7.2 Aboriginal heritage

This section assesses Aboriginal heritage impacts of the project. The assessment is supported by an Aboriginal Cultural Heritage Assessment Report (CHAR) prepared by an experienced and suitably qualified heritage consultant, which is presented in Working paper 3 (refer to Volume 2). The Director General's requirements for Aboriginal heritage have been addressed in the assessment (as detailed in **Table 7-8** below) as well as the relevant requirements of Schedule 2, Part 3 of the *Environmental Planning and Assessment Regulation 2000*.

Table 7-8 Director General requirements for Aboriginal heritage

Director General's requirements	Where addressed
The EIS must address the following specific matters: **Heritage –** including but not limited to:	
• impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to potential archaeological deposits (PAD) on the northern and southern banks of the Hawkesbury River and archaeological objects/ relics below the existing built environment should be assessed.	Section 7.2.3
Where impacts are identified, the assessment shall:	
– outline the proposed environmental management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) generally consistent with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (Department of Environment and Conservation, 2005),	Section 7.2.4
– be undertaken by a suitably qualified heritage consultant(s),	Section 7.2 and Volume 2- working paper 3
– demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and environmental management measures (including the final proposed measures), and	Section 7.2.1, Chapter 6 and Volume 2- working paper 3
– develop an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations of the areas of PAD identified in a manner that establishes the full spatial extent and significance of any archaeological evidence across each area of PAD, and include the results of these excavations.	Section 7.2.4 and Volume 2- working paper 3

7.2.1 Guidelines and methodology

Overview

The Aboriginal cultural heritage assessment undertaken for this EIS involved Aboriginal community consultation and a geoarchaeological and Aboriginal archaeological investigation. The assessment was undertaken in consultation with the NSW Department of Planning and Infrastructure and Office of Environment and Heritage, and in accordance with the Director General's requirements and the following guidelines:

- Office of Environment and Heritage Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC, 2005).
- RMS' *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI). The PACHCI is generally consistent with the Office of Environment and Heritage draft guidelines and the updated DECCW (2010) consultation guidelines.

The assessment covered the areas within and adjacent to the project footprint on the northern and southern banks of the Hawkesbury River, as well as archaeological evidence below the existing built environment. The scope of the assessment included:

- A search of the *Aboriginal Heritage Information Management System* (AHIMS) database to identify any previously recorded Aboriginal sites in the study area.
- A geomorphic and archaeological background assessment of the study area.
- Geoarchaeological and Aboriginal archaeological investigations, including test excavations.
- Assessment of significance of identified Aboriginal archaeological deposits and artefacts.
- Identification of environmental management measures.

Aboriginal community consultation

RMS is committed to effective consultation with Aboriginal communities about RMS activities and the potential impacts of these activities on Aboriginal heritage. Accordingly, an Aboriginal community consultation program for the project has been developed and implemented in accordance with RMS' PACHCI and Office of Environment and Heritage guidelines (DEC, 2005 and DECCW, 2010).

The Aboriginal community consultation program involves all relevant Aboriginal stakeholders, including representatives from the Deerubbin Local Aboriginal Land Council and the stakeholders identified and registered for the project through the DEC (2005) process. Details of the consultation process and the registered Aboriginal stakeholders are provided in the CHAR (Volume 2 - Working paper 3).

The consultation process has involved the establishment of an Aboriginal Focus Group (AFG) to represent the interests of the Aboriginal community and assist RMS in the identification and assessment of impacts, development of appropriate methodologies and development of the impact mitigation strategy. An AFG meeting was held at the Windsor Museum on 29 February 2012, at which the results of the preliminary archaeological and Aboriginal cultural heritage assessments and methodologies for test excavation were presented and discussed.

A second AFG meeting was held at Argyle Street Parramatta on 24 May 2012, at which the results of the test excavations and management recommendation were presented and discussed.

A copy of the draft CHAR was provided to Aboriginal stakeholders for a 28 day review and comment period. Comments received from stakeholders were addressed in the final CHAR and copies of the original submissions are attached to the document (refer to Working paper 3).

Consultation with the local Aboriginal community is ongoing and would continue as required in the detailed design and construction of the project (if the project is approved).

Geoarchaeological and Aboriginal archaeological investigations

A robust method for the geoarchaeological and Aboriginal archaeological investigations was established in consultation with the NSW Department of Planning and Infrastructure and Office of Environment and Heritage. The investigation was designed to determine the:

- Presence or absence of sand bodies within the study area, which are linked to the presence of Aboriginal archaeological deposits.
- Presence or absence of Aboriginal archaeology within the study area in general, regardless of the presence of sand bodies.
- Integrity, extent and spatial distribution of archaeological deposits.

The archaeological assessment methodology and research design were reviewed and endorsed by the NSW Department of Planning and Infrastructure, Office of Environment and Heritage,and the AFG before the start of test excavations. Fieldwork for the investigations commenced on 2 May 2012 and were completed on 8 May 2012.

Preliminary information to guide the investigations was obtained from six geotechnical boreholes along the proposed alignment of the replacement bridge and approach roads, including three boreholes on the northern side of the river and three on the southern. These geotechnical boreholes were located both to inform the design of the bridge and provide geological information for heritage assessments.

The project footprint[8] was divided into two investigation areas, with each subject to specific archaeological investigations to inform the Aboriginal heritage assessment:

- One area on the north side of the river, referred to as Windsor bridge replacement north (WBR North).
- One area on the south side of the river, referred to as Windsor bridge replacement south (WBR South)

WBR North was located on a level floodplain area immediately adjacent to the Hawkesbury River, on an area used for turf production. Archaeological investigations within this area involved one borehole and four hand excavated test squares.

WBR South was located on the south bank of the Hawkesbury River, spanning a moderately inclined mid-slope and gently inclined upper slope area.

[8] Including the design boundary of the replacement bridge and approach road modifications, and the associated construction areas.

Geoarchaeological investigations within this area involved seven boreholes and five hand excavated test squares. The locations of the test squares were limited by urban infrastructure and guided by the geotechnical and geoarchaeological boreholes.

Each test square was around one square metre in area and one metre deep. All excavated material was wet sieved through nested 2.5 millimetre and five millimetre mesh screens, with artefacts retained for further examination.

Scientific values and significance assessment

The assessment of significance is a key step in heritage impact assessment as the significance or value of an object, site or place will be reflected in resultant recommendations for conservation, management or impact mitigation. Current best practice requires the assessment of significance according to criteria established in the Australia ICOMOS Burra Charter, 1999 (Australia ICOMOS 1999). Guidelines to the Burra Charter set out four criteria for the assessment of cultural significance:

- Aesthetic value - relates to the sense of the beauty of a place, object, site or item.
- Historic value - relates to the association of a place, object, site or item with historical events, people, activities or periods.
- Scientific value - scientific (or research) value relates to the importance of the data available for a place, object, site or item, based on its rarity, quality or representativeness, as well as on the degree to which the place (object, site or item) may contribute further substantial information.
- Social value - relates to the qualities for which a place, object, site or item has become a focus of spiritual, political, national or other cultural sentiment to a group of people.

The assessment of these values are brought together to form a comprehensive assessment of significance.

7.2.2 Existing environment

Previously recorded sites

Records of previously identified sites on the AHIMS database show that there are two potential archaeological deposits (PADs) and four isolated finds within or adjacent to the project footprint (see **Table 7-9** and **Figure 7-10**). These finds were identified during preliminary studies prior to the selection of the preferred option.

Table 7-9 Aboriginal archaeological sites previously recorded on the AHIMS database and located within the project footprint

Site name	AHIMS ID number	Site type	Location
North Bank PAD W-NP	45-5-3580	PAD	North bank
South Bank PAD W-SP	45-5-3581	PAD	South bank
W1	45-5-3582	Isolated find	North bank
W2	45-5-3583	Isolated find	North bank
W3	45-5-3584	Isolated find	North bank
W4	45-5-3585	Isolated find	North bank

Two additional Aboriginal sites have been recorded within 150 metres of the project footprint during previous Aboriginal heritage investigations for other development projects (refer to **Figure 7-10**):

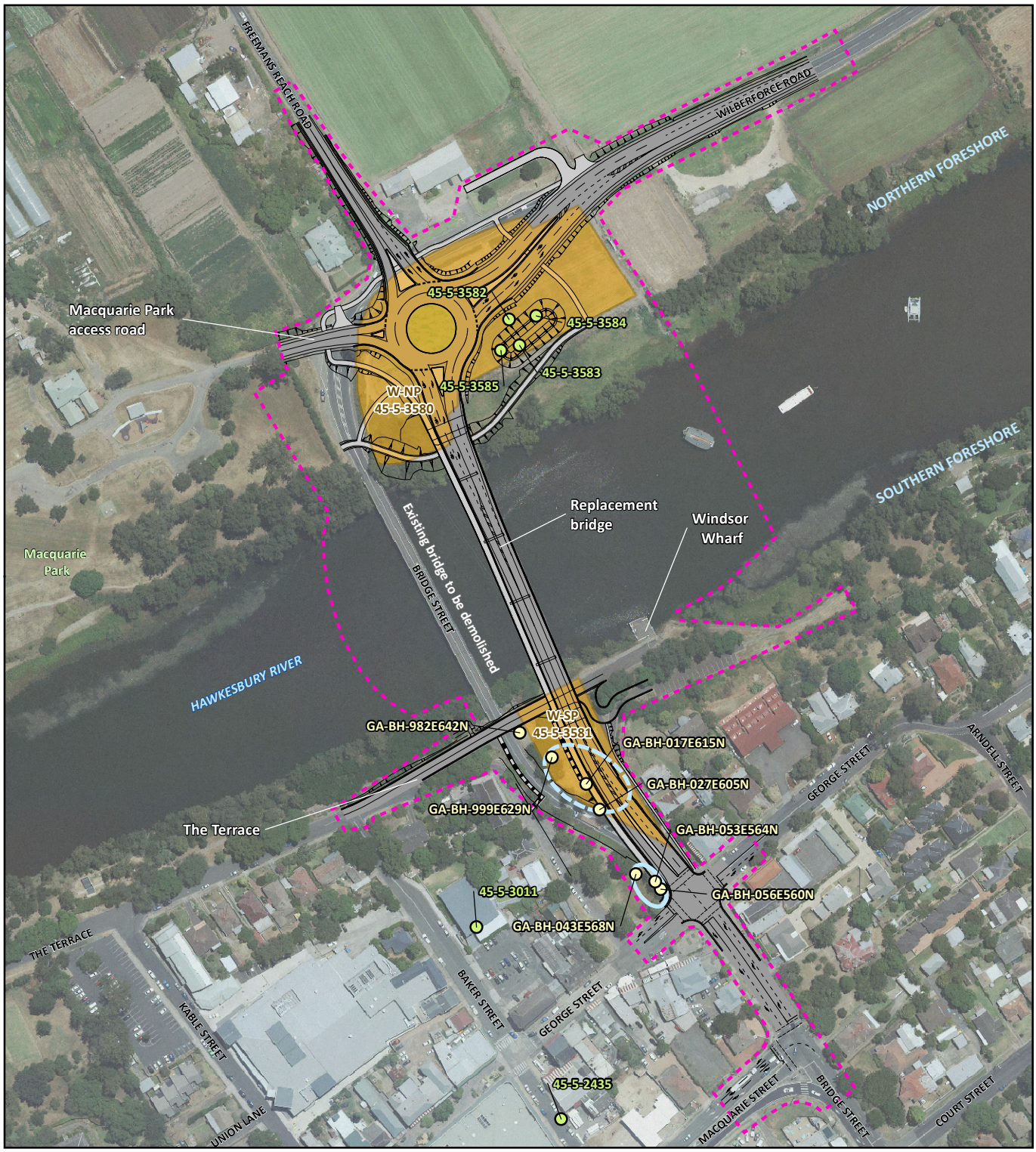
- AHIMS ID 45-5-3011, located adjacent to the Windsor Museum.
- AHIMS ID 45-5-2435, located at the corner of Baker and George Streets.

Previous Aboriginal archaeological investigations at Windsor Museum (AHIMS ID 45-5-3011) revealed a sandy deposit believed to represent an intact Pleistocene sand dune containing over 12,000 lithic items or artefacts. The majority of artefacts identified were unmodified flakes, with one grindstone also recovered. Sediment from the artefact bearing layers was dated to between 8,500 +/- 800 years and 33,900 +/- 1,700 years old and displayed moderate integrity, with the majority of archaeological deposit within the proposed development area being undisturbed.

It is the presence of similar sand bodies within the project footprint that the further archaeological investigations outlined below sought to confirm.

Previous investigations at the corner of Baker and George Streets (AHIMS ID 45-5-2435) indicated a moderate quantity of Aboriginal material interspersed within sometimes high levels of disturbance.

Figure 7-10 | Aboriginal heritage sites



LEGEND

- Concept design
- Construction work zone
- Registered Aboriginal Site location
- Test pit location
- Potential Archaeological Deposit (PAD)

Location of potential artefact sites

- Deep coarse sands
- Shallow fine sands

Indicative only – subject to detailed design

GDA 1994 | MGA Zone 56
A4 1:3,000

0 100
Metres

AUSIMAGE SKM

Project investigation areas

Test excavations undertaken for the project on the northern and southern banks of the Hawkesbury River confirmed the presence of subsurface Aboriginal archaeological material within the project footprint. The previously recorded PADs on the northern bank (W-NP AHIMS ID 45-5-3580) and southern bank (W-SP AHIMS ID 45-5-3581) were confirmed as archaeological sites as a result of the test excavations.

The test excavations revealed a total of 191 stone items considered to be Aboriginal artefacts. Most of these (93 per cent) were recovered from just two test squares on the southern bank.

The majority of recovered artefacts comprised flaked debitage (the waste flakes from creating stone tools). There were also modified cobbles of quartzite or their fragments. One igneous flake, probably off an edge ground hatchet head, was also identified. Further details of the findings at the project investigation areas are provided below.

Northern bank

The investigation area on the northern bank of the river was found to contain deep homogenous floodplain sediments. It is assumed that frequent but low intensity sediment deposition events associated with flooding would have diluted the gradual accumulation of archaeological materials left behind by low intensity hunter-gather activities. The density of artefacts is therefore expected to be very low and artefacts are also expected to have been occasionally displaced during large flood events.

The four test squares on the northern bank revealed a uniform deep alluvial silty loam profile with sparse Aboriginal stone artefacts. A total of six artefacts were collected from four test squares, with five of these found within a single test square. These artefacts were small and rolled, and mixed with redeposited historical material, indicating that the artefacts have been redeposited.

As this area is subject to flooding it is likely that any remaining archaeological objects would have been moved, thereby reducing their scientific value. For this reason, the northern bank investigation area, comprising the existing cultivated turf farm and paddock between the river and Wilberforce Road, is considered to have generally low archaeological significance. There were few artefacts and a low potential for intact archaeology.

Southern bank

The investigation area on the southern bank was found to contain preserved shallow aeolian topsoils on the upper slopes and deep intact sand profiles at mid to lower-slope locations. A total of 185 artefacts were recovered from two of the five test squares, with the three remaining test squares being extensively truncated or mixed by historical road works, landscaping and probable floods.

The highest artefact density was found in the most elevated test square, which was located on the top of the river bank, above the 100 year flood level, in the south east corner of Thompson Square adjacent to George Street. This test square revealed a partially intact sand layer containing 114 stone artefacts. The remainder of artefacts were found in a mid-slope test square below the 100 year flood level. This test square revealed a layered grey humic sandy deposit with moderate artefact densities (64 artefacts) mixed in with historical material. The archaeological material included a disturbed Aboriginal shell midden, possibly redeposited during historic times.

The area of the southern bank is considered to have a higher archaeological significance than the northern bank due to the greater densities of artefacts found and the greater potential for intact artefacts to occur. The results of the geomorphic assessment and the types of artefacts recovered from the southern bank investigation area may also provide information on important cultural dates, which further adds to the significance of the area. The geomorphic assessment, for example, indicated the presence of a partially intact sand layer that has been preserved beneath historic fill material, with the majority of the identified artefacts found within this layer. Furthermore, the identified artefacts included stone tools, which can linked to specific periods of Aboriginal cultural history. No backed artefacts were identified during previous surveys at the Windsor Museum site.

Cultural significance

Throughout the Aboriginal stakeholder consultation process and discussions on-site between stakeholders and archaeologists, it has been clearly identified that the study area has cultural heritage value to the local Aboriginal community. Some of the Aboriginal cultural heritage values expressed by stakeholders include:

- Strong association with the land.
- Responsibility to look after the land, including the heritage sites, plants and animals, creeks and the land itself.
- Artefact sites, especially the high value site associated with the Windsor Museum.
- Historic Aboriginal and European interactions within Windsor.
- Landscape features especially the sand bodies along the Hawkesbury River.
- Indigenous plants and animals.
- General concern for burials, as their locations are not always known and they can be found anywhere.

Summary

Known and potential Aboriginal archaeology occurs within the study area. The study area also has cultural heritage value to the local Aboriginal community.

Significant archaeological deposits occur within parts of Windsor, including within the project footprint. The significance of the archaeological deposit is linked to the presence of sand bodies and is influenced by the extent of soil disturbance.

The Aboriginal archaeological significance of the area within the project footprint is highest on the southern bank of the river. This area has high artefact densities and intact archaeological deposits, as well as archaeological records that may provide information on important cultural dates. In contrast, the area of the project footprint on the northern bank of the river has been affected by frequent flooding, which is likely to have resulted in movement and re-deposition of artefacts. This area has lower artefact densities, a low potential to contain intact archaeological material and is considered to be of low archaeological significance.

7.2.3 Potential impacts

The impacts of the project on Aboriginal heritage would be associated with construction and demolition activities, specifically construction of the replacement bridge and demolition of the existing bridge. Once the replacement bridge is operational, there would be no further potential impacts on Aboriginal heritage.

Six known Aboriginal archaeological sites would be impacted by the project due to their location within proposed construction areas. These sites are W-NP 45-5-3580, W-SP 45-5-3581, W1 45-5-3582, W2 45-5-3583, W3 45-5-3584 and W4 45-5-3585 (refer to **Table 7-10** and **Figure 7-10**).

Five of these sites, namely W-NP 45-5-3580, W1 45-5-3582, W2 45-5-3583, W3 45-5-3584, and W4 45-5-3585, are located on the north bank of the Hawkesbury River in an area that has been disturbed by clearing, cultivation and numerous flood events. The test excavation results suggest that while additional subsurface archaeological objects might be present, these will be isolated and are likely to have been redeposited from their original location of discard, which would limit their scientific value. The Aboriginal objects associated with these five sites would be unlikely to exhibit significant value (as defined in the Burra Charter) because their archaeological context has been disturbed and is no longer intact.

The remaining site, W-SP 45-5-3581, is located on the south bank of the river and contains an archaeological deposit that is at least partially intact. The fine grained sand deposit identified on this site exhibits a largely intact cultural layer that has the potential to be dated, which alone gives the site a high scientific value. Additionally, the identification of backed artefacts indicates a possible difference between this site and the previously recorded site at Windsor Museum, including evidence of more recent occupation than previously suggested. This potentially opens new lines of research into how and when Aboriginal people used Windsor ridge. The finding of a disturbed (possibly redeposited) shell midden at this site also adds a new layer of information.

While the archaeological deposit on the south bank (W-SP 45-5-3581) is of high scientific value, the findings of the significance assessment indicate that the potentially impacted Aboriginal objects would not be suitable for outright conservation because of the overall high level of disturbance within the study area. That is, the value of W-SP 45-5-3581 resides in information rather than conservation.

A key part of conservation management involves obtaining information about the Aboriginal past that can be used to identify and preserve important sites. W-SP 45-5-3581 offers an opportunity to obtain such information with only minor adverse effects. It is therefore proposed that a portion of the W-SP 45-5-3581 archaeological deposit be salvaged before the start of project construction. Further details of the proposed impact mitigation and management strategy are provided in **Section 7.2.5**.

It is likely that similar or superior quality archaeological deposits exist along other parts of the Windsor ridge. Conserving these less disturbed archaeological deposits, rather than the disturbed W-SP 45-5-3581 deposit, would be important to heritage conservation. The information obtained from the proposed salvage activities at W-SP 45-5-3581 would improve our understanding of Aboriginal culture and heritage within Windsor and the wider region, as well as our ability to identify, interpret and preserve significant Aboriginal cultural sites.

In summary, although six Aboriginal sites would be at least partially impacted by the project, the total impact on Aboriginal heritage would be minor given that:

- Five of the sites are of low heritage significance.
- The remaining site, W-SP 45-5-3581, has high scientific value but is not suitable for conservation due to the high level of disturbance within the project footprint.
- A portion of the W-SP 45-5-3581 archaeological deposit would be salvaged to provide information on Aboriginal culture and heritage within Windsor and the wider region, and guide the future identification, interpretation and management of more intact archaeological deposits that are likely to exist along the Windsor ridge.

In terms of the integrity of the Aboriginal archaeological resources of the area, the project would only have a minor impact. Intact geological profiles within the project footprint potentially containing undisturbed Aboriginal artefacts would be relatively uncommon as most of the Thompson Square has been affected by one or more redevelopments over the past 230 years. Also most of the project footprint is located below the 100 year flood level so flood events would also have impacted the integrity of the Aboriginal archaeological resources of the area. While the project footprint may contain some areas of high scientific value in terms of Aboriginal archaeology, they are not unique and are there are likely to be other less disturbed areas especially above the 100 year flood level within Windsor.

Aboriginal cultural impacts

On the basis of discussions with Aboriginal stakeholders present during Aboriginal Focus Groups meetings and during the fieldwork program, it was clear that the Windsor area has some Aboriginal cultural value. No specific places or items were identified within the study area, rather it was indicated that Aboriginal connections were generalised and diffusely spread across the study area – a perception of value as opposed to an empirical value. Within an Aboriginal perspective a cultural continuum exists where every part of 'country' has significance and meaning and is understood by value gradients – some places/objects exhibit more significance than others. In this understanding, the Aboriginal value of the study area resides in its connections, demonstrating a link between people and place in the past and offers a link for contemporary Aboriginal people back to their past. In summary, the study area has Aboriginal cultural value because it demonstrates a connection to the (possible distant) past for contemporary Aboriginal people. However, there is no particular place or item potentially impacted by the project which has high or special cultural significance.

7.2.4 Environmental management measures

Identified sites

The environmental management measures for known Aboriginal sites are summarised in **Table 7-10**. No further archaeological work or impact mitigation would be required on the north bank of the river due to the low heritage significance and low archaeological potential of this area. On the south bank of the river, where the significant W-SP 45-5-3581 site has been identified, salvage excavation of specific portions of the archaeological deposit will be carried. A salvage excavation plan will be developed in consultation with NSW Office of Environment and Heritage which would include the following considerations:

- In the upper portion of W-SP 45-5-3581, at the corner of George and Bridge Streets, the entire extent of the archaeologically significant deposit will be salvaged via open excavation. The area of excavation would be about 100 square metres.
- In the lower portion of W-SP 45-5-3581, in the area between Bridge Street, Old Bridge Street and the wharf carpark[9], a representative sample of archaeological material will be taken to further investigate the relationship between the identified stone artefacts and shell lenses. The area of excavation will be about 25-50 square metres.
- Field and analysis methods for the salvage excavations will be consistent with the DP&I approved methodology set out in Volume 2 - working paper 3.
- DP&I will be consulted during the salvage process.
- A suitably qualified and experienced archaeologist will be appointed to oversee the salvage activities.
- Aboriginal objects recovered during salvage activities will be transferred to the Australian Museum in accordance with legislative requirements, Australian Museum Archaeological Collection Deposition Policy v1.0 January 2012.
- In the event the Australian Museum is unable to accept the objects, the objects will be transferred in accordance with a Care Agreement or similar agreement to an Aboriginal community.
- In the event that neither the Australian Museum nor the Aboriginal community are able to accept the archaeological objects, the suitably qualified and experienced archaeologist appointed to oversee the salvage activities will seek a Care Agreement or similar agreement to curate the objects.
- A written archaeological excavation report will be provided to RMS within a reasonable time following the completion of the archaeological program.

[9] Near test square 017E 630N identified in Working Paper 3.

Unidentified sites

The management measures listed below will be implemented for salvage excavation, and construction and demolition activities (including preliminary and preparatory activities such as fencing, investigative drilling, minor clearing, establishing site compounds and adjustment of services and utilities).

- In the areas where archaeological salvage is proposed, no construction or demolition activities (including preliminary and preparatory activities such as fencing, investigative drilling, minor clearing, establishing site compounds and adjustment of services and utilities) will occur until the salvage activities have been completed.
- Prior to the commencement of preliminary and preparatory construction or demolition activities, a construction heritage site map identifying the known Aboriginal heritage sites and the areas to undergo salvage excavation will be prepared to the satisfaction of RMS.
- Registered Aboriginal stakeholders will be provided with the opportunity to assist with the salvage excavation.
- Incident reporting procedures for the project will cover incidents involving Aboriginal heritage.
- Project environmental management plans will identify procedures for handling human remains, including an immediate stop to work in the vicinity of the find and reporting to appropriate authorities including the Police, Office of Environment and Heritage and Aboriginal stakeholders.

Table 7-10 Environmental management measures for potentially impacted sites

Site ID	Site type	Description	Significance	Impact	Impact mitigation measures
W-SP AHIMS ID 45-5-3581	Artefact scatter	Located on the south bank of the Hawkesbury River. A portion of the site is above the 1 in 100 year flood zone within Thompson Square at the corner of George and Bridge streets. This area contains fine grained sand layers and high artefact densities. A second more disturbed portion of the site is located below the 1 in 100 year flood zone between Bridge Street, Old Bridge Street and the wharf car park. This area contains moderate artefact densities, including displaced midden material.	High	Will be impacted	Salvage excavation of entire archaeological deposit at the corner of George and Bridge Street within the construction work zone. Salvage of a representative sample of the archaeological deposit with the lower portion of the site between Bridge Street, Old Bridge Street and the wharf car park.
W-NP AHIMS ID 45-5-3580	Artefact scatter	Located on north bank of Hawkesbury River within flood prone terrace. Deep homogenised profile with no evidence of buried soils.	Low	Will be impacted	No impact mitigation is required as the site exhibits low Aboriginal heritage significance.
W1 AHIMS ID 45-5-3582	Isolated find	Located on north bank of Hawkesbury River within flood prone terrace. Deep homogenised profile with no evidence of buried soils.	Low	Will be impacted	No impact mitigation is required as the site exhibits low Aboriginal heritage significance.
W2 AHIMS ID 45-5-3583	Isolated find	Located on north bank of Hawkesbury River within flood prone terrace. Deep homogenised profile with no evidence of buried soils.	Low	Will be impacted	No impact mitigation is required as the site exhibits low Aboriginal heritage significance.
W3 AHIMS ID 45-5-3584	Isolated find	Located on north bank of Hawkesbury River within flood prone terrace. Deep homogenised profile with no evidence of buried soils.	Low	Will be impacted	No impact mitigation is required as the site exhibits low Aboriginal heritage significance.
W4 AHIMS ID 45-5-3585	Isolated find	Located on north bank of Hawkesbury River within flood prone terrace. Deep homogenised profile with no evidence of buried soils.	Low	Will be impacted	No impact mitigation is required as the site exhibits low Aboriginal heritage significance.