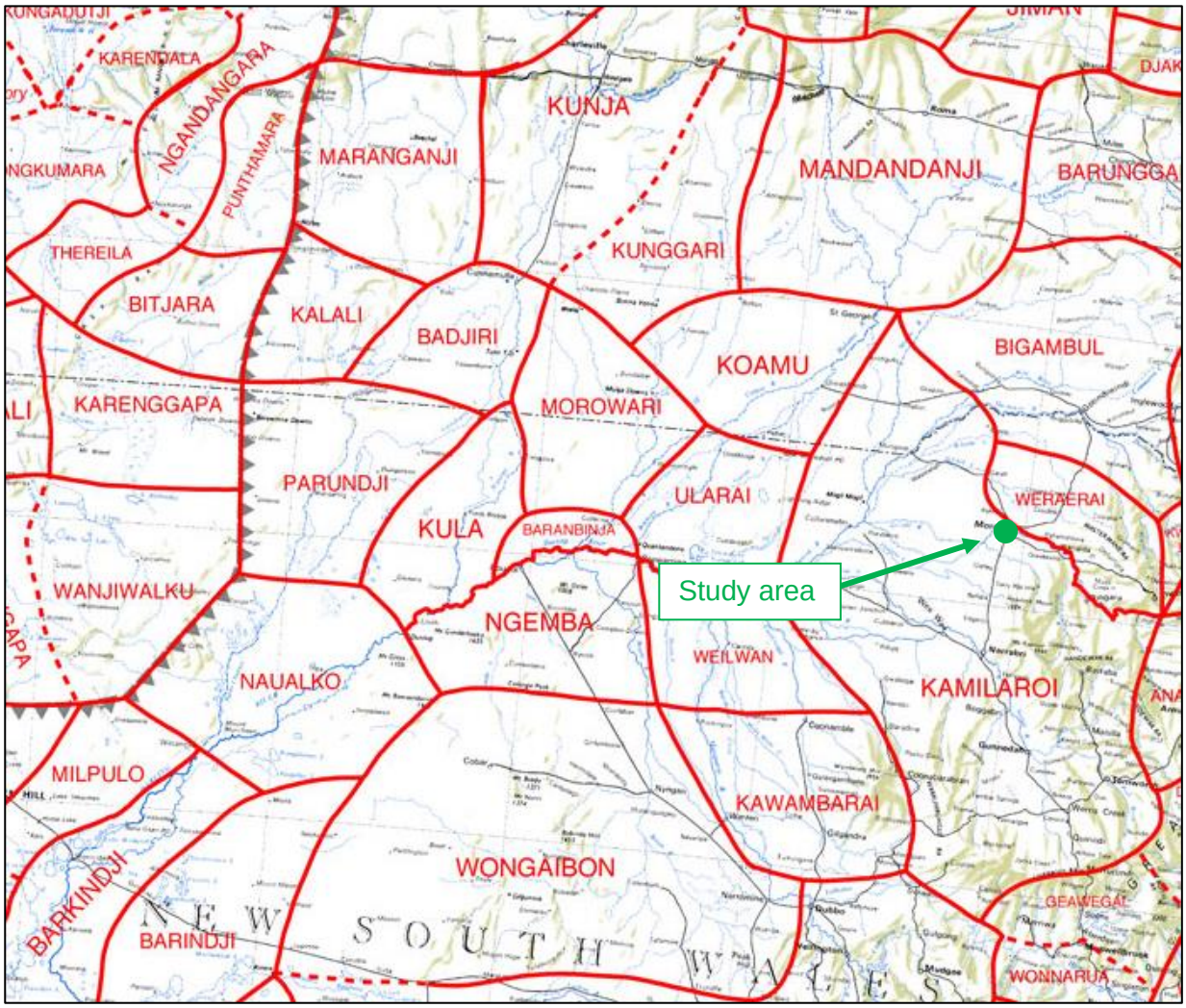
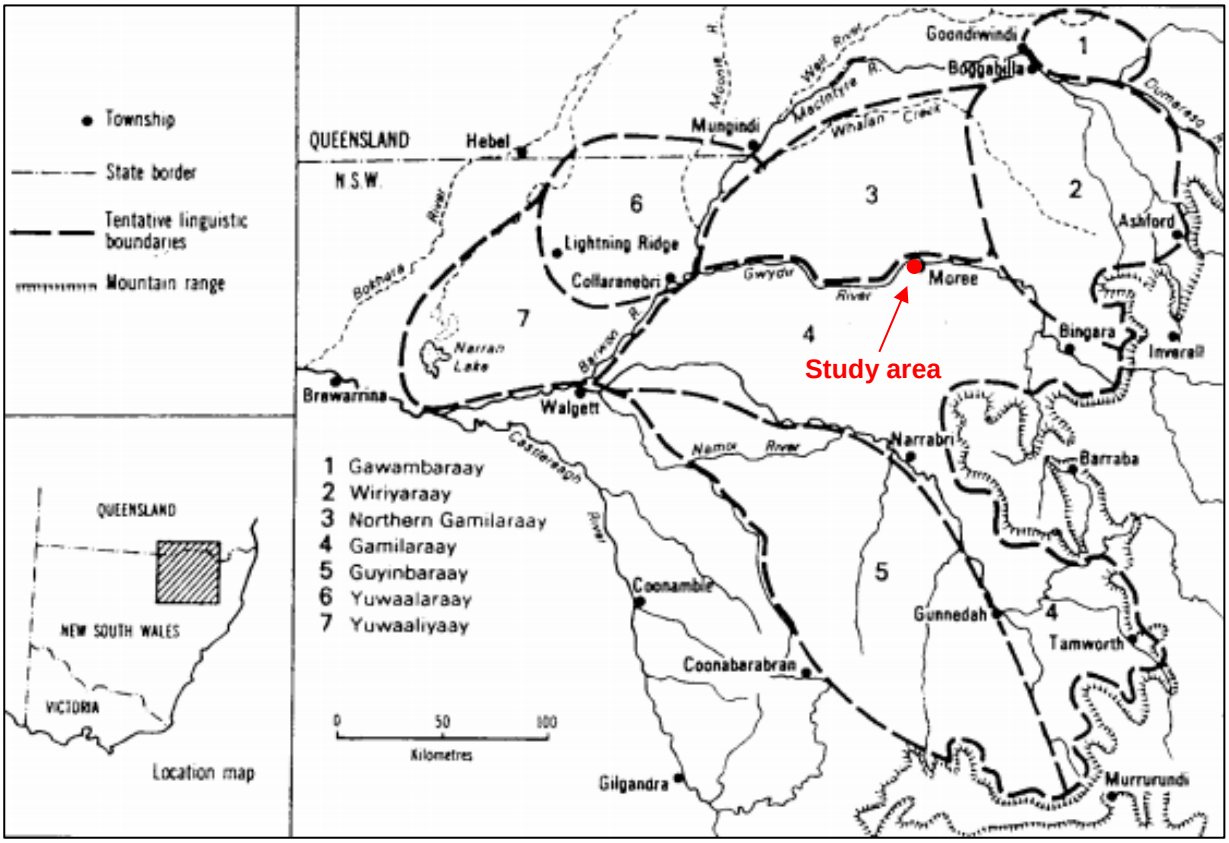


Figure 2-3: Map produced by Austin et al. (1980) showing tentative linguistic boundaries in north central NSW in relation to the study area.



The surveyor-general Sir Thomas Livingstone Mitchell (1839) described two Aboriginal villages on the Moree plains. The first was located on the Gwydir River:

> *Each hut was semi-circular, or circular; the roof conical, and from one side a flat roof stood forward like a portico, supported by two sticks. Most of them were close to the trunk of a tree, and they were covered, not as in other parts, by sheets of bark, but with a variety of materials, such as reeds, grass, and boughs. (Mitchell 1839: 77)*

The second village was located on a lagoon between Collarenbri and Bellata and comprised seven huts of substantial construction, neatly thatched with dry grass and reeds (Mitchell 1839: 121). By the late 1830s, many prime grazing sites along the Namoi River and Gwydir River had been taken up by colonial settlers, including James Cox at Moree, Thomas Simpson Hall at Wee Bella Bolla and John Fleming at Mundi Bundie (Elder 2003: 75).

Balme (1986) compiled a list of objects that likely comprised the toolkit used by Aboriginal people in the region from reports by Mitchell (1839), Oxley (1820) and Sturt (1834). Based on this list, the toolkit used by Kamilaroi people is likely to have included: bark containers for holding water and gathering food; throwing sticks for hunting; cloaks of kangaroo skin; wooden clubs for fighting; hafted stone axes; nets for catching fish and birds; spears and spear throwers; and fish traps constructed in major creeks and rivers.

The explorer and natural scientist Alfred William Howitt was an early pioneer authority on Aboriginal cultures. In *Native Tribes of South-East Australia,* Howitt (1996 [1904]) discusses Kamilaroi social and political organisation, kinship, ritual practices, long distance trade and communication (see also Fison and Howitt 1880). Presbyterian minister Reverend William Ridley (1875) and surveyor and amateur anthropologist Robert Hamilton Mathews (1903) provided early linguistic descriptions of the Kamilaroi language. More recently, Austin and Tindale (1985) provided a translation of the Kamilaroi Dreaming story of the Emu and the Brolga, as recorded by Tindale in 1938; and Austin (1993) produced a Kamilaroi reference dictionary.

2.3.3.2 Regional archaeological context

A preliminary archaeological assessment of the Moree Plains Shire Council Region (Balme 1985)

The most area specific study in terms of the current project was the 1985 work by Balme which focused on site types and distribution within the Moree plains. Initially Balme mapped the previously known (prior to 1984) sites within the region of which approximately 60 were presented, being primarily scarred trees (n=17 – representing 45+ trees) and carved trees (n=15 – representing 64–200 trees), followed by Bora/ceremonial grounds (n=11), open camp sites/artefact scatters (n=7), burials (n=9), contact sites (n=4), grinding grooves (n=4), rock engravings (n=2), shelters with art (n=2) and natural mythological sites (n=1) (Balme 1985). Her major aim was to assess the representativeness of these previously recorded sites, including their relative proportions, to the archaeological resource in Moree plains as a whole, and to look at other factors that may affect site distribution. Her study involved a considerable survey component, which targeted all the four major landforms mapped within the region, including major river channels; minor channels; floodplains not regularly inundated and floodplains used for agricultural practices. Seven sites were recorded along the major river channels including two artefact scatters and 110 scarred trees at five locations. The minor channel landforms included one artefact scatter and 31 scarred trees at seven locations. Floodplains not regularly inundated recorded only two artefact scatters while floodplains used for agricultural practices encompassed two artefact scatters and one scarred tree.

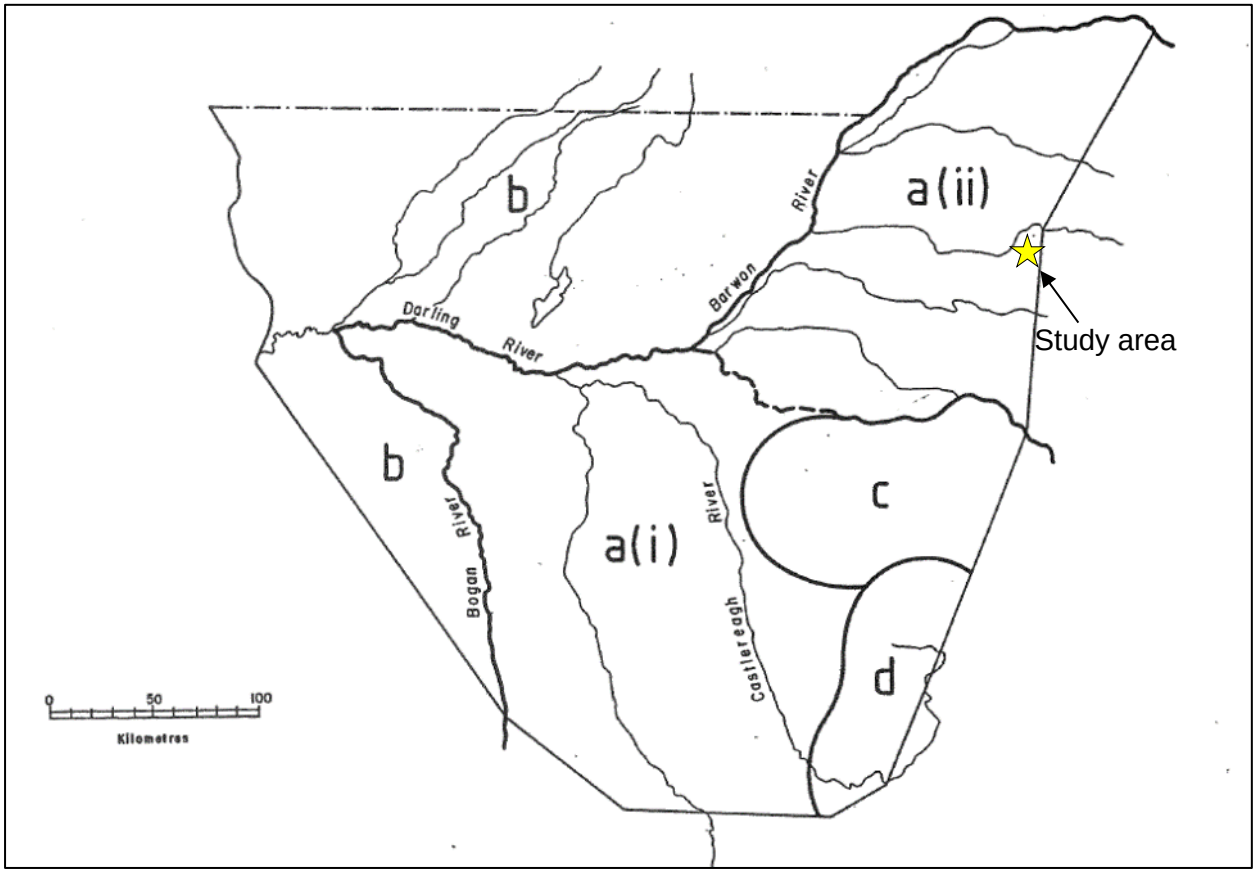
North central rivers archaeological project (Balme 1986)

The North-Central Rivers study undertaken by Balme (1986) contributed to knowledge of the archaeology of the region by looking at site location with reference to preservation, both in the face of natural and incursive processes. Balme concluded that apart from the effect of historic impacts on sites, the greatest influence on the distribution of sites is that of geomorphic processes affecting site preservation and subsequent processes leading to site exposure (Balme 1986: 182).

As a result of her study, Balme divided the region into four major zones based on similarities in material culture and site distribution patterns, both features of which she attributed to preservation conditions within the landscape and to the relative abundance of raw materials for stone tool

manufacture. The current study area falls into Balme's Area A (ii) (**Figure 2-4**), which she describes as the "major areas of floodplain including the alluvial plains in the south-central part of the region and the alluvial fan deposits in the north east of the region" (Balme 1986: 122). From her analysis of previously recorded sites, supplemented by a limited survey program, Balme found that artefact scatters in Area A (ii) along the floodplains and alluvial plains would be obscured by more recent deposition of alluvial sediments. Where this site type was present, Balme concluded that they would be low density artefact scatters with the artefacts themselves being larger than those found in Area 1 (i). In terms of raw materials, silcrete and quartzite were noted as the most dominant materials. Balme further noted that scarred trees were generally confined to the river edges, however, as some scarred trees were recorded distant to water, Balme concluded that this left the possible uses of removed back open to wider interpretation than only those activities associated with water (Balme 1986: 132).

Figure 2-4: Regional divisions of the North Central Rivers area showing the current study area (source: Balme 1986: 123).



Aboriginal Cultural Heritage Assessment, Brigalow Belt South, Stage 1 and Stage 2 (Purcell 2000 and 2002)

Purcell (2000) completed a two stage Aboriginal Cultural Heritage assessment of the Pilliga State Forest and the Goonoo State Forest of the Brigalow Belt South (BBS) bioregion. The aim of the assessments was to increase understanding of the cultural links between Aboriginal people and the BBS bioregion and to sample 12 landform types expected to be associated with Aboriginal cultural heritage. Those landforms within the Pilliga and Goonoo State Forests included floodplains, soil mantled slopes, terraces, rocky ground and alluvium. During the Stage 1 assessment, Purcell recorded 47 and 106 Aboriginal sites respectively through Aboriginal consultation, oral history, archival investigations and a cultural heritage field survey. Purcell found that sites were more frequently located within alluvium landforms, demonstrating that 91.5% of sites were recorded within 200–300 m of water (2000: 31). During Stage 1, the multi-level approach adopted was successful in highlighting the importance of the Goonoo State Forest for Aboriginal people during periods of economic and social oppression, and in gathering information of sites and landforms.

Stage 2 of Purcell's assessment (2002) continued with the multi-level approach focusing on the remainder of the BBS bioregion to identify Aboriginal interest in forest areas and the broader bioregion. The field survey for Stage 2 adopted a targeted approach, surveying landforms that were considered potentially sensitive based on the Stage 1 results which established that sites are strongly linked with water features associated with higher contoured terrain of the Goonoo and Pilliga State Forests. A total of 849 sites were recorded during the Stage 2 field survey with the variety of site types identified highlighting the diversity of Aboriginal culture within the bioregion. Collectively, the sites reflect a diverse range of Aboriginal land-use among different landforms. Site types included artefact scatters, scarred trees, isolated finds, rock engravings, shelter sites with art and deposits, ochre quarries, stone arrangements and stone quarries. Overall, results of the Stage 2 assessment shared close similarities with Stage 1 displaying that the distribution of recorded Aboriginal sites is influenced by the variety of widespread water features that occur on floodplain and alluvium landforms, including river frontage locations, creek tributaries, swamps and chains of ponds. Purcell (2002) found that sites located in the Moree area were often on floodplain and alluvial landforms within a few hundred metres of water. In the Northern Outwash subregion, sites were found up to 750 m from water sources, with an average distance of 101 m.

Regional Variation of the Archaeology in Western New South Wales (Witter 2004)

High levels of land use disturbance in the Moree region have also been implicated for the apparent paucity of Aboriginal sites in the region. Witter (2004: 139) describes the Barwon Basin Region, which includes the Moree plains, as one of the major regions of archaeological disaster in NSW. Extensive areas of black alluvial cracking clays occur throughout the region. The self-

mulching action of these soils is likely to have disrupted evidence of Aboriginal camps sites and vast areas have been laser levelled for irrigation, obliterating the remaining archaeology.

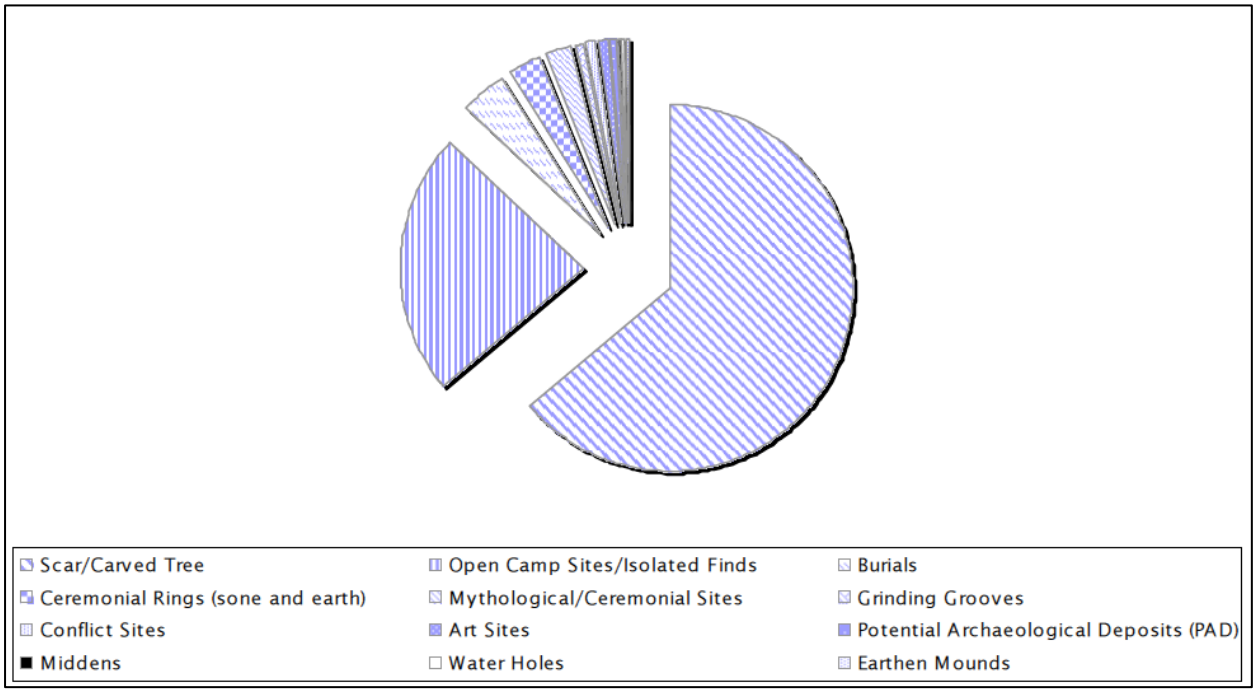
Aboriginal Heritage Study: Moree Plains Shire Council Local Environmental Plan (Heritage Concepts Pty Ltd 2009)

Heritage Concepts (2009: 61–68) undertook a comprehensive review of Aboriginal cultural heritage sites within the Moree Plains Shire LGA. They found that Aboriginal culturally modified trees are the most common site type in the region (**Figure 2-5**). Scarred trees used to make canoes tend to be located close to major watercourses, whereas those used to extract building materials and to make containers tend to be distributed across the landscape. Carved trees can also be located anywhere in the landscape, and can be associated with ceremonial sites. Artefact scatters and isolated finds are the second most common site type in the region, with silcrete, quartzite and quartz the most commonly used raw materials. Artefact scatters tend to be located on eroded parts of the floodplain in areas not frequently inundated. As such, both proximity to water and dry surface conditions appear to have been important factors determining the location of occupational sites.

Several burial sites have been recorded in the region, including both contact and pre-contact period sites. Burials tend to be located along the banks and adjacent source bordering dune formations of rivers and their tributaries. Carved trees were commonly used to mark graves. Grinding grooves are rare in the region due to a general lack of outcropping stone, but do occur where suitable outcropping stone exists. Nine ceremonial sites or bora rings were recorded in the region; but none are extant today having been destroyed by erosion, aggradation and agricultural disturbance. Several Dreaming sites have been identified in the region, relating to both the contact and pre-contact period. Contact period sites include fringe camps, commonly located along the edges of colonial settlements, and often identified by the presence of flaked glass; as well as massacre sites, burial sites, and mission sites.

Heritage Concepts (2009: 70) note that river channels in the Northern Outwash subregion often display evidence of stream channel migration and shifting with numerous palaeochannels present. As such, today's permanent water sources were likely in different locations during the Pleistocene. Predictive models must therefore take account of both modern and ancient water sources. Purcell (2002) surveyed palaeochannels in the Northern Outwash subregion, but did not locate any sites within these landforms. Balme (1986) notes that palaeochannel landforms have been subjected to extensive sand mining in the region, perhaps destroying Pleistocene aged sites within these landforms (Heritage Concepts 2009: 70).

Figure 2-5: Percentage of site types registered with AHIMS for the Moree Plains Shire LGA (Source: Heritage Concepts 2009: 62)



2.3.3.3 Local archaeological context

Aboriginal heritage assessment: Proposed solar power station at Moree (OzArk 2010)

In 2010, OzArk completed an archaeological survey over 1200 ha of land 8 km south of the Moree airport and the main project site is 2 km south from the study area. A total of three Aboriginal archaeological sites were recorded during the field assessment. Of these, two were scarred trees and one was an artefact scatter with potential archaeological deposit (PAD). BPS-ST1 was recorded as a scarred Bimble box tree situated on black soils in the vicinity of Halls Creek. BPS-ST2 is a scarred Carbeen tree situated within a cultivated paddock. BPS-OS1 is situated around the perimeter of an extinct ephemeral billabong associated with Halls Creek. It was thought that this feature would fill when Halls Creek flooded and then retain water for potentially a considerable period, hence making it a resource rich area attractive for human occupation. With raw materials consisting of silcrete, quartzite, chalcedony, mudstones, quartz, chert, agate and possibly petrified wood, the site is noted as displaying raw material diversity and incorporates artefact types including cores, core fragments, flakes, grinding stones, a pounder and a possible scraper. In addition to stone artefacts, one piece of possibly knapped glass was also recorded at the site. That the artefact assemblage includes a glass piece with possible knapping features, suggests that the most recent traditional use of the site may post-date European settlement.

OzArk (2010) highlighted the overall rarity of a site like BPS-OS1 with PAD in the Moree region. A site of this complexity is relatively unique within the known sites of the local vicinity and the fact that aerial photography can so clearly demonstrate this extinct billabong feature, despite the

ploughing that has occurred, is also relatively rare. It may be that ploughing in this particular paddock has not occurred for as long or with the same frequency as over other surrounding paddocks, hence allowing the feature to remain clear on the aerial photograph It is also noteworthy that this feature is difficult to pick out whilst actually surveying within it, as the land simply appears as flat ploughed land and the basin is very subtle as a consequence of the ploughing. The shore component on the eastern side of the billabong, is, however, quite visible and appears at a soil structure level quite different, exhibiting a sandy, slightly raised surface, with artefacts visible in high density.

Indigenous heritage survey: Weetah pavement rehabilitation project, Gwydir Highway, east of Moree, NSW (OzArk 2003)

OzArk (2003) completed an archaeological assessment along 16km of the Gwydir Highway, approximately 20km east of Moree. OzArk (2003) predicted that culturally modified trees (scarred or carved) were the most likely site to be recorded, frequently close to the Gwydir River and named creek lines but also further afield. Artefact scatters were also predicted to be recorded close to permanent and semi-permanent water sources particularly where red, sandy soils are present. Eleven Aboriginal sites were identified during the survey including 10 scarred trees and one artefact scatter (previously recorded by ANUtech in 1988). Scarred trees were predominately found in association with drainage lines and the artefact scatter was recorded in an area of red, sandy soil on the edge of a billabong.

Proposed water storage ponds at Evergreen precinct, Moree Plains LGA (OzArk 2012)

In 2012, OzArk conducted an Aboriginal Heritage Assessment for proposed water storage ponds at the Evergreen Precinct, south of Moree. The area assessed is approximately 500 m south of the North–South Link Road section of the study area. During the assessment, three Aboriginal sites, all scarred trees, were recorded: MEP-ST1 (#10-6-0045), MEP-ST2 (#10-6-0046) and MEP-ST3 (#10-6-0047). The scarred trees were all recorded approximately 400 m from Halls Creek, and OzArk concludes that it is likely further scarred trees existed in the past, but these may have been cleared for grazing or agricultural activities.

The proposed Moree Waste Management Facility, NSW (OzArk 2005)

An Indigenous heritage assessment was conducted by OzArk (2005) concerning the proposed Moree waste management facility. The area assessed is directly adjacent to the southernmost North–South Link Road section of the study area. During the assessment one Aboriginal site was recorded: WMF-ST1 (#10-6-0039), a scarred tree.

Moree rezoning study (OzArk 2008)

Also relevant is the Moree Rezoning study undertaken by OzArk in 2008. This project conducted archaeological assessments over 22 parcels of land for the purposes of proposed rezoning. The

survey divided the subject land into nine Project Sites, and approximately 278.5 ha of land were assessed, all within 10 km of the city of Moree, NSW. The project identified five Aboriginal sites and areas of archaeological sensitivity along rivers and creek lines.

2.3.3.4 Desktop database searches conducted

A desktop search was conducted on the following databases to identify any potential previously-recorded heritage within the study area. The results of this search are summarised in **Table 2-1** and presented in detail in **Appendix 1**.

Table 2-2: Aboriginal heritage: desktop-database search results.

Name of database searched	Date of search	Type of search	Comment
Commonwealth Heritage Listings	6/12/2018	Moree Plains LGA	No places listed on either the National or Commonwealth heritage lists are located within the study area.
National Native Title Claims Search	6/12/2018	NSW	Native Title Claims of the Gomeroi People covers the study area.
State Heritage Register (SHR) and State Heritage Inventory (SHI)	17/1/2019	Moree Plains LGA	No places listed on the SHR or SHI within 1 km of the study area.
Local Environment Plan (LEP)	17/1/2019	Moree Plains LEP of 2011 Schedule 5	No places listed on the LEP are location within 1 km of the study area.

As per **Table 2-1**, it is noted that the study area includes land currently subject to Native Title Claim (NC2011/006, NSD2308/2011 of the Gomeroi People).

2.3.3.5 Aboriginal community involvement

There are no known cultural values or Aboriginal sites pertaining directly to the location of the proposed work. Mehi French, a representative from the Native Title Claim of the Gomeroi People accompanied the visual inspection of the study area.

2.3.4 Step 2c

Are there any landscape features that are likely to indicate presence of Aboriginal objects?

Yes. There are landscape features within the study area which are sensitive to Aboriginal heritage.

In terms of hydrology, Moree Plains Shire lies within the catchments of the Macintyre and Gwydir Rivers. The Mehi River runs through Moree, as well as its anabranches, which run generally east–west. The many creeks and drainage features in the Moree LGA flow into the Gwydir or Mehi Rivers. Creeks and drainage lines are generally shallow and surrounded by many low-lying swampy depressions that would have provided resources for humans, flora and fauna. **Figure 2-6** illustrates hydrology closest to the study area.

The geology of the region is dominated by large areas of unconsolidated alluvial deposits of up to 100 m in thickness, overlaying mosaic sedimentary rocks and forming part of the Great Artesian Basin. The extensive Quaternary alluvial deposits have formed vast plains, with slopes generally less than one degree. These are often referred to as the 'Black Plains'.

The study area is mostly within the Gwydir Alluvial Plains landform as characterised by Mitchell (2002), though a short section is located in the Gwydir Channels and Floodplains landform (**Figure 2-7**). The Gwydir Alluvial Plains are characterised by Holocene fluvial sediment with grey and brown silty clay deposited from floodwater and often with gilgai. The Gwydir Channels and Floodplains also have Holocene fluvial sediments, and streamflow within this landform is nearly permanent. Banks and plains within the landform have brown to grey silt and cracking grey or brown clay.

Soils in the Moree plains are generally limited to grey, self-mulching clays that dominate the general area, including the majority of the study area. Black earths are common in the eastern zone of the Brigalow Belt South Bioregion (BBSB) intermixed with Euchrozems, Red-Brown Earths, Brown Solodic and a range of shallow soils, mainly on upland areas. The lower areas, where the Grey Clays support open woodlands, have been used in the past for grazing and more recently for dry land and irrigated cropping. Higher areas of the plains (the red ridges) are aeolian dunes, or prior stream deposits that comprise coarse red sediment laid down as levees during periods of high flow. These areas are dominated by texture contrast soils and may support woodland and open forest vegetation communities (Pitman 2002).

Figure 2-6: Hydrology in relation to the study area.

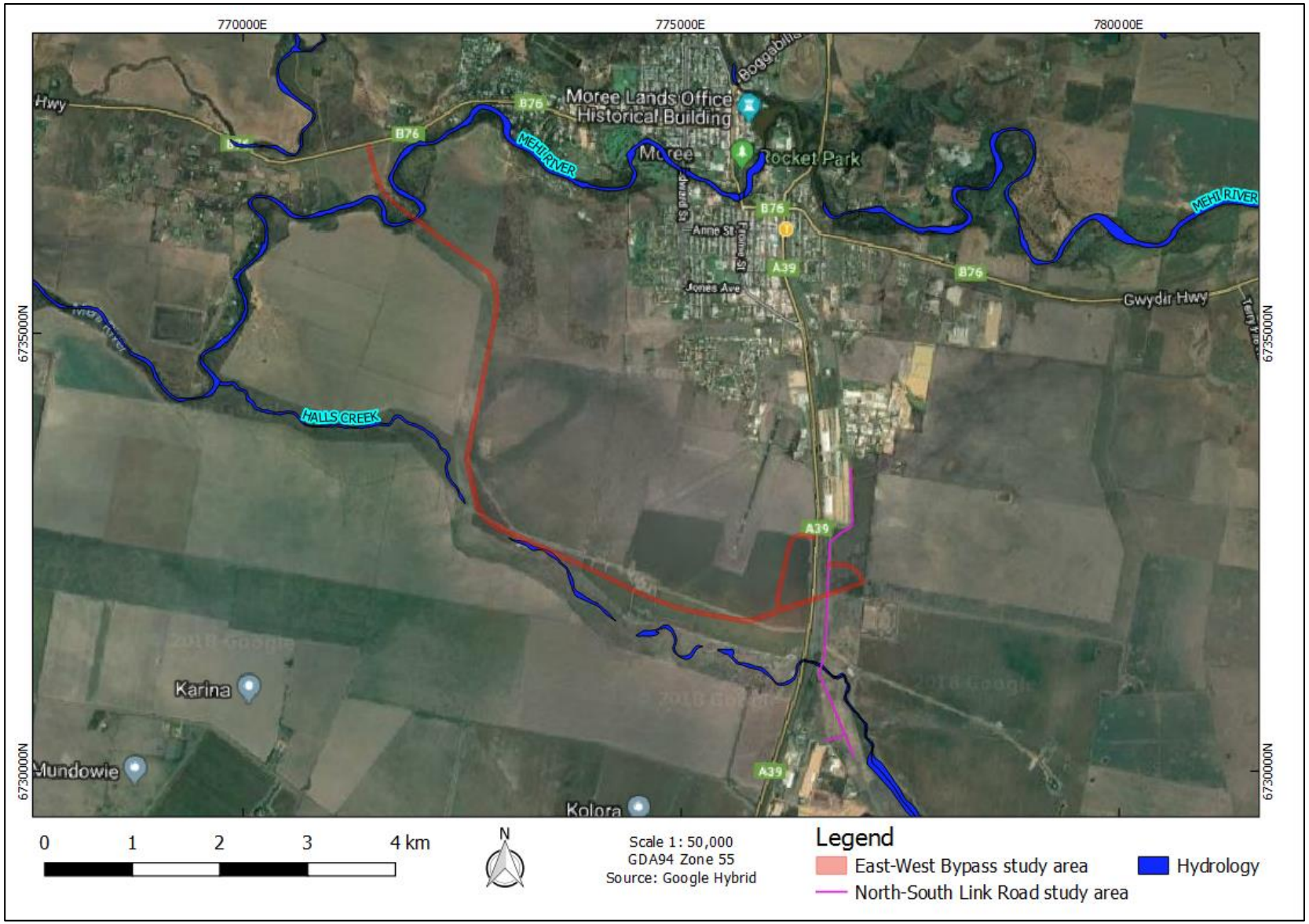
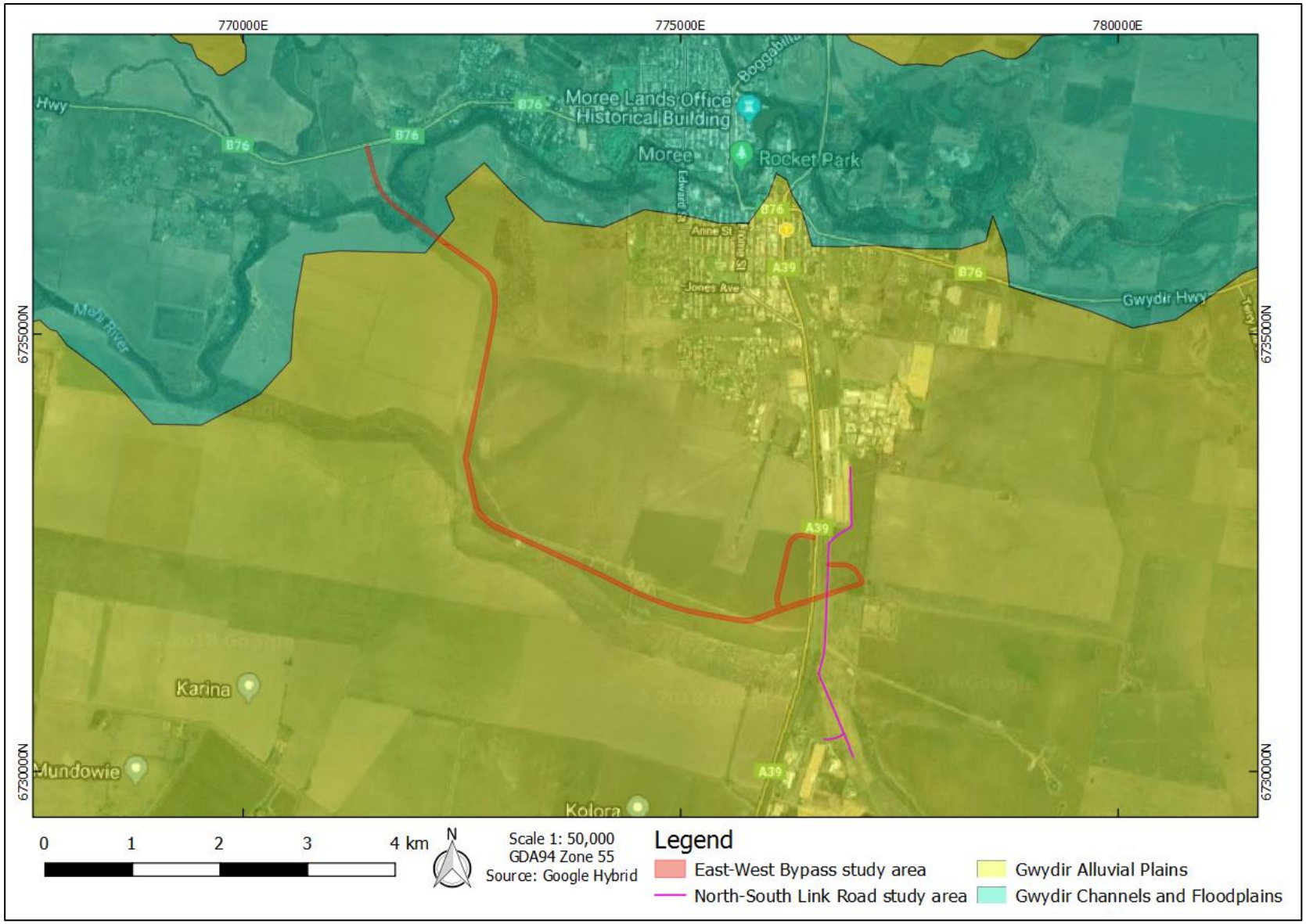


Figure 2-7: Study area in relation to Mitchell's landforms (2002).



A predictive model concerning Aboriginal sites is able to be constructed following a review of the AHIMS sites in the locality, the results of previous assessments and the landforms present in the study area. The proximity to permanent water is a primary factor which appears to determine the location of Aboriginal campsites over much of NSW. In the Moree area, the self-mulching soils are also a relevant determinant in site location. The most likely sites to be encountered in the study area are:

- Scarred trees. Frequently located close to creek and river but can also be located further away. There are areas of remnant vegetation in the study area, particularly around the Mehi River, indicating that it is possible for scarred trees to be present.
- Artefact scatters. Frequently located close to rivers or creeks. It is possible open camp sites and artefact scatters will be present in the study area considering the proximity of the Mehi River and Halls Creek. However, the self-mulching clays and possible geomorphic and hydrological past events reduces the likelihood of this site type.
- Isolated finds. Individual artefacts may occur anywhere, especially in disturbed locations or possibly in secondary deposits having been moved from *in situ* positions elsewhere. It is possible isolated finds will be located in the study area.
- Burials. Whilst rare, potential for burials exists in sandy areas not too distant from water, although, from the desktop assessment, no such landforms are present in the study area, making it an unlikely site type to encounter.
- Quarries and grinding grooves. Both site types are dependent on suitable outcrops of rock being present in the study area. From the desktop assessment, no such outcrops exist in the study area, making it an unlikely site type to encounter.

2.3.5 Step 3

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

No. The study area contains landforms with recognised archaeological sensitivity and a review of the regional archaeological context, as well as AHIMS data, indicates that Aboriginal objects could and are present within the study area.

The study area contains landforms within 200 m of water sources and such landforms are listed in the due diligence guidelines as being archaeologically sensitive.

One previously recorded AHIMS site (#10-3-0063), a scarred tree, is located inside the study area. A second previously recorded AHIMS site (#10-3-0062), consisting of one scarred tree, is located along the north-western section of the study area near Mehi Creek and is close to the north-eastern boundary of the study area.

2.3.6 Step 4

Does a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely?

Yes. One AHIMS site within the study area and one AHIMS site closely adjacent to the study area were located, and one isolated artefact on the outer edge of the study area was recorded during the visual inspection.

The visual inspection of the study area was undertaken by OzArk archaeologist, Philippa Sokol, on Tuesday 18 December 2018 and Wednesday 19 December 2018. Mehi French, a representative of the Native Title Claim of the Gomeroi Peoples, was present during the visual inspection. **Figure 2-8** illustrates the pedestrian coverage recorded during the field inspection.

The inspection covered 20 m either side of the proposed East–West Bypass alignment. Any mature trees within the study area were also specifically checked, however, except for the AHIMS sites already recorded, none were noted to have been culturally modified.

The East–West Bypass section of the study area is predominantly ploughed paddocks, or dirt access tracks (**Plate 1** and **Plate 2**). There is minimal vegetation remaining in this section of the study area, except around Mehi River (**Plate 3** and **Plate 4**). The southernmost section of the North-South Link Road section of the study area was a dirt access track (**Plate 5**) and the majority of the northernmost section of the north-south link road section was also a dirt access track (**Plate 6**).

2.3.6.1 Discussion

The Aboriginal site recorded during the field inspection (Halls Creek IF-1 [#10-3-0073]) match the site types outlined in the predictive model (**Section 2.3.4**) and the regional studies (**Section 2.3.3**). Halls Creek IF-1 (#10-3-0073) was located at the edge of a ploughed and cropped field along an access track. Due to the various types of disturbances at the site, including agricultural cropping and vehicular movements, as well as the nature of the soil at the site, it is unlikely the site has intact subsurface deposits.

A ‘yes’ answer to Step 4 requires that ‘further investigation and impact assessment’ of the study area be undertaken if impact to this site cannot be avoided. If the site cannot be avoided, an *Aboriginal Cultural Heritage Assessment Report* (ACHAR) must be prepared and the OEH *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (ACHCRs) must be initiated as a prerequisite for an application for an Aboriginal Heritage Impact Permit (AHIP). The NPW Act is complemented by the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* that set out the requirements for archaeological investigation in NSW where an application for an AHIP is likely to be made.

Section 3 contains further information on the recorded site and potential impacts from the proposal.

Figure 2-8: Survey coverage within the study area.

3 SITES RECORDED

One new Aboriginal site was identified (Halls Creek IF-1 [#10-3-0073]) and two AHIMS sites were located during the visual inspection (#10-3-0062 and #10-3-0063). **Table 3-1** and **Figure 3-1** provide the details regarding the three sites recorded or located.

Please note that the GPS coordinates provided by AHIMS for #10-3-0062 and #10-3-0063 plotted these sites in incorrect locations. New GPS coordinates for these sites were recorded by OzArk during the visual inspection and the relevant OEH site cards have been updated with this information.

Table 3-1: Aboriginal site features.

Site Name & number	Coordinates (GDA) (Centre point)	Site type	Feature count	Site Dimensions (m)
Halls Creek IF-1 (#10-3-0073)	E 772757 / N 6734481	Isolated find	1 artefact	2 m by 2 m
BBS Moree LALC Mehi River TSR 1 (#10-3-0062)	E 771648 / N 6736604	Scarred tree	1 scar	2 m by 2 m
BBS Moree LALC Mehi River TSR 2 (#10-3-0063)	E 771610 / N 6736621	Scarred tree	1 scar	2 m by 2 m

Figure 3-1: Location of Aboriginal sites in relation to study area.

Halls Creek IF-1 (#10-3-0073)

Site Type: Isolated find

Location of Site: The site is situated on a low lying landform and has an open aspect. The site is approximately 3 km southeast of the Gwydir Highway and 3.7 km west of the Newell Highway on private property. Halls Creek is 900 m southwest of the site (**Figure 3-1**).

Description of Site: The site consists of a multidirectional silcrete core fragment. The core has a maximum size of 58 millimetres (mm) and seven flake scars present. 35% of the core is cortex. The site is located on an eroded dirt track within a cropped field and has an extent of 2 m by 2 m (**Figure 3-2**). The ground surface exposure (GSE) was 95% and the ground surface visibility (GSV) 100% within the area. Cracking soils were present at the site location. No other stone fragments were observed, and the vegetation consisted of remnant crops. Due to the soil and previous land use for agriculture, there is low potential for *in situ* subsurface deposits at the site location.

Figure 3-2: Halls Creek IF-1 (#10-3-0073). View of site and recorded artefact.

1. View north of Halls Creek IF-1 site location.

2. Artefact from Halls Creek IF-1.

3.1 LOCATED SITES

BBS Moree LALC Mehi River TSR 1 (#10-3-0062)

Site Type: Scarred tree

Location of Site: The site is situated on a low lying landform overlooking the Mehi River which is 88 m northeast (**Figure 3-1**). The site is approximately 580 m southeast of the Gwydir Highway and within a Travelling Stock Reserve (TSR).

Description of Site: The site is a scarred tree first recorded in 2002. The site card recorded the tree being alive and the scar as being 190 cm in length, 35 cm in width with

18 cm of bark regrowth present and the base of the scar 30 cm above the ground surface. Steel axe cut marks were also recorded at the top of the scar (**Figure 3-3**). The site was located during the visual inspection and the tree is still alive. The scar is facing southeast. The GPS co-ordinates provided by AHIMS for this site were incorrect and have been updated on AHIMS with recent co-ordinates taken during the inspection. The tree is located in a stand of remnant vegetation at a bend of the Mehi River.

Figure 3-3: #10-3-0062. View of site and scar.

1. View northwest to #10-3-0062 site location.

2. Scar on tree at #10-3-0062.

BBS Moree LALC Mehi River TSR 2 (#10-3-0063)

Site Type: Scarred tree

Location of Site: The site is situated on a low lying landform overlooking the Mehi River which is 100 m northeast (**Figure 3-1**). The site is approximately 580 m southeast of the Gwydir Highway and within a TSR.

Description of Site: The site is a scarred tree first recorded in 2002. The site card recorded the tree being alive and the scar as being 110 cm in length, 30 cm in width with 8 cm of bark regrowth present and the base of the scar 93 cm above the ground surface. Steel axe cut marks were also recorded at the base of the scar (**Figure 3-4**). The site was located during the visual inspection and is now dead with an approximate 20 degree lean. The scar is facing southwest. The GPS co-ordinates provided by AHIMS for this site were incorrect and have been updated on AHIMS with recent co-ordinates taken during the

inspection. The tree is located in a stand of remnant vegetation at a bend of the Mehi River.

Figure 3-4: #10-3-0063. View of site and scar.

	
1. View northeast to #10-3-0063 site location.	2. Scar on tree at #10-3-0063.

3.2 ASSESSMENT OF SIGNIFICANCE

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

Social or cultural value

This area of assessment concerns the importance of a site or features to the relevant cultural group: in this case, the Aboriginal community. Aspects of social value include assessment of sites, items, and landscapes that are traditionally significant or that have contemporary importance to the Aboriginal community. This importance involves both traditional links with specific areas, as well as an overall concern by Aboriginal people for their sites generally and the continued protection of these. This type of value may not be in accord with interpretations made by the archaeologist: a site may have low archaeological value but high social value, or vice versa.

Archaeological/scientific value

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

The overriding aim of cultural heritage management is to preserve a representative sample of the archaeological resource. This will ensure that future research within the discipline can be based on a valid sample of the past. Establishing whether or not a site can contribute to current research also involves defining 'research potential' and 'representativeness'. Questions regularly asked when determining significance are: can this site contribute information that no other site can? Is this site representative of other sites in the region?

Aesthetic value

This refers to the sensory, scenic, architectural and creative aspects of the place. It is often closely linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use (Australia ICOMOS 2013).

Historic value

Historic value refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community. Historic places do not always have physical evidence of their historical importance (such as structures, planted vegetation or landscape modifications). They may have ‘shared’ historic values with other (non-Aboriginal) communities.

Places of post-contact Aboriginal history have generally been poorly recognised in investigations of Aboriginal heritage. Consequently, the Aboriginal involvement and contribution to important regional historical themes is often missing from accepted historical narratives. This means it is often necessary to collect oral histories along with archival or documentary research to gain a sufficient understanding of historic values.

3.2.1 Assessed significance of the recorded sites

Social or cultural value

The social value of Aboriginal sites is generally determined through consultation with Aboriginal people. Aboriginal sites have significance to the local Aboriginal community in the Moree region, providing tangible links to the occupation of the land by their ancestors. As noted in **Section 2.3.3**, one member of the Aboriginal community accompanied the survey and Halls Creek IF-1 has been assigned **high social/cultural value** based on feedback obtained in the field.

Archaeological/scientific value

The scientific significance of Halls Creek IF-1 is assessed as low as the site represents an artefact in secondary context. This site is assessed as having **low scientific/archaeological values** based on the following:

- Low density of artefacts
- No formal tool types

- Widespread past and current disturbance through long term use of land for agricultural purposes.

Aesthetic value

The aesthetic value of a site is derived from its relationship to and position within the surrounding landscape. Halls Creek IF-1 have been assessed as having **low aesthetic values**, as the site is in a secondary context on a well-used dirt track, on cracking clay soils.

Historic value

There are no known historical associations for Halls Creek IF-1.

Table 3-2 summaries the significance assessment for Halls Creek IF-1.

Table 3-2: Significance assessment.

Site Name (number)	Social or Cultural Value	Archaeological / Scientific Value	Aesthetic Value	Historic Value
Halls Creek IF-1 (#10-3-0073)	High	Low	Low	None

3.3 LIKELY IMPACTS TO ABORIGINAL HERITAGE FROM THE PROPOSAL

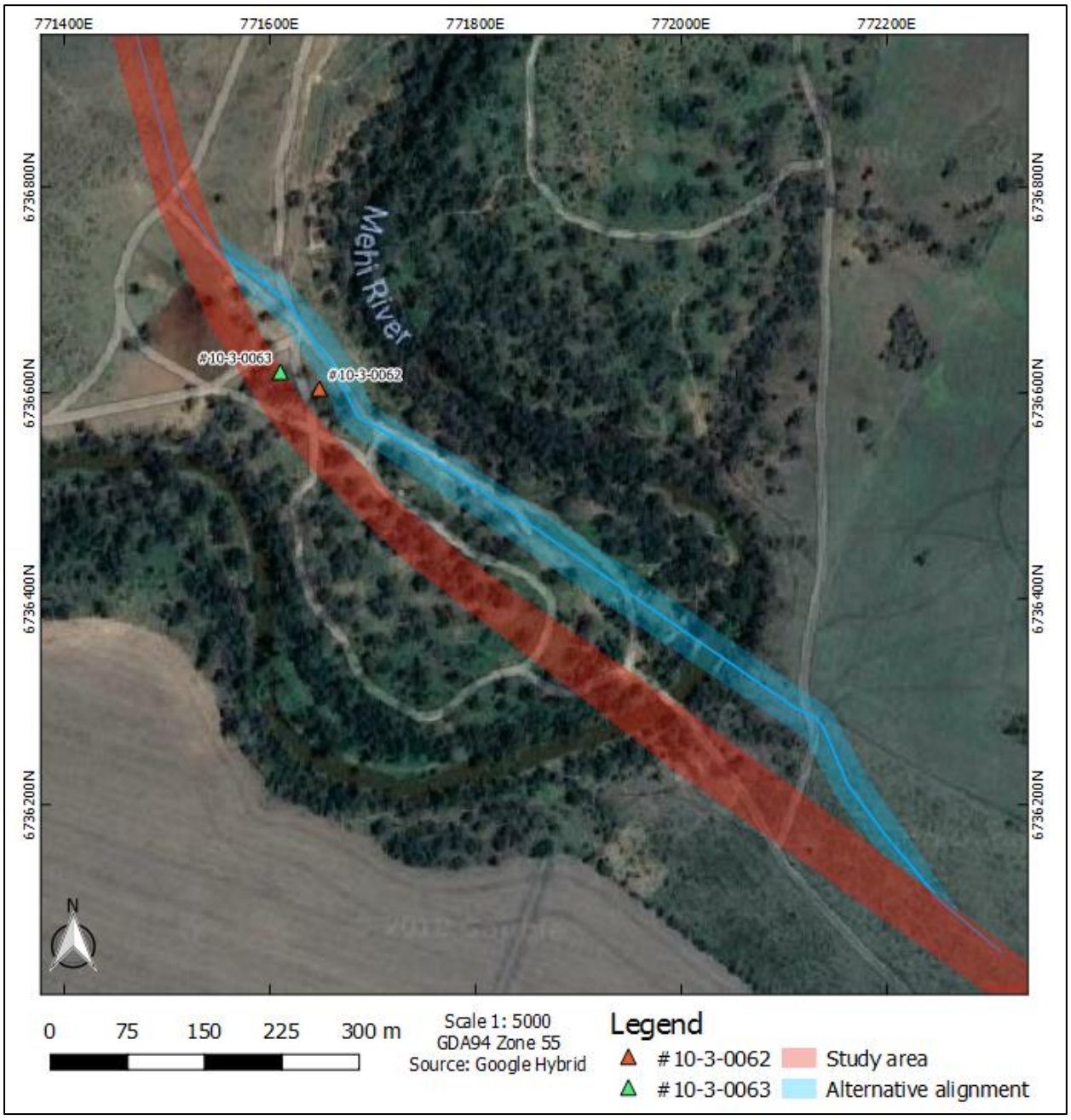
The impact footprint of the proposed works associated with the realignment of the Gwydir Highway as an East–West Bypass and upgrades to the North–South Link Road will cover the study area. As detailed plans of the impact footprint are not yet available, the impact assessment (**Table 3-3**) is based on two equally plausible scenarios; namely that the site is either within, or outside, the footprint area of the works associated with the proposal.

In addition, following review of the data from the visual inspection an alternative alignment has been proposed by the Proponent around Mehi River and included in the impact assessment (**Table 3-3**). The Mehi River Alternative Alignment is illustrated in **Figure 3-5**.

Table 3-3: Impact assessment scenarios.

Potential impact	Site Name	Type of Harm (Direct/Indirect / None)	Degree of Harm (Total/Partial / None)	Consequence of Harm (Total/Partial/No Loss of Value)
Study area If within the impact footprint	Halls Creek IF-1 (#10-3-0073)	Direct	Total	Total
	BBS Moree LALC Mehi River TSR 2 (#10-3-0063)	Direct	Total	Total
Study area If outside the impact footprint	Halls Creek IF-1 (#10-3-0073)	None	None	None
	BBS Moree LALC Mehi River TSR 2 (#10-3-0063)	None	None	None
Alternative Mehi River alignment If within the impact footprint	BBS Moree LALC Mehi River TSR 1 (#10-3-0062)	Direct	Total	Total
Alternative Mehi River alignment If outside the impact footprint	BBS Moree LALC Mehi River TSR 1 (#10-3-0062)	None	None	None

Figure 3-5: Alternative alignment for East-West Bypass at Mehi River



4 MANAGEMENT AND MITIGATION: ABORIGINAL HERITAGE

4.1 GENERAL PRINCIPLES FOR THE MANAGEMENT OF ABORIGINAL SITES

Appropriate management of cultural heritage items is primarily determined on the basis of their assessed significance as well as the likely impacts of the proposal. **Section 3.2** and **Section 3.3** describe, respectively, the significance / potential of the recorded site and the likely impacts of the proposal. The following management options are general principles, in terms of best practice and desired outcomes, rather than mitigation measures against individual site disturbance.

- Avoid impact by altering the proposal to avoid impact to a recorded Aboriginal site. If this can be done, then a suitable curtilage around the site must be provided to ensure its protection both during the short-term construction phase of development and in the long-term use of the area. If plans are altered, care must be taken to ensure that impacts do not occur to areas not previously assessed.
- If impact is unavoidable then approval to disturb sites under the authority of an AHIP must be sought from OEH and will depend on many factors including the site's assessed significance. Aboriginal community consultation will also need to occur following the OEH ACHCRs. If an AHIP is granted, the local Aboriginal communities may wish to collect or relocate any evidence of past Aboriginal occupation (Aboriginal objects), whether temporarily or permanently. The fate of all artefacts remains within the statutory control of the OEH. A care and control permit may be issues to local aboriginal groups or, with Aboriginal community consent, or other parties, for education or display purposes.

4.2 MANAGEMENT AND MITIGATION OF RECORDED ABORIGINAL SITES

If the Aboriginal sites recorded within or adjacent to the study area alignments are able to be avoided, then management of the sites will include:

1) High visibility fencing used around the 2 m site extent of Halls Creek IF-1 (#10-3-0073) will ensure that it is avoided by the proposal. Additional fencing of the eastern boundary of the study area in the vicinity of Halls Creek IF-1 during construction would ensure additional protection to the site against inadvertent harm (see **Figure 4-1**).
2) There is one AHIMS site in close vicinity to the study area that could be inadvertently impacted if care is not taken (see **Table 4-1**). The following recommendations concerning this site should be followed:
    a. The creation of a 5 m buffer zone around BBS Moree LALC Mehi River TSR 1 (#10-3-0062) will ensure that the scar tree is avoided by the proposal, regardless of which alignment option used (original study area or alternative alignment). High-visibility temporary fencing should be used around the buffer zone of the site (**Figure 4-2**).

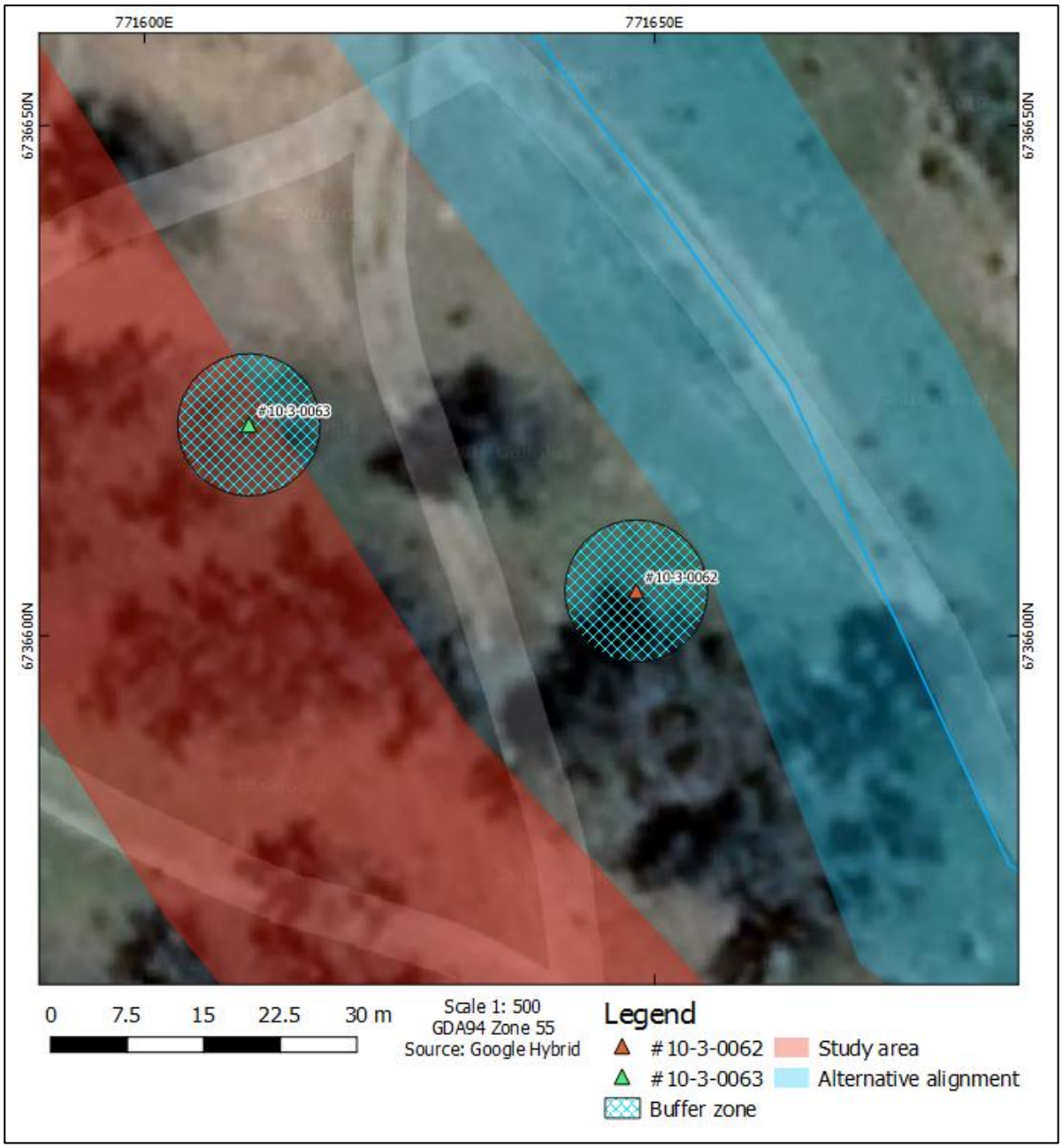
3) The AHIMS site BBS Moree LALC Mehi River TSR 2 (#10-3-0063) is located inside the alignment of the study area (**Figure 4-2**).If the alignment is unable to avoid the site then approval to disturb the site under the authority of an AHIP must be sought from OEH and will depend on many factors including the site's assessed significance. Part of this process will involve further archaeological investigation through an ACHAR and community consultation following the ACHCRs.
4) The locations of MR-ST1-A (#10-6-0041), WMF-ST1 (#10-6-0039), HC-IF-1 (#10-3-0036) and HC-OS1 (#10-6-0040) should be avoided during the proposed works and contractors informed of the locations so as to not inadvertently impact the sites (see **Table 4-1**).

Figure 4-1: Buffer zone for Halls Creek IF-1 (#10-3-0073).

Table 4-1: Location of previously recorded sites within or in proximity to the study area.

AHIMS ID	Site type	Distance from study area (m)	GDA Zone 55 East	GDA Zone 55 North
#10-3-0062	Scarred tree	68 m	771648	6736604
#10-3-0063	Scarred tree	47 m	771610	6736621
#10-6-0041	Scarred tree	58 m	777137	6728527
#10-6-0039	Scarred tree	58 m	777137	6728527
#10-3-0036	Isolated find	170 m	776763	6731193
#10-6-0040	Stone quarry	160 m	776759	6731075

Figure 4-2: Buffer zones for #10-3-0062 and #10-3-0063.



5 MANAGEMENT RECOMMENDATIONS

The undertaking of the due diligence process resulted in the conclusion that the proposed works will potentially have an impact on the ground surface and two Aboriginal sites recorded during the visual inspection: Halls Creek IF-1 (#10-3-0073) and BBS Moree LALC Mehi River TSR 2 (#10-3-0063). The alternative alignment for the East-West Bypass at Mehi River will potentially have an impact on BBS Moree LALC Mehi River TSR 1 (#10-3-0062) as it is adjacent to the edge of this alignment option.

As one site is within the study area and another two sites are located on the edge of the study area, this moves the proposal to the following outcomes:

1) The proponent should consider realignment options so as to avoid the Aboriginal sites Halls Creek IF-1 (#10-3-0073) and BBS Moree LALC Mehi River TSR 2 (#10-3-0063) with appropriate measures applied as outlined in **Section 4.2** to avoid harming the sites during works.
2) If realignment to avoid Halls Creek IF-1 (#10-3-0073) or BBS Moree LALC Mehi River TSR 2 (#10-3-0063) is not possible, then 'further investigation and impact assessment' of the study area will need to be undertaken in order to apply for an AHIP. Integral to the application for an AHIP is the preparation of an ACHAR and community consultation following the OEH ACHCRs. The NPW Act is complemented by the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* that set out the requirements for archaeological investigation in NSW where an application for an AHIP is likely to be made.
3) If the realignment option follows the Mehi River Alternative Alignment, the proposal will not impact either of the two AHIMS sites (#10-3-0062 and #10-3-0063), though #10-3-0062 is close to the edge of the realignment boundary.
    a. BBS Moree LALC Mehi River TSR 1 (#10-3-0062) is close to the edge of the alternative alignment and precautions to avoid inadvertently impacting the site are outlined in **Section 4.2**.
4) There are no other Aboriginal cultural heritage constraints to the proposal; however, the following precautions should be taken:
    e. The location of previously recorded sites within the vicinity of the study area (#10-6-0041 and #10-6-0039 are 58 m south; #10-3-0036 is 170 m east; and #10-6-0040 is 160 m east) should be noted and the sites avoided by all impacts (see **Table 4-1** for locations).
    f. All land-disturbing activities must be confined to within the assessed study area. Should the parameters of the proposed work extend beyond the assessed area, then further archaeological assessment may be required.

g. This assessment has concluded that there is a low likelihood that the proposal will adversely harm Aboriginal cultural heritage items or sites outside those listed above. However, during the course of works, if Aboriginal artefacts or skeletal material are noted, all work should cease and procedures in the *Unanticipated Finds Protocol* (**Appendix 2**) should be followed.

h. Construction staff should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts (see **Appendix 3**) and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the *Unanticipated Finds Protocol* (**Appendix 2**).

5) The information presented here meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. It should be retained as shelf documentation for five years as it may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.

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PLATES

Plate 1: View southwest along East–West Bypass section of study area.

Plate 2: View southwest along East–West Bypass section of study area.

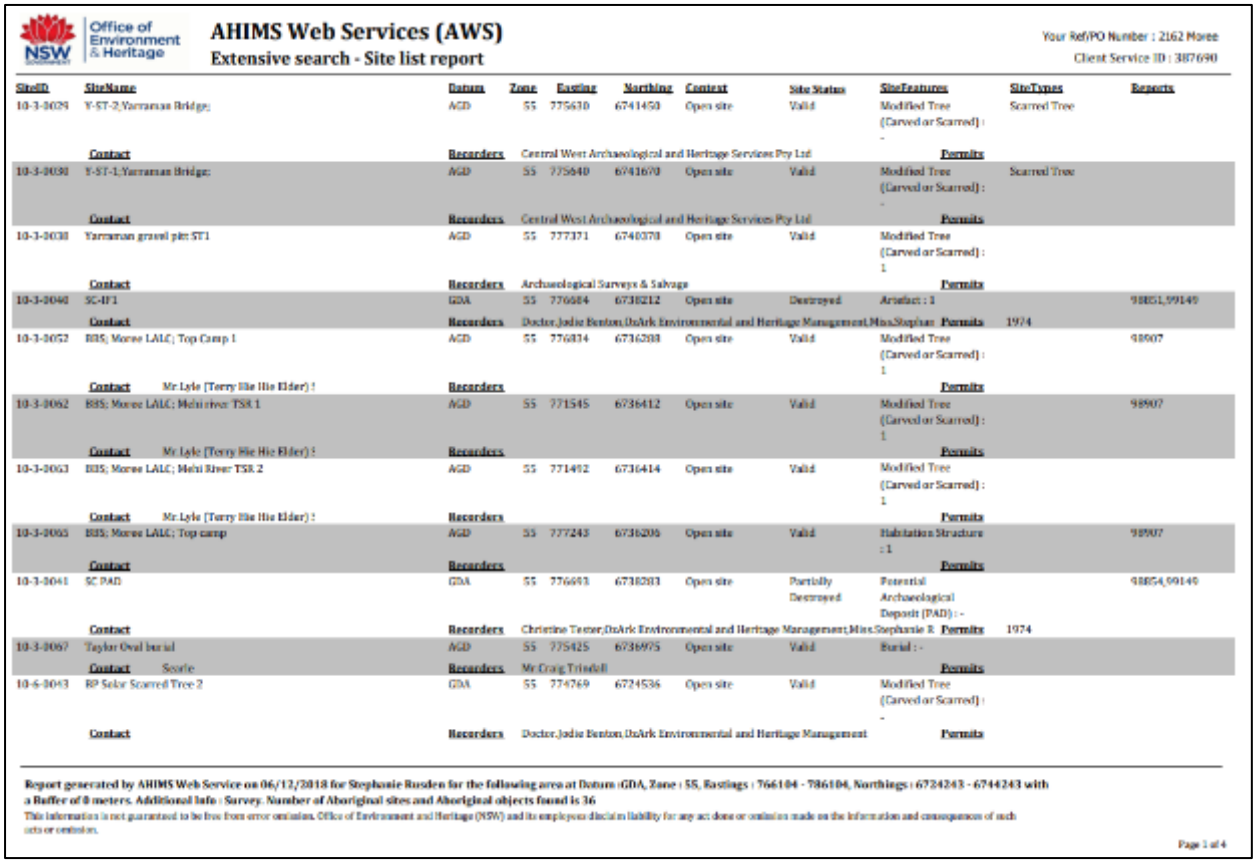
Plate 3: View southeast towards Mehi River.

Plate 4: View of west bank of Mehi River.

Plate 5: View east along southernmost section of North–South Link Road section.

Plate 6: View north of northernmost section of North-South Link Road section.

APPENDIX 1: AHIMS SEARCH RESULTS



Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 2162 Moree
Client Service ID : 387690

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
10-3-3029	Y-ST-2,Yarraman Bridge;	AGD	55	775610	6741450	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-3030	Y-ST-1,Yarraman Bridge;	AGD	55	775640	6741670	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-3038	Yarraman gravel pit: ST1	AGD	55	777371	6740370	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Archaeological Surveys & Salvage					Permits		
10-3-3040	SC-IF1	GDA	55	776684	6738212	Open site	Destroyed	Artefact : 1		98851,99149
	Contact	Recorders	Doctor Jodie Benton,OzArk Environmental and Heritage Management,Miss Stephan					Permits	1974	
10-3-3052	BIS; Moree LALC; Top Camp 1	AGD	55	776834	6736208	Open site	Valid	Modified Tree (Carved or Scarred) : 1		98907
	Contact Mr Lyle [Terry Ilie Ilie Elder) !	Recorders						Permits		
10-3-3062	BIS; Moree LALC; Mehi river TSR 1	AGD	55	771545	6736412	Open site	Valid	Modified Tree (Carved or Scarred) : 1		98907
	Contact Mr Lyle [Terry Ilie Ilie Elder) !	Recorders						Permits		
10-3-3063	BIS; Moree LALC; Mehi River TSR 2	AGD	55	771492	6736414	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact Mr Lyle [Terry Ilie Ilie Elder) !	Recorders						Permits		
10-3-3065	BIS; Moree LALC; Top camp	AGD	55	777243	6736206	Open site	Valid	Habitation Structure : 1		98907
	Contact	Recorders						Permits		
10-3-3041	SC PAD	GDA	55	776693	6738283	Open site	Partially Destroyed	Potential Archaeological Deposit (PAD) : -		98854,99149
	Contact	Recorders	Christine Tesner,OzArk Environmental and Heritage Management,Miss Stephanie R					Permits	1974	
10-3-3067	Taylor Oval burial	AGD	55	775425	6736975	Open site	Valid	Burial : -		
	Contact Scarle	Recorders	Mr Craig Trindall					Permits		
10-6-3043	RP Solar Scarred Tree 2	GDA	55	774769	6724536	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	Doctor Jodie Benton,OzArk Environmental and Heritage Management					Permits		

Report generated by AHIMS Web Service on 06/12/2018 for Stephanie Rusden for the following area at Datum :GDA, Zone : 55, Eastings : 766104 - 786104, Northings : 6724243 - 6744243 with a Buffer of 0 meters. Additional Info : Survey. Number of Aboriginal sites and Aboriginal objects found is 36

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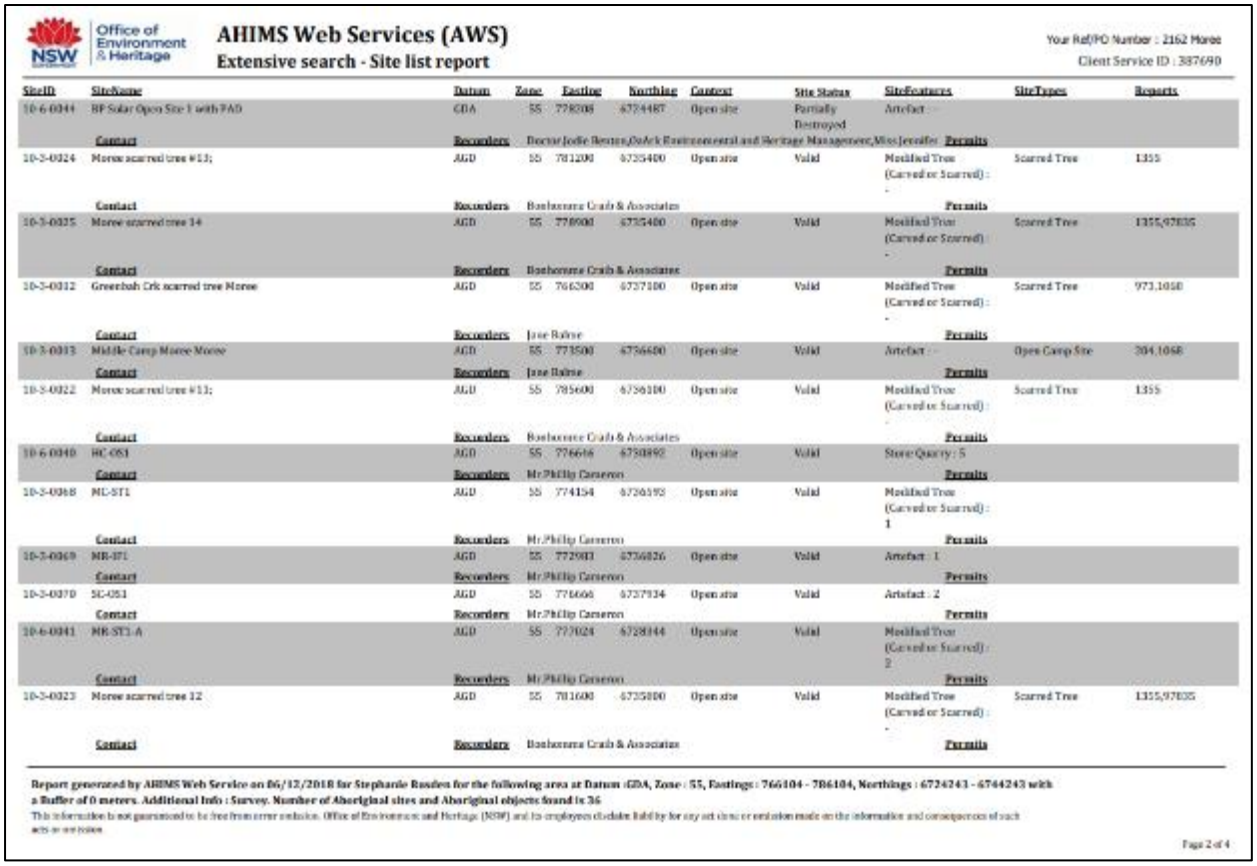

Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 2162 Moree
Client Service ID : 387690

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
10-6-0044	RP Solar Open Site 1 with PAD	GDA	55	778008	6724487	Open site	Partially Destroyed	Artefact : -		
	Contact	Recorders	Doctor Jodie Benton,OzArk Environmental and Heritage Management,Miss Jennifer					Permits		
10-3-0324	Moree scarred tree #13;	AGD	55	781200	6735400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1355
	Contact	Recorders	Bonhomme Craib & Associates					Permits		
10-3-0325	Moree scarred tree 14	AGD	55	778600	6735400	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1355,97835
	Contact	Recorders	Bonhomme Craib & Associates					Permits		
10-3-0312	Greenbah Crk scarred tree Moree	AGD	55	766200	6737100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	973,1068
	Contact	Recorders	Jane Balme					Permits		
10-3-0313	Middle Camp Moree Moree	AGD	55	773500	6736600	Open site	Valid	Artefact : -	Open Camp Site	304,1068
	Contact	Recorders	Jane Balme					Permits		
10-3-0322	Moree scarred tree #13;	AGD	55	785600	6736100	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1355
	Contact	Recorders	Bonhomme Craib & Associates					Permits		
10-6-0340	MC-OS1	AGD	55	776606	6730892	Open site	Valid	Stone Quarry : 5		
	Contact	Recorders	Mr Phillip Cameron					Permits		
10-3-0368	MC-ST1	AGD	55	774154	6736592	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Mr Phillip Cameron					Permits		
10-3-0369	MR-IF1	AGD	55	772983	6736826	Open site	Valid	Artefact : 1		
	Contact	Recorders	Mr Phillip Cameron					Permits		
10-3-0370	SC-OS1	AGD	55	776606	6737934	Open site	Valid	Artefact : 2		
	Contact	Recorders	Mr Phillip Cameron					Permits		
10-6-0341	MR-ST1-A	AGD	55	777024	6728144	Open site	Valid	Modified Tree (Carved or Scarred) : 2		
	Contact	Recorders	Mr Phillip Cameron					Permits		
10-3-0323	Moree scarred tree 12	AGD	55	781600	6735800	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	1355,97835
	Contact	Recorders	Bonhomme Craib & Associates					Permits		

Report generated by AHIMS Web Service on 06/12/2018 for Stephanie Rusden for the following area at Datum :GDA, Zone : 55, Eastings : 766104 - 786104, Northings : 6724243 - 6744243 with a Buffer of 0 meters. Additional Info : Survey. Number of Aboriginal sites and Aboriginal objects found is 36

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AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 2162 Moree
Client Service ID : 387690

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
10-3-0001	Tarlie Island	AGD	55	768257	6739840	Open site	Valid	Burial : -	Burial/s	770,788,973,1166
	Contact	Recorders	Isobel McBryde					Permits		
10-6-0045	Moree Evergreen Precinct Scarred Tree 1	GDA	55	776476	6728187	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	OzArk Environmental and Heritage Management					Permits		
10-6-0046	Moree Evergreen Precinct Scarred Tree 2	GDA	55	777468	6727090	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	OzArk Environmental and Heritage Management					Permits		
10-6-0047	Moree Evergreen Precinct Scarred Tree 3	GDA	55	777413	6728025	Open site	Valid	Modified Tree (Carved or Scarred) : -		
	Contact	Recorders	OzArk Environmental and Heritage Management					Permits		
10-3-0037	MR-ST-1	AGD	55	782530	6736560	Open site	Valid	Modified Tree (Carved or Scarred) : -	Scarred Tree	97835
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-0035	BC-OS-1	AGD	55	777400	6737720	Open site	Valid	Artefact : -	Open Camp Site	97835
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-0036	BC-IF-1	AGD	55	776650	6735010	Open site	Valid	Artefact : -	Isolated Find	97835
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-0031	Top Camp	AGD	55	777000	6736100	Open site	Valid	Artefact : -	Open Camp Site	97714,97835
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-0032	Stockbridge Camp	GDA	55	776593	6736883	Open site	Not a Site	Artefact : , Potential Archaeological Deposit (PAD) :	Open Camp Site	97714,99149
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd,OzArk Environmental a					Permits	1974,2052	
10-3-0033	TC-IF-1	AGD	55	777260	6735930	Open site	Valid	Artefact : -	Isolated Find	97835
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-0034	BG-WS-1	AGD	55	776500	6736190	Open site	Valid	Ceremonial Ring (Stone or Earth) : -	Bora/Ceremonial	97714
	Contact	Recorders	Central West Archaeological and Heritage Services Pty Ltd					Permits		
10-3-0039	Moree Cohen Street Scarred Trees	AGD	55	774684	6738172	Open site	Valid	Modified Tree (Carved or Scarred) : 2		
	Contact	Recorders	Ms.Susanne Hudson					Permits		

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Office of Environment & Heritage NSW

AHIMS Web Services (AWS)

Extensive search - Site list report

Your Ref/PO Number : 2162 Moree
Client Service ID : 387690

SiteID	SiteName	Datum	Zone	Easting	Northing	Context	Site Status	SiteFeatures	SiteTypes	Reports
10-6-0039	WMF-ST1	AGD	55	777024	6728344	Open site	Valid	Modified Tree (Carved or Scarred) : 1		
	Contact	Recorders	Doctor Jodie Benton,OzArk Environmental and Heritage Management,Mr.Lou Swan					Permits		

Report generated by AHIMS Web Service on 06/12/2018 for Stephanie Rusden for the following area at Datum :GDA, Zone : 55, Eastings : 766104 - 786104, Northings : 6724243 - 6744243 with a Buffer of 0 meters. Additional Info : Survey. Number of Aboriginal sites and Aboriginal objects found is 36

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APPENDIX 2: ABORIGINAL HERITAGE: UNANTICIPATED FINDS PROTOCOL

An Aboriginal artefact is anything which is the result of past Aboriginal activity. This includes stone (artefacts, rock engravings etc.), plant (culturally scarred trees) and animal (if showing signs of modification; i.e. smoothing, use). Human bone (skeletal) remains may also be uncovered while onsite.

Cultural heritage significance is assessed by the Aboriginal community and is typically based on traditional and contemporary lore, spiritual values, and oral history, and may also take into account scientific and educational value.

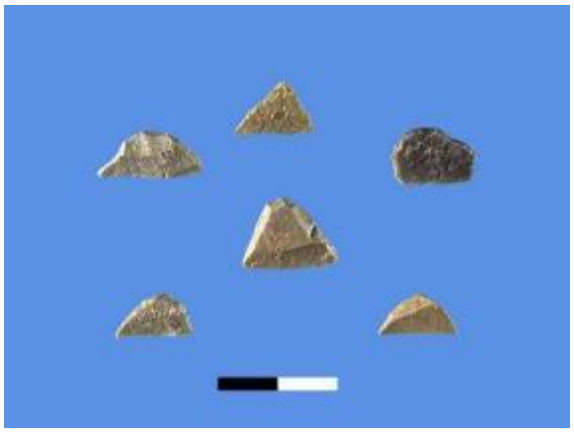
Protocol to be followed in the event that previously unrecorded or unanticipated Aboriginal object(s) are encountered:

1. If any Aboriginal object is discovered and/or harmed in, or under the land, while undertaking the proposed development activities, the proponent must:
    a. Not further harm the object;
    b. Immediately cease all work at the particular location;
    c. Secure the area so as to avoid further harm to the Aboriginal object;
    d. Notify OEH as soon as practical on 131 555, providing any details of the Aboriginal object and its location; and
    e. Not recommence any work at the particular location unless authorised in writing by OEH.
2. In the event that Aboriginal burials are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and OEH contacted.
3. Cooperate with the appropriate authorities and relevant Aboriginal community representatives to facilitate:
    a. The recording and assessment of the find(s);
    b. The fulfilment of any legal constraints arising from the find(s), including complying with OEH directions; and
    c. The development and implementation of appropriate management strategies, including consultation with stakeholders and the assessment of the significance of the find(s).
4. Where the find(s) are determined to be Aboriginal object(s), recommencement of work in the area of the find(s) can only occur in accordance with any consequential legal requirements and after gaining written approval from OEH (normally an Aboriginal Heritage Impact Permit).

APPENDIX 3: ABORIGINAL HERITAGE: ARTEFACT IDENTIFICATION

Retouched blades (scale = 1cm)

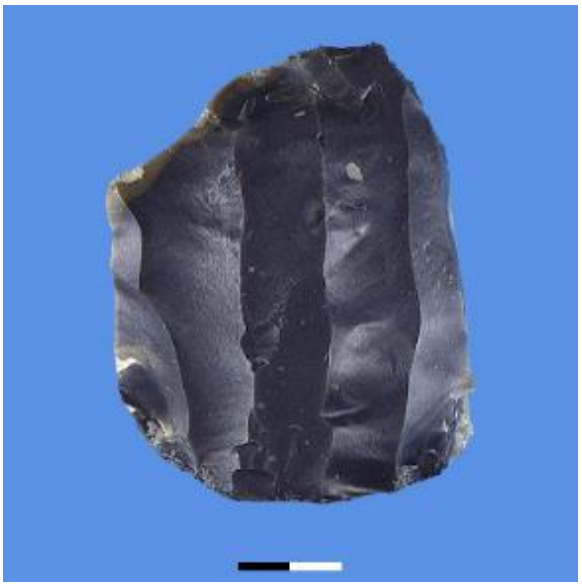
Flakes



Microliths (scale = 1cm)

Scraper (scale = 1cm)

Flake characteristics (scale = 1cm)



Core from which flakes have been removed (scale = 1cm)