Appendix 4 – Project Information Pack and Project Methodology Pack

Grafton Bridge, Grafton NSW:
Aboriginal Heritage Methodology Information Pack

Draft

Prepared for Roads and Maritime Services

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Abbreviations

ACHA	Aboriginal Cultural Heritage Assessment
ACHAR	Aboriginal Cultural Heritage Assessment Report
AHIMS	Aboriginal Heritage Information Management System
CMA	Catchment Management Authority
DEC	Department of Environment and Conservation
DECCW	Department of Environment, Climate Change and Water
DoPI	Department of Planning and Infrastructure
EP&A Act	Environment Planning and Assessment Act
GSV	Ground Surface Visibility
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
OEH	Office of Environment and Heritage
RMS	Roads and Maritime Services

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1 Introduction

1.1 Background

This Research Methodology Information Pack is being provided to the Grafton-Ngerrie Local Aboriginal Land Council (LALC), who have registered their interest to be consulted for the Grafton Bridge Project located at Grafton NSW (Figure 1). The purpose of this information pack is to provide the LALC with an opportunity to review and inform the Aboriginal Cultural Heritage Assessment (ACHA) research methodology. This information pack includes the results of assessment undertaken to date and the proposed survey and archaeological excavation methodology and builds on the heritage assessment undertaken during earlier constraint assessments.

Previous studies and reports undertaken for Aboriginal cultural heritage for the project include:

- *Main Road 83 Summerland Way - Additional Crossing of the Clarence River at Grafton: Preliminary Route Options Report – Final*. *Technical Paper: Aboriginal Heritage* (RMS, January 2012); and
- *Main Road 83 Summerland Way - Additional Crossing of the Clarence River at Grafton: Route Options Development Report. Technical Paper: Aboriginal Heritage* (RMS, August 2012).

Constraints assessments for an additional bridge over the Clarence River at Grafton were undertaken between June 2011 and January 2012 in the Grafton area and surrounds. In January 2012, six route options to be investigated further as part of the process to identify a location for the crossing were announced. The outcomes of these investigations, community comment and a community and stakeholder evaluation workshop provided the inputs to the selection of the short-list of options. Of the six route options considered, Route Option C has been selected as the preferred option. This ACHA is being undertaken to support the Part 5.1 State Significant Infrastructure Project Application for the Project.

1.2 Project Area

- The Project Area is located within the suburbs of Grafton and South Grafton in the Clarence Valley Council, Local Government Area (LGA) (

Figure 1), on the NSW Mid North Coast, about 610 kilometres north of Sydney. It is a major regional centre in the NSW Mid North Coast region.

1.3 Project description

The main components of the project are:

- Building a new bridge about 70 metres downstream of the existing bridge (which would be retained)
- Upgrading parts the road network in Grafton and South Grafton to accommodate the new bridge.

The project would also include ancillary works, structures and facilities required for the purposes of the project.

The project route alignment is presented in Figure 2.

The new Grafton Bridge would be about 458 metres long and 16 metres wide. The bridge deck would have one northbound lane and one southbound lane for vehicles and a shared path (for pedestrians and cyclists) 3.1 metres wide on the western side that would connect to the Pacific Highway at Iolanthe Street in South Grafton and to Pound Street in Grafton.

1.4 ACHA Methodology

The ACHA methodology has been developed using the following NSW Aboriginal heritage guidelines:

- The *Code of Practice for the Investigation of Aboriginal Objects in New South Wales 2010* (DECCW);
- The *Aboriginal cultural heritage consultation requirements for proponents* (DECCW 2010); and
- The *Roads and Maritime Services procedure for Aboriginal cultural heritage consultation and investigation* (RMS 2011).

The objectives of the investigation process are to:

- Consult with any registered Aboriginal stakeholders;
- Consolidate Aboriginal heritage information from previous reports and update heritage register searches;
- Update heritage register searches for the Project Area;
- Undertake a targeted survey of the Project Area, to properly assess land affected by the Project not accessible at the time of the previous field surveys. The field survey of the Project Area in accordance with the methodology outlined in *Code of Practice for the Investigation and Protection of Aboriginal Objects in NSW* (DECCW 2010) will be undertaken in order to identify any previously unknown Aboriginal objects or Places, should they be present;
- Undertake test excavations to collect information about the presence, nature and extent of subsurface Aboriginal objects;
- Record and assess sites identified during the survey in compliance with the guidelines issued by the NSW Office of Environment and Heritage (OEH);
- Assess the heritage significance of all identified Aboriginal cultural heritage sites and places;
- Identify impacts to all identified Aboriginal cultural heritage sites and places based on potential ground disturbance from the proposed construction of the new bridge; and

- Make recommendations to minimise or mitigate potential impacts of the new landfill cell to cultural heritage values within the Study Area.

1.5 Planning Approvals

The Grafton Bridge project will be assessed against Part 5.1 of the *Environmental Planning and Assessment Act 1979* NSW (EP&A Act) as a State Significant Infrastructure (SSI) project. Relevant legislation and planning instruments that will inform this assessment include:

- *State Environmental Planning Policy (State and Regional Development) 2011;*
- *Environmental Planning and Assessment Regulation 2000*;
- *National Parks and Wildlife Act 1974* (NSW)
- *National Parks and Wildlife Amendment Act 2010* (NSW); and
- *Clarence Valley Local Environmental Plan 2011*.

Figure 1: Location of the Project Area in a regional context

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Date: 27 June 2013,
Checked by: ASF, Drawn by: JMS, Last edited by: jshepherd
Location:P:\16200s\16256\Mapping\

0 300 600 900 1,200
Metres
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Scale 1:30,000 @ A4, GDA 1994 MGA Zone 55

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Figure 2: Aerial of the Project Area

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Acknowledgements: Imagery provided by Arup

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16256_F2_20130626

0 80 160 240 320 400

Metres
Scale 1:8,000 @ A3
Coordinate System: GDA 1994 MGA Zone 56

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2 Desktop Assessment

The desktop assessment is provided in order to give a context to the proposed survey and excavation methodology and the following background is a summary of the information relevant to the current assessment of Aboriginal archaeological values of the Project Area.

2.1 Environmental Context

2.1.1 Geology and Soils

Grafton lies at the south-eastern end of the geological feature known as the Clarence-Moreton Sedimentary Basin, which covers 16,000 km2 of north-eastern New South Wales. Across this basin there has been widespread fluvial and lacustrine to paludal deposition. This deposition is recorded in the grey siltstone, thick banded coal horizons and fine to medium grained lithic sandstone. Although the sediments are non-marine in origin, the quartz dominated sandstone of the Clarence-Moreton Basin is similar to the Sydney Basin sandstones, which have numerous outcrops and overhang formations present (NSW Trade and Investment Website).

In the south-east of the Clarence-Moreton Basin (where Grafton lies), an overlying layer of the erodible Grafton Formation remains creating an undulating land surface. The Grafton Formation is a fluvial to lacustrine claystone and sandstone unit. This formation overlies the coarser Kangaroo Creek Sandstones which are comprised of sandstone, siltstone, claystone and conglomerate. Both the Grafton and Kangaroo Creek geological units are Mesozoic sediments comprised largely of sandstone and sandstone derivatives (NPWS 2006) (Figure 3).

The geological processes that have contributed to the formation of the Grafton area have been largely the weathering of materials flowing down the Clarence River and deposited following flooding events to create the Clarence-Richmond alluvial floodplains. The alluvium in the Clarence River at Grafton is estimated to be about 40m thick (NSW Trade and Investment).

Landforms associated with the Clarence - Richmond alluvial plains include wide valleys, channels, floodplains, terraces and estuaries of the Clarence and Richmond Rivers and other coastal streams on Quaternary alluvium, which have a general elevation of 0m to 50m Australian Height Datum (AHD), with a local relief of 15m. The alluvium in the Clarence River at Grafton is estimated to be about 40m thick (Department of Primary Industries 1970). These alluvial soils (structure loams) are characterised as being deep brown earths and structured brown clays on floodplains. These soils are fertile having a high organic content and are generally not considered to have high erosion potential.

Soils within the Grafton and South Grafton area have been substantially disturbed through sub-urban, agricultural and industrial land uses. Severe floods in the 1940s and 1950s prompted the development of an extensive levee and drainage network to mitigate the effects of major flooding events. The levee system was completed in the 1970s with levees present on both sides of the bank of the Clarence River and extending across the floodplains in South Grafton.

Less disturbed portions of the Grafton and South Grafton area where topsoils remain at least partially intact include isolated patches of native vegetation that is typical floodplain vegetation of the lower Clarence.

2.1.2 Hydrology

The Clarence River catchment, covering an area of 22,700km is located in the Northern Rivers region of New South Wales (DEC 2005.2, Northern Rivers CMA Website). Draining east from the Great Dividing Range to the river entrance adjacent to the townships of Yamba and Iluka, the catchment extends from the New South Wales/Queensland border and Richmond Range in the north to the Doughboy Range/Dorrigo Plateau in the south. The catchment is characterised by upper tableland areas which fall away to a relatively large, flat coastal floodplain. Grafton and South Grafton are located within the upper reaches of the floodplain.

The Grafton and South Grafton area has a history of both droughts and floods. Since 1839 the Clarence River has experienced 74 moderate to major floods (shown in Chart 1), the most recent flood events being in 2001, 2009 and 2011, when the river reached levels of 7.70mAHD, 7.37mAHD and 7.64mAHD respectively at the Prince Street gauge in North Grafton.

Due to the size of the Clarence River catchment upstream of Grafton, relative to its various downstream tributary catchments, the flooding behavior of the Lower Clarence River floodplain is dominated by the flow originating from upstream of Grafton in terms of both peak flood levels and duration of inundation. The flow typically contributes 80% to 90% of the total volume of floodwaters that enters the lower floodplains during main river flood events. Clarence River floods typically occur from low rainfall intensity events that last several days or even weeks.

Grafton has experienced frequent and significant flooding in the past. Construction of various levee banks and drainage improvements has been progressively undertaken over the years to help reduce the frequency of flooding. These works commenced in about 1890 with the construction of drainage improvements and minor levees along low sections of the riverbank. However, it was not until the 1960's that a major program of levee construction at Grafton and South Grafton was initiated. Since that time, additional levee banks were gradually constructed, or the height of existing levees increased, to further reduce the frequency of flooding. Today, Grafton is protected by a series of seven levees that, in addition to natural high ground and the elevated railway embankment, surround the town.

The Grafton and South Grafton levees begin to overtop when flood levels are at, or close to, eight meters on the Prince Street gauge, which translates to about a 20-year average recurrence interval (ARI) flood event. Following overtopping, significant areas of Grafton and South Grafton are inundated by floodwater. Cyclical flooding events have the potential to impact on the survival of Aboriginal archaeological features. Strong floodwater movement can either scour the river banks and terraces, effectively removing stone artefacts from in situ. This movement, can however, result in the deposition of flood sediments, burying and preserving archaeological material.

2.1.3 Climate

In general terms the climate in the Grafton region has two major seasonal influences. The first is the sub tropical high-pressure belt which occurs in winter and spring and the second is the monsoonal cyclones and trade winds of summer and autumn. Bureau of Meteorology weather station records (Station 058130 – collected from Grafton Swimming Pool) show that more rainfall is experienced during the summer and autumn months. This has an impact on the availability of freshwater which would have influenced the occupation patterns of the Aboriginal inhabitants. The drier winter and spring seasons see only small freshwater inflow into waterways while the cyclones bring large intermittent short lived fresh water events.

2.1.4 Flora and Fauna

The land immediately surrounding Grafton is now considered an urban landscape, surrounded by rural and prime agricultural lands as the native vegetations have since been extensively cleared and/or modified.

All early historical accounts of the Clarence support an understanding that the current vegetation patterns do not reflect pre-contact vegetation types. While the margins of the Clarence are now largely cleared urban or agricultural lands, cedar getters were some of the earliest non-Aboriginal people along the Clarence River. An account by Capt James Butcher noted that the banks of the river were 'thickly covered with timber' (Stubbs 2007: 9). The alluvial plains were thick with brush when an influx of settlers arrived following the passing of the Land Acts in 1861 (Sabine 1970:1: 8). The density of brush was synonymous with soil fertility, and essentially ensured that such areas were the first selected and cleared to allow the commencement of agriculture. Historical records of the vegetation present along the Clarence River before European settlement indicate riparian vegetation and open woodlands existed within 1 km of the riverbank (Sabine 1970).

The Mitchell Landscapes of NSW (DECCW 2003) outline a list of dominant flora species expected to have occurred on the Clarence-Richmond alluvial floodplains - inferring that the now extensively cleared valley floor was likely to have supported forests of cabbage gum (*Eucalyptus amplifolia*), forest red gum (*Eucalyptus tereticornis*), broad-leaved apple (*Angophora subvelutina*), river oak (*Casuarina cunninghamiana*), silky oak (*Grevillea robusta*), rough-barked apple (*Angophora floribunda*), native teak (*Flindersia australis*), coastal grey box (*Eucalyptus bosistoana*), pink bloodwood (*Corymbia intermedia*), spotted gum (*Corymbia maculata*), grey ironbark (*Eucalyptus paniculata*), broad-leaved paperbark (*Melaleuca quinquenervia*), blackwood (*Acacia melanoxylon*) and black she-oak (*Casuarina litoralis*).

This vegetation community would have supported a range of fauna. Terrestrial mammals would presumably have been an abundant and reliable food source in the woodlands for Aboriginal people. Land mammals such as kangaroos and arboreal mammals such as possums would have been important prey species within these vegetation communities. Birds, reptiles and fish would also have been important resources. The Clarence River would have supported an abundance of aquatic species, including estuarine species that occur in the Clarence River with salinity variations based on seasonal freshwater flows and tidal movements.

2.1.5 Summary of Resource Availability

The geology of the immediate Grafton and South Grafton area does not suggest the likelihood of readily available raw material sources. Some stone types suitable for tool manufacture are available in the local area as river bed outcrops or river pebbles.

The Clarence River is an important natural feature for Aboriginal people as it supported an abundance of resources integral to their lifestyles and cultural practices. The river is also the subject of several dreaming stories, the ones publicly available relate to the creation of the river. The river has mythological values and this aspect of significance may have no additional tangible features beyond physical presence. Aboriginal community consultation is required to refine cultural associations and connections to the river.

It should also be considered that the river may have cultural significance in the demarcation of space and place. The river creates a tangible barrier to accessing the opposite bank and the river islands, and this demarcation may have significance in the social organisation and cultural practices of local Aboriginal populations. Both Susan and Elizabeth islands (respectively west and east of the existing Grafton Bridge) are of significance to local Aboriginal women and are listed as Aboriginal Women's places.

The pre-contact vegetation communities supported numerous plant species utilised by Aboriginal people for a wide range of purposes. Certain plants provided important food sources (yams and roots) and/ or medicines, while others provided toxins which might be used to stupefy fish in waterholes. Sabine (1970: II: 21) notes that plant derived poisons used in fishing include Duboisine from the Corkwood Tree, a poison extracted from an unspecified weed and a poison made from pounding the leaves of a tree called "Cutiga".

Plants were used to manufacture a wide range of items including personal decorations, clothing, tools, art (pigment fixatives), watercraft, traps and shelter. Certain plants also featured in local mythologies, and some were considered sacred and/or had ritual uses.

Wood, bark, fibres, and resin are all examples of useful materials derived from plants. For example: wood could be used to manufacture items such as boomerangs, clubs, digging sticks, weapons, shields or containers; bark could also be used to manufacture clothing, canoes, or dishes; fibres could be used to manufacture string, fishing nets, baskets, traps, or mats; and resin could be used as an adhesive in tool manufacture and decoration, or to seal leaks in canoes (Sabine 1970).

The plant species discussed previously would have supported a range of fauna also used by local Aboriginal inhabitants. Animals were not only used for food, but also contributed to several cultural aspects of Aboriginal life; they provided materials for tool technologies, played a role in local mythologies, and some were considered sacred or had ritual significance.

Reptiles, mammals, birds, insects, fish, molluscs, and amphibians would have all been exploited for food. The Clarence River and its floodplain would have supported the major food sources exploited by Aboriginal people, including; a variety of fish, molluscs, tortoises, turtles, eels, and crayfish. Waterbirds flocking on the floodplains such as ibis, geese, ducks, swans, shags, darters and cormorants were harvested by the Aboriginals for meat, eggs and feathers (Sabine 1970). Macropods, possums and emu also found in the area were used for meat and skins.

Aboriginal technologies also made use of materials sourced from animals. Skins could be used as clothing, such as macropod and possum skin cloaks; bone points (awls) and sinews were used for sewing; animal teeth, bones, and sinews were used in tool manufacture; and animal products, such as feathers and teeth were used as personal decoration (Sabine 1970).

Figure 3: Geology mapping of the Project Area

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Acknowledgements: Imagery provided by Arup

Matter: 16256
Date: 27 June 2013,
Checked by: ASF, Drawn by: JMS, Last edited by: jshepherd
Location:P:\16200s\16256\Mapping\
16256_F3_Geology

0 80 160 240 320 400

Metres
Scale 1:8,000 @ A3
Coordinate System: GDA 1994 MGA Zone 56

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2.2 Historical Context

2.2.1 Land Use Impacts

The land within and surrounding the Grafton and South Grafton area has undergone extensive modification. From the beginning of non-Aboriginal settlement in the 1830s clearing of vegetation was rapidly undertaken. This was followed by pastoral land activity and the steady growth of the urban environment.

The northern side of the Clarence River is mostly urban streets, residential and commercial development and some parkland. To the south, developed urban areas also occur to the west of the existing bridge. However, on the south east side of the existing bridge, open farm lands with associated houses and roads dominate the landscape. Most of these areas comprise alluvial flood plain. The alluvial nature of the floodplain soils to the south and the impact of agriculture and the urban development have reduced the likelihood of some types of evidence of Aboriginal occupation remaining intact.

2.2.2 Ethnohistory

Our knowledge of the social organisation of Aboriginal people prior to European contact is, to a large extent, reliant on documents written by early European arrivals recording their impressions. By the time colonial diarists, missionaries and proto-anthropologists began making detailed records of Aboriginal people in the late 19th Century; pre-European Aboriginal groups had been broken up and reconfigured by European settlement activity. The inherent bias of the class and cultures of these authors necessarily affect such documents. They were also often describing a culture that they did not fully understand – a culture that was in a heightened state of disruption given the arrival of settlers and disease. Early written records and images can, however, be used in conjunction with archaeological information in order to gain a picture of Aboriginal life in the region. Oral histories from members of the Aboriginal community also provide valuable information. The following information relating to Aboriginal people of the Grafton region is based on such early detailed records.

The following information has been reproduced from the initial Biosis Research (2004) as no new ethno-historical sources have been found and this information has not altered since.

2.2.3 Aboriginal History

At the time of non-Aboriginal arrival in Grafton the area to the north of the Clarence River were Bundjalung lands. The Yaegl tribe occupied lands on the coast. The Clarence River and Grafton are within the area previously inhabited by the Gumbainggir people. These people also inhabited the steep terrain of the escarpment zone, located south of Grafton, where other sites and evidence of occupation have been found (Witter 2000).

The first interaction between the Aboriginal inhabitants of the Grafton region and the incoming European settlers came in 1825 in the form of an escaped convict, Richard Craig. Conflict between the Aboriginal population and the incoming settlers followed soon after initial European settlement. Killings were carried out by both communities and stock was speared to drive them off land.

One man, Coutts, a squatter, was tried for poisoning Aboriginal people with arsenic laced flour. He was acquitted (NSW Heritage Office 1996). Violence, displacement and disease reduced the numbers of Aboriginal people in the area. By 1891 it was reported that the police had brought 'peace'. Nine reserves had been created to house the remaining Aboriginal population and many Aboriginal people were employed in European industry as stockmen, cane strippers and fishermen (NSW Heritage Office 1996).

A community of Aboriginal people remains in Grafton to this day, many of them with strong spiritual links to the original inhabitants and important knowledge of their past ways of life.

2.3 Archaeological Context

2.3.1 Regional Archaeological Context

Isabel McBryde conducted a substantial amount of work in the Northern Rivers and New England regions in the 1970s (McBryde 1974). McBryde emphasised wide-ranging population movements on a seasonal basis suggesting that annual migration occurred between the coast and the tableland foothills, predicting a range of seasonal sites across resource zones. Other models for similar resource zones suggest a more sedentary based pattern focused on coastal areas. This would be demonstrated in the archaeological record by large repeated use sites in resource rich areas. Associated with this settlement pattern would be smaller transitory groups transecting more marginal resource areas such as ridge lines and watercourses. This movement would depend, to some extent, on the topography and would be characterised by small briefly inhabited sites (Hall and Lomax 1993). To date much work remains to be done to test these occupation models.

The oldest dated site in the region is the Seelands Rock Shelter site. It is located within 10kms to the northeast of Grafton. The Seelands site's relatively deep stratified deposit was excavated with occupation dating from 6400BP to 300BP, making it the oldest site in the region (Byrne 1981). The earliest levels of the rock shelter contained typical early core and flake type artefacts. A sequence of transition is also recorded within the shelter with ground edge axes and smaller artefacts such as backed blades appearing later in the assemblage (Haglund 1983).

The sandstone geology above the riverbanks provides rock overhangs suitable for locating shelter sites. Grinding grooves have also been recorded along the Clarence River in granite outcrops, beyond the immediate vicinity of the Grafton and South Grafton area.

2.3.2 Localised archaeological record

A small amount of archaeological work has been undertaken within the Clarence Valley region, with most consisting of development driven survey assessments being undertaken within and immediately surrounding Grafton (Byrne 1981; Haglund 1985; Navin and Officer 1990; Piper 1994a, 1994b).

The findings from this work can contribute an understanding of Aboriginal cultural heritage within the current project area by understanding sites within a similar context in the wider Clarence River Valley. Those most relevant to the Grafton and South Grafton proposal area have been summarised below.

Byrne (1981) undertook an Aboriginal archaeological survey of a proposed 330kV electricity line between Grafton and Lismore. The study resulted in the identification of three stone artefact sites. While not located within the proposed electricity line, the Parrotsnest Hill mythological site was discussed with the local Aboriginal community to ensure that the proposed works would not in any way affect the cultural values of the site, as such sites extend throughout the surrounding landscape and not restricted to a single point or feature.

Haglund (1985) was commissioned to undertake a desktop assessment of archaeological potential of proposed transmission lines between Coffs Harbour and Grafton. The study identified landforms which have the greatest potential for Aboriginal sites to be present, and was based on previous studies in the area. Over half of the sites identified were considered to be mythological or dreaming sites. Broad scale predictive models produced for this report suggest that various site types were likely to be present within the study area, including rockshelters with art, artefact sites and grinding grooves. The possibility of additional mythological sites was also mentioned.

Navin and Officer (1990) were engaged by the Electricity Commission of NSW to undertake an archaeological assessment of proposed 330kV transmission lines between Coffs Harbour and Koolkhan. During the survey for the project 50 sites were identified, including artefact sites, scarred trees, rock shelter

sites and quarry sites. Sites were located along ridgelines, knolls and spurs, as well as being associated with creeks. Areas of potential archaeological deposits were also identified. It is noted that several of these sites have been subject to s.90 Permits, with some of these completely destroyed (Navin and Officer 1990).

With the exception of rock shelter sites, Navin and Officer (1990) identified stream flats and areas of elevated ground adjacent to wetlands or flood plains as having highest archaeological potential. Flat areas on the crests of ridgelines and spurs were also found to be sensitive, but sites in these localities were likely to be of lower significance and greatly disturbed.

Piper (1994a) completed an archaeological survey for the Waterview Seelands Water Supply, approximately 6 km west of the Grafton and South Grafton area. The proposed underground pipeline runs from the junction of the Gwyder Hwy and Old Glen Innes Road, south for 7km. Ground surface visibility varied along the entire alignment. The pipeline route crosses flat, spur line crests where archaeological potential is considered to be highest. Despite the presence of sensitive landforms, only one Scarred Tree was recorded, 22m from the alignment.

Piper (1994b) undertook an archaeological survey at the Northern Hardwood Holdings property at Koolkhan, near Bunyip Creek, on the eastern margins of the current project area. Ground surface visibility across the study area was considered good. The general area comprised of flat grassed paddocks, some distance from a permanent water source. Based on this and the findings of the field survey, the area was identified as having only low archaeological potential.

2.3.3 Known Aboriginal Cultural Heritage

Field surveys for the *Main Road 83 Summerland Way - Additional Crossing of the Clarence River at Grafton: Preliminary Route Options Report – Final*. *Technical Paper: Aboriginal Heritage* (RMS, January 2012) was conducted on Tuesday 10 to Thursday 12 August 2010 by Melanie Thomson (Biosis) and Brett Duroux (Grafton-Ngerrie Local Aboriginal Land Council). The reconnaissance survey area included a number of properties along the Clarence River, including open floodplain and a number of minor creek lines and drainage features. The survey also focused on vegetation and open areas amongst the urban development of Grafton and South Grafton. Most of the areas accessed and surveyed consisted of thick grass cover or were heavily modified.

The results of the 2010 surveys identified six Aboriginal sites within the proximity of the Project Area, an updated search of the AHIMS register has not identified any additional sites. The six sites are listed in Table 1 following and the locations of these sites are shown in Figure 4.

Table 1: Known AHIMS sites within the proximity of the Project Area

AHIMS #	Site Name	Site Type	Notes
12-6-0219	Susan Island	Ceremonial Mound / Ring	Restricted, Women's site Access to site card by permission only.
12-6-0326	Clarence River Golden Eel	Aboriginal Ceremony and Dreaming	General restriction Access to site card by permission only.
12-6-0345	Dovedale Scar Tree	Modified Tree	Site card not available from AHIMS
12-6-0400	Alipou OC 1	Open Campsite	
12-6-0401	Alipou SCT 1	Modified Tree	
12-6-0402	Alipou SCT 2	Modified Tree	

Details for these sites listed are provided following. Information has not been included for Susan Island (12-6-0219) due to the culturally sensitive nature of this site.

Golden Eel site (12-6-0326) ceremonial and dreaming

The Clarence River Golden Eel site (Plate 1 and 2) is a culturally significant site, with a general restriction applying to access to the site card.

Plate 1: Looking across the Clarence River, to the southern banks near Alipou Creek, where part of the Golden Eel site story is linked

Plate 2: The Clarence River, identified as being created during The Dreamtime

Co-ordinates for this site have been provided by OEH however the extent of the site has not been specified. For the purposes of mapping the entirety of the Clarence River has been identified as an Aboriginal site, with the registered location of the site identified. At this stage, information on this site is limited.

There is no defined area for such Dreamtime stories but it is known that the Golden Eel site and the formation of the Clarence River are considered to be of high cultural significance to the local Aboriginal people.

Dovedale scar tree (12-6-0345) modified tree

Although the site card containing the details of the location of the tree was not available from the OEH AHIMS register, it is easily accessible and the location known to the Grafton-Ngerrie local Aboriginal land council.

Plate 3: Large Jacaranda tree situated in a row of large figs in east Grafton

Plate 4: Large uneven scar on the north eastern face of the tree

The tree is located at the end of a row of large fig trees on the corner of Berimba and Bacon streets (Plate 3). The tree species is a Jacaranda. The age of the tree is unknown and advice from an arborist should be sought with regards to the age of the tree and the authenticity of the scar (Plate 4).

Goorie Park (12-6-0216) modified tree

Although this site card was not available from the OEH AHIMS register, the location however is known to the Grafton-Ngerrie local Aboriginal land council and easily accessible. The tree was originally recorded in 1996. At this time, the tree was inspected for its authenticity. The site card notes at the time that 'the tree itself has been burnt out through the middle making identification slightly difficult as the majority of the scar has been burnt. The main factor that... [that it is considered] ...an Aboriginal scar is that the top of the scar comes to a broad point uniform to other scarred trees in the district' (Plate 5 and 6).

Plate 5: View of tree on the edge of the modified billabong

Plate 6: View of large open scar, facing south east

Alipou SCT 1 (12-6-0401) scarred tree

This scarred tree is situated on the open floodplain, 650m south of the Clarence River, and about 500m south of Alipou Creek (Plate 7). The tree is located on the fence line in the corner of the property. Only a few other scattered trees occur in the surrounding area.

The tree species is *Eucalyptus tereticornis* (River Red Gum) is alive and has a girth measuring 4.2m. The tree contains two separate scars, one facing north and one facing north east.

North facing scar: The scar itself measures 1.6m in length, 0.20m in width and has regrowth measuring approximately 0.30m (Plate 8). The scar does not exhibit any axe marks and the tree contains no toe holds.

North east facing scar: The scar itself measures 1.9m in length, 0.30m in width and has regrowth measuring approximately 0.40m. The scar does not exhibit any axe marks and the tree contains no toe holds.

Plate 7: Location of scarred tree Alipou SCT 1 on fence line near corner of property, facing north east

Plate 8: North facing scar on a medium sized *Eucalyptus tereticornis* (River Red Gum)

Alipou SCT 2 (12-6-0402) scarred tree

This scarred tree is situated on the open floodplain, 900m south of the Clarence River, and about 400m west of Alipou Creek. The tree is located on the fence line in the corner of the property, close to the Pacific Highway and an existing levee bank (Plate 9). The tree is located amongst a small scatter of surviving river red gums that stretch along the northern boundary of the property.

The tree species is *Eucalyptus tereticornis* (river red gum) is dead and has a girth measuring 3.15m. The tree contains one scar facing east.

The scar itself measures 2.25m in length, 0.35m in width and has regrowth measuring approximately 0.40m – although this is difficult to determine as the dry face is no longer present (Plate 10). The scar does not exhibit any axe marks and the tree contains no toe holds.

Plate 9: Location of scarred tree Alipou SCT 2, near Pacific Hwy boundary and existing levee bank, facing west.

Plate 10: Distinct scar in dead *Eucalyptus tereticornis* (River Red Gum). The top half of the tree has broken off.

Alipou OC 1 (12-6-0400) open campsite

The site is situated on the western bank of Alipou Creek and has been exposed by an eroded drainage channel that runs between the planted tea tree rows (Plate 11). The ground surface visibility was high in this section of the drain and the artefacts were identified eroding out of the banks of the drainage feature. The site extended along the length of the drainage feature, covering an area approximately 50 x 15 m.

Plate 11: Location of Alipou OC 1 stone artefact camps site, on the banks of the creek, facing north west

Plate 12: Chert core was identified amongst the stone artefacts at this site

A total of 10 stone artefacts were recorded at the site and the details are as follows:

- 1 x quartz complete flake with 25% cortex (measures 26x12x7mm).
- 1 x yellow mudstone complete flake with smooth pebble cortex of 25% (measures 62x42x12 mm).
- 1 x chert complete flake with 60% cortex (measures 36x39x7mm).
- 1 x quartz broken flake (measures 22mm).
- 1 x quartz complete flake with 25% cortex (maximum 15mm).
- 1 x quartz multi-facial core (measures 17x15x7mm).
- 1 x quartz angular fragment (maximum 20mm).
- 1 x quartz medial flake (maximum 14mm).
- 1 x silcrete broken flake (maximum 27mm).
- 1 x chert multi-facial core (measures 28x27x19mm) (Plate 12).

It is evident that the site has been partially disturbed through the construction of the cut drainage feature. Following this, erosion has caused further exposure of the site within the feature. The areas adjacent to the identified site are likely to contain further archaeological material, although this has been partially impacted by the planted tea-trees.

North Street
Queen Street
Elizabeth Island
Hoof Street
Summerland Way
Grafton
12-6-0216
Villiers Street
Susan Island
Prince Street
Fry Street
Pacific Highway
Fitzroy Street
12-6-0345
Clarence River
Alipou Creek
Gwydir Highway
South Grafton
12-6-0401
12-6-0086
12-6-0402
12-6-0400
12-6-0352
12-6-0340

Legend

Grafton Bridge project

Registered Aboriginal Archaeological sites

Habitation Structure, Potential Archaeological Deposit

Modified Tree

Artefact scatter

Cultural Values/Places

Aboriginal Ceremony and Dreaming, Men's site

Ceremonial Ring, Women's site

Dreaming/Creation Story

Golden Eel Site + Marriage Tree

Great Marlow Region

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Figure 4: Aboriginal Heritage Sites in Proximity to the Project Area

Acknowledgements: Imagery provided by Arup

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2.4 Aboriginal archaeological potential

During the 2010 field survey, an assessment for Aboriginal archaeology potential was undertaken for landforms. Areas of high, moderate and low archaeological potential were identified (see Figure 5 following). These areas are indicated on potential mapping and outlined in Table 2 below.

Table 2: Areas of Aboriginal archaeological potential within the Project Area.

Defined Area of Aboriginal ArchaeolOgical Potential	Location of Areas of potential
Low Aboriginal archaeological potential - Areas that have been identified as having specific locations where there has been a high degree of disturbance since the arrival of non-Aboriginal people, where the impact has been to the extent where no intact deposits are believed to be present. Areas may also include steep slopes or plains away from water sources. Artefacts found in this area are likely to be isolated, representative of 'background scatter', or in a highly disturbed context.	Existing roads, urban development, highly disturbed section of Clarence River bank, residential properties, and low-lying flood prone flood plain subject to annual inundation.
Moderate Aboriginal archaeological potential - Moderate likelihood for intact Aboriginal archaeological remains – Areas where minor post contact disturbance has occurred; the area is located along creeks and waterways where short term campsites may have been present. Artefact scatters are likely to vary in density, but are concentrated in small areas.	Northern and southern banks of Clarence River, Apliou Creek banks, other minor creeks and drainage features, foothills, remnant stands of mature vegetation.
High Aboriginal archaeological potential - High likelihood for intact Aboriginal archaeological remains – Areas associated with major creek lines, raised flat landforms such as ridges and hills, or where there has been minimal disturbance to the specific area and it is believed that an intact sensitive landscape exists. Artefacts that remain within these areas are likely to be high density and large in size.	Sections of the northern and southern banks of Clarence River, undisturbed banks of Alipou Creek and some minor creek lines, Susan and Elizabeth islands.

For the purposes of this investigation, archaeological potential reflects not only the archaeological potential of different landforms, but also the levels of previous disturbance, as this affects the integrity of archaeological deposits. The degrees of archaeological potential outlined above are not a reflection of the presence or absence of cultural material.

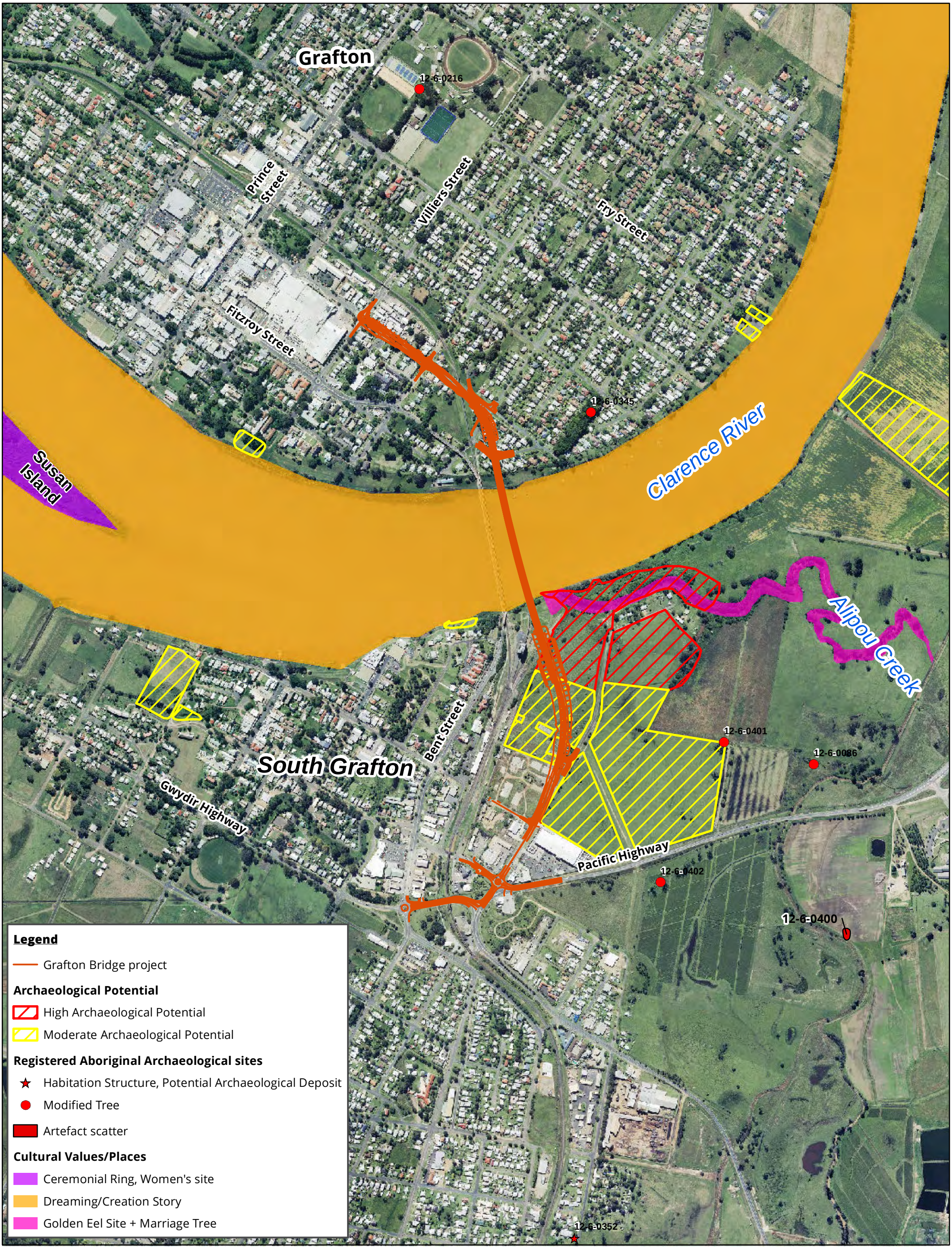

Figure 5: Areas of Aboriginal archaeological potential defined during the field surveys

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Acknowledgements: Imagery provided by Arup

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3 Assessment Methodology

As part of the specialist studies to be undertaken for the Environmental Impact Statement, an assessment of impacts on Aboriginal heritage including cultural and archaeological significance will be conducted to support the Part 5.1 project application. The assessment methodology aims to identify the nature, extent and significance of any Aboriginal cultural heritage values that may be present within the Project Area. The archaeological methodology proposed below has been devised in light of these requirements and the results of the *Main Road 83 Summerland Way-Additional Crossing of the Clarence River at Grafton, Preliminary Route Options Report: Technical Paper: Aboriginal Heritage* (RMS, January 2012) and the *Main Road 83 Summerland Way-Additional Crossing of the Clarence River at Grafton: Route Options Development Report Technical Paper – Aboriginal Heritage* (RMS, August 2012). This methodology will be forwarded to the Grafton-Ngerrie LALC for comment and comments received will be incorporated into the methodology. A table showing the relationship of the consultation and assessment process is provided on Page 26.

3.1 Aboriginal Community Consultation

To date, Aboriginal community consultation has been undertaken following the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW) and in accordance with RMS (Roads and Maritime Service, then RTA) *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI). The consultation process for the entire project has been initiated and overseen by the RMS.

The Grafton-Ngerrie LALC was the only respondent and as such, will continue to be consulted as the primary stakeholder group for the current Project Proposal.

Further consultation with the Grafton-Ngerrie LALC will assist in identifying areas of Aboriginal cultural significance and appropriate management strategies.

Stage 1: Notification of project proposal and registration of interest

This stage determines those individuals or groups to be consulted for the project.

As RMS has already completed this part of the consultation process, no additional work will be required for this stage.

Stage 2: Presentation of information about the proposed project

This stage aims to provide information about the project to Grafton-Ngerrie LALC. The Grafton Bridge project is currently in this stage in the consultation process. Project information will be presented as an introduction to the Project Methodology as follows:

- Biosis, on behalf of RMS, will either present or provide information to Grafton-Ngerrie LALC on the project. This would include detailed documentation and mapping of the Grafton Bridge project. A record or consultation log of all communications should be kept by both Biosis and RMS. The log should include any agreed outcomes or any issues raised that may require further discussion. This should then be provided to all registered Aboriginal parties; and
- As the project site has already been assessed and visited by various members of the Grafton-Ngerrie LALC during previous project stages, no additional site visits or on-site meetings will be required at this stage.

Stage 3: Gathering information about cultural significance

This stage involves providing a methodology for the proposed cultural heritage investigations, consultation program, providing results of field assessment to date, along with gathering information about cultural values identified by registered Aboriginal parties during the investigation process.

The following activities will be undertaken:

- Biosis will provide the details of the proposed works, proposed continuation of the consultation methodology and a summary of previous regional work in the form of an Aboriginal Heritage Methodology Information Pack to Grafton-Ngerrie LALC;
- In additional to the already identified Golden Eel Site, Biosis will seek Grafton-Ngerrie LALC to identify any Aboriginal objects or cultural value or places of cultural value within or in close proximity to the Project Area; and
- Grafton-Ngerrie LALC must be given a period of **28 days** to review the methodology and provide feedback to Biosis. However, Grafton-Ngerrie LALC may provide feedback before the 28 day review period is finished.

Stage 4: Aboriginal Cultural Heritage Assessment Report (ACHAR)

This stage would involve the completion of an ACHAR that details all field investigations and results, including mapping, undertaken for the project to date. This information will be summarised by the findings of both the *Main Road 83 Summerland Way-Additional Crossing of the Clarence River at Grafton, Preliminary Route Options Report: Technical Paper: Aboriginal Heritage* (RMS, January 2012) and the *Main Road 83 Summerland Way-Additional Crossing of the Clarence River at Grafton: Route Options Development Report Technical Paper – Aboriginal Heritage* (RMS, August 2012).

- Following the completion of all required archaeological and cultural heritage work, a meeting to discuss the findings and proposed mitigation and management recommendations should be held between RMS and Grafton-Ngerrie LALC. All comments and concerns would be considered and incorporated into the Final ACHAR.
- Biosis will complete a DRAFT ACHAR outlining the findings of the field surveys, assessments of significance, feedback from the Grafton-Ngerrie LALC during the assessment and recommendations for the management of Aboriginal heritage;
- Once completed, the DRAFT ACHAR will be provided to Grafton-Ngerrie LALC for comment – RMS must allow **28 days** for comment; and
- The ACHAR would then be finalised by Biosis and include all comments and correspondence sent and received regarding the project as an Appendix to the completed ACHAR.

Assessment Process	
Aboriginal Consultation Stages	**Actions**
Stage 1 Notification of Project Proposal and Registration of interest	Stage 1 consultation has been completed by RMS
Stage 2 Presentation of information about the proposed project	Project information will be provided to the Grafton-Ngerrie LALC as part of the Aboriginal Heritage Methodology Pack.
Stage 3 Gathering information about cultural significance	**Aboriginal Heritage Methodology Pack** Provision of the Aboriginal Heritage Methodology Pack to Grafton-Ngerrie LALC for review. Grafton-Ngerrie LALC must be given a period of **28 days** to review the methodology and provide feedback to Biosis. However, Grafton-Ngerrie LALC may provide feedback before the 28 day review period is finished.
	Archaeological Survey Targeted survey of the Project Area with Grafton-Ngerrie LALC representatives. Biosis will seek Grafton-Ngerrie LALC to identify any Aboriginal objects or cultural value or places of cultural value within or in close proximity to the Project Area.
	Sub Surface Testing Archaeological test excavation with Grafton-Ngerrie LALC representatives, in areas of Aboriginal archaeological potential identified in the Project Area during previous surveys.
	Geotechnical Testing Pending the results of the archaeological survey and test excavations, Aboriginal heritage clearance works may be undertaken during geotechnical testing.
Stage 4 Review of draft cultural heritage assessment report	**Draft ACHA Report** Biosis will complete a draft ACHAR outlining the findings of the field surveys, assessments of significance, feedback from the Grafton-Ngerrie LALC during the assessment and recommendations for the management of Aboriginal heritage. Once completed, the draft ACHAR will be provided to Grafton-Ngerrie LALC, and **28** days will be provided for comment.
	Final ACHA Report All comments and responses to the review will be documented in the final ACHA report.

3.2 Archaeological Survey

3.2.1 Aims of the Survey

The aims of the survey are to:

- Provide the registered Aboriginal parties an opportunity to view the Project Area and to discuss previously identified Aboriginal objects and places in or within close proximity to the Project Area;
- To undertake a systematic survey of the Project Area targeting areas with the potential for Aboriginal heritage that have not been previously surveyed and site testing locations;
- Identify and record Aboriginal archaeological sites visible on the ground surface; and,
- Identify and record areas of potential archaeological deposits (PADs).

3.2.2 Survey Methodology

The survey methods are intended to assess and understand the landforms and to determine whether any archaeological material from Aboriginal occupation or landuse exists within the Project Area. Identification of natural soil deposits within the Project Area will be undertaken if possible. Photographs and recording techniques will be incorporated into the survey including representative photographs of survey units, landforms, vegetation coverage, ground surface visibility and the recording of soil information for each survey unit. Any Aboriginal objects observed during the survey will be documented and photographed. Since this is purely a survey no artefacts are to be removed from the site.

Recording during the survey will follow the guidelines of the OEH, in particular the *Code of Practice for Archaeological Investigation of Aboriginal objects in New South Wales* (DECCW 2010).

Information that will be recorded during the survey will include:

- Aboriginal objects or sites present in the study area during the survey;
- Survey coverage;
- Any resources that may have potentially have been exploited by Aboriginal people;
- Landforms;
- Photographs of the site indicating landforms;
- Evidence of disturbance; and,
- Aboriginal artefacts, culturally modified trees or any other Aboriginal sites.

Distinguishing landform elements and their association with Aboriginal cultural heritage will assist with the identification of site patterning, though with the awareness of the following limitations:

- The degree of ground surface visibility (GSV) and amount of exposed areas can significantly bias the discovery of surface artefacts; and,
- Cultural material exposed on the surface is not necessarily representative of the potential extent of the site (either horizontally or vertically).

Information about the presence of potentially exploitable resources helps contribute to predictions of the Aboriginal sites that may occur within the Project Area. Information about GSV, disturbance and areas of exposures help to provide a general indication of the effectiveness of the survey for identifying Aboriginal cultural heritage exposed to the surface. Observable disturbances are also considered when assessing the

integrity of known or potential sites for an area. The location of Aboriginal cultural heritage and points marking the boundary of the landform elements will be recorded using a hand-held Global Positioning System and the Map Grid of Australia (94) coordinate system.

3.3 Sub Surface Investigations

Areas of Aboriginal archaeological potential were identified in the Project Area during previous surveys and the preferred option route alignment will not avoid impacts to these areas. Sub surface investigations will be undertaken to determine the extent, nature and significance of any potential Aboriginal cultural material in these areas. It is proposed to excavate three 1m by 2m test trenches in areas of archaeological potential in the Project Area. The locations of these proposed test trenches are shown Figure 6. Two test trenches will be focused within the area identified as being high potential and one additional test trench will be excavated within the area of moderate potential.

The proposed sub-surface investigation methodology is informed by the *Code of Practice for Archaeological Investigation of Aboriginal objects in New South Wales* (DECCW 2010) and will be undertaken by hand in the following manner:

- Each 1m x 2m test trench will be excavated in 50cm by 50cm units and in 5cm spits;
- All test excavation locations will be excavated using hand tools only;
- All material excavated from each test location will be sieved using a 5 mm aperture wire-mesh sieve;
- All test excavation locations will be excavated to a culturally sterile layer; and,
- Records of each test excavation location will be undertaken which will include the following:
  - unique test pit identification number;
  - soil colour and texture;
  - amount and location of artefacts within deposit;
  - nature of disturbance if present;
  - stratigraphy;
  - archaeological features (if present);
  - photographic records; and,
  - spit records.

For safety reasons all test pits will be backfilled with sieved spoil at the end of the excavation to ensure a level surface within the study area. Depending on the results of hand excavation, requirements for mechanical excavation may be discussed.

Prior to sub-surface investigations taking place, the final sub-surface investigation methodology incorporating all comments, would be forwarded to them for their records.

3.4 Geotechnical Testing

It is understood that geotechnical investigations will need to be undertaken to inform the Project design and ACHA impact assessment process. If following sub surface testing it is determined Aboriginal cultural material is likely to be impacted by geotechnical testing then a clearance program may be required if

geotechnical testing locations are likely to cause harm and are unable to be relocated. The methodology of a clearance program will be informed by the results of sub surface testing and the nature of geomorphological testing to be undertaken. Tasks that may be undertaken in a clearance program may include:

- Targeted surface survey and collection of cultural material;
- Targeted sub surface investigations at geotechnical testing locations, which may include:
  - Manual hand auger probes at borehole locations;
  - Manual test trench excavation at geopitting locations;
  - Mechanical trench excavation at geopitting locations; and/or
  - Mechanical sieving of geopitting works.

If sub surface testing indicates that Aboriginal cultural material is unlikely to be impacted by geotechnical testing then further heritage works will not be required.

3.5 Aboriginal Cultural Heritage Assessment Report

Biosis Research will prepare an ACHA and an Archaeological Assessment report for the proposed development. As per current ACHA reporting requirements, the archaeological report will be prepared as separate appendix to the ACHA. The main aims of the reports are to document the assessment of potential development related impacts to Aboriginal cultural heritage and to formulate strategies to manage these impacts. Reporting will follow the guidelines of the OEH, in particular the *Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010* and the Consultation Guidelines 2010.

The reports will contain:

- Aboriginal Consultation Process;
- Environmental Context;
- Aboriginal Archaeological Context;
- Survey Results;
- Aboriginal Site Significance Assessment;
- Impact Assessment;
- Management Strategies; and
- Mapping.

Strategies to manage development related impacts to Aboriginal cultural heritage will be formulated through consultation with the Aboriginal parties (DECCW 2010: 1-2, 7, also see 15). The development of these strategies will be principally based on the significance of this heritage, particularly, its cultural and archaeological (scientific) value (DECCW 2010: 13).

As a starting point, Biosis will develop preliminary strategies based on the archaeological (significance) of cultural heritage relevant to the Project. These strategies will also be influenced by:

- predicted impacts to Aboriginal cultural heritage;
- planning approvals framework;
- current best conservation practice; and the ethos of the Australia ICOMOS Burra Charter.

These strategies will be presented to the Grafton-Ngerrie LALC in the draft ACHA report and their comments sought. Proposed modifications or further strategies are to be provided by the Grafton-Ngerrie LALC's respective nominated spokesperson(s).

The registered Aboriginal parties will be provided with the draft ACHA report and their comments sought as per Stage 4 consultation requirements. Comments on the report's content are to be provided to RMS/Biosis by Grafton-Ngerrie LALC in writing. All comments not provided in writing will be recorded in a logbook by RMS and Biosis. All suggestions will be documented and described as they were understood by RMS/Biosis in the final ACHA report (DECCW 2010:6). In the final ACHA report, Biosis will also explain how suggestions were considered and/ or implemented in the finalisation of the management plan (DECCW 2010:6).

These comments and responses to these comments will be documented in the final ACHA report. RMS will consider and respond to all comments and will also explain how suggestions concerning management strategies were considered and/or implemented in the finalisation of the management plan (DECCW 2010: 6).

3.5.1 Final ACHA Report

The final ACHA report will be provided to Grafton-Ngerrie LALC, OEH and RMS.

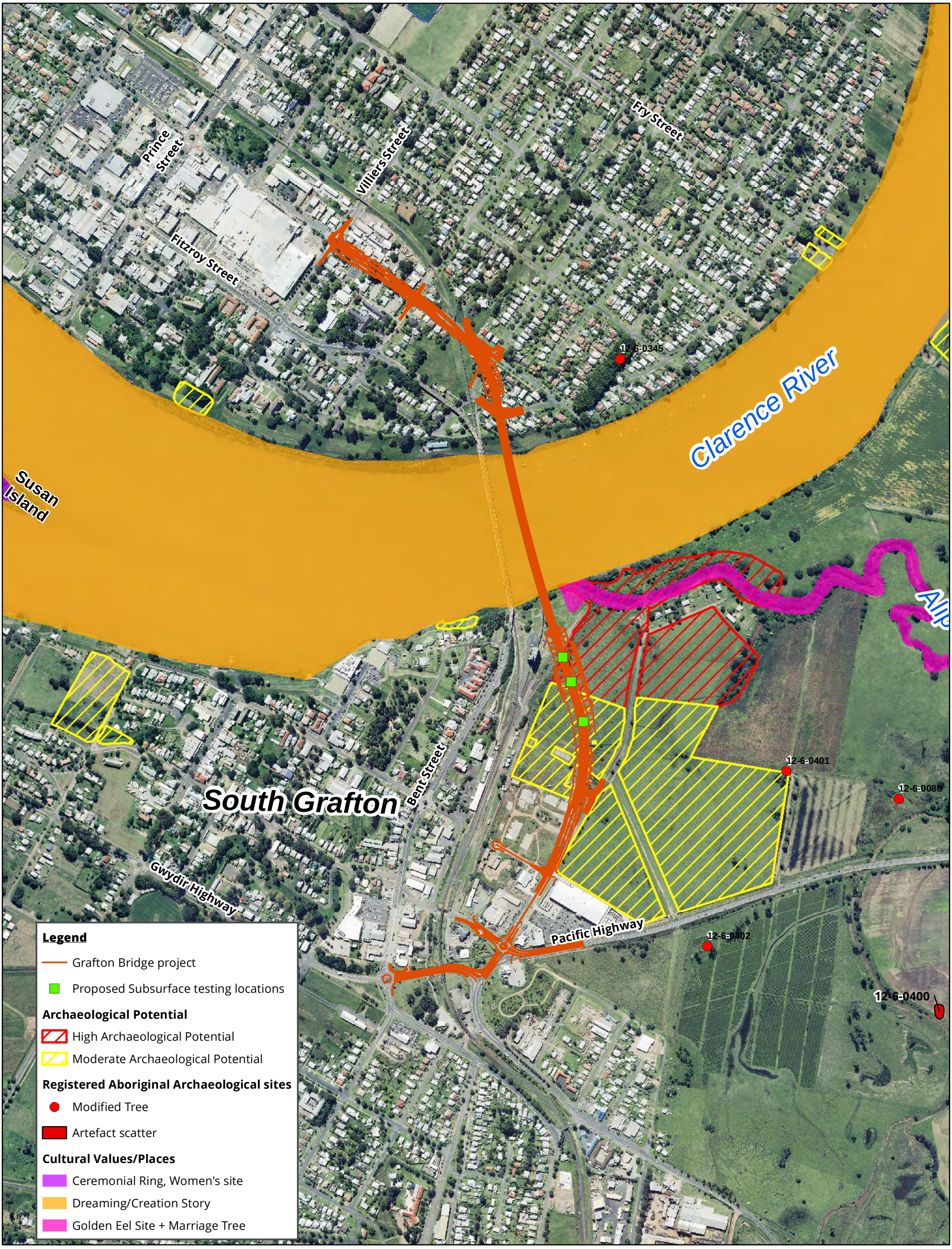

Figure 6: Proposed Sub Surface Testing Locations

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Acknowledgements: Imagery provided by Arup

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