Appendix A:
Site Inventory Sheets

Introduction

The purpose of Appendix A is to provide individual Site Inventory Sheets for the main elements which in combination form the Richmond Bridge and its setting. The Sheets are structured into those components related to the Bridge, and then those landscape elements.

Individual Inventory Sheets have been prepared because of the number of various elements and the complexity of the place. These elements were identified and recorded during the site visits. In total 30 Inventory Sheets have been prepared. Their location is indicated in Figure 63. The Inventory Sheets provide concise information regarding each element, including (as relevant):

- A brief description of the element, including any historical information, physical description, and as identified its current condition;
- An assessment of significance including the overall level of significance of the element;
- Applicable policies and recommendations (as contained in Section 7); and
- Current identified risks to the element.

Historical information has been sourced from this Conservation Management Plan, and unless otherwise stated, the original references have not been repeated.

Levels of Significance

The various elements that form the Richmond Bridge and setting have different levels of cultural significance. Understanding this hierarchy of significance provides guidance on the appropriate conservation processes. That is, proposed actions, works, or development potentially affecting the cultural significance of the place should be consistent with the relative levels of cultural significance of the elements of the place.

Providing levels of significance can also allow for the prioritisation of conservation works and the sound allocation of resources. Specific policies have been prepared on how the levels of significance are to be applied (see policies 7.2.4 to 7.2.6).

Each element has been given a rating of significance, from high, moderate to low. Neutral and intrusive elements are similarly identified. In combination, the various elements form a place of exceptional significance, as acknowledged by the National Heritage listing. It should be noted that there is no ranking of elements in the National Heritage values; all are of equal outstanding value to the nation.

High Significance

Those elements considered representative of key functions or thematic contributions of the place. This include: the construction and provision of transport infrastructure; recreational uses of the riverbanks; and industrial activity on the riverbanks.

Elements of high significance will demonstrate earliness, intactness, rarity/representativeness and high aesthetic qualities. Elements of high cultural significance must be conserved.

Moderate Significance

Those elements considered representative of secondary functions or thematic contributions of the place. Elements may be described as being of moderate significance where they date from later periods of development, have a lower level of integrity, are typical of their form or type and do not have high

aesthetic qualities. Although not being of high significance, these elements contribute to an understanding of the place. Elements of moderate cultural significance should be conserved wherever possible.

Low Significance

Those elements that contribute to the significance of the Bridge and its setting, although have little heritage value in their own right. These elements may be recent introductions, or may have been so modified that they no longer have the ability to demonstrate their thematic context.

Elements of low significance should not be confused with neutral or intrusive elements. Elements of low cultural significance may be retained, modified or removed provided a conservation benefit can be demonstrated by the action.

Neutral and Intrusive Elements

The following Inventory Sheets also identify those neutral and intrusive elements. Neutral elements make no contribution to the significance of the place, nor do they have an adverse impact on the place. Conversely, intrusive elements do have an adverse impact and should be removed.

Other Considerations

Providing the various elements of the place with levels of significance is particularly useful when considering fabric based values. However, not all values of the Richmond Bridge and its setting may be demonstrated in the fabric of the place. For example, the community significance relates to the place as a whole, and specifically its recreational uses. The recreational uses are complemented by a range of infrastructure. The infrastructure varies from discrete to intrusive elements. Where an element of infrastructure associated with recreational uses is recommended for removal, consideration should be given to what impact that may have on the community use, and therefore appreciation of the place.

Another area where the values may not be demonstrated in fabric are certain elements of aesthetic significance. Aspects such as the reflections and sound of water, and the seasonal changes in the landscape are more intangible in their nature.

Figure 63 Sketch Plan of Bridge Element Locations

Table 23 Elements Location Key

No.	Element	No.	Element
Bridge Elements			
1	Richmond Bridge	**11**	Moisture Impacts – Eastern Arch
2	Northern Face of Bridge	**12**	North East Abutment Pointing
3	Southern Face of Bridge	**13**	South Western Wing Wall
4	Richmond Bridge Road Surface	**14**	Bridge Piers
5	Bridge Footpaths	**15**	Drainage Infrastructure
6	Bridge Gutters & Kerbs	**16**	Vandalism Span West Arch
7	Inner Face, Northern Parapet	**17**	Stone Stairs
8	Inner Face, Southern Parapet	**18**	Viewing Platform and Plaque
9	Cracks on Northern Face	**19**	Centenary Monuments
10	East Arch Cracks		

Bridge Inventory Sheets

1	RICHMOND BRIDGE	

DESCRIPTION AND CURRENT CONDITION:

The Richmond Bridge crosses the Coal River at a low point between the east and west escarpments. The Bridge was constructed from 1823 to 1825 and is an arched road bridge constructed from locally sourced brown sandstone. The Bridge has six spans of 4.3, 8.1, 8.3, 8.5 and 4.1 metres respectively with four main semi-circular arches founded in the river bed, with two smaller arches founded on the east and west banks. It has been suggested that a cross section through the Bridge would show longitudinal walls built 600mm apart providing the structure with robust stiffness. The fill of the Bridge is basalt and sandstone gravel of loose to medium density with sandy clay fines. The depth of the foundations are unknown and they have been subject to settlement, providing the Bridge with its asymmetrical and undulating outline.

The Bridge is faced with random coursed rough ashlar, with a darker stone chosen for the stringcourse. Above the stringcourse are the parapets, constructed from random course sandstone with coping stones. The parapets were raised in 1835. In 1884, the Bridge piers were encased and the riverbed paved in sandstone to improve water flow. The piers have sloping fins with angular leading edges to direct the water flow and are constructed from smooth faced ashlar sandstone.

The Bridge operates for vehicle and pedestrian uses with a current load limit of 25 tonnes. The Bridge has two road lanes, originally 7.2 metres between the parapets and 41 metres in length with a bitumen road surface. Gravel footpaths flank the road deck. Terminating the parapets are circular bollards.

1	RICHMOND BRIDGE	
The Bridge is generally in good condition and continues to be used for both pedestrian and vehicular transport.		
SIGNIFICANCE ASSESSMENT:		
Historical Value:	High	The Richmond Bridge is Tasmania's, and Australia's oldest surviving large bridge which retains a high degree of integrity and continues to serve its original function. The Bridge is an outstanding example of very early and substantial public works. The Bridge is important in demonstrating the system of convict punishment through employment in public works. The scale of the Bridge is significant in demonstrating the pivotal role played by convict labour in the early development of the colony.
Rarity Value:	High	The Richmond Bridge is a rare example of an early nineteenth century large stone arch bridge. Richmond Bridge is Tasmania's oldest bridge which retains a high degree of integrity and continues to serve its original purpose. For a period of eleven years, the Richmond Bridge had the longest span of any of Australia's bridges. Masonry bridges constructed prior to 1856 are comparatively rare in Tasmania. The construction method of the Richmond Bridge is also a significant and rare aspect.
Research Potential:	Moderate	From an engineering perspective, the Bridge offers insight into very early bridge design and construction methods in Tasmania. The continued operations of the Bridge and changing conditions in vehicles and water flow provides an opportunity to understand structural stability, and hydraulic and structural stresses.
Representative Value:	Moderate	The Richmond Bridge is representative of the large-scale public infrastructure developed in Tasmania during the early colonial period.
Technical Achievement:	High	The Richmond Bridge demonstrates a high degree of technical achievement in Tasmanian bridge design and construction. The Richmond Bridge was the first multiple arched bridge to be constructed in Tasmania and the first with the piers actually founded in the river itself. Using the ancient method of rubble construction, the Richmond Bridge is important in demonstrating the skills of its designer, Major Thomas Bell and the skill and workmanship of the convict workforce in its construction. The continued operation of the Bridge since 1825 demonstrates the technical achievement of the design and construction.
Social Value:	High	The Richmond Bridge is an iconic place. The Bridge within its riverbank setting and the historic Richmond township form a landscape that is appreciated and valued by locals and visitors alike. The Bridge has formed an integral destination of cultural tourism and promotion since the mid twentieth century. The social value of the place is also demonstrated by visitation to the Bridge and use of the riverbanks as vantage points for viewing

1	RICHMOND BRIDGE	
		the Bridge as well as for passive recreation. The Bridge is a special place for the people of Richmond. The local community identify the Bridge as the most important structure in their historic town, providing a sense of identity and distinction from other rural communities.
Associational Value:	High	The Richmond Bridge is associated with a range of individuals and groups whose lives and work was important in Tasmania's history. This includes: ◗ Commissioner Bigge; ◗ Lieutenant-Governor Sorell; ◗ Superintendent of Stonemasons, William Wilson; ◗ Major Thomas Bell; ◗ The convict workforce; ◗ Colonial Architect, David Lambe; ◗ Civil Engineer and Architect, John Lee Archer
Aesthetic Value:	High	The aesthetic significance of Richmond Bridge is appreciated locally, within Tasmania and nationally. Its picturesque image has been used widely in national and international tourism promotions since the 1920s and has inspired the work of major Australian artists. The form of the Bridge has an obvious sense of antiquity. The Richmond Bridge is a prominent visual landmark within the landscape. The relationship between the built form of the Bridge, topography, Coal River and vegetation, combine to form a view of great scenic beauty.
OVERALL LEVEL OF SIGNIFICANCE: High		
POLICIES:		
The Richmond Bridge is to be managed in accordance with the policies of this Conservation Management Plan. Policies of particular relevance include: ◗ **The General Policies**: General Policy (7.2.1), Managing the National Heritage Values (7.2.2), Cultural Significance (7.2.3), Levels of Cultural Significance (7.2.4), Applying Levels of Cultural Significance in Conservation Processes (7.2.5), Removal of Elements of Low Cultural Significance (7.2.6), Removal of Intrusive Elements (7.2.8), Reconstruction of Missing Fabric (7.2.9), Maintenance & Works Program (7.2.10), Works Approvals (7.2.10); ◗ **Use of the Richmond Bridge Policies**: Use of the Bridge (7.4.4), Use of the Bridge: Structural Capacity (7.4.5); ◗ **Managing the Fabric of the Bridge Policies – Policies for the Prevention of Further Damage**: Vibration monitoring (7.5.5), Load Limit (7.5.6), Conservation of Bridge Stonework (7.5.7), Replacement of Badly Decayed Stones (7.5.8), Stone Decay in the East Arch (7.5.9), Replacement of Lost Bedding (7.5.10), General Repointing (7.5.11), Repointing Work (7.5.12), Removal of inappropriate Pointing (7.5.13), Ponding & Drainage under east Arch (7.5.14), Damp Problems south west wing wall (7.5.15), Repair of Road Surface (7.5.16), Waterproofing Footpaths (7.5.17), Capacity of Drains (7.5.18), Salt Efflorescence in east Arch (7.5.19), and Traffic Impact on Parapet Walls (7.5.20) ◗ **Managing the Fabric of the Bridge Policies – Management, Maintenance, Inspection, Recording and Aesthetic Policies**: Managing the National Heritage Values (7.5.21), General Monitoring (7.5.22), 3D Laser		

1	RICHMOND BRIDGE

Recording (7.5.23), Recording Changes to the Bridge (7.5.24), Ongoing Maintenance of Road Surface (7.5.25), Maintenance of Footpaths (7.5.26), Maintenance of Gutters (7.5.27), Reconstruction of Gutters (7.5.28), Inspection & Maintenance of Drains (7.5.29), Visual Impact of Drains (7.5.30), Sandstone Stairs West end of Bridge (7.5.31), Removal of Graffiti (7.5.32), Anti-Graffiti Treatments (7.5.33), Conservation of Centenary Stones (7.5.34), Maintenance of Sheathing Cramps (7.5.35), Cleaning the Bridge (7.5.36).

- **Vegetation Management Policies**: Potential Damage to Bridge from Lombardy Poplars (7.7.11), Removal of Planting under east Arch (7.7.12), Removal of Ivy from South East End of Bridge (7.7.13);
- **River Management Policies**: Flood Management Plan (7.8.3), Removing Flood Risks: Crack Willows (7.8.4), Removing Flood Risks: Other Elements (7.8.5), Mitigating Impacts during times of Flood (7.8.6); and
- **Traffic and Road Management Policies**: Load Limit (7.9.1), Monitoring and Enforcement of Load Limit (7.9.2), Monitoring and Enforcement of Speed Limit (7.9.3).

Full details of these policies are included in the Conservation Policies (Section 7), and as required, the following individual Inventory Sheets.

THREATS:

- Inherent weaknesses of the Bridge from foundation movements due to river bed erosion and settlement; alterations which have given a lack of continuity due to the later constructions not achieving an original bond entry, and the use of site soil as stone bedding;
- Susceptibility of the Bridge to vibrations resulting from traffic load, traffic speed, bedding loss, foundation movement and bridge deck potholes;
- Lack of adequate ongoing maintenance;
- Lack of appropriate ongoing repair work;
- Lack of monitoring of condition of the Bridge;
- Damage due to vehicular usage including heavy loads, excessive speed accidents and wear due to ongoing use;
- Drainage and Damp has potential to cause stonework problems;
- Graffiti problems;
- Adverse impacts from adjacent development;
- Damage from vegetation growth;
- Flood risks;
- Lack of enforcement of speed and load limits.

RECOMMENDATIONS:

Implement the Action/Recommendation works as provided in the Conservation Policies (Section 7).

2 NORTHERN FACE OF BRIDGE

DESCRIPTION AND CURRENT CONDITION:

The northern face of the Bridge is generally in a good condition.

- Considerable progress has been made on the replacement of the old cement-rich mortar, with more appropriate lime based mortars. The replacement of the mortar has improved the aesthetic appeal of the Bridge and will assist in long term conservation.
- Hard, cement-rich mortar still exists on the fins of the piers and the eastern abutment. Cracks are also located on the northern face, located on the north east abutment, eastern and western piers. Separate Inventory Sheets address these issues.
- The north face of the Bridge receives a greater amount of sun and is largely free of organic growth. The fins of the piers have some staining.

SIGNIFICANCE ASSESSMENT:

The northern face of the Bridge is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);

2 NORTHERN FACE OF BRIDGE

- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by an appropriately skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13);
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- That the 3D laser scanning of the Bridge is used as the basis for understanding the fabric of the Bridge (7.5.23);
- That all actions, works or development affecting the fabric of the Bridge are appropriately recorded and copies lodged with DIER and HT (7.5.24);
- That the lettering of the date stones on the north and south face of the Bridge, and the centenary stone on the inside of the northern parapet are conserved (7.5.34); and
- That as required, organic growth is cleaned from the Bridge. Care should be taken to ensure that the contractor is skilled in working on historic structures and that the methods and materials are appropriate to the cultural significance of the Bridge and any necessary environmental considerations. Trial cleaning methods should be conducted on discreet parts of the Bridge to ensure correct and non-invasive process (7.5.36).

THREATS:

The threats identified in Inventory Sheet 1 (Richmond Bridge) are applicable to the northern face. Specific threats to the northern face include:

- Inherent weaknesses of the Bridge from foundation movements due to river bed erosion and settlement; alterations which have given a lack of continuity due to the later constructions not achieving an original bond entry, and the use of site soil as stone bedding;
- Susceptibility of the Bridge to vibrations resulting from traffic load, traffic speed, bedding loss, foundation movement and bridge deck potholes;
- The cracks have the potential for damage to the structure of the Bridge, either slowly due to continuing use, or quickly if subjected to sudden excessive stress;
- The remaining hard, cement-rich mortar could cause further structural problems at the mortar joints by being impermeable to water; and
- Organic growth on the Bridge could have an adverse affect on the aesthetic significance of the place.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Appointment of an appropriately skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10);
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking

2	NORTHERN FACE OF BRIDGE	

movements and general condition of stonework (7.5.22);

- Restoration, and as required, reconstruction works to utilise the 3D laser scan as the record of the fabric of the Bridge; and as required, repeat the laser scanning to indicate long term settlement of the arches and foundations, structural integrity and deformation modelling. (7.5.23);
- Recording of all actions, works or development affecting the fabric of the Bridge. The type of recording required will depend on the nature of the works, and element being modified. Recording may be required prior to, during and after the works. Recording may include, but not be limited to photographs, written description, a site plan etc. Recordings are to be lodged with DIER and HT (7.5.24);
- That the lettering of the date stones on the north and south face of the Bridge, and the centenary stone on the inside of the northern parapet are conserved (7.5.34); and
- Undertake careful conservation works to ensure that the inscriptions on the northern date stone remain legible (7.5.34); and
- Appoint an experienced contractor to undertake cleaning of the Bridge utilising methods and materials that are culturally and environmentally appropriate. The cleaning of the Bridge should be tried first at discreet locations (7.5.36).

PREVIOUS INVENTORY:

- The cracks in the north eastern abutment were identified by Spry in 1990 and continue to be present;
- Spry considered that the condition of the pointing of the Bridge (in 1990) was unsatisfactory with poor quality mortar and application. Considerable work has been undertaken on replacing the mortar on the north face with appropriate mortar by an appropriately skilled stonemason. Spratt considered in 1993 that the high cement mortars were not causing damage sufficient to warrant their immediate removal at that time;
- Peter Spratt identified the render to the northern date stone as requiring repair. These works have been carried out.

3 SOUTHERN FACE OF BRIDGE

DESCRIPTION AND CURRENT CONDITION:

The southern face of the Bridge is generally in a good condition.

- Considerable progress has been made on the replacement of the old cement-rich mortar, with more appropriate lime based mortars. The replacement of the mortar has improved the aesthetic appeal of the Bridge and will assist in long term conservation.
- Hard, cement-rich mortar still exists on the fins of the piers.
- The south face of the Bridge receives less sun and the fins of the piers have some staining.
- Damp problems exist on the south west wing wall following the stone steps.
- Ivy is growing on the south east abutment and face of the Bridge.

SIGNIFICANCE ASSESSMENT:

The southern face of the Bridge is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

3 SOUTHERN FACE OF BRIDGE

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by an appropriately skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13);
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- That the 3D laser scanning of the Bridge is used as the basis for understanding the fabric of the Bridge (7.5.23);
- That all actions, works or development affecting the fabric of the Bridge are appropriately recorded and copies lodged with DIER and HT (7.5.24);
- That the lettering of the date stones on the north and south face of the Bridge, and the centenary stone on the inside of the northern parapet are conserved (7.5.34);
- That as required, organic growth is cleaned from the Bridge. Care should be taken to ensure that the contractor is skilled in working on historic structures and that the methods and materials are appropriate to the cultural significance of the Bridge and any necessary environmental considerations. Trial cleaning methods should be conducted on discreet parts of the Bridge to ensure correct and non-invasive process (7.5.36); and
- That the ivy growing on south east end of the Bridge should be removed (7.7.13).

THREATS:

The threats identified in Inventory Sheet 1 (Richmond Bridge) are applicable to the northern face. Specific threats to the northern face include:

- Inherent weaknesses of the Bridge from foundation movements due to river bed erosion and settlement; alterations which have given a lack of continuity due to the later constructions not achieving an original bond entry, and the use of site soil as stone bedding;
- Susceptibility of the Bridge to vibrations resulting from traffic load, traffic speed, bedding loss, foundation movement and bridge deck potholes;
- The cracks have the potential for damage to the structure of the Bridge, either slowly due to continuing use,

or quickly if subjected to sudden excessive stress;

- The remaining hard, cement-rich mortar could cause further structural problems at the mortar joints by being impermeable to water; and
- Organic growth on the Bridge could have an adverse affect on the aesthetic significance of the place.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Appointment of an appropriately skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10);
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Restoration, and as required, reconstruction works to utilise the 3D laser scan as the record of the fabric of the Bridge; and as required, repeat the laser scanning to indicate long term settlement of the arches and foundations, structural integrity and deformation modelling. (7.5.23);
- Recording of all actions, works or development affecting the fabric of the Bridge. The type of recording required will depend on the nature of the works, and element being modified. Recording may be required prior to, during and after the works. Recording may include, but not be limited to photographs, written description, a site plan etc. Recordings are to be lodged with DIER and HT (7.5.24);
- That the lettering of the date stones on the north and south face of the Bridge, and the centenary stone on the inside of the northern parapet are conserved (7.5.34);
- Undertake careful conservation works to ensure that the inscriptions on the northern date stone remain legible (7.5.34);
- Appoint an experienced contractor to undertake cleaning of the Bridge utilising methods and materials that are culturally and environmentally appropriate. The cleaning of the Bridge should be tried first at discreet locations (7.5.36); and
- Remove the ivy as per weed eradication techniques. The ivy should be killed with a herbicide prior to removing it from the stone. Ongoing maintenance may be required (7.7.13).

PREVIOUS INVENTORY:

Spry considered that the condition of the pointing of the Bridge (in 1990) was unsatisfactory with poor quality mortar and application. Considerable work has been undertaken on replacing the mortar on the south face with appropriate mortar by an appropriately skilled stonemason. Spratt considered in 1993 that the high cement mortars were not causing damage sufficient to warrant their immediate removal at that time.

4	RICHMOND BRIDGE ROAD SURFACE	

DESCRIPTION AND CURRENT CONDITION:

Works were carried out on the deck of the Bridge in 1980 including the sealing of the road. The deck was waterproofed inline with the recommendations of the 1997 CMP.

The road surface of the Bridge of the Bridge is in a fair condition. The bitumen surface has degraded adjacent to the right hand gutter, forming potholes. There is a diagonal crack in the road surface.

SIGNIFICANCE ASSESSMENT:

The bitumen road surface is a neutral element.

POLICIES:

- That the road surface should be subject to ongoing maintenance (7.5.25);
- That the potholes on the right hand side of the road surface adjacent to the gutters and the diagonal crack be repaired (see also policy 7.5.25) (7.5.16).

THREATS:

- Lack of maintenance; and
- The potholes and crack will continue to cause further degradation to the road surface.

4	RICHMOND BRIDGE ROAD SURFACE	
RECOMMENDATIONS:		
◗ Ongoing inspection and maintenance (7.5.25) ◗ The immediate repair of the potholes in excess of 20mm depth is required to prevent excessive vibrations and the entry of water. (7.5.16).		
PREVIOUS INVENTORY:		
The 1997 Conservation Plan identified the road surface as a neutral element. Spratt identified the diagonal crack in his 1993 survey.		

5 BRIDGE FOOTPATHS

DESCRIPTION AND CURRENT CONDITION:

The gravel footpaths are in a good condition. It is unclear whether the subsurface of the footpaths were waterproofed as part of the general waterproofing works.

The gravel surface is not original fabric, although the material is consistent with the traditional surface.

SIGNIFICANCE ASSESSMENT:

The gravel footpaths of the Bridge are an essential element of the place. This element has the same significance as the Richmond Bridge as a whole, with specific reference to:

Historical Value:	High	The gravel demonstrates the traditional surface of the footpaths and complements the historical value of the Bridge.
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:	Moderate	As part of the overall structure of the Bridge, the gravel footpaths are representative of a key element of public road bridges in providing pedestrian access.
Technical Achievement:		N/A
Social Value:	High	The gravel footpaths provide an essential community function by providing pedestrian access to the Bridge.

5	BRIDGE FOOTPATHS	
Associational Value:		N/A
Aesthetic Value:	High	As part of the overall structure of the Bridge, the gravel footpaths contribute to the aesthetic significance by demonstrating traditional surfaces for pedestrian use, and complement the rural nature of the setting.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That the footpaths be waterproofed by expert specialists to prevent the transfer of water into the structure of the Bridge (7.5.17); and
- The footpaths should be maintained including the continued use of the gravel surface (7.5.26); and

THREATS:

- Lack of continued maintenance; and
- The entry of water into the Bridge through the footpaths has the potential to cause structural problems.

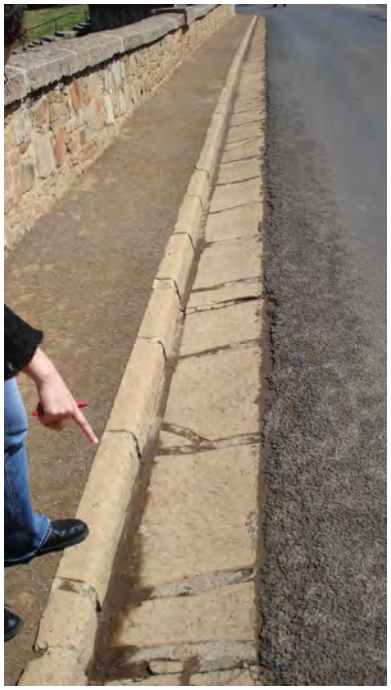
RECOMMENDATIONS:

- Ongoing inspection and maintenance of the footpaths (7.5.26); and
- Waterproofing of footpaths by specialist as part of a coordinated approach to drainage and damp issues (see further policies (see policies 7.5.9, 7.5.11, 7.5.14, 7.5.15, 7.5.17, 7.5.18, 7.5.25, 7.5.27, 7.5.29 and 7.5.30).

PREVIOUS INVENTORY:

The 1997 Conservation Plan identified the traditional gravel footpaths as an element of exceptional significance. Waterproofing of the road deck was recommended in 1997.

6 BRIDGE GUTTERS & KERBS



DESCRIPTION AND CURRENT CONDITION:

The Richmond Preservation and Development Trust advised the then Richmond Council that the guttering and kerbs near the Bridge should be sympathetic in colour and form to the significance of the Bridge. The kerbs and gutter slabs were constructed in 1980 as part of other Bridge works.

The Bridge gutters and kerbs vary from good to fair condition. The gutters and kerbs are concrete, coloured to match sandstone kerbing.

SIGNIFICANCE ASSESSMENT:

The Bridge Gutters and kerbs are neutral elements. However, they complement the overall significance of the Bridge by attempting to provide a more sympathetic colour than normal grey concrete.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That the gutters be maintained to a condition that ensures their functionality for the removal of water (7.5.27); and
- That consideration be given to replacing the current concrete Bridge gutters with infrastructure that is of a material that is more sympathetic to the cultural significance of the place. The reconstruction of the original gutters is advocated provided sufficient evidence can be located regarding their form and material. (7.5.28).

THREATS:

Lack of maintenance that ensures that the gutters effectively remove water from the Bridge.

RECOMMENDATIONS:

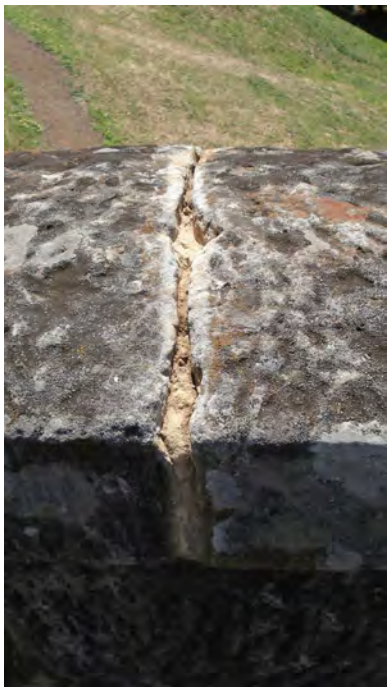
6 BRIDGE GUTTERS & KERBS

- Ongoing inspection and maintenance as part of a coordinated approach to drainage and damp issues (see further policies (see policies 7.5.9, 7.5.11, 7.5.14, 7.5.15, 7.5.17, 7.5.18, 7.5.25, 7.5.27, 7.5.29 and 7.5.30) (7.5.27); and
- Investigate original gutter details and feasibility of their replacement. The reconstruction of the original gutters is advocated provided sufficient evidence can be located regarding their form and material (7.5.28).

PREVIOUS INVENTORY:

The 1997 Conservation Plan identified the reconstructed gutters and kerbs as having some significance.

7 INNER FACE, NORTHERN PARAPET



DESCRIPTION AND CURRENT CONDITION:

The inner face of the northern parapet wall is generally in a good condition. The western end of the parapet was raised in 1835. The replacement of most of the inappropriate cement-rich mortar on the inner faces of the parapet with lime based mortars occurred prior to 1990.

Generally, the mortar on the inner face of the northern parapet is in a poorer condition than that on the southern parapet wall. This would appear to be because the southern wall has been repeatedly repaired following vehicular damage. Open joints are present in the coping stone joints.

The western end of the inner parapet included commemorative centenary stones which are separately addressed in these inventory sheets.

SIGNIFICANCE ASSESSMENT:

The northern parapet of the Bridge is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

POLICIES:

7 INNER FACE, NORTHERN PARAPET

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13);
- That the prevention of excessive speeding over the Bridge be pursued as a means of preventing damage to the parapet walls caused by vehicular accidents (see also policy 7.9.3) (7.5.20);
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- That the 3D laser scanning of the Bridge is used as the basis for understanding the fabric of the Bridge (7.5.23);
- That all actions, works or development affecting the fabric of the Bridge are appropriately recorded and copies lodged with DIER and HT (7.5.24); and
- That as required, organic growth is cleaned from the Bridge. Care should be taken to ensure that the contractor is skilled in working on historic structures and that the methods and materials are appropriate to the cultural significance of the Bridge and any necessary environmental considerations. Trial cleaning methods should be conducted on discreet parts of the Bridge to ensure correct and non-invasive process (7.5.36).

THREATS:

- Lack of ongoing inspection and maintenance;
- Vehicle collisions;
- Strengthening the parapet walls;
- Water entry into joints from open joints; and
- Hard, cement-rich mortar causing structural problems.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);

7 INNER FACE, NORTHERN PARAPET

- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10);
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Restoration, and as required, reconstruction works to utilise the 3D laser scan as the record of the fabric of the Bridge; and as required, repeat the laser scanning to indicate long term settlement of the arches and foundations, structural integrity and deformation modelling. (7.5.23);
- Recording of all actions, works or development affecting the fabric of the Bridge. The type of recording required will depend on the nature of the works, and element being modified. Recording may be required prior to, during and after the works. Recording may include, but not be limited to photographs, written description, a site plan etc. Recordings are to be lodged with DIER and HT (7.5.24);
- Undertake monitoring of speed limit and enforcement of breaches of the speed limit (7.5.20); and
- Appoint an experienced contractor to undertake cleaning of the Bridge utilising methods and materials that are culturally and environmentally appropriate. The cleaning of the Bridge should be tried first at discreet locations (7.5.36).

PREVIOUS INVENTORY:

Spry noted that most of the inappropriate cement-rich mortar on the inner faces of the parapets had been replaced with lime based by 1990. Spry also recommended that open joints should be repointed. Spratt considered in 1993 that the high cement mortars were not causing damage sufficient to warrant their immediate removal at that time.

8 INNER FACE, SOUTHERN PARAPET

DESCRIPTION AND CURRENT CONDITION:

The inner face of the southern parapet wall is generally in a good condition. The western end of the parapet was raised in 1835. The replacement of most of the inappropriate cement-rich mortar on the inner faces of the parapet with lime based mortars occurred prior to 1990.

Generally, the mortar on the inner face of the southern parapet is in better condition than that on the northern parapet wall. This would appear to be because the southern wall has been repeatedly repaired following vehicular damage.

SIGNIFICANCE ASSESSMENT:

The southern parapet of the Bridge is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

8 INNER FACE, SOUTHERN PARAPET

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13);
- That the prevention of excessive speeding over the Bridge be pursued as a means of preventing damage to the parapet walls caused by vehicular accidents (see also policy 7.9.3) (7.5.20);
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- That the 3D laser scanning of the Bridge is used as the basis for understanding the fabric of the Bridge (7.5.23);
- That all actions, works or development affecting the fabric of the Bridge are appropriately recorded and copies lodged with DIER and HT (7.5.24); and
- That as required, organic growth is cleaned from the Bridge. Care should be taken to ensure that the contractor is skilled in working on historic structures and that the methods and materials are appropriate to the cultural significance of the Bridge and any necessary environmental considerations. Trial cleaning methods should be conducted on discreet parts of the Bridge to ensure correct and non-invasive process (7.5.36).

THREATS:

- Lack of ongoing inspection and maintenance;
- Vehicle collisions;
- Strengthening the parapet walls;
- Water entry into joints from open joints; and
- Hard, cement-rich mortar causing structural problems.

RECOMMENDATIONS:

8 INNER FACE, SOUTHERN PARAPET

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10);
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Restoration, and as required, reconstruction works to utilise the 3D laser scan as the record of the fabric of the Bridge; and as required, repeat the laser scanning to indicate long term settlement of the arches and foundations, structural integrity and deformation modelling. (7.5.23);
- Recording of all actions, works or development affecting the fabric of the Bridge. The type of recording required will depend on the nature of the works, and element being modified. Recording may be required prior to, during and after the works. Recording may include, but not be limited to photographs, written description, a site plan etc. Recordings are to be lodged with DIER and HT (7.5.24);
- Undertake monitoring of speed limit and enforcement of breaches of the speed limit (7.5.20); and
- Appoint an experienced contractor to undertake cleaning of the Bridge utilising methods and materials that are culturally and environmentally appropriate. The cleaning of the Bridge should be tried first at discreet locations (7.5.36).

PREVIOUS INVENTORY:

Spry noted that most of the inappropriate cement-rich mortar on the inner faces of the parapets had been replaced with lime based by 1990. Spry also recommended that open joints should be repointed. Spratt considered in 1993 that the high cement mortars were not causing damage sufficient to warrant their immediate removal at that time.

9	CRACKS ON NORTHERN FACE

Cracks in north east abutment

Detail, cracks in north east abutment

Cracks eastern pier

Cracks western pier

DESCRIPTION AND CURRENT CONDITION:

9 CRACKS ON NORTHERN FACE

Spry previously assessed the stonework condition of the Bridge. He identified both transverse and longitudinal cracks. Transverse tracks are located on the northern face of the Bridge, crossing both mortar joints and stones.

Site work for this Conservation Management Plan located the same cracks identified by Spry on the south east abutment, and the eastern and western piers.

Glass slides had previously been placed across the cracks to indicate any movement. These have been broken by vandals.

SIGNIFICANCE:

The northern face of the Bridge is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13); and
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22).

THREATS:

Spry identified two threats relating to the cracks. Firstly, slow damage due to continuing existing use, and secondly, rapid damage caused by sudden excessive stress.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface

9	CRACKS ON NORTHERN FACE

loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);

- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10); and
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13).

PREVIOUS INVENTORY:

Spratt previously recommended annual inspection of the cracks and found that in 1993 the movement was minor. Owing to the poor geology of the site, he recommended foundation examination. Emphasis was placed on preventing water entrance.

It is unknown whether the geological survey of the Bridge pier foundations was carried out.

10 EAST ARCH CRACKS

DESCRIPTION AND CURRENT CONDITION:

Spry previously assessed the structural integrity of the Bridge. He identified both transverse and longitudinal cracks. Longitudinal cracks are located under the arches, most prominently in the eastern arch. Spry identified that the cracks generally commence at the spring line and ceased before the mid span of the arch.

These cracks were recognised as early as 1973, sketched in 1985, and have been repeatedly patched. Spry observed that they appeared more prevalent than the recording made in 1985. In 1993, Spratt recommended annual inspection of the cracks and found that the movement was minor. Owing to the poor geology of the site, he recommended foundation examination. Emphasis was placed on preventing water entrance.

It is unknown whether the geological survey of the Bridge pier foundations was carried out.

The eastern arch is also subject damp, pointing problems and salt efflorescence.

SIGNIFICANCE:

The eastern arch of the Bridge is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);

10 EAST ARCH CRACKS

- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13); and
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);

THREATS:

Spry identified two threats relating to the cracks. Firstly, slow damage due to continuing existing use, and secondly, rapid damage caused by sudden excessive stress.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10); and
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13).

PREVIOUS INVENTORY:

Spratt previously recommended annual inspection of the cracks and found that in 1993 the movement was minor. Owing to the poor geology of the site, he recommended foundation examination. Emphasis was placed on preventing water entrance.

It is unknown whether the geological survey of the Bridge pier foundations was carried out.

11 MOISTURE IMPACTS - EASTERN ARCH

Ponding and small tree

Ivy growing on south east abutment

Degree of stone decay and loss of mortar

Salt efflorescence on mortar joints and stonework

Coarse shell mortar

DESCRIPTION AND CURRENT CONDITION:

11 MOISTURE IMPACTS - EASTERN ARCH

The intrados of the eastern arch is in a poor condition and this would appear to be largely caused by moisture problems. This includes the inner surface of the arch as well as the ground surface. Specific problems include:

- Longitudinal cracks (See Inventory Sheet 10);
- Water ponding at the base of the eastern arch causing moisture damage to the stonework;
- Salt efflorescence on the stones and mortar joints;
- Degradation of the mortar causing the joints to be considerably open;
- The presence of hard, cement-rich mortars; and
- Vegetation growth on the floor of the arch.

Some of the mortar joints have degraded to such an extent that the original mortar mix is clearly evident. This mortar incorporates coarse shell grit. This mortar is of some interest in clearly demonstrating the construction materials for the Bridge.

SIGNIFICANCE:

The intrados of the eastern arch is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Moisture problems appear to be a particular problem for the eastern arch, and attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13).
- That the gutters be maintained to a condition that ensures their functionality for the removal of water (7.5.27);
- That specialist advice is sought on the current capacity of the drainage infrastructure to remove water from the Bridge. Specific attention should be given to ensuring drains are not resulting in ponding or erosion of soil around the Bridge abutments (7.5.18);

11 MOISTURE IMPACTS - EASTERN ARCH

- That the drains be regularly inspected and maintained to ensure their continued functioning (7.5.29);
- That specialist advice be sought on preventing water from ponding under the south east arch (7.5.14);
- That specialist advice be sought on treating the salt efflorescence under the east arch (7.5.19);
- That the small tree growing within the east arch of the Bridge be removed (7.7.12); and
- That the ivy growing on south east end of the Bridge should be removed (7.7.13).

THREATS:

- Lack of ongoing maintenance;
- Spry identified two threats relating to the cracks. Firstly, slow damage due to continuing existing use, and secondly, rapid damage caused by sudden excessive stress;
- Structural problems caused by stone decay;
- Water entry into joints from open joints;
- Hard, cement-rich mortar causing structural problems;
- Water entering the structure of the Bridge by poorly maintained, inoperative or ineffective water shedding methods;
- The root formation of the small tree has the potential to cause future structural problems to the Bridge; and
- The ivy has the potential to cause damage to the stone.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10);
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13);
- As part of a coordinated approach to drainage and damp issues (see further 7.5.9, 7.5.11, 7.5.14, 7.5.15, 7.5.17, 7.5.18, 7.5.25, 7.5.27, 7.5.29 and 7.5.30):
    - i.) Ongoing inspection and maintenance of gutters;
    - ii.) Seek specialist advice on the capacity of the drainage system to effectively remove water;
    - iii.) Ongoing inspection and maintenance of drains;
    - iv.) Seek specialist advice on the source of the water ponding under the east arch. The ground level of the east arch should be built up to prevent water from ponding in the area. If ground drainage solutions are advocated, specialist geotechnical advice should be sought. Changes to the nature of the existing soils could cause structural problems such as cracking;
    - v.) Seek specialist advice on salt efflorescence;
- The tree under the east arch should be cut at the base and the trunk painted with herbicide. The roots

11	MOISTURE IMPACTS - EASTERN ARCH

should not be removed to avoid ground disturbance Ongoing maintenance may be required (7.7.12); and

- Remove the ivy as per weed eradication techniques. The ivy should be killed with a herbicide prior to removing it from the stone. Ongoing maintenance may be required (7.7.13).

PREVIOUS INVENTORY:

Problems with the eastern arch were identified in the 1997 CMP:

- Spratt identified that the foundations were a potential point of weakness and that the Bridge was sensitive to vibration and movement; and
- Spry identified poorly directed drainage on the southern side of the eastern abutment as causing ponding and saline damp in the stonework. Efflorescence was identified as a problem. Spry recommended the build up of soil to avoid ponding.

12 NORTH EAST ABUTMENT POINTING

DESCRIPTION AND CURRENT CONDITION:

Spry previously assessed the stonework and pointing condition of the Bridge. He identified the cement-rich mortars used for pointing. This hard, grey mortar continues to exist on the north east abutment of the Bridge.

SIGNIFICANCE:

The north east abutment is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a weather struck finish (7.5.11);
- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13); and
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);

12 NORTH EAST ABUTMENT POINTING

THREATS:

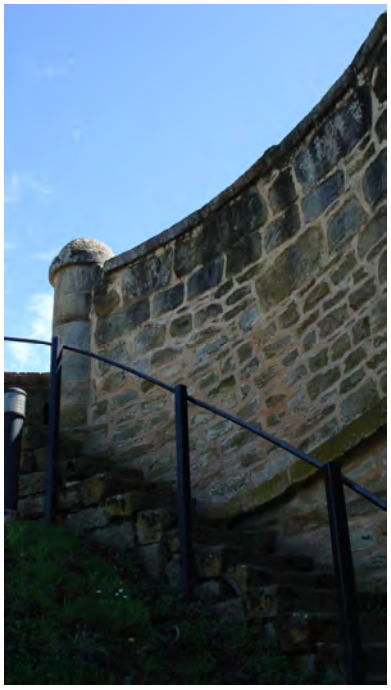
- Lack of ongoing inspection and maintenance; and
- Hard, cement-rich mortar causing structural problems.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10); and
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13).

PREVIOUS INVENTORY:

Spratt considered in 1993 that the high cement mortars were not causing damage sufficient to warrant their immediate removal at that time.

13	SOUTH WESTERN WING WALL	
		
		
DESCRIPTION AND CURRENT CONDITION:		

13 SOUTH WESTERN WING WALL

The south western wing wall is in a fair condition. The different sized stones clearly demonstrate the raising of the parapet wall in 1835.

Damp issues appear to exist with this area of the Bridge. The stones on the inner face of the parapet adjacent to the bollard exhibit delamination. The southern face of the Bridge receives less sun than the northern face. Stone staining and damp problems are evident on the southern face.

SIGNIFICANCE:

The south west wing wall is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policy:

- That specialist advice be sought on identifying the cause of damp on the south west wing wall and appropriate means of addressing the problems (7.5.15).

THREATS:

- Lack of ongoing maintenance; and
- Structural problems caused by damp and stone decay.

RECOMMENDATIONS:

Seek specialist advice on damp problems as part of a coordinated approach to drainage and damp issues (see further 7.5.9, 7.5.11, 7.5.14, 7.5.15, 7.5.17, 7.5.18, 7.5.25, 7.5.27, 7.5.29 and 7.5.30) (7.5.15).

PREVIOUS INVENTORY:

The 1997 CMP did not identify specific issues with the south west wing wall.

14 BRIDGE PIERS

DESCRIPTION AND CURRENT CONDITION:

In 1884, the Bridge piers were encased and the riverbed paved in sandstone to improve water flow. The piers have sloping fins with angular leading edges to direct the water flow and are constructed from smooth faced ashlar sandstone. The sandstone is tied to the piers with painted iron cramps. In 1973 it was recommended that the iron cramps were rusting and should be replaced. The southern faces of the piers demonstrate greater staining than the northern piers. The piers are in good condition.

SIGNIFICANCE:

The Bridge piers are essential components of the place. They demonstrate the last major works to the Bridge occurring in 1884. These elements have the same significance as the Richmond Bridge as a whole.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That a vibration meter be installed on the Bridge and monitored for early warning of problems resulting from the basic weaknesses of the Bridge. Should vibration problems be detected, the load and speed limit will need to be reviewed to address the issue (7.5.5);
- The vibration meter should be linked to a camera which will indicate whether load or speed is excessive for a recorded vibration (7.5.6).
- That as required, an appropriately skilled stonemason with experience in working on historic structures undertakes conservation works to the stonework in accordance with the General Policy (see policy 7.2.1) (7.5.7);
- That as required, an appropriately skilled stonemason with experience in working on historic structures replace badly decayed stones when subject to a 50mm surface loss. New stones should use 100mm thick inserts of a better quality stone, with the works carried out in accordance with policy 7.5.7 (7.5.8);
- That as required, an appropriately skilled stonemason should replace lost bedding with a quicklime grout to make loose stonework solid (7.5.10);
- That as required, the repointing of mortar joints be undertaken by skilled stonemason using a permeable quick lime based mortar coloured to match the recent repointing work. Repointing works should have a

14 BRIDGE PIERS

weather struck finish (7.5.11);

- That an appropriately skilled stonemason remove the cement-rich mortars to be replaced with lime mortars (7.5.13);
- The Bridge should be inspected annually for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- That the cramps holding the top course of the sheathing stones be monitored and maintained to ensure that they continue to function (7.5.35); and
- That as required, organic growth is cleaned from the Bridge. Care should be taken to ensure that the contractor is skilled in working on historic structures and that the methods and materials are appropriate to the cultural significance of the Bridge and any necessary environmental considerations. Trial cleaning methods should be conducted on discreet parts of the Bridge to ensure correct and non-invasive process (7.5.36).

THREATS:

- Lack of adequate ongoing maintenance;
- Rusting of iron cramps causing damage to the stonework of the piers; and
- Organic growth on the Bridge could have an adverse affect on the aesthetic significance of the place.

RECOMMENDATIONS:

- Installation of vibration meter and monitoring of results; and installation of a camera linked to the vibration meter to monitor to allow for allow estimation of load (7.5.5, 7.5.6);
- Annual inspection and recording of Bridge for pointing and stormwater defects, flood damage, cracking movements and general condition of stonework (7.5.22);
- Appointment of skilled stonemason to undertake conservation work to Bridge stonework (see policy 7.2.1) (7.5.7);
- Appointment of appropriately skilled stonemason; and stones to be replaced when subject to a 50mm surface loss and new stones to use 100mm thick inserts of a better quality stone (7.5.8);
- Appointment of appropriately skilled stonemason; and replacement of lost bedding with quicklime grout (7.5.10);
- Appointment of appropriately skilled stonemason to undertake condition assessment of the mortar, remove inappropriate mortar and replace with quick lime based mortar with a weather struck finish (7.5.22, 7.5.11, 7.5.13).
- Ongoing inspection and maintenance of iron cramps (7.5.35); and
- Appoint an experienced contractor to undertake cleaning of the Bridge utilising methods and materials that are culturally and environmentally appropriate. The cleaning of the Bridge should be tried first at discreet locations (7.5.36).

PREVIOUS INVENTORY:

The 1997 CMP noted that the iron cramps tying the top of the sheathing to the pier were cleaned and painted and the adjacent fillet reformed with cement mortar and that they were in good condition.

Spry identified biocide application followed by water jetting as having been effective in cleaning the Bridge. Spry recommended that further biocide application should follow the appearance of moss.

15 DRAINAGE INFRASTRUCTURE

Drainage infrastructure northwest bank

Drainage infrastructure south east bank

Drainage infrastructure, northeast bank

DESCRIPTION AND CURRENT CONDITION:

Drainage infrastructure on the north east, north west and south east and south west banks is in a state of poor repair. It is unknown whether or not this infrastructure is in use. Damp problems exist, particularly in the eastern arch and on the south west wing wall. The effectiveness and maintenance of the drains is questionable. Drainage infrastructure, particularly on the north east, north west and south west is also visually intrusive.

SIGNIFICANCE:

Drainage infrastructure on the north east, south east and south west riverbanks are intrusive elements. The north west infrastructure incorporates an open cement drain exiting from the stone retaining wall. The retaining wall is of significance. The cement drain is not of significance.

POLICIES:

- That the drains be regularly inspected and maintained to ensure their continued functioning (7.5.29);
- That specialist advice is sought on the current capacity of the drainage infrastructure to remove water from the Bridge. Specific attention should be given to ensuring drains are not resulting in ponding or erosion of soil around the Bridge abutments (7.5.18); and

15 DRAINAGE INFRASTRUCTURE

- That works are undertaken to minimise the visual impact of those drains that are intrusive on the cultural significance of the Bridge (in particular the drains on the north east, north west and south west riverbanks) (7.5.30).

THREATS:

- Lack of ongoing maintenance;
- Water entering the structure of the Bridge by poorly maintained, inoperative or ineffective water shedding methods; and
- Visual impact on intrusive infrastructure.

RECOMMENDATIONS:

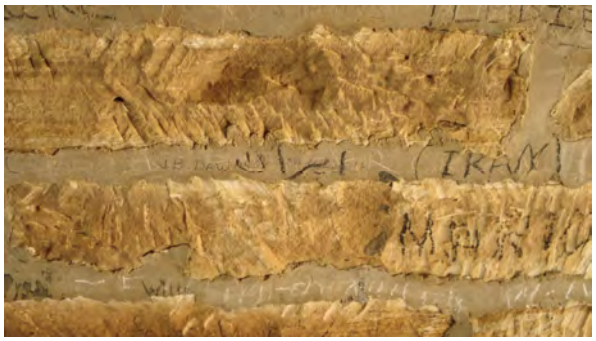
As part of a coordinated approach to drainage and damp issues (see further see further 7.5.9, 7.5.11, 7.5.14, 7.5.15, 7.5.17, 7.5.18, 7.5.25, 7.5.27, 7.5.29 and 7.5.30):

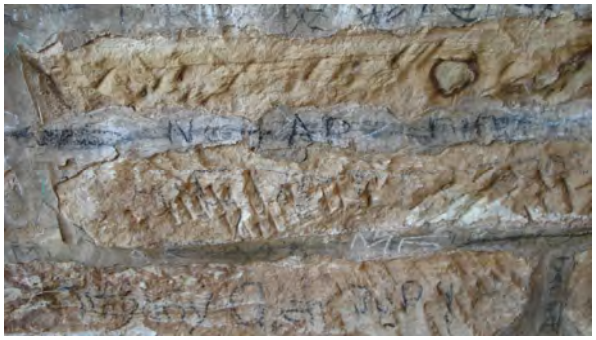
- Ongoing inspection and maintenance of drainage infrastructure (7.5.29);
- Seek specialist advice on the capacity of the drainage system (7.5.18); and
- Investigate means of minimising the visual impact of the drainage infrastructure (7.5.30).

PREVIOUS INVENTORY:

The condition of the drainage infrastructure was not generally considered in the 1997 Conservation Plan. Spry did identify poorly directed rainwater on the south east abutment as a cause of the ponding and damp issues in that area.

16 VANDALISM SPAN WEST ARCH





DESCRIPTION AND CURRENT CONDITION:

The western arch is generally in a fair condition. This arch has historically been subject to vandalism, dating back several decades. The vandalism occurs particularly on the mortar joints.

SIGNIFICANCE:

The western arch is an essential component of the place. This element has the same significance as the Richmond Bridge as a whole. The vandalism is an intrusive element.

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policies:

- That specialist advice be sought on the removal of graffiti from the Bridge (7.5.32); and
- That specialist advice be sought on the suitability of anti-graffiti treatments to allow for easier removal of graffiti (7.5.33).

THREATS:

- Graffiti has an adverse impact on the aesthetic significance of the Bridge;
- Inappropriate removal of graffiti can cause damage to the stone or mortar joints; and
- Inappropriately applied anti-graffiti treatments may alter the external finish of the stone and mortar. Inappropriate anti-graffiti treatments may also interfere with the natural transfer of moisture.

RECOMMENDATIONS:

16	VANDALISM SPAN WEST ARCH

- Seek specialist advice on graffiti removal (7.5.32); and
- Seek specialist advice on the suitability of anti-graffiti treatments (7.5.33).

PREVIOUS INVENTORY:

The 1997 CMP identified the graffiti problem in the western arch. Spry recommended the regular removal of the graffiti, application of anti-graffiti treatments and surveillance. Such methods are appropriate.

Further recommendations were made for closing off the area at night and the installation of lighting. These measures are considered disproportionate to the problem and could potentially have adverse impacts with the installation of further infrastructure.

17 STONE STAIRS

Stone Stair north west bank

Stone Stair south west bank

DESCRIPTION AND CURRENT CONDITION:

Two sets of sandstone stairs exist on the western end of the Bridge. On the north west embankment, narrow sandstone steps lead off the 1840s right of way. These steps return to enter the western arch. On the south west side, narrow sandstone stairs follow the curve of the wing wall to enter the western arch. Nigel Lewis *et. al.* suggest that these steps follow the original roadside reservation to the water edge. In 1925 the Richmond Council acquired a narrow strip of riverbank land, connecting the stairs and providing public access under the western arch. A modern metal handrail has been installed. The stairs are in a fair condition.

SIGNIFICANCE ASSESSMENT:

The sandstone stairs are essential elements of the place. These elements have the same significance as the Richmond Bridge as a whole. The iron railing on the south west stair is of no significance. The sandstone stairs have specific significance with reference to:

Historical Value:	High	The sandstone stairs demonstrate early means of providing public access to the Coal River. Access to public water supplies was

17	STONE STAIRS	
		important in the early development of Richmond. Later, the stairs provided important visitor infrastructure.
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:	Moderate	As part of the overall structure of the Bridge, the sandstone stairs are representative of a key element of public road bridges in providing access to the riverbanks.
Technical Achievement:		N/A
Social Value:	High	The stone stairs provide an essential community function by providing pedestrian access to the riverbank.
Associational Value:		N/A
Aesthetic Value:	High	As part of the overall structure of the Bridge, the sandstone stairs complement the historic form of the Bridge in their material, form, and patina of age.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policy:

- That the sandstone stairs on the west end of the Bridge abutments be conserved as elements of cultural significance. The sandstone stairs should continue to function for their original use and all maintenance work should follow professional standards and be undertaken by suitably qualified personnel (7.5.31).

THREATS:

- Lack of continued maintenance; and
- The potential inappropriate upgrading to meet safety standards e.g. balustrade heights, dimensions of stones.

RECOMMENDATIONS:

Ongoing maintenance of sandstone stairs (7.5.31).

PREVIOUS INVENTORY:

The 1997 Conservation Plan identified the north west stairs as being of some cultural significance.

18 VIEWING PLATFORM AND PLAQUE

DESCRIPTION AND CURRENT CONDITION:

The viewing platform was erected in 1989 by the then Richmond Council on the south west end of the Bridge. It is constructed as a low sandstone wall in a broad arc with concrete pavers in a sandstone colour. The platform provides views of the southern face of the Bridge, the eastern riverbank and Mill House and a stretch of the Coal River. The platform is in a good condition.

In 1991, the Institution of Engineers, Australia installed a commemorative plaque recognising the Richmond Bridge for its engineering significance.

Subsequently, two further viewing areas have been constructed on the south west riverbank.

SIGNIFICANCE ASSESSMENT:

As a structure, the platform is largely a neutral element within the immediate Bridge setting. The height and material of the structure is sympathetic to the overall character of the place. However, locating the platform so close to the Bridge has had some impact on the setting of the place. The commemorative plaque has some heritage value, although does not have to remain in its current location. The following considers the significance of the feature as a monument and not as a structure.

Historical Value:	Low	The commemorative plaque is a demonstration of the growing recognition during the twentieth century of the heritage significance of the Richmond Bridge.
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:		N/A
Technical Achievement:		N/A

18	VIEWING PLATFORM AND PLAQUE	
Social Value:	Potential	The commemorative plaque may have social value to Engineers Australia as a public recognition of the importance of the Bridge to that group.
Associational Value:		N/A
Aesthetic Value:		N/A

OVERALL LEVEL OF SIGNIFICANCE: Low Significance for the plaque, neutral for the platform.

POLICIES:

Actions, works, or development potentially affecting the cultural significance of the place are to be consistent with the relative levels of cultural significance of the elements of the place. As a neutral element, the viewing platform may be retained or removed. As an element of low cultural significance, the plaque may be removed where a conservation benefit can be demonstrated (7.2.5 and 7.2.6).

THREATS:

- Lack of continued maintenance; and
- The location of the viewing platform has had some impact on the setting of the Bridge and its aesthetic significance.

RECOMMENDATIONS:

The platform is a neutral element and may be removed.

Should the commemorative plaque be removed, the following process will need to be considered:

- Determine the conservation benefit of the removal of the element prior to its removal;
- Determine a new position for the relocation of the memorial plaque;
- Seek and gain any necessary approvals to undertake works; and
- Appropriate recording of the element prior to its removal. The type of recording required will depend on the element proposed to be removed. It may include, but not be limited to photographs, written description, a site plan etc (7.2.5 and 7.2.6).

PREVIOUS INVENTORY:

The 1997 Conservation Plan identified the viewing platform as having some cultural significance.

19 CENTENARY MONUMENTS

DESCRIPTION AND CURRENT CONDITION:

Centenary monument stones are placed on the north and south faces of the Bridge, and on the inner parapet wall at the north west end. Stone tablets were constructed into the faces of the Bridge, although never inscribed. For the centenary celebrations, the Richmond Council had engraved 'A.D 1823' on each of the tablets.

The centenary celebrations on the 11th December 1923 were a popular and important event. Photographic records show large numbers of people at the Bridge, horse and cart processions, and participants dressed in period costume. The event was presided over by local dignitaries including the Warden, Mr Grice, the Honourable JW Evans, and Mr WE Shoobridge.

On the inside of the northern parapet, two inscriptions were made. On the parapet stone was carved: 'THIS IS THE OLDEST BRIDGE IN AUSTRALIA', and below this:

THE FIRST STONE OF THIS BRIDGE
WAS LAID ON DECR 11TH 1823
IN THE PRESENCE OF
JAMES GORDON AND G.W GUNNING ESQRS
MAGISTRATES

These stones were recut and the inscriptions darkened in 1973.

The condition of the centenary monuments is generally good. Conservation works have occurred to the construction date tablet on the northern face. The inscriptions on the inner face are less legible.

SIGNIFICANCE ASSESSMENT:

The centenary monuments are important elements of the place. They demonstrate the last changes to the fabric of the Bridge that are of heritage significance. Specifically:

Historical Value:	Moderate	The centenary monument stones are important as an early demonstration of official and public recognition of the heritage value of the Richmond Bridge. They are also reminders of the popular centenary celebrations which occurred in December 1923.
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:		N/A

19	CENTENARY MONUMENTS	
Technical Achievement:		N/A
Social Value:	Moderate	The centenary monument stones have social value to as a physical reminder of the centenary celebrations held in 1923.
Associational Value:	Low	The centenary monument stones are associated with local dignitaries the Warden, Mr Grice, the Honourable JW Evans, and Mr WE Shoobridge who presided over the December 1923 centenary celebrations.
Aesthetic Value:	Moderate	As part of the overall structure of the Bridge, the centenary monument stones complement the historic form of the Bridge in their material, form, and patina of age.

OVERALL LEVEL OF SIGNIFICANCE: Moderate

POLICIES:

Manage and conserve as part of overall structure in accordance with the policies of this Conservation Management Plan and the policies provided in Inventory Sheet 1 (Richmond Bridge). Attention should be given to the following specific policy:

- That the lettering of the date stones on the north and south face of the Bridge, and the commemorative centenary stones on the inside of the northern parapet are conserved (7.5.34).

THREATS:

- Loss of inscriptions and interpretive meaning of the centenary monuments; and
- Inappropriate conservation works causing further degradation of the stones.

RECOMMENDATIONS:

Undertake careful conservation works to ensure that the inscriptions remain legible (7.5.34).

PREVIOUS INVENTORY:

This date stone on the northern is in good condition and appears to have been repaired in line with Spratt's 1993 recommendation.

Setting Inventory Sheets

Figure 64 Sketch Plan of Setting Element Locations

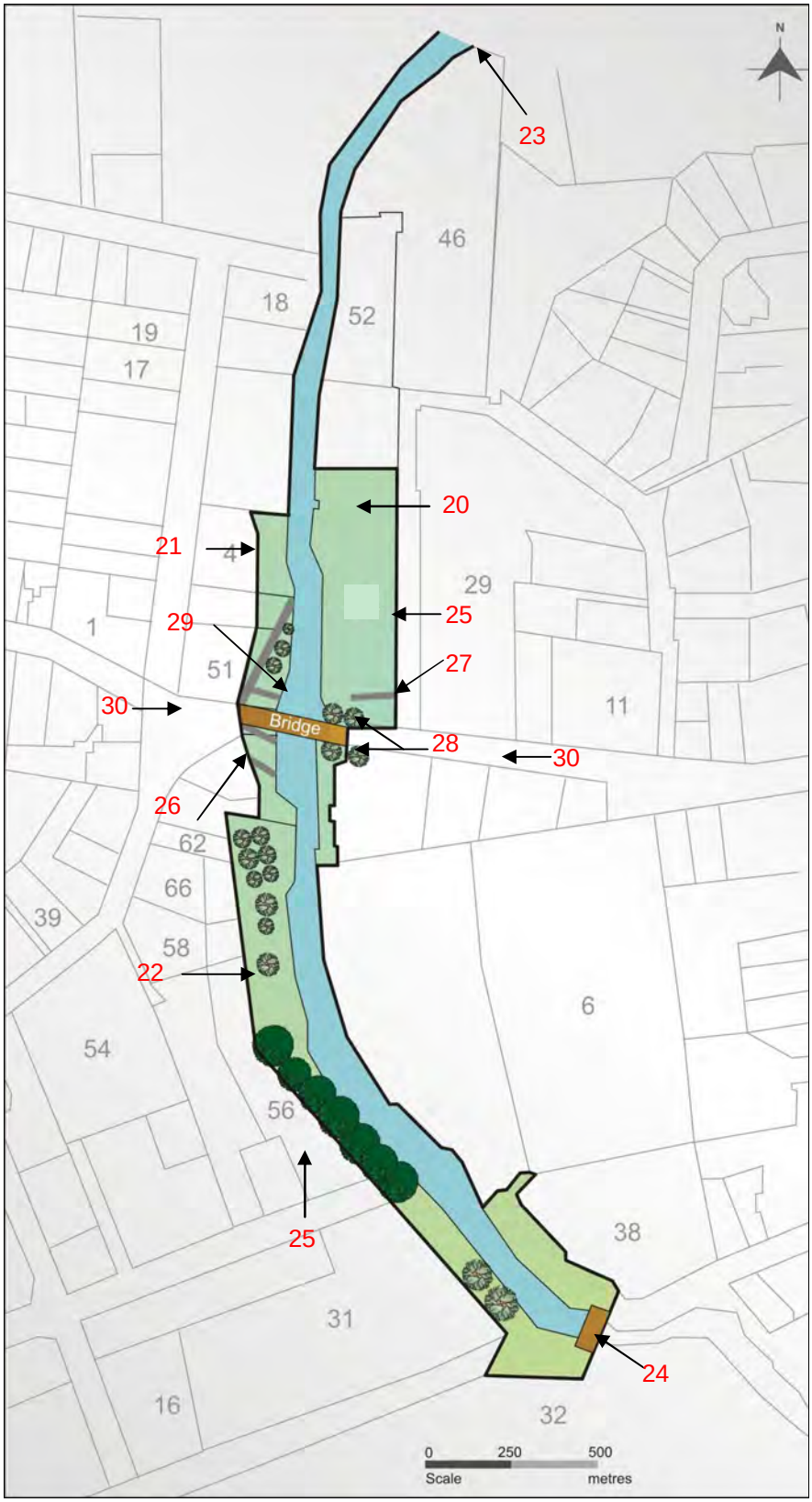


Table 24 Setting Elements Location Key

No.	Element	No.	Element
Setting Elements			
20	Eastern Riverbanks	**26**	Stairs South West Bank
21	North West Riverbank	**27**	Timber Stairs
22	South West Riverbank	**28**	Lombardy Poplars Eastern End of Bridge
23	Northern Boundary: St Johns Cemetery Escarpment	**29**	Riparian Vegetation
24	Southern Boundary: Gatty Dam	**30**	Road Approaches to the Bridge
25	Car Park Facilities		

20 EASTERN RIVERBANKS

DESCRIPTION AND CURRENT CONDITION:

Public access to the east bank has been curtailed to a greater extent than has occurred on the west bank. Above the Bridge, and on the east bank, the original grant extended to the riverbank. The relevant eastern riverbanks are composed of two main areas:

- The land on the north east river bank owned by the Archdiocese of Hobart and known as 64 St Johns Circle and defined by Certificate of Title 104610/1 (PID 5888635); and
- The two parcels of land on the south east river bank owned by the Crown and defined by Certificate of Title 10089/3 (PID 2068981) and Certificate of Title 10089/4 (PID 2069001).

The north east bank is an open grass area, which is easily accessible from the adjacent car park. The grass bank slopes towards the river, with some vegetation on the river edge. Owing to the slope of the bank and its open nature, views of the entire Bridge are available from the area. Likewise, important views towards St John's Church hill are available from the east bank. The north eastern grassed bank is in a good condition.

The Catholic Church acquired this land at an early date and used it for pasture. Currently, this area is open grass area, located adjacent to the car park. Native rushes exist on the riverbanks.

On the south east bank, Thomas' land ran to the mill race, presumably east of the current river bank. The Municipality of Richmond negotiated a Crown Reserve in 1977 for parcels 10089/3 and 4, adjacent to the Mill House allotment. Public access to this land is restricted.

20 EASTERN RIVERBANKS

SIGNIFICANCE ASSESSMENT:

The eastern riverbanks are essential elements of the place and its setting. The eastern riverbanks have specific heritage significance for:

Historical Value:	High	The north eastern riverbank bank is of historical significance as an area of long-term and informal recreational use. The bank is an important element in the overall aesthetic qualities of the Bridge and provides a pleasant setting to enjoy passive recreational opportunities. The south eastern riverbanks are important in demonstrating official recognition of the significance of the Bridge and the importance of public acquisition of essential landscape components.
Rarity Value:	Low	The north eastern riverbank is a rare surviving area of the eastern riverbank where the public have access to the Coal River. The original grant extended to the riverbank, and the acquisition of the land by the Catholic Church has preserved the riverbank from subsequent development.
Research Potential:	Potential	The south eastern riverbank has the potential to provide new information into the early industrial uses of the Coal River and riverbanks, related to the adjacent Burn's Mill (Mill House).
Representative Value:		N/A
Technical/Creative Achievement:		N/A
Social Value:	High	The 1997 Conservation Plan assessed social values relating to the Bridge. This assessment identified the broader riverbank environment including visitor facilities and access as important elements within the study area. Social values were also conveyed for the visual and historical links between the river and the two cemeteries.
Associational Value:	Low	The south eastern riverbank setting is significant for its association with artist John Eldershaw who developed extensive landscaping of the setting of the Bridge on the eastern riverbank.
Aesthetic Value	High	The north eastern riverbank is of heritage significance as an important visual element within the study area, providing vantage points for viewing the Bridge as well as St John's Church hill.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall place in accordance with the policies of this Conservation Management Plan. Attention should be given to the following specific policies:

- That the riverbanks continue to be used for recreational purposes (7.4.6);
- That land managers of the public open space apply the relevant policies of this Conservation Management Plan (see also General Policy 7.2.1) (7.6.1);
- That the existing nature of each of the publicly accessible riverbanks be maintained in accordance with their distinct character (7.6.2);
- The introduction of new visitor infrastructure such as seating, rubbish bins, walking tracks, shelters, toilets etc

20 EASTERN RIVERBANKS

should be avoided (7.6.6);

- That the riparian vegetation in the Coal River and on the riverbanks should be conserved (7.7.10);
- That the riverbanks be monitored for erosion and remediation works be carried out as necessary (7.8.7);
- That the population of ducks and geese is managed at a sustainable level to prevent adverse pollution of the Coal River (7.8.8); and
- That a suitably qualified historical archaeologist should prepare an archaeological assessment of the Richmond Bridge and its setting. Such an assessment should provide an understanding of the archaeological values of the place (the bridge, river and riverbanks); including its potential to contain significant archaeological features; and provide guidance on the conservation of those values. The results of the assessment should be included in the next review of this CMP (7.11.2, 7.11.3).

THREATS:

- Loss of access to the north eastern riverbank for passive recreation uses;
- Establishment of landscaping inconsistent with the character of the north eastern bank;
- Introduction of further infrastructure having a visual impact on the setting of the place;
- Erosion of the riverbanks;
- Ongoing lack of screening for car parking;
- Ground disturbances having adverse impact on potential archaeological resources; and
- Water pollution from excessive water fowl population.

RECOMMENDATIONS:

- Endorsement of Conservation Management Plan (7.3.2, 7.6.1);
- Maintain recreational use for the place under the Clarence Planning Scheme 2007 (7.4.6);
- Ongoing maintenance consistent with the existing character (7.6.2);
- Avoid the introduction of new infrastructure. Any new infrastructure should be subject to all necessary works approvals and a statement of heritage impact. Alternatively, existing infrastructure should be maintained, or modified to minimise impacts on the cultural significance of the place (7.6.6);
- Ongoing maintenance to retain the existing riparian vegetation (7.7.10);
- Erosion remediation works in accordance with a Rivercare Plan (7.8.7);
- Monitoring and management controls of ducks and geese (7.8.8); and
- Engage a suitably qualified historical archaeologist to prepare an archaeological assessment of the Richmond Bridge and its setting. Archaeological values will be managed in accordance with the THC's Practice Note 2: *Managing Historical Archaeological Significance in the Works Application Process* (7.11.2, 7.11.3).

PREVIOUS INVENTORY:

The 1997 CMP considers the north east bank as an element of exceptional cultural significance.

The condition of the riverbanks was identified as a concern in 1997, where the growth of weeds, trees and willows posed a danger to the Bridge in times of flood. The land around the Bridge was identified for its recreational uses, as was the need for a range of vantage points to view the Bridge. The growth of willows was viewed as a risk to these vantage points.

20 EASTERN RIVERBANKS

The 1997 CMP recommended:

- The public open space the responsibility of the City of Clarence should be subject to a management plan;
- The restoration of the landscape to reflect its significant period (to 1925); and
- Liaison with the DPIW on the restoration of the riverbanks.

21 NORTH WEST RIVERBANK

DESCRIPTION AND CURRENT CONDITION:

The relevant north west riverbank area is composed of:

- The three parcels of land on the north west bank river bank owned by the Crown and defined by Certificates of Title 66866 folios 1, 2 and 3 (PID 2799418).

The escarpment of the north west bank rises steeply to the west, which encloses the space. The landscaping consists of informal groups of plantings, coarse grasses and an informal pathway. Large areas of common rush are located on the riverbank. The north west bank is in a good condition.

On the north west bank above the Bridge, the land was in private ownership as part of the 1815 grant to Surveyor Evans. Evans' land was later subdivided with parcels accessed by Gunning Street. However, the public did have access to the river from the north west, as a c.1840s plan notes a formed pathway, which was later formalised as a right of way. Nigel Lewis *et. al.* consider that this pathway may have originally been the ford crossing point. The pathway is marked by a row of mature pine trees. The land was acquired by the Crown in 1973.

Several fords were constructed across the Coal River, corresponding to the early road alignments. These fords may have existed on the west bank, upstream of the Bridge, reached via the right of way; on the east bank at the end of Pembroke Street.

SIGNIFICANCE ASSESSMENT:

The north west bank is an essential element of the place and its setting. The north west riverbank has specific heritage significance for:

Historical Value:	High	The bank is of historical significance for its potential relationship to the use of fords across the Coal River. The road formation marked by the mature pines indicates the historic route to the water edge. The north west riverbank bank is an important element in the overall aesthetic qualities of the Bridge and has provided a pleasant setting to enjoy passive recreational opportunities.
Rarity Value:		N/A
Research Potential:	Potential	The setting of the Bridge has research potential into the early uses of the Coal River and riverbanks. Particular opportunities exist to develop the understanding of the use of fords across the Coal River. The riparian vegetation and mature plantings provide an opportunity to understand past landscaping and the indigenous regrowth of riparian vegetation.

21	NORTH WEST RIVERBANK	
Representative Value:		N/A
Technical/Creative Achievement:		N/A
Social Value:	High	The 1997 Conservation Plan assessed social values relating to the Bridge. This assessment identified the broader riverbank environment including visitor facilities and access as important elements within the study area. Social values were also conveyed for the visual and historical links between the river and the two cemeteries.
Associational Value:		N/A
Aesthetic Value	High	The north west riverbank is of heritage significance as an important visual element within the study area with a row of mature pines, and providing vantage points for viewing the north face of the Bridge. The relationship between the built form of the Bridge, topography, Coal River and vegetation, combine to form a highly picturesque viewscape. The topography of the land focuses views towards the Bridge and east bank of the River. Large areas of common rush are located on the riverbank. The combination of unstructured plantings, coarse grasses and informal pathway complement the rural nature of the place.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall place in accordance with the policies of this Conservation Management Plan. Attention should be given to the following specific policies:

- That the riverbanks continue to be used for recreational purposes (7.4.6);
- That land managers of the public open space apply the relevant policies of this Conservation Management Plan (see also General Policy 7.2.1) (7.6.1);
- That the existing nature of each of the publicly accessible riverbanks be maintained in accordance with their distinct character (7.6.2);
- That the existing walking tracks are maintained in the existing form and materials. The construction of new tracks is to be avoided (7.6.3);
- The introduction of new visitor infrastructure such as seating, rubbish bins, walking tracks, shelters, toilets etc should be avoided (7.6.6);
- That a vegetation management plan be prepared for the Richmond Bridge setting. The plan should consider weed management, and the cultural heritage value of plantings. Recognising the finite lifespan of plantings, an arborist should be engaged to assess the current health and estimated lifespan of the historic plantings as part of the vegetation management plan. This policy relates to the row of mature pines following the road formation (7.7.4, 7.7.5);
- That the riparian vegetation in the Coal River and on the riverbanks should be conserved (7.7.10);
- That the riverbanks be monitored for erosion and remediation works be carried out as necessary (7.8.7);
- That the population of ducks and geese is managed at a sustainable level to prevent adverse pollution of the Coal River (7.8.8); and
- That a suitably qualified historical archaeologist should prepare an archaeological assessment of the Richmond Bridge and its setting. Such an assessment should provide an understanding of the archaeological values of the place (the bridge, river and riverbanks); including its potential to contain

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significant archaeological features; and provide guidance on the conservation of those values. The results of the assessment should be included in the next review of this CMP (7.11.2, 7.11.3).

THREATS:

- Establishment of landscaping inconsistent with the character of the north eastern bank;
- Introduction of further infrastructure having a visual impact on the setting of the place;
- Lack of maintenance of walking track;
- Erosion of the riverbanks;
- Loss of mature plantings;
- Ground disturbances having adverse impact on potential archaeological resources; and
- Water pollution from excessive water fowl population.

RECOMMENDATIONS:

- Endorsement of Conservation Management Plan (7.3.2, 7.6.1);
- Maintain recreational use for the place under the Clarence Planning Scheme 2007 (7.4.6);
- Ongoing maintenance consistent with the existing character (7.6.2);
- Ongoing maintenance of the walking track (7.6.3);
- Avoid the introduction of new infrastructure. Any new infrastructure should be subject to all necessary works approvals and a statement of heritage impact. Alternatively, existing infrastructure should be maintained, or modified to minimise impacts on the cultural significance of the place (7.6.6);
- Preparation of vegetation management plan and engage appropriate arborist to establish the health and estimated lifespan of the historic plantings. Engage appropriate arboricultural, and or heritage landscape architect to prepare a management plan for the historic plantings, including routine maintenance and succession planting (7.7.4, 7.7.5);
- Ongoing maintenance to retain the existing riparian vegetation (7.7.10);
- Erosion remediation works in accordance with a Rivercare Plan (7.8.7);
- Monitoring and management controls of ducks and geese (7.8.8); and
- Engage a suitably qualified historical archaeologist to prepare an archaeological assessment of the Richmond Bridge and its setting. Archaeological values will be managed in accordance with the THC's Practice Note 2: *Managing Historical Archaeological Significance in the Works Application Process* (7.11.2, 7.11.3).

PREVIOUS INVENTORY:

The 1997 CMP assessed the north west bank as containing elements of varying significance. The road formation is assessed as having exceptional significance and the riverbank formation and pines having considerable significance.

The condition of the riverbanks was identified as a concern in 1997, where the growth of weeds, trees and willows posed a danger to the Bridge in times of flood. The land around the Bridge was identified for its recreational uses, as was the need for a range of vantage points to view the Bridge. The growth of willows was viewed as a risk to these vantage points.

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The 1997 CMP recommended:

- That the public open land that was the responsibility of the City of Clarence should be subject to a management plan;
- The restoration of the landscape to reflect its significant period (to 1925); and
- Liaison with the DPIW on the restoration of the riverbanks.

22 SOUTH WEST RIVERBANK

Pathway and mature elm

Pathway through coppice

Mature pine on site of Buscombe's mill

Row of almonds marking pathway

Looking south, almonds and elm

Looking north towards Bridge

Bridge through coppice of poplars and elms

22 SOUTH WEST RIVERBANK

Looking north from Gatty Dam to group of Weeping Willows.

Picnic facilities on the escarpment

DESCRIPTION AND CURRENT CONDITION:

The relevant south west riverbank area is composed of three parcels of land. This includes: the two parcels of land owned by the Crown and defined by Certificate of Title 146275/1 and potential PID 2068367; and the narrow parcel of riverbank land owned by the Clarence City Council and defined by Certificate of Title 17/1777.

The southwest riverbank begins as a largely open area with a gravel pathway following the riverbank and two viewing platforms. Individual, mature exotic specimen trees are located within this area, before merging into denser groups of plantings. Individual trees include a row of almond trees and small orchard marking the boundary of the pathway along River Place; a mature English Elm with a Pepper Tree behind; and a large Radiata pine planted on the site of Buscombe's windmill. These trees combine to form shady cover over the pathway, and framing views of the eastern bank of the river, and up to the Bridge.

At the bend in the river the path enters a coppice of poplars and elms. From the coppice of trees the pathway opens again before entering a group of weeping willows. The pathway enters beneath these trees before reaching Gatty dam. Picnic areas, shelters and barbeques have been constructed on the upper slopes of the escarpment and provide an unobtrusive contemporary element in the Richmond Bridge setting. The south west bank is in a good condition.

Early town planning intended to reserve the riverbanks for public use as early as 1831. What is known as River Place was shown on Scott's plan of c.1824-1825, excising large areas of land for public access on both sides of the river below the Bridge. A limited reserve was established on the west bank, although substantially reduced in size by land grants.

Milling was also taking place on the south west bank of the River near the Bridge. Because of the lack of water in the Coal River, John Buscombe applied for a location of land to construct a windmill high on the west bank of the River. Buscombe planned to build the first tower windmill in the colony. It was to be built between Russel Street, the Esplanade and Old Bridge Street. Buscombe experienced problems, which delayed the construction of the mill. By May 1830 he had completed the stone tower, which was 25 feet (7.5m) in diameter and 40 feet (12m) high. In comparison, it was shorter than both the Battery Point and Oatlands mills. Buscombe was not a millwright and he was required to engage Peter Ferguson who had previously worked on the construction of the new Government Mill in Hobart Town. Completion of Buscombe's mill was further delayed when Ferguson fell from the work site, and was seriously injured. It was not until February 1832 that the mill neared completion.

Jones writes that it is almost certain that Buscombe's Mill was the 'Providence Mill' offered for sale in 1839, the advertisement stating that it had a round house underneath, one pair of French burr stones four feet in diameter, with a full size dressing machine and sack tackle complete.

Because of unreliable winds, the mill was later converted to steam power, nonetheless, was found to be unoccupied in 1858. The Mill was demolished in the early twentieth century, and the stone recycled in the construction of the Richmond Town Hall. A large pine tree marks the location of the site of the former windmill.

The small orchard with almond trees is discernable in a 1902 photograph. The Richmond Municipality acquired a 13 foot strip of land in 1925 along the west bank, downstream of the Bridge. The row of almond trees marks the boundary of the pathway along River Place. Nigel Lewis *et. al.* believe that this acquisition formalised an historic path connected with the stone steps, and continuing under the Bridge.

22 SOUTH WEST RIVERBANK

The construction of the Gatty Dam permanently inundated the 1925 Warden's pathway and caused erosion near the Bridge. It is likely that the sloping concrete apron within the main western arch was constructed as a result of the rise in water level.

The Crown acquired land adjacent to River Place on the west bank in 1973 for 'Public Recreation and Amusement' uses. This land provided increased access by linking the lower car park below the gaol with the mill site behind the former Court House and the riverbank area.

Today, the west bank, in particular the south west bank, provides the greatest level of public access to the river, with walking tracks, viewing platforms, parking and barbeque facilities.

SIGNIFICANCE ASSESSMENT:

The south west bank is an essential element of the place and its setting. The south west riverbank has specific heritage significance for:

Historical Value:	High	The southwest bank and pathway is of historical cultural heritage significance for its association for its long-term use as a recreational area within the study area. As a former mill site, the place is significant for its association with early agricultural and industrial practices in the area. The south west bank demonstrates continued work by local and State governments to reserve the riverbank areas to provide public access to the Coal River, firstly, as a source of water, and later as important recreational spaces. The south west riverbank bank is particularly important in the overall aesthetic qualities of the Bridge, providing iconic views through the arches of the Bridge to St John's Church in the background. It provides a pleasant setting to enjoy passive recreational opportunities with pathways, grassed areas and mature plantings.
Rarity Value:		N/A
Research Potential:	Potential	The setting of the Bridge has research potential into the early uses of the Coal River and riverbanks. Particular opportunities exist to develop the understanding of the use of site for milling purposes. The riparian vegetation and mature plantings provide an opportunity to understand past landscaping, the indigenous regrowth of riparian vegetation and changing perceptions of the landscape.
Representative Value:		N/A
Technical/Creative Achievement:	Moderate	The riverbank setting of the Richmond Bridge is important for its creative achievement. Reserved public access to the riverbanks was envisaged as early as 1825 although was curtailed by private land acquisition and industrial activity. During the twentieth century, increased interest in the Bridge resulted in the gradual acquisition of the riverbanks by the Tasmanian and local governments. The acquisition allowed for the space to be used for passive recreation and appreciation of the historic form of the Bridge.
Social Value:	High	The 1997 Conservation Plan assessed social values relating to the Bridge. This assessment identified the broader riverbank environment including visitor facilities and access as important elements within the study area. Social values were also conveyed for the visual and historical links between the river and the two cemeteries.

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Associational Value:	Moderate	The setting of the Bridge has a special association with the work of the former Richmond Council in acquiring land on the riverbanks for public purposes creating important recreational spaces. At the southern end of the River, the Council constructed the Gatty Dam, creating a swimming pool and named in honour of long serving Council Clerk, Jim Gatty. The connecting footbridge was named in honour of the Warden of the day, Mr Grice.
Aesthetic Value	High	The south west riverbank is of heritage significance as a highly important visual element within the study area with open grassed spaces, walking paths and mature plantings. Views are available from the south west bank through the arches of the Bridge to St John's Church. This is an iconic view of the Bridge, Richmond, and Tasmania. Important views are also taken from this location to the east bank of the River and the Mill House. Further south, the walking track leads through a coppice of poplars and elms, providing seasonal shade, a strong sense of enclosure, anticipation and a certain wildness to the landscape. These trees both conceal and frame views of the Bridge and eastern bank of the River with open escarpment above. The relationship between the built form of the Bridge, topography, Coal River and vegetation, combine to form a highly picturesque viewscape.
OVERALL LEVEL OF SIGNIFICANCE: High		

POLICIES:

Manage and conserve as part of overall place in accordance with the policies of this Conservation Management Plan. Attention should be given to the following specific policies:

- That the riverbanks continue to be used for recreational purposes (7.4.6);
- That land managers of the public open space apply the relevant policies of this Conservation Management Plan (see also General Policy 7.2.1) (7.6.1);
- That the existing nature of each of the publicly accessible riverbanks be maintained in accordance with their distinct character (7.6.2);
- That the existing walking tracks are maintained in the existing form and materials. The construction of new tracks is to be avoided (7.6.3);
- That the walking tracks at the south west end of the Bridge be consolidated into a single track providing access to the stairs and under the western arch (7.6.4);
- That the cement block stair on the south west bank be removed. Should it be established that stair infrastructure is required at this point, any new stair should be designed to be sympathetic to the cultural significance of the Bridge and its setting (7.6.5);
- The introduction of new visitor infrastructure such as seating, rubbish bins, walking tracks, shelters, toilets etc should be avoided (7.6.6);
- That a vegetation management plan be prepared for the Richmond Bridge setting. The plan should consider weed management, and the cultural heritage value of plantings. Recognising the finite lifespan of plantings, an arborist should be engaged to assess the current health and estimated lifespan of the historic plantings as part of the vegetation management plan. Long term and ongoing management is required to conserve the setting of the place (7.7.4, 7.7.5);
- The form and area of the coppice of poplars and elms as a collection of trees on the south west bank should be maintained (7.7.9);

22 SOUTH WEST RIVERBANK

- That the riparian vegetation in the Coal River and on the riverbanks should be conserved (7.7.10);
- That the riverbanks be monitored for erosion and remediation works be carried out as necessary (7.8.7);
- That the population of ducks and geese is managed at a sustainable level to prevent adverse pollution of the Coal River (7.8.8); and
- That a suitably qualified historical archaeologist should prepare an archaeological assessment of the Richmond Bridge and its setting. Such an assessment should provide an understanding of the archaeological values of the place (the bridge, river and riverbanks); including its potential to contain significant archaeological features; and provide guidance on the conservation of those values. The results of the assessment should be included in the next review of this CMP (7.11.2, 7.11.3).

THREATS:

- Establishment of landscaping inconsistent with the character of the south western bank;
- Introduction of further infrastructure having a visual impact on the setting of the place;
- Lack of maintenance of walking track;
- Erosion of the riverbanks;
- Loss of mature plantings;
- Ground disturbances having adverse impact on potential archaeological resources; and
- Water pollution from excessive water fowl population.

RECOMMENDATIONS:

- Endorsement of Conservation Management Plan (7.3.2, 7.6.1);
- Maintain recreational use for the place under the Clarence Planning Scheme 2007 (7.4.6);
- Ongoing maintenance consistent with the existing character (7.6.2);
- Ongoing maintenance of the walking track (7.6.3);
- Consolidate existing tracks at south west end of Bridge (7.6.4);
- Remove existing cement block stair; and any replacement stair should not visually intrude on the cultural significance of the place (7.6.5);
- Avoid the introduction of new infrastructure. Any new infrastructure should be subject to all necessary works approvals and a statement of heritage impact. Alternatively, existing infrastructure should be maintained, or modified to minimise impacts on the cultural significance of the place (7.6.6);
- Preparation of a vegetation management plan and engage appropriate arborist to establish the health and estimated lifespan of the historic plantings. Engage appropriate arboricultural, and or heritage landscape architect to prepare a management plan for the historic plantings, including routine maintenance and succession planting (7.7.4, 7.7.5);
- Ongoing maintenance to retain the existing area covered by the coppice of poplars and elms; ongoing maintenance to prevent the trees encroaching on the pathway (see also policy 7.6.3), and maintenance of existing, or development of new gaps in the coppice to provide important views towards the Bridge (7.7.9;
- Ongoing maintenance to retain the existing riparian vegetation (7.7.10);
- Erosion remediation works in accordance with a Rivercare Plan (7.8.7);
- Monitoring and management controls of ducks and geese (7.8.8); and
- Engage a suitably qualified historical archaeologist to prepare an archaeological assessment of the Richmond Bridge and its setting. Archaeological values will be managed in accordance with the THC's Practice Note 2: *Managing Historical Archaeological Significance in the Works Application Process* (7.11.2, 7.11.3).

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PREVIOUS INVENTORY:

The 1997 CMP considers the south west bank as containing elements of varying significance. The individual trees and groups of trees were ranked from intrusive elements, to elements of considerable significance. This Conservation Management Plan considers that the mature plantings contribute to the overall significance of the setting of the Bridge.

The condition of the riverbanks was identified as a concern in 1997, where the growth of weeds, trees and willows posed a danger to the Bridge in times of flood. The land around the Bridge was identified for its recreational uses, as was the need for a range of vantage points to view the Bridge. The growth of willows was viewed as a risk to these vantage points.

The 1997 CMP recommended:

- The public open space the responsibility of the City of Clarence should be subject to a management plan;
- The restoration of the landscape to reflect its significant period (to 1925); and
- Liaison with the DPIW on the restoration of the riverbanks.

Considerable achievements have been made on the removal of crack willows from the south west bank. A discrete group of weeping willows exist above the Gatty Dam and these trees should be maintained.

The 1997 CMP also identified the poplar suckers on the riverbank as an intrusive element. This Conservation Management Plan has come to a different conclusion with reference to the coppice of poplars and elms on the south west bank along the pathway. Although these are not mature trees, the coppice contributes to the setting and visual appeal of the place.

23 NORTHERN BOUNDARY: ST JOHNS CEMETERY ESCARPMENT

DESCRIPTION AND CONDITION:

This area forms the northern boundary of the study area. It is formed by the Coal River, commencing at a point in the north, adjacent to the bluff of St John's Church Cemetery at approximate Australian Map Grip coordinates 535996E/5268877N (AGD 66). Flanking the river are the steep escarpment of St John's Church cemetery, and the open escarpment of the Clarence City Council recreational area.

From the recreational area, the escarpment falls steeply to the riverbanks. At this point the river narrows considerably. From the western bank, dramatic views are available of the cemetery cliff and headstones. This view has historically been acknowledged for its aesthetic values. In 1869, Thomas found similarities between the landscape and England and provided an evocative description of the picturesque scene where 'lofty and insulated knoll, along the base of which "A broad brook brawls o'er a shingly bed". A scene more favourable to "meditation" can scarcely be imagined.'

This area is not formally vegetated and although overall the vegetation contributes to the setting of the escarpment, weed infestation is apparent, particularly, on the eastern bank which has thick growths of crack willows. On the western bank, considerable work has been undertaken in removing the willows and planting native species. No public access exists connecting the public north west bank area above the Bridge to this location. No views of the Bridge are available from this location.

SIGNIFICANCE ASSESSMENT:

The significance of the northern boundary primarily relates to its visual and aesthetic qualities.

Historical Value:		N/A
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:		N/A

23	NORTHERN BOUNDARY: ST JOHNS CEMETERY ESCARPMENT	
Technical/Creative Achievement:		N/A
Social Value:	High	The 1997 Conservation Plan assessed social values relating to the Bridge. This assessment identified the broader riverbank environment including visitor facilities and access as important elements within the study area. Social values were also conveyed for the visual and historical links between the river and the two cemeteries.
Associational Value:		N/A
Aesthetic Value	Moderate	The escarpment and St John's Church cemetery are important visual elements with a dramatic cliff face and historic headstones. The relationship between the Coal River and elevated cemetery has historically been identified as a significant view and source of reflection.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall place in accordance with the policies of this Conservation Management Plan. Attention should be given to the following specific policies:

- That the riverbanks continue to be used for recreational purposes (7.4.6);
- That land managers of the public open space apply the relevant policies of this Conservation Management Plan (see also General Policy 7.2.1) (7.6.1);
- That the existing nature of each of the publicly accessible riverbanks be maintained in accordance with their distinct character (7.6.2);
- The unofficial dirt bike tracks on the CCC Reserve on the north west bank are incompatible with the cultural significance of the place and should be removed (7.6.4);
- The introduction of new visitor infrastructure such as seating, rubbish bins, walking tracks, shelters, toilets etc should be avoided (7.6.6);
- That effort is made to control the illegal dumping of rubbish at the CCC Reserve. Rubbish should be regularly collected from the area and the dumping of fill on the steep escarpment should cease (7.6.11);
- That a vegetation management plan be prepared for the Richmond Bridge setting. The plan should consider weed management, and the cultural heritage value of plantings. Recognising the finite lifespan of plantings, an arborist should be engaged to assess the current health and estimated lifespan of the historic plantings as part of the vegetation management plan. Long term and ongoing management is required to conserve the setting of the place (7.7.4, 7.7.5);
- That the riparian vegetation in the Coal River and on the riverbanks should be conserved (7.7.10);
- That the riverbanks be monitored for erosion and remediation works be carried out as necessary (7.8.7);
- That debris is removed from upstream of the Bridge, which could pose a risk during times of flood. That support and encouragement be given to the work of Landcare in removing crack willow and debris from upstream of the Bridge, which could pose a risk during times of flood (7.7.7, 7.8.4); and
- That the population of ducks and geese is managed at a sustainable level to prevent adverse pollution of the Coal River (7.8.8).

THREATS:

23 NORTHERN BOUNDARY: ST JOHNS CEMETERY ESCARPMENT

- Ongoing crack willow and weed infestation causing problems for the river heath and posing risks during times of flood;
- Erosion of cemetery cliff; and
- Water pollution from excessive water fowl population.

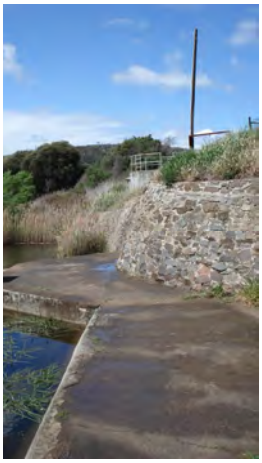
RECOMMENDATIONS:

- Endorsement of Conservation Management Plan (7.3.2, 7.6.1);
- Maintain recreational use for the place under the Clarence Planning Scheme 2007 (7.4.6);
- Ongoing maintenance consistent with the existing character (7.6.2);
- Remove unofficial dirt bike tracks on the CCC Reserve on the north west bank (7.6.4);
- Avoid the introduction of new infrastructure. Any new infrastructure should be subject to all necessary works approvals and a statement of heritage impact. Alternatively, existing infrastructure should be maintained, or modified to minimise impacts on the cultural significance of the place (7.6.6);
- Ongoing monitoring and maintenance of the CCC Reserve to prevent the illegal dumping of rubbish and fill 7.6.11);
- Preparation of a vegetation management plan and engage appropriate arborist to establish the health and estimated lifespan of the historic plantings. Engage appropriate arboricultural, and or heritage landscape architect to prepare a management plan for the historic plantings, including routine maintenance and succession planting (7.7.4, 7.7.5);
- As part of a coordinated approach to flood risk (see also policies 7.8.3 to 7.8.6) remove debris from upstream of the bridge and support and encourage the work of Landcare for the removal of crack willows and debris. Ongoing maintenance will be required to prevent reinfestation (7.7.7, 7.8.4);
- Ongoing maintenance to retain the existing riparian vegetation (7.7.10);
- Erosion remediation works in accordance with a Rivercare Plan (7.8.7); and
- Monitoring and management controls of ducks and geese (7.8.8).

PREVIOUS INVENTORY:

The 1997 CMP identified the cemetery and cemetery escarpment as an area of exceptional significance. The condition of the riverbanks was identified as a concern in 1997, where the growth of weeds, trees and willows posed a danger to the Bridge in times of flood. The land around the Bridge was identified for its recreational uses. Considerable work has been undertaken subsequently in removing the crack willows from the western bank.

24 SOUTHERN BOUNDARY: GATTY DAM



DESCRIPTION AND CONDITION:

The Gatty Dam forms the southern boundary of the study area located at approximate Australian Map Grip coordinates 536093E/5268094N (AGD 66).

In 1935 the Richmond Council constructed the Gatty Dam across the Coal River to the south of the Bridge. The dam created a swimming pool across the river and was named in honour of the long service of the Council Clerk, Jim Gatty. The connecting footbridge was named in honour of the Warden of the Day, Mr Grice.

The Dam raised the water level. Before its construction, the riverbed was often exposed at the Bridge. However, following its construction, the water was raised above the piers. The raising of the water level caused erosion, most noticeably on the west bank downstream from the Bridge.

The Dam is constructed from concrete flanked by rubble stone wing walls. The dam provides water as part of the South Eastern Irrigation Scheme.

24 SOUTHERN BOUNDARY: GATTY DAM

SIGNIFICANCE ASSESSMENT:

The significance of the Gatty Dam boundary primarily relates to its historical and associative values.

Historical Value:	Moderate	The Gatty Dam has historical significance for its association with its past use as a recreational area.
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:		N/A
Technical Achievement:		N/A
Social Value:		N/A
Associational Value:	Moderate	The Gatty Dam has some associational value. It was named in honour of Jim Gatty, prominent Council Clerk, and the connecting footbridge was named in honour of Mr Grice, warden of the day.
Aesthetic Value:		N/A

OVERALL LEVEL OF SIGNIFICANCE: Moderate

POLICIES:

Manage and conserve as part of overall place in accordance with the policies of this Conservation Management Plan. Attention should be given to the following specific policies:

- That the Coal River continue to be used for water supply as a compatible use (7.4.8); and
- That the Gatty Dam be maintained to continue to function (7.6.9).

THREATS:

Lack of maintenance.

RECOMMENDATIONS:

- Continue to use Coal River for water supply (7.4.8); and
- Ongoing maintenance of the Gatty Dam (7.6.9).

PREVIOUS INVENTORY:

The 1997 CMP identified the Gatty Dam as a neutral element.

25 CAR PARK FACILITIES

North east car park

North east car park

South west car park

South west car park

DESCRIPTION AND CONDITION:

Two car parks exist within the area. On the north east bank, a gravel car park has been established running adjacent to St John's Circle. On the south west bank, a bitumen car park has been established on the escarpment off Bathurst Street. This car park is screened by plantings.

The car park infrastructure enhances the usability of the site.

SIGNIFICANCE:

The car parks are neutral elements. The gravel surface of the north east car park is sympathetic to the setting of the Bridge. However, this car park is often full to capacity and the cars are a highly intrusive element in the setting of the Bridge.

POLICIES:

- That the size of the car parks on St John's Circle and off Bathurst Street should not be increased in size. New car parking spaces should avoid potential visual impacts to the Richmond Bridge and its setting (7.6.7); and
- That the car park on St John's Circle be screened by low height plants (7.6.8).

THREATS:

- Ongoing visual intrusion from vehicles in the south east car park; and
- Increase in the capacity of the car parks.

RECOMMENDATIONS:

25 CAR PARK FACILITIES

- Maintain current car park capacity. Consider potential visual impacts on the Richmond Bridge and its setting from new car parking spaces (7.6.7); and
- Engage appropriate arboricultural, and or heritage landscape architect to advise on planting of screening plants along St John's Circle car park. Any plantings will require ongoing maintenance to retain significant views (7.6.8).

PREVIOUS INVENTORY:

The 1997 CMP assessed the car parks as neutral elements. The landscaping was assessed as being intrusive.

26 STAIRS SOUTHWEST BANK

DESCRIPTION AND CONDITION:

The cement block stair was constructed in 1989 by the then Richmond Council. It leads off the southern end of the sandstone viewing platform also constructed at that time. The stairs are in a fair condition.

SIGNIFICANCE ASSESSMENT:

The current cement block stair is visually intrusive on the cultural significance of the place in terms of location, materials and the handrail. The replacement of this stair with new infrastructure requires careful consideration.

POLICY:

That the cement block stair on the south west bank be removed. Should it be established that stair infrastructure is required at this point, any new stair should be designed to be sympathetic to the cultural significance of the Bridge and its setting (7.6.5).

THREATS:

Ongoing visual intrusion from the stair.

RECOMMENDATIONS:

Remove the existing cement block stair. Any replacement stair should not visually intrude on the cultural significance of the place (7.6.5).

PREVIOUS INVENTORY:

The 1997 Conservation Plan identified this as an intrusive element.

27 TIMBER STAIRS

DESCRIPTION AND CONDITION:

The timber stair is located on the north eastern bank of the Coal River. It is located adjacent to the north east abutment. The stairs are in a fair condition.

SIGNIFICANCE ASSESSMENT:

The north east stair is of a form and material that is neutral in its impact on the cultural significance of the Bridge. However, the location of the stair, close to the north east abutment is intrusive on the visual setting of the Bridge. Options for relocating the stair at the northern end of the north east bank should be considered.

POLICY:

That the timber stair on the north east bank be relocated away from the north east abutment of the Bridge (7.6.10).

THREATS:

Ongoing visual intrusion from the stair.

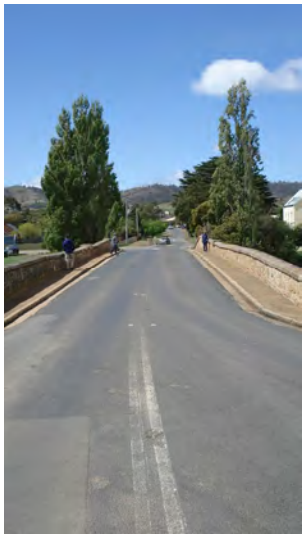
RECOMMENDATIONS:

- Removal of stair;
- Rehabilitation of the area; and
- Relocation of the stair to the northern end of the north east bank (7.6.10).

PREVIOUS INVENTORY:

The 1997 Conservation Plan identified this as an intrusive element.

28 LOMBARDY POPLARS EASTERN END OF BRIDGE



DESCRIPTION AND CONDITION:

Coppices of mature poplars exist at the eastern end of the Bridge. A 1940s photograph shows large Lombardy poplars near the south east abutment of the Bridge. Lombardy poplars were also established on the north east abutment by the 1950s. The trees appear to be in a healthy condition. However, should the trees be causing structural damage to the Bridge, their removal will be necessary.

SIGNIFICANCE ASSESSMENT:

The poplars at the eastern end of the Bridge have existed for at least 60 years, and contribute to the sense of place. They also provide strong vertical visual elements at the northern termination of the Bridge.

POLICY:

An arborist and structural engineer should be engaged to assess the potential structural damage to the Bridge being caused by the Lombardy Poplars at the south east and south west Bridge abutments (7.7.11).

THREATS:

28	LOMBARDY POPLARS EASTERN END OF BRIDGE
Structural damage from roots.	
RECOMMENDATIONS:	
Engage appropriate arborist and structural engineer to assess the impact of the Lombardy poplars on the structural integrity of the Bridge (7.7.11).	
PREVIOUS INVENTORY:	
The 1997 CMP assessed the original poplars on Eldershaw's mill site as having some cultural significance.	

29 RIPARIAN VEGETATION

DESCRIPTION AND CONDITION:

Riparian vegetation exists along the riverbanks and within the Coal River itself. Vegetation includes Phragmites australis (Common rush), Juncus sp. (Native rush) and Triglochin procera (Water Ribbon), an edible tuber eaten by Aborigines. The rising of the water level following the construction of the Gatty Dam in 1935 supported the growth of the riparian vegetation. Today, the native riparian vegetation is most apparent below the weir, although native rush and Water Ribbon are prevalent around the Bridge.

SIGNIFICANCE ASSESSMENT:

Historical Value:	High	The riparian vegetation is indicative of the indigenous vegetation of the Coal River prior to European settlement.
Rarity Value:		N/A
Research Potential:	Low	The riparian vegetation provides an opportunity to understand the indigenous regrowth of riparian vegetation.

29	RIPARIAN VEGETATION	
Representative Value:		N/A
Technical Achievement:		N/A
Social Value:		N/A
Associational Value:		N/A
Aesthetic Value:	High	The riparian vegetation is an important visual element within the setting of the Bridge. The relationship between the built form of the Bridge, topography, Coal River and vegetation, combine to form a highly picturesque viewscape. The riparian vegetation complements the rural nature of the place.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

Manage and conserve as part of overall place in accordance with the policies of this Conservation Management Plan. Attention should be given to the following specific policies:

- That the riparian vegetation in the Coal River and on the riverbanks should be conserved (7.7.10); and
- That the water quality of the Coal River be enhanced (7.8.2).

THREATS:

- Removal of riparian vegetation; and
- Poor water quality threatening the riparian vegetation.

RECOMMENDATIONS:

- Ongoing maintenance to retain the existing riparian vegetation (7.7.10); and
- Ongoing monitoring of water health (7.8.2).

PREVIOUS INVENTORY:

The 1997 CMP assessed the riparian vegetation as of exceptional cultural significance

30 ROAD APPROACHES TO THE BRIDGE

Looking south west towards the Village Green and slip lane

Looking west, Wellington Street

DESCRIPTION AND CURRENT CONDITION:

The Richmond Bridge is approached from east-west roadways. On the west, the Bridge is accessible via Bridge, Gunning and Charles streets. Bridge Street travels via the commercial centre of Richmond, before descending towards the River. Access to the Bridge is made by a short reverse curve at the Village Green, travelling to the western end of the Bridge. The Village Green forms a road island, dividing the east/west approaches. The Village Green includes a group of mature elms, rose garden and grassed area. Signage and a chicane mar the view. Jordan suggests that this reverse curve could result in a loss of control in vehicles, worsened by a steep crossfall at the edge of the pavement close to the Bridge. These factors may explain some of the accidents which have caused damage to the parapet.

On the southern edge of lower Bridge Street, the footpath is paved with sandstone coloured pavers, flanked by stone kerbs. A post and rail timber fence follows the curve of the road. A c.1903 photograph of the area shows that the footpath was originally gravel with an open ditch drain. The stone kerbing is therefore a later introduction. The post and rail fence would be a reproduction of the earlier fence (Snowden, 2000: 69).

On the east, Wellington Street approaches the Bridge. Wellington Street features soft edges with gravel verges which complement the rural nature of Richmond. As the Bridge is approached, the mature macrocarpa and the Lombardy poplars on the eastern termination of the Bridge provide strong vertical elements. Signage and the traffic management chicanes mar the view. As early action as 1965, the Preservation and Development Trust recognised the importance of gravelled roads over bitumen surfaces as important to retaining ‘atmosphere and charm’.

In 1995, the community expressed extreme concern about the visual impact of these traffic control measures. In 2007, questions were raised as to the effectiveness of the chicanes and the western approach to the Bridge in reducing speeding, and subsequent damage to the parapets.

New traffic management measures for the eastern and western approaches to the Bridge have been proposed. Copies of these plans are included Appendix B.

30 ROAD APPROACHES TO THE BRIDGE

SIGNIFICANCE ASSESSMENT:

The road approaches do not form part of the definition of the place. However, they are important elements in how visitors both approach the Bridge and experience the values of the place. The road approaches have also been identified as potential explanations for vehicular accidents on the Bridge.

Historical Value:	High	The road approaches provide an historical context for reaching the Richmond Bridge. Following the construction of the Bridge, Scott prepared the town plan c.1824 with a pencil sketch showing a curved section of Bridge Street to meet the western end of the Bridge.
Rarity Value:		N/A
Research Potential:		N/A
Representative Value:		N/A
Technical Achievement:		N/A
Social Value:		N/A
Associational Value:		N/A
Aesthetic Value:	High	The road approaches are of heritage significance as important visual elements within the broader setting of the Bridge. From the east, long views towards the Bridge are available from Wellington Street. The soft edges of the road with gravel verges complement the rural nature of Richmond. The mature macrocarpa and Lombardy poplars near the Bridge provide strong vertical elements and variation in colour and form. From the west, Bridge Street descends towards the Coal River and the Bridge. The Village Green is located on a slight elevation and the combination of open grassed areas, mature trees and rose garden complement the setting of the Bridge.

OVERALL LEVEL OF SIGNIFICANCE: High

POLICIES:

- That DIER reconsider the reduction of the current load limit for the bridge (7.9.1);
- Monitor the weight of vehicles to ensure compliance with the load limitation by monitoring vibration. Intelligent Access Recording (IAR) should be considered as a means of monitoring permit vehicle movements over the Bridge (7.9.2);
- That DIER liaise with the Tasmanian Police regarding speed management at the crossing. Investigations should occur on the possibility of installing a permanent speed camera at the crossing point (7.9.3); and
- That the gravel road verges on the Wellington Street approach to the Bridge be maintained (7.9.4).

THREATS:

- Risk of vehicular accidents on the Bridge caused by western approach;
- Risks of vehicles in excess of load limit crossing the Bridge;
- Ongoing visual intrusion from traffic calming measures and signage; and
- Replacement of gravel road verges.

30 ROAD APPROACHES TO THE BRIDGE

RECOMMENDATIONS:

- DIER to reconsider existing load limit (7.9.1);
- Undertake monitoring of load limit by installation of a vibration monitor. Investigate IAR on permit vehicle movement; and enforcement of breaches of the load limit (7.9.2);
- Liaison with Tasmanian Police regarding speed management to investigate possibility of installing a permanent speed camera; and enforcement of breaches of the speed limit (7.9.3); and
- That the gravel road verges on the Wellington Street approach to the Bridge be maintained (7.9.4).

PREVIOUS INVENTORY:

The 1997 CMP identified the road approaches as significant elements. The visual impact of the traffic calming measures and signage was identified as an issue.

Appendix B
Evaluation of Vibration Monitoring of Traffic for Bridge Management

RICHMOND BRIDGE
EVALUATION OF VIBRATION MONITORING OF TRAFFIC FOR BRIDGE MANAGEMENT

Prepared for :

Department of Infrastructure, Energy and Resources
Roads and Public Transport Division

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Peter Spratt
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INTRODUCTION

This investigation follows upon recommendations made by the author in the GHD *Review of the 1997 Conservation Management Plan* of the Bridge.

The bridge has a history of foundation movements due to river bed erosion and settlement.
There have been alterations which have given a lack of continuity due to the later constructions not achieving an original bond integrity.
The original workmanship used site soil bedding giving a material readily washed out by water entry.
The bridge may have ashlar construction whereby facing stones are set onto rubble infill in walls.

These weaknesses demonstrate the susceptibility of the Bridge to vibrations.
There are five causes of vibration on the Richmond Bridge.
These causes are:-

1. Traffic load;
2. Traffic speed;
3. Bedding loss;
4. Foundation and/ or stone movement; and
5. Bridge deck pavement undulations .

Structural analyses of the bridge(*Management Plan Review*) have indicated that span No. 5 (eastern river) is the most critical for loading but the results were inconclusive with regard to allowable loads.
The bridge was laser scanned in 2006 (*Management Plan Review*) to give a very accurate record of bridge geometry and detail at that point in time.

The bridge has a number of cracks and present monitoring visually examines the cracks annually.

The testing done to date and the present monitoring have the disadvantage of recording a past event. The cause of an event may remain unknown even if investigated.

It is desirable to have a management system which monitors the bridge overall, which enables a cause assessment and which can be used as a predictive tool.

A masonry structure will give increased vibration with increases in any of the 5 vibration causes listed above.
This investigation was to determine if vibration monitoring is a viable management tool.
It was not aimed at determining stresses or providing the usual structural data.
The objectives were set to this aim with consideration of the 5 vibration causes.

OBJECTIVES

- Determine if vibration monitoring is a practical monitoring tool for bridge management.
- Carry out speed tests to see the impact of speed.
- Measure the range of vibration levels experienced under controlled traffic as well as normal traffic.
- Identify areas of the bridge which are sensitive to traffic dynamic loads.
- Identify an optimum position of a permanent monitor as well as a reasonable "alert" vibration level.

Peter Spratt
ABN 55 120 015 973

CONSIDERATIONS

- There are a number of Standards worldwide which relate vibrations to building damage.
  Most, as the Australian Standard, deal with ground vibration from blasting. Others deal with traffic effects on buildings.

- The German standard DIN4150 provides limits below which it is very unlikely that there will be any cosmetic damage to buildings. For structures that are of great intrinsic value and are particularly sensitive to vibration, this Standard requires that transient vibration should not exceed a peak particle velocity of 3mm/s at low frequencies. The Standard allowable levels increase to 8mm/s at 50Hz and 10mm/s at 100Hz and above.
  This Standard was adopted for the testing.

TESTING

Tests were carried out as the attached Test Report *Richmond Bridge Vibration Level Investigation* by Engineering Dynamics Consultants
The testing was in conjunction with Pearu Terts Consulting Engineer.

RESULTS

The results are best shown by Table 3.1 extracted from the testing.
Time acceleration data was collected and converted to peak particle velocity using MATLAB.
The maximum readings were then obtained for each sensor location.
The sensors were located at arch midspan and halfway between.

A Utility was first run across the bridge 5 times in both directions at 30 Km/hr and then 5 Times at 50 Km/hr. to check firstly if reasonably consistent results were obtained and secondly to determine the effect of speed.
A petrol tanker, bus and loaded tip truck were then run across in both directions at 30 km/hr. No attempt was made to increase the speed to 50 km/hr.
Runs were also undertaken on general traffic when released from the queue. This gave the bus plus traffic plus cars in both directions with all spans loaded but at low speed.
A water ingress pavement failure was noted adjacent to location 1.
Sensor locations were :

East West

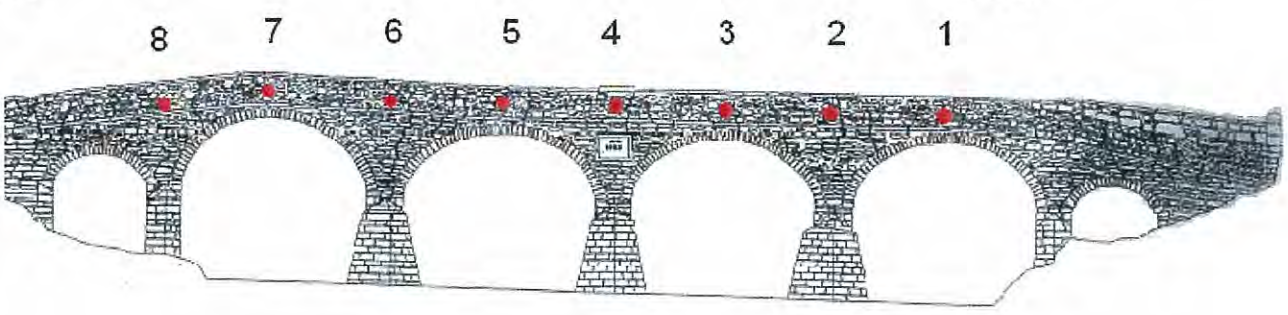

Table 3.1: Peak Vibration Velocity Levels (mm/s)

	North Side								South Side			North
	1L	2L	3L	4L	5L	6L	7L	8L	4R	5R	7R	H1L
	Utility at 30 kmh											
Dirn												
W/E	0.11	0.13	0.15	0.09	0.12	0.06	0.14	0.20	0.08	0.11	0.08	0.18
E/W	0.10	0.09	0.11	0.06	0.12	0.06	0.18	0.18	0.09	0.21	0.17	0.17
W/E	0.12	0.11	0.12	0.07	0.18	0.08	0.21	0.16	0.07	0.15	0.17	0.16
E/W	0.10	0.07	0.12	0.08	0.13	0.09	0.25	0.18	0.07	0.15	0.17	0.15
W/E	0.11	0.13	0.14	0.08	0.17	0.09	0.23	0.29	0.06	0.13	0.13	0.21
E/W	0.12	0.08	0.12	0.08	0.15	0.06	0.17	0.26	0.07	0.20	0.18	0.16
W/E	0.14	0.13	0.17	0.09	0.15	0.27	0.17	0.21	0.08	0.17	0.13	0.16
E/W	0.10	0.07	0.12	0.08	0.14	0.09	0.22	0.27	0.08	0.17	0.18	0.17
W/E	0.13	0.13	0.19	0.10	0.19	0.09	0.22	0.21	0.07	0.18	0.16	0.15
E/W	0.10	0.10	0.12	0.12	0.16	0.09	0.19	0.26	0.09	0.15	0.19	0.14
Max	**0.14**	**0.13**	**0.19**	**0.12**	**0.19**	**0.27**	**0.25**	**0.29**	**0.09**	**0.21**	**0.19**	**0.21**
	Utility at 50 kmh											
W/E	0.16	0.15	0.26	0.14	0.27	0.13	0.23	0.28	0.09	0.25	0.17	0.26
E/W	0.20	0.15	0.17	0.11	0.17	0.11	0.26	0.26	0.12	0.34	0.25	0.14
W/E	0.32	0.17	0.27	0.18	0.31	0.16	0.35	0.31	0.10	0.27	0.22	0.40
E/W	0.15	0.17	0.19	0.08	0.18	0.14	0.27	0.25	0.13	0.36	0.31	0.20
W/E	0.44	0.27	0.26	0.12	0.34	0.14	0.34	0.22	0.10	0.33	0.29	0.46
E/W	0.19	0.16	0.20	0.10	0.22	0.13	0.23	0.19	0.19	0.38	0.22	0.17
W/E	0.35	0.16	0.30	0.19	0.25	0.13	0.32	0.18	0.12	0.25	0.22	0.46
E/W	0.20	0.15	0.20	0.09	0.16	0.12	0.27	0.24	0.11	0.33	0.25	0.20
W/E	0.34	0.19	0.29	0.14	0.26	0.14	0.42	0.19	0.11	0.19	0.29	0.48
E/W	0.19	0.17	0.21	0.11	0.19	0.13	0.28	0.29	0.15	0.30	0.37	0.16
Max	**0.44**	**0.27**	**0.30**	**0.19**	**0.34**	**0.16**	**0.42**	**0.31**	**0.19**	**0.38**	**0.37**	**0.48**
	Tanker											
E/W	0.80	0.41	0.83	0.41	0.90	0.48	1.02	0.61	0.48	1.03	1.17	0.69
W/E	1.78	0.60	1.34	0.49	1.26	0.59	1.29	0.62	0.57	1.21	1.11	1.13
	Bus											
W/E	0.86	0.29	0.69	0.35	0.91	0.44	0.88	0.52	0.27	1.06	0.74	0.55
E/W	1.13	0.32	0.61	0.38	1.00	0.34	0.76	0.33	0.32	1.13	0.84	0.49
	Trucks and Bus											
E/W	0.47	0.33	0.48	0.33	0.34	0.18	0.72	0.27	0.24	0.50	0.68	0.41
W/E	0.31	0.26	0.62	0.34	0.60	0.37	0.54	0.27	0.25	0.56	0.51	0.39
E/W	0.41	0.27	0.38	0.24	0.49	0.17	0.68	0.30	0.19	0.50	0.45	0.40
E/W	1.13	0.32	0.61	0.38	1.00	0.34	0.76	0.33	0.32	1.13	0.84	0.49
W/E	0.64	0.32	0.58	0.29	0.70	0.42	0.74	0.33	0.21	0.63	0.58	0.46
W/E	0.63	0.40	0.96	0.31	0.77	0.34	0.69	0.28	0.29	0.78	0.51	0.35
E/W	0.38	0.25	0.45	0.25	0.82	0.28	0.52	0.26	0.24	0.79	0.59	0.32
	Tip Truck											
W/E	1.38	0.53	1.03	0.39	1.00	0.37	1.62	0.43	0.25	0.86	1.37	0.67
E/W	1.27	0.60	1.02	0.51	1.81	0.45	1.20	0.47	0.54	2.10	1.16	0.76
W/E	1.05	0.55	1.57	0.43	1.29	0.73	1.28	0.41	0.39	1.10	1.02	0.63

* Values in red are above 1 mm/sec

FINDINGS

The results are from very limited testing.
More and better information could be obtained by targeted monitoring based upon the present results.
The tests demonstrate that :-

- No vibration was measured above 3mm/second.
  It is considered that vehicles obeying the speed limit and with reasonable loads are not causing any damage to the bridge.
- The bridge dominant frequency response is 8.5Hz.This will alter if structural cracking increases. Dynamic loading of this frequency should be avoided.
- Given the known irregularities in the bridge stonework, the results are usefully consistent.
- It is clear that the east end of the bridge and the centre of the east river span location 7 consistently return the highest vibration. This is in accord with the structural testing previously carried out. The structural testing attributed this to the decreased depth of arch of this span. The vibration testing shows only that this is the most sensitive location and indicates the need to use the result to find the cause.
- All of the arch centres gave high vibrations for the tip truck.
  Loaded trucks to this configuration are shown to be vehicles requiring attention.
- Centre of arch location 1 on the west gave high readings for the utility at 50km/hr., the tanker, bus and tip truck.
  There is a longitudinal pavement failure due to water ingress close to this location.
  The pavement failure is considered to be the cause of the high vibrations.
- Speed has a very large impact on vibration as measured by the speed variation testing with the utility. A speed of 50 km/hr gives readings nearly double that of 30 km/hr.
- With speed shown to be very important it is worth noting that the east side of the bridge with its straight stretch allows of higher approach speed to the bridge on this side.
  It is then essential to have effective speed management on this approach.

CONCLUSIONS

Vibration monitoring has been shown by the test to be a practical bridge management tool. It has identified the most sensitive location on the bridge, the effect of speed, the effect of a pavement failure and the vehicle requiring closest attention.

All effects, excepting the pavement failure, would be identified by vibration sensors mounted on the east side river span arch.

It would require sensors on each arch to give complete coverage of the bridge for all events.

It is essential to record events.

Peter Spratt
11/6/09

Photo 1
Note water ingress causing pavement failure adjacent to sensor location 1.

Photo 2. Testing with utility

Photo 3. Testing with Tanker

Photo 4. Testing with tip truck

Appendix C
Spratt Review

PETER SPRATT

CONSULTING CHARTERED ENGINEER

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25th. March 2008 Ref. No. 7634

Mr. James Puustinen
Heritage Practitioner
GHD Pty. Ltd.
GPO Box 667 Hobart
TAS 7001

Richmond Bridge- Conservation Management Plan Review

Dear Sir,

I have previously identified basic weaknesses of the bridge as :-

- A history of foundation movements due to river bed erosion and settlement.
- Alterations which have given a lack of continuity due to the later constructions not achieving an original bond integrity.
- The use of site soil bedding giving a material readily washed out by water entry.

It is important that the works recommendations be centred around these weaknesses as they are primary issues and the works should be separated out to suit.

At present the recommended monitoring of pointing and cracks and the laser recording only provide evidence of a problem after it has occurred.

The techniques of The Transport Road Research Authority and The University of Cardiff, whilst determining the fifth arch as the weakest and in determining the allowable load, are relevant only to the bridge condition at the test time. They again identify a problem after the event.

It is desirable to have a monitoring technique which gives advance warning.
The identified weaknesses demonstrate that the bridge will be very sensitive to vibration.
I comment that :-

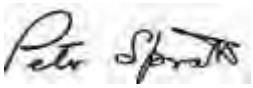
- A deformed arch gave rise to vibration which I reported upon in my 1993 assessment of the Campbell Town bridge. The vibration was only in one bridge arch and occurred without cracking of the masonry. Subsequent testing and analysis led to an adequate and timely repair being carried out.
- My assessment of the Jordan River bridge detected vibration at the landing on the north sandstone abutment giving movement of the abutment. A timely and adequate repair was again carried out.
- Hagley Mill was identified by me as being sensitive to vibration due to the nature of its

masonry construction and to deterioration. Calculations gave a size of basecourse stone and a maximum truck speed on that stone adjacent to the Mill. A vibration monitor was installed with flashing light alarm when vehicle speed was excessive and the construction was satisfactorily carried out without damage to the Mill.

It is my opinion that the vehicular traffic on the Richmond bridge can be used to provide an early warning of a problem which is caused by the basic weaknesses.
Any excess masonry movement will give an increased vibration with traffic.
It should be possible to install a vibration monitor and set it to measure and record increased vibrations so as to give warning prior to a problem occurring.

I recommend that a vibration meter be installed and tried.

Yours faithfully



PETER SPRATT

Appendix D
Heritage Listings

Australian Heritage Database

Place Details

edit search | new search | about the Australian Heritage Database | Heritage home | Australian Heritage Council home

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Send Feedback

Richmond Bridge, Bridge St, Richmond, TAS, Australia

Photographs:

List:	National Heritage List
Class:	Historic
Legal Status:	Listed place (25/11/2005)
Place ID:	105724
Place File No:	6/01/093/0044

Summary Statement of Significance:

Richmond Bridge, completed in 1825, is a rare place as the earliest, Australian large stone arch bridge and it has had few significant changes to it since it was first constructed so it also has high integrity. Richmond Bridge is seen as being of outstanding heritage value to the nation because of its rarity.

The aesthetic significance of Richmond Bridge is appreciated locally, within Tasmania and nationally. Its picturesque image has been used widely in national and international tourism promotions since the 1920s and has inspired the work of major Australian artists.

Official Values:

Criteria	Values
B Rarity	Richmond Bridge, built by convict labour in 1823 to 1825, is the oldest, surviving, large, stone arch bridge in Australia with a high degree of integrity.
E Aesthetic characteristics	The aesthetic significance of Richmond Bridge is appreciated locally, within Tasmania and nationally. Its picturesque image has been used widely in national and international tourism promotions since the 1920s and has inspired the work of major Australian artists.

Description:

The Richmond Bridge is a stone arched road bridge. The bridge is set in the Coal River Valley and links escarpments on the east and west at the town of Richmond. The present course of the Coal River at Richmond is delineated by a minor valley of up to 80m wide, narrowly incised into unconsolidated Tertiary sediments, that is, the floor of the greater Coal River Valley. Richmond Bridge crosses the Coal River at a point where this incision is about 55m wide.

The bridge is constructed of local (reportedly derived from the nearby Butcher's Hill), brown, (Triassic) sandstone in random coursed, rough ashlar work (with some tool marks evident), on smooth-dressed, inclined piers over the river. The bridge consists of four main semi-circular arches with a smaller arch on each side (six in all), and a stone parapet (terminating in round stone bollards/columns) above a string course. The arches spring from piers which have sloping fins with angular leading edges aligned with the flow of the river. These three large, sloping 'cutwaters' encase the original vertical cutwaters.

It is a working, two lane road bridge with a load limit of 10 tonnes. The original roadbed is 25 feet wide (7.2m between parapets) and the length is 135 feet (41m). The six spans are of 4.3, 8.1, 8.3, 8.5, 8.3 and 4.1m.

The bridge is founded on the river bed at unknown depth. The undulating outline, which is characteristic of the bridge today, is due to uneven settlement of the piers and appeared early in its life.

The archival evidence suggests that a cross section through the bridge would show longitudinal walls built 600mm apart thereby affording the structure a robust stiffness. The fill is basalt and sandstone gravel of loose to medium density with sandy clay fines.

The immediate visual image is of a wide, Medieval footbridge.

History:

The establishment of the bridge and the township

The Coal River district was first explored by Europeans in 1803; in 1819 Macquarie granted Lieutenant-Governor Sorrell land at 'the crossing point of the Coal River'. As settlement and cultivation of Richmond developed (from about 1820 it was known as 'the granary of Australia' and all available land in the district was being cultivated with wheat commanding high prices), increased road traffic made a bridge over the Coal River a necessity. The crossing place where the wagons could ford the river, south of where the bridge now stands, was frequently flooded in winter and spring, creating delays or posing

a risk of carts and stock being washed away, and the Pittwater estuary was tidal.

By 1820 road construction to Richmond had commenced, following a route south, through Cambridge. The necessity for a bridge was pointed out (it is claimed) by the Royal Commissioner John Thomas Bigge when he visited in 1820 as part of his Commission of Inquiry on the state of Agriculture and Trade. (So, initially, the bridge was known as Bigge's Bridge.) The Coal River was forded at what became Richmond, this being the nearest convenient crossing point from where the river narrowed about a kilometer upstream of the tidal flow. The relatively low height of the river escarpment at this point provided an ideal approach for a bridge and thus the bridge later provided a focus for town development.

Built by convict labour it was probably under the superintendence of Major Bell of the 49th Regiment, who was Acting Engineer and Inspector of Public Works, and William Wilson, who was superintendent of Stonemasons. David Lambe, Colonial Architect, visited the site before it was completed. The attribution of the designer is not certain – both Thomas Bell and David Lambe have been attributed with the design but it seems more likely that it was Bell who had six years experience as Acting Colonial Engineer and overseer of several building constructions rather than Lambe who would have had to design the bridge as a twenty year old just arrived from England, site unseen, and at least eight months before his own appointment as Colonial Architect by the Lieutenant-Governor, and indeed the latter's own appointment.

The building of the bridge meant that heavy traffic was able to proceed without delay between Hobart and the East Coast, and Tasman Peninsula, when the Coal River was in flood, though the two Pittwater ferries still continued to operate for people.

The Hobart Town Gazette of 13 December 1823 announced that the first stone had been laid (11 December 1823) in the presence of James Gordon and George Western Gunning and 'a number of the respectable settlers of the vicinity'. The construction of the bridge and the establishment of the Richmond township are closely linked events. Within two months of the bridge work starting, the township of Richmond was named.

The bridge was opened, possibly in 1825. (Various completion dates are cited – September 1824, 1 January 1825, 1 April 1825, and 4 April 1825.) This early date, according to O'Connor, ensures that it is the oldest, existing, Australian bridge.

The bridge served to consolidate Richmond as a focus for commercial and institutional development. The township developed to the south-west of the new works, being along the road to Kangaroo Point where a ferry/punt connected with Hobart. The early town layout is shown on two undated plans from the mid-1820's. The first buildings constructed in the new town were part of the police and penal systems – a court house, gaol, gaoler's quarters and residence for the Police Magistrate. Several private houses soon appeared and within ten years two inns were catering for local trade.

The setting

The nomination is only for the bridge and not for its setting. However, it is important to present the history of the immediate context for the bridge to provide information on local environment changes that might affect the bridge itself and to allow for an appreciation of changes to the way the bridge has been viewed over time.

In 1825, Henry Melville mentions Richmond Township showing evident signs of improvement. In 1827, however, the township was still considered an outstation, and

received supplies of fresh meat and flour from the Commissariat Office. George Augustus Robinson visited Richmond in October 1829 and described the town 'as being pleasantly situated on an eminence, and the buildings mostly constructed of brick or stone, comprising several neat villas, a courthouse (also used as a place of worship), a gaol and a windmill, the place somewhat resembling a country village in England, the serpentine course of the Coal River giving a picturesque effect.'

The windmill mentioned by Robinson, was presumably the unfinished structure belonging to James Buscombe, under construction on the western escarpment on the bank of the Coal River. Buscombe's allotment, is shown on a plan of c1825, which also shows, between Buscombe and the bridge, the house of Turnbull, overseer of the bridge construction. In September 1824, Government Miller, John Walker, had gained an allotment and erected a water mill in Mill Field (north of the later Burns/Eldershaw mill) with a dam fifty feet upstream of the bridge. A slight depression on the eastern bank is said to indicate the old mill race.

River Place, the township reserve beside the Coal River and bridge, is an example of early town planning, with lands set aside for public use in 1831.

Two early churches provided major landmarks at the extremities of Richmond in the south and north. The foundation stone for St Lukes Church of England, in the south, was laid in 1834 and the church was consecrated in 1838. The Catholic church of St John's, to the north, was opened in 1837, and a spire, chancel and sacristy were added in 1859. A lower spire with dormers was erected in 1893 to replace the original spire; with the present spire being added, to the general design of the 1859, spire in 1972.

The Catholic church utilized the dramatic cliff to the north of the church above the river as a burial ground, while, for its cemetery, the Church of England used ground on a prominence east of the river, downstream from the bridge.

In the 1830's access to the water was an issue as an owner of the land around the western abutment of the bridge, had erected a barrier on the north west side (the side where access was easiest because the descent here was less steep than on the other side) and was imposing a toll for access to the then 'perennial stream' for water. Following complaint against this person's illegal collection of revenue, a right of way was explicitly delineated here on plans after 1840 to formalise the surveyor general's advice that seventy feet was available, or publicly –owned here, for the roadway and bridge.

Early accounts of the Coal River Valley stress picturesque qualities and draw on painterly and literary allusions (and their vocabulary) to evoke the special qualities of the place. Even the name Richmond – from the namesake of Yorkshire-born David Lord's estate Richmond Park – contrasted with Bowen's naming of the Coal River. Picturesque English qualities were found at Richmond in the combination of Georgian buildings of warm local stone, the small size of the township, the close proximity of farmhouses, the valley setting, the spare tree cover and the focus of the bridge.

The 'picturesque effect' described by Robinson in 1829 was clearly demonstrated in the sketches and watercolours of Thomas Chapman. They were executed in c1840 and form the earliest known images of the Richmond Bridge.

The bridge was naturally a focus for the noted ornamental and picturesque quality of Richmond, its vernacular character drawing on centuries of precedents in England and Europe, sharply contrasting with the crisp urbanity of the Ross Bridge or the machine-age precision of the Red (brick) Bridge at Campbell Town.

In August 1832, Quaker visitor James Backhouse recorded in his diary that Richmond consisted of the Court House, a gaol, a windmill and about thirty dwelling houses, three of which were inns. In February 1834, he again visited the Richmond, and commented that the township had nearly doubled in size. Also in 1834, the *Van Diemen's Land Annual* described the bridge as 'considered to be the best and most substantial in the colony'.

By 1835, Richmond had the largest district population in Van Diemen's Land and Richmond was the third largest town in Van Diemen's Land.

In 1837, the renowned and long serving colonial chaplain Robert Knopwood wrote the following in his diary: 'This morn I rode to Richmond for the first time since the Township was begun… It is much admired by every one, all the houses built with white stone and some very good houses… A most beautiful bridge of 6 or 7 arches…the greatest ornament that can be to the Town of Richmond…'

A slowing of growth and increased tourism and heritage interest

The main East Coast road went via Richmond until after the Pittwater causeway was completed in 1872. In 1872, the Sorrell Causeway opened providing a more direct link between Hobart and Port Arthur. Traffic no longer had to pass through Richmond and it was left entirely as a rural community. The concurrent opening of the mainline railway through Brighton, Tea Tree, Campania and Colebrook was a second blow to Richmond. Suburban development continued slowly, the township was declared a municipality in 1861 (and the 1825 court house was used for municipal purposes), and the Burns' mill on the south-east side of the bridge was erected c1864, and an extension to the township was gazetted in 1878. The change of emphasis is highlighted by the population figures. In its heyday in 1862, the municipality had 1,608 residents, but almost one hundred years later in 1957, the population was 1,680.

In 1923 a stone was set in the west end, north parapet, of the bridge to commemorate the centenary of its foundation. By this time, postcard views featuring the bridge were being published, attesting to a growing interest in the bridge by tourists. The bridge was featured in c1927 publication promoting Tasmania, and also in a 1934 glossy, Australian travel magazine in the bridge's first colour photograph. There followed paintings (such as by John Eldershaw, c1930), sketches (eg Morton Herman, 1954) and photographs (eg Max Dupain, 1965; Michael Sharland, 1952) in exhibition and books.

In 1960 the National Trust of Australia (Tasmania) was formed and the Richmond Bridge was an early classification on their Register of significant heritage.

In the 1960s and 1970s Richmond witnessed a revival motivated by an interest in folk heritage, historic buildings and arts and crafts, combining to utilize the town's building stock. In all of this, the Richmond Bridge remained an icon in the township, readily identifiable from postcards and souvenirs.

Also in the 1960s and 1970s many key national and Tasmanian architectural heritage publications stressed the significance of Richmond, especially its bridge. The bridge was even featured on an Australian five cent stamp in 1976 and on another stamp in 2004.

In 1978 Richmond Bridge was entered into the Register of the National Estate.

Richmond Bridge is a very popular subject for amateur and professional photographers alike; it features on many postcards and its inclusion in composite views depicting

Tasmania is almost mandatory. Its image has been used to promote tourism nationally and internationally.

The bridge is surrounded on three sides of the river by walking tracks and park lands which attracts thousands of visitors each week. It is a popular destination to appreciate the bridge from the river banks or to walk beneath the smaller arch on the township side to appreciate its craftsmanship.

Vegetation

From the earliest known depictions (1840s) of the Richmond landscape, the surrounding hills have a light tree cover but the Coal River Valley is bare. Around the 1840s Blue Gums, *Eucalyptus globulus*, were planted around St John's Church (with a row to the east and others to the west) and in St Like's Cemetery.

Indigenous reeds, Common Rush, *Phragnites australis*, and Native Rush, *Juncus* sp., can be seen in an 1870-84 photograph of the bridge along with woody plants, either Boxthorn or the indigenous Woolly Tea Tree, *Leptospermum lanigerum*.

Major early trees are seen in an 1890s photograph. Along the river bank, hanging over the river are large White Gum, *Eucalyptus viminalis*, and also low scale woody shrubs of possibly Boxthorn or Woolly Tea Tree. The grassy slopes appear to be exotic pasture and around the windmill another photograph of the same date reveals Boxthorn.

A bridge photograph of c1905 shows indigenous Water Ribbon, *Triglochin procera*, in the water and Native Rush on the bank with possibly native grasses, *Poa* sp. also *Themeda damthomia*.

A c1920s bridge photograph shows the river bank still with regrowth of Woolly Tea Tree and White Gum.

Willows had extended along the river bank by the late 1920s or early 1930s and one remaining White Gum was on the east bank upstream from the bridge. After 1920 the initial planting of *Cupressus macrocarpa* along Wellington Street and returning along the river can be seen to enclose Burns Mill, now owned by Eldershaw, from the river escarpment. Also seen are *Pinus* sp. at the northwest corner of this mill property and two poplars. A 1940's photograph shows large Lombardy poplars, *Populus nigra,* near the south-east abutment of the bridge and widespread Native Rush in a healthy state, apparently due to changed conditions after the weir was constructed.

The current vegetation includes Common Rush, which is now extensive along the banks, in particular a healthy section below the former Eldershaw mill. Native Rush. is extensive on the western bank downstream, in great numbers near the weir and both sides upstream. (The area below Santa Fe and Yew Tree Cottage is particularly dense.) Water Ribbon is particularly healthy up and downstream near the bridge. Lombardy poplar against the northern abutment of the bridge date from the 1950s as do poplar seedlings along the mill race, downstream of the bridge. Various specimens of *Pinus radiata* are found upstream, on the west bank, and one large specimen on Buscombe's mill site. A small orchard is found on the western escarpment, just downstream from the bridge. This is apparently located on River Place, and a row of almond trees mark the boundary of a long-established path along River Place.

Repairs and changes to the bridge and its setting

Almost immediately after the bridge was opened, the settling of the foundations began to give trouble that was to plague the engineers for some time. It was reported in September 1826 that the piers had developed cracks and it was suggested that it was to be pulled down and rebuilt elsewhere. This damage may have been caused by water from a mill dam fifty feet upstream undermining the piers – all but one had settled.

The Colonial Architect, John Lee Archer, reported in 1828, that one of the piers was in a bad state, and he rebuilt two of them the following year.

The bridge was constructed as a symmetrical structure. However, the approach road level on the town side was (and still is) about one metre higher than on the away side. As a consequence the parapet wall, designed to prevent falling into the river was having little effect on the town side. In 1835 corrections were carried out by raising the parapet wall and extending the terminating columns at the end of the bridge.

In October 1844 heavy rains and floods severely damaged the bridge. The bridge was 'in part destroyed, leaving just room, however, for a gig to pass.' The bridge had been repaired, as well as considerably improved (with a stone parapet on one side and a 'stout' fence on the other), by January 1845. The bridge also had substantial repairs in 1883.

The Engineer of Roads reported to Parliament (in 1888), that only from 1885, had there been annual provision for the repairs and maintenance for such main and large bridges: 'For the repairs of stone bridge over Coal River at Richmond, Prosser's River Bridge, Orford, and the Main Road Bridge at Brighton, special provision was made barely in time to save these structures from total ruin.'

Part of the 1884 work was undermined by flood waters in 1924 and the eastern abutment was seen to be at risk. Repairs were funded in 1928 and included a masonry reinforcement of one of the piers which has been interpreted as the stepped foundation masonry on the pier base between the first and second arches on the western end.

Another change to the bridge and its setting occurred with the construction, in c1939-40, of a downstream weir, originally called Gatty Weir, raising the water level. This was motivated by both town water and recreation needs. Weir construction raised the water level so that the access road under the main west arch and spillways under the main arches were permanently inundated. Erosion of the river bank has also meant that the classic views of St John's framed by the bridge arch is no longer possible from the bank. The weir also provided access across the river but was not used for irrigation.

Repairs have also occurred in 1973, 1979, 1980, 1987, and 1988. The bridge stonework was cleaned and a fungicide applied in 1981.

Cars have caused collision damage to the parapet walls on a number of occasions and the 1988 repair related to such damage.

However, the only major changes to the bridge since original construction have been raising the western parapet (1835) and the addition of cutwaters (1884), the latter, especially, was dramatic in changing the appearance of the bridge.

The bridge continues to be a focus for tourists. Attempts have been made to enhance and protect the bridge, including by public acquisition of land on the west bank of the river (in 1925, allowing the formalisation of a public walkway downstream of the bridge permitting unambiguous public access to the river, and 1973), enhanced access up and downstream to the river banks, the construction of a stone viewing platform and staircase

to the south west of the bridge (1989), and speed and load restrictions on the bridge.

The Richmond Bridge has been in continuous use for vehicular and pedestrian traffic since 1825 from the 1990s there been community campaigns proposing the construction of a northern bypass road motivated by concerns both over the damaging effects of continued vehicular collisions with the bridge and the strain to the structure caused by heavy vehicles.

Condition and Integrity:
In April 1997 it was reported that, generally the stonework was found to be in sound condition and not in need of repair or replacement. Although, the pointing was in poor condition in certain large areas and would require redoing within the next ten years.

A structural analysis was done at this time showing that to prevent damage to the structure the load limit of 25 tonnes should be reduced to 15 tonnes.

Also the deck should be waterproofed and roadway grades modified to improve watershedding.

Following hydraulic analysis, the bridge was judged to be stable in various adverse flooding conditions such as floods with a 90 year return and greater than 1000 year return period flood events.

The removal willows and other dense growth from the river banks would reduce hydraulic pressure on the bridge structure.

The current water height related to the construction of the c1939-40 downstream weir is a relatively recent physical and visual alteration to the fabric of the place.

It was also noted that the river bank is eroded and fragile.

There is (in 2005) continuing local concern for the probability of vehicles colliding with, and heavy vehicles damaging, the bridge and so there have been proposals for the construction of a northern bypass.

Location:
Bridge over Coal River, Bridge Street, Richmond.

Bibliography:

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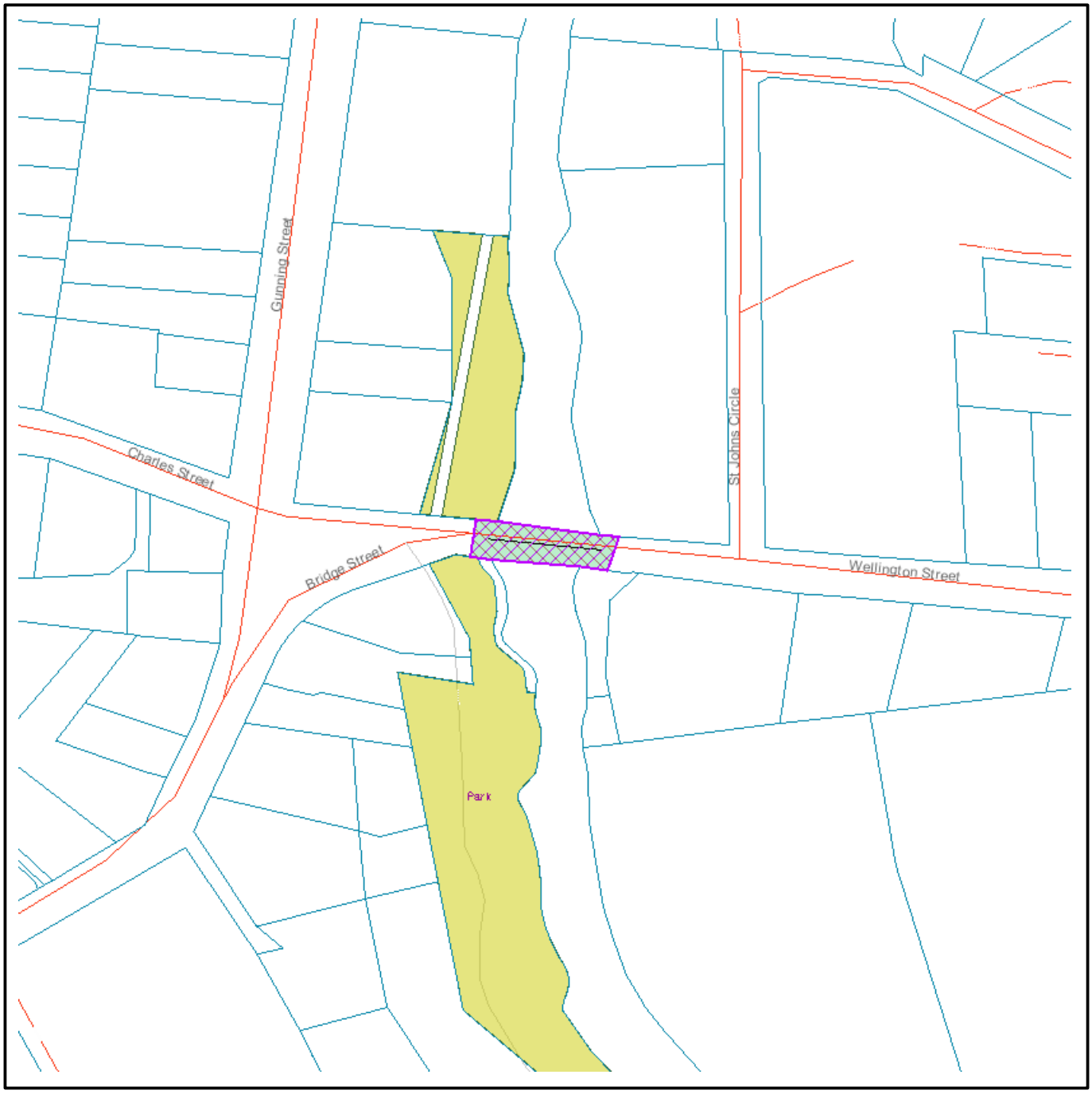
Report Produced: Mon Mar 17 08:00:56 2008



Place Details

Scale 1:2500

Place Name:	Richmond Bridge
Place ID:	105724
Heritage List:	National Heritage List
Class:	Historic
Status:	Listed place
Street Name:	Bridge St
Suburb or Town:	Richmond
State	TAS
Postcode:	7025

Printed by: LWALL
Nov 17, 2006 11:06:29 AM

Australian Government
Department of the Environment and Heritage

AUSTRALIAN HERITAGE PLACES INVENTORY

[New Search]

Richmond Bridge

Source:	Go to the Tasmanian Heritage Register for more information.
Identifier:	1101
Location:	Bridge Street, Richmond
Local Government:	Clarence
State:	TAS
Country:	Australia
Statement of Significance:	Richmond Bridge is of historic heritage significance as it is able to demonstrate the development of transport systems in colonial Tasmania. Richmond Bridge is of historic heritage significance as the oldest surviving bridge in Australia. This building is of historic heritage significance because its townscape and social associations are regarded as important to the community s sense of place.
Description:	The Richmond Bridge is a sandstone rubble structure on smooth dressed inclined piers. There are four major semi circular arches and a minor one either end (six in all) and a stone parapet above a string course. The original road bed of the bridge is 25 feet wide and the bridge itself is 135 feet in length. ARCHITECTURAL STYLE:- Old Colonial Georgian

Report produced : 17/3/2008
AHPI URL : http://www.heritage.gov.au/ahpi/search.html

Australian Heritage Database

Place Details

edit search | new search | about the Australian Heritage Database | Heritage home | Australian Heritage Council home

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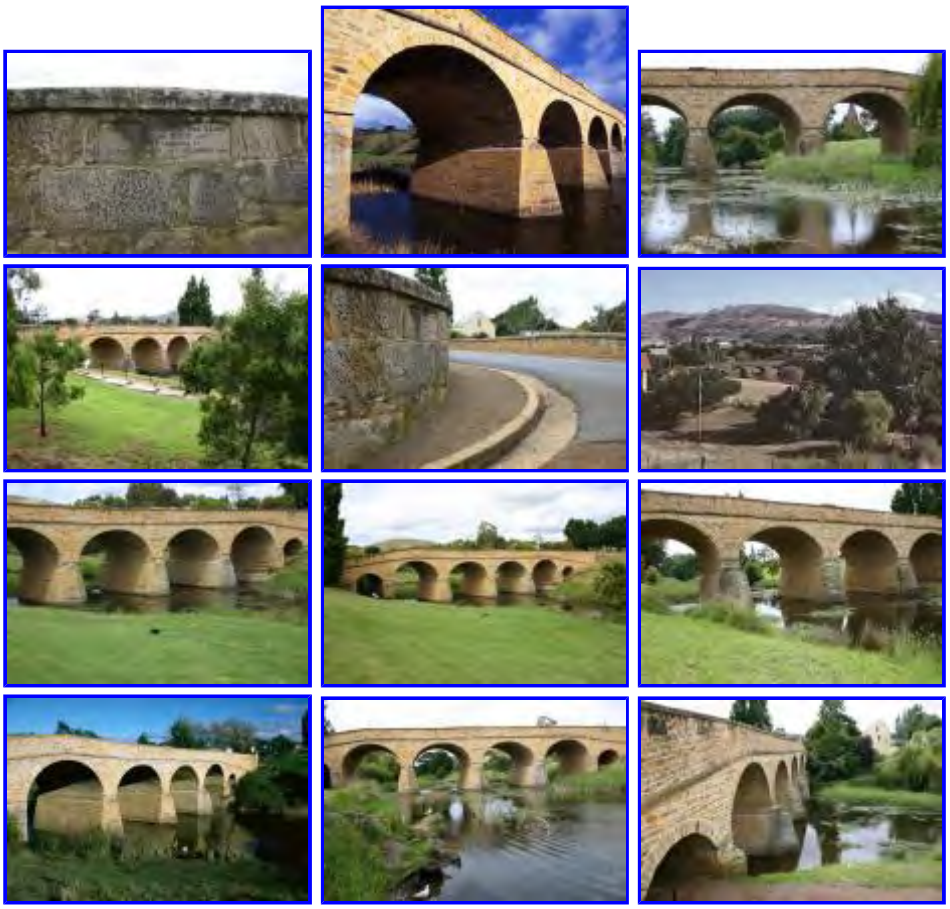
Send Feedback

Richmond Bridge, Bridge St, Richmond, TAS, Australia

Photographs:



List:	Register of the National Estate
Class:	Historic
Legal Status:	Registered (21/03/1978)
Place ID:	11861
Place File No:	6/01/093/0044

Statement of Significance:

Australia's oldest bridge, built by convict labour with the foundation stone laid on December 11, 1823. The necessity for the bridge was pointed out by Royal Commissioner John Thomas Bigge in 1820. When completed, the bridge was one of the engineering triumphs of the new colony, which permitted heavy traffic to proceed under any conditions to the east coast, and later to Port Arthur. It is the essential townscape element of Richmond.

(The Commission is in the process of developing and/or upgrading official statements for places listed prior to 1991. The above data was mainly provided by the nominator and has

not yet been revised by the Commission.)

Official Values: Not Available

Description:

Stone bridge. Four main arches with a smaller arch to each side. Arches spring from sloping fins with angular leading edges aligned with the flow of the river. String at road level. Solid stone balustrade with coping terminating in round bollard. Courses of stonework 'wave' due to differential settlement. Essential townscape.

History: Not Available

Condition and Integrity: Not Available

Location:

Over Coal River, Bridge Street, Richmond.

Bibliography:

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Report Produced: Mon Mar 17 07:59:51 2008

Appendix E
THC Practice Notes

Tasmanian Heritage Council

Practice Note No 2

Version 2: revised May 2006

MANAGING HISTORICAL ARCHAEOLOGICAL SIGNIFICANCE IN THE WORKS APPLICATION PROCESS

PREAMBLE

The Tasmanian Heritage Council (Heritage Council) has issued a series of Practice Notes designed to provide advice and guidance on a range of historic heritage topics. This Practice Note refers to the management of significant historical archaeological sites and features in the Works Application process. Further guidelines regarding historical archaeological research and education can be obtained from Heritage Tasmania.

This Practice Note advocates the application of professional standards with the aim of securing information resident in archaeological contexts either through meaningful protection *in situ* or through a logical well founded process of inquiry and specialised investigation. A central tenet of the document is realisation of a public benefit from archaeological investigations. This acknowledges the high level of public interest in archaeology and the contributions which new found information can make to the cultural amenity of the Tasmanian community.

Parts

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What is historical archaeology?

Historical archaeology is the study of the past using physical evidence in conjunction with historical sources.

It focuses on the objects used by people in the past and the places where they lived and worked. It can tell us about the way things were made and used and how people lived their daily lives. Such information is usually brought to light through careful controlled archaeological excavation informed by a wide range of processes and techniques.

What is a historical archaeological site?

Archaeological sites are a repository of information, with details of the past sealed within an often complex matrix of structures and deposits. They may include features below or above the ground, including structures and/or artefact bearing occupation and refuse deposits.

A historical archaeological site may include:

- Topographical features and evidence of past environments (ie, resident in pollens and diatoms)
- Evidence of site formation, evolution, redundancy and abandonment (ie, features and materials associated with land reclamation, sequences of structural development, demolition/deconstruction, and renewal)
- Evidence of function and activities according to historical theme/s represented (eg, an industrial site may contain diagnostic evidence of process, products and by-products)
- Evidence associated with domestic occupation including household items and consumables, ornaments, personal effects and toys
- Evidence of diet including animal and fish bones, and plant residues
- Evidence of pastimes and occupations including tools of trade and the tell tale, and often fragmentary, signatures of these activities and processes
- Methods of waste disposal and sanitation, including the waste itself which may contain discarded elements from all classes of artefact as well as indicators of diet and pathology
- Any surviving physical evidence of the interplay between site environment and people.

The information found in historical archaeological sites is often part of a bigger picture which offers opportunities to compare and contrast results between sites. The most common comparisons are made at the local level, however, due to advances in research and the increasing sophistication and standardisation of methods of data collection, the capacity for wider reference (nationally and, occasionally, internationally) exists and places added emphasis on conservation of historical archaeological resources.

Archaeological excavations in Wapping revealed 150 year old structural remains including subtle evidence of former sub-floor timber structures and associated underfloor deposits (photo courtesy of Hobart City Counci and, Tony Jenners / Austral Archaeology 1998).

Artefacts recovered from archaeological contexts can reveal details of every day life. Holloway's ointment was a popular imported remedy for a range of skin ailments. Thomas Holloway began producing medicinal compounds in c1828. By 1837 the business had a factory at the Strand in London, moving to Oxford St in 1867. This item was recovered from deposits in Hobart's Wapping district (photo courtesy Hobart City Council and Tony Jenner / Austral Archaeology 1998).

Why are historical archaeological sites important?

In Australia there is the opportunity to gain insight into aspects of our history from the earliest period of European settlement, with Tasmania having some of the most significant and well preserved historical archaeological sites in the nation.

The careful recording and collection of tangible evidence from archaeological sites, when analysed and interpreted can provide valuable, and often original, information that enhances our understanding and appreciation of our history.

Historical archaeological sites are also considered for their interpretation potential and use as a cultural resource and / or a venue for community engagement.

Historical archaeological resources are perpetually at risk and ever diminishing. The effects of disturbance cannot be undone nor can a site be re-excavated.

How are historical archaeological sites protected in Tasmania?

The *Historic Cultural Heritage Act 1995* (the Act) promotes the identification, assessment, protection and conservation of places having historic cultural heritage significance.

Places are protected by listing in the Tasmanian Heritage Register, if, in the opinion of the Heritage Council, the significance of the place meets one or more of seven criteria listed in the Act (see www.thelaw.tas.gov.au).

The Act defines historic cultural heritage significance as meaning 'significance to any group or community in relation to the archaeological, architectural, cultural, historical, scientific, social or technical value of a place'.

Most commonly, archaeological heritage is valued for its research potential, i.e. its value as evidence for creating new knowledge about the past (criterion c). However, archaeological heritage may also have historic value (criterion a), community value (criterion f), and associative value (criterion g). In addition, archaeological sites may also meet rarity thresholds (criterion b) or the representative threshold (criterion d).

1 The Works Application Process

1.1 Works on a heritage registered place

Any works on a heritage registered place that may affect the place's historic cultural heritage significance (including archaeological or potential archaeological significance) requires formal approval from the Heritage Council.

The Act defines 'works' to include 'any development (see below); any physical intervention, excavation or action which may result in a change to the nature or appearance of the fabric of a place; any change to the natural or existing condition or topography of land; any removal, destruction or lopping of trees otherwise than in accordance with forest practices as defined in the *Forest Practices Act 1985*; and any removal of vegetation or topsoil'.

This definition includes a range of activities that may affect the historic cultural heritage (including archaeological) significance of a place. One example of 'works' is excavation, including actions relating to the installation of services. Another example is where 'works' on adjacent land may affect the historic cultural heritage values of a heritage registered place.

The term 'development' includes construction, exterior alteration or exterior decoration of a building; the demolition or removal of a building; the subdivision or consolidation of land, including buildings or airspace; the placing or relocating of a building; and the

construction, or putting up for display, of signs or hoardings.

Any activity on a heritage registered place that falls within the above definitions must form the subject of a Works Application to the Heritage Council. A Works Application can be obtained from Heritage Tasmania or downloaded from Heritage Tasmania's website www.heritage.tas.gov.au

Note 1: In all cases regardless of Applicant it is the owner of the property who bears the legal responsibility to ensure that conditions imposed by the Heritage Council are carried out to the required standards

Note 2: A Works Application may not be required if there is certainty expressed **in writing** that the works will not affect the archaeological significance of the place.

Note 3: The Heritage Council may grant an exemption of works. An exemption can only be issued when the matter is referred to the **Heritage Council before** a Works Application is lodged. Once a Works Application has been lodged it must be processed as per statutory requirements.

1.2 Contacting the Tasmanian Heritage Council

The first approach in proposing any new works on a heritage registered place is to understand the significance of the place.

It is recommended that the Heritage Council is contacted in the initial stage of proposing any works, preferably in the conceptual phase of project planning. This will establish the procedures that need to be followed.

For example, where a place is registered for its archaeological or potential archaeological significance, the Heritage Council **may require** the proponent to prepare a statement of historical archaeological potential and to have factored in any recommendations arising from that assessment into their works proposal **before** a Works Application is submitted (see Part 2: Assessing Historical Archaeological Significance).

1.3 Works Application approval / conditions process

Having considered a Works Application the Heritage Council may approve the application with or without any conditions or restrictions, or may refuse the application (see also the Heritage Council's *Works Application Practice Note 1* online at *www.heritage.tas.gov.au*).

For example, where proposed works will disturb the archaeological or potential archaeological significance of a place, the Heritage Council may require the design of the works to be amended or additional studies to be undertaken. Where design modification or meaningful protection is not possible the Heritage Council may require a controlled excavation to be undertaken (see Part 3).

Where conditions are imposed, the Heritage Council will prescribe the standards by which the works are to be undertaken. This may require the engagement of experts to supervise or undertake the works (or any part thereof).

As a rule, the destruction or reduction of a significant historical archaeological site or feature will only be sanctioned by the Heritage Council if it can be demonstrated that:

a. there is no prudent and feasible alternative to carrying out the works; and/or
b. its excavation or removal will contribute to our knowledge of the site and its social and cultural context, however broadly or narrowly defined.

Careful excavation in Wapping revealed stratified yard surfaces, interspersed with evidence of flood borne deposits (photo courtesy Hobart City Council and Tony Jenner / Austral Archaeology 1998).

Photo courtesy PHASMA (2004)

2 Assessing Historical Archaeological Significance

2.1 Statement of historical archaeological potential

A statement of historical archaeological potential is a desktop assessment. Its purpose is to:

- understand in more detail the archaeological values of the place, including its potential to contain significant archaeological features and deposits, and
- to provide guidance on an appropriate course of action to protect those values.

It provides the opportunity to:

- redesign or reconsider any proposals at an early stage, in order not only to avoid identified zones of historical archaeological potential or sensitivities
- minimise or eliminate the capacity for later delays to critical path timetables
- identify areas of low significance thereby providing some flexibility for works to occur in certain locations.

The scope of the statement will reflect the size of the project and any other factors deemed relevant by the Heritage Council.

The statement must be undertaken by a qualified historical archaeologist. In the case of a large project or development at a highly significant site, the archaeological assessment will typically require the skills of a multi disciplinary team including, for example, a historical archaeologist, an historian, architectural historian and / or other appropriate expert(s).

2.2 Outcomes of the statement of historical archaeological potential

The following components shall be included in the statement of historical archaeological potential.

a) An illustrated site and disturbance history: Prepared by a professional historian, this document shall include a series of overlay plans that depict key periods or phases (as dictated by the availability of archival evidence), together with explanatory text and illustrations.

b) An evaluation of historical archaeological potential: A qualified historical archaeologist shall review the site and disturbance history to predict sensitivity and historical archaeological potential. This shall be presented graphically with supporting text explaining the basis for the judgement(s) made.

c) A statement of archaeological significance: Depending on the sensitivity zoning this may vary within the subject study area. Where applicable, the statement will make specific reference to criterion (c) of the Act (i.e. where there is potential to yield information that will contribute to a greater understanding of Tasmania's history) and any other relevant criteria.

The statement should also address:

- The nature of information that may be derived from a study of the place

- A summary of the current information already available in the particular research area, and
- A statement which clearly identifies the contribution, or the potential contribution, the information may make to an understanding of Tasmania's history.

d) Places identified as having low historical archaeological significance: Where the statement of historical archaeological potential finds the place has low historical archaeological significance the Heritage Council may require no further action.

Note 1: The statement of historical archaeological potential MUST be provided to the Heritage Council for endorsement as part of the Works Application process, even if the place is identified as having low historical archaeological significance.

Note 2: Due to the predictive nature of this type of assessment, there is always the possibility of unexpected finds being made after the works have commenced. (See Part 7)

3 Disturbance Of An Archaeological Site

3.1 Redesign

Where a site predicted to have archaeological significance, sensitivity and/or potential will be disturbed, the Heritage Council may require an amendment to the design of the works to avoid significant or potentially significant impacts.

3.2 Further investigation

Where a site predicted to have archaeological significance, sensitivity and/or potential will be disturbed and where the feasibility of an amendment to the Works Application depends upon further study, the Heritage Council may require the archaeological potential to be clarified by further investigations. This may take the form of non-invasive studies (such as geophysical remote sensing) and/or test trenching). The Heritage Council may require that any resultant information is factored into an amendment of the Works Application.

3.3 Archaeological excavation

Where design modification and/or meaningful protection is not possible and loss of significant fabric is inevitable, appropriate actions will be requested by the Heritage Council to mitigate loss. The range of activities required to be undertaken could include, but not necessarily be limited to;

a. Combined archaeological testing and recording (see Parts 5-8)
b. Controlled archaeological excavation of archaeological features and deposits (see Parts 4 -8)
c. Monitoring of works to mitigate archaeological impacts and recover information before it is lost, as part of a wider program of archaeological works. Monitoring will only be approved as part of a project design where, depending upon the findings, budget and time exists to progress to a more detailed phase of investigation and analysis (see Parts 5-8).

The above options, with decisions and outcomes, are represented in the chart on page 7.

Controlled open area excavation in Wapping revealed extensive evidence of early – mid 19th century dwellings and yard surfaces pock marked with artefact bearing cesspits. All at a depth of nearly 2metres below existing street levels (photo courtesy Hobart City Council and Tony Jenner / Austral Archaeology 1998).

3.4 Figure 1: Process Chart

(Numbers in bold refer to Part headings within this Practice Note)

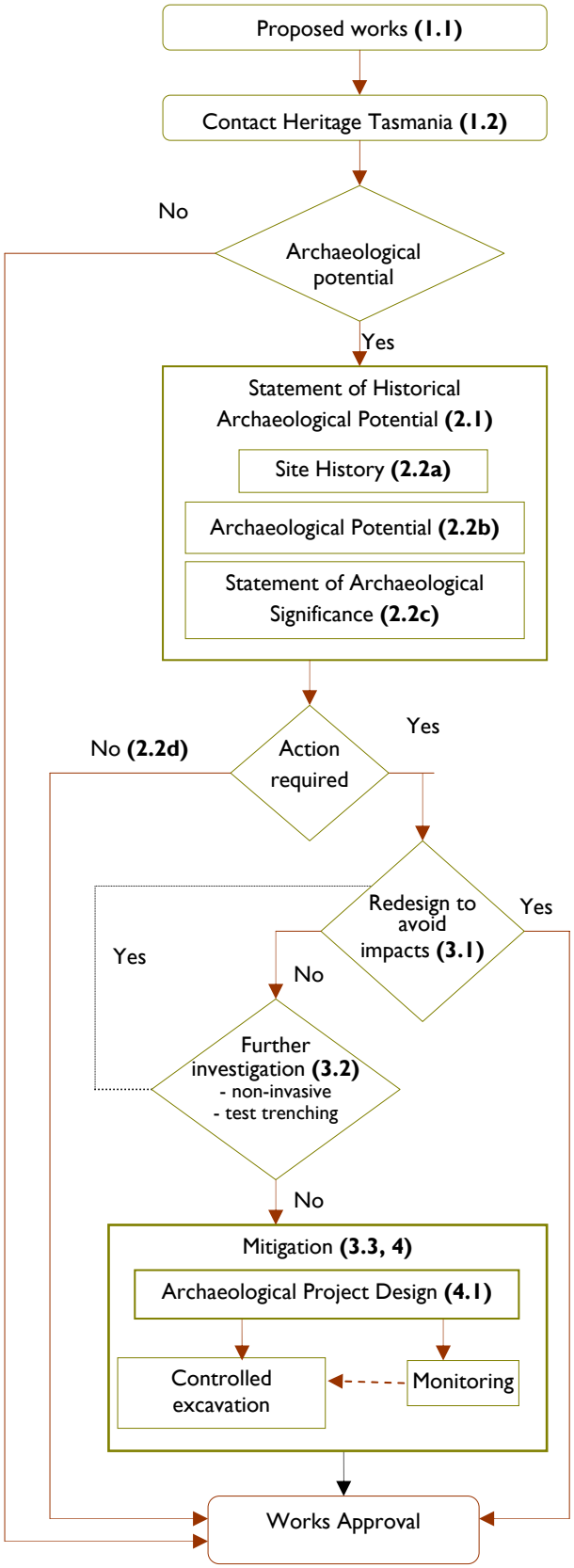

Photo courtesy Jody Steele (2003)

Photo courtesy of Jody Steele (2004)

Photo courtesy of PAHSMA (2005)

4 Archaeological Excavation Strategy and Research Design

4.1 Project design

Where controlled archaeological excavation before site development is required, a method statement shall be prepared and provided to the Heritage Council for consideration.

The method statement shall include:

a. Extracts as appropriate from the statement of historical archaeological potential (see Part 2)
b. An archaeological strategy, outlining the proposed stages of works and protocols for undertaking that work
c. An archaeological research design
d. An archaeological methodology for a full controlled excavation
e. Provisions for archaeological advice to be given in planning stages of any exploratory works or environmental site assessments, if applicable
f. A conservation strategy for the protection, where required, of features to remain *in-situ*
g. A method statement for extant recording(s), if applicable
h. A strategy for reburial / rehabilitation of the site, if applicable
i. A proposal for artefact analysis, including a procedures for the management and conservation of finds during the field program and analysis stage
j. A program that provides for the communication of new found information to be made available to the Tasmanian community (see Part 8).

4.2 Reporting

Following excavation the Heritage Council will require two separate reports in a timely manner:

(1) A final report which presents the findings of the excavation in a comprehensive and systematic framework. This report is to be a definitive and succinct document that will cross reference to the project archive. It will provide a base for more detailed analysis and interpretation by the archaeological community, and provide a reference for future work in the area. The final report shall contain, but not be limited to:

- A plain English abstract which can act as a stand alone site overview
- Introduction and background
- The excavation process and descriptions of methods used
- A description of stratigraphic sequences across the excavated areas
- An outline response to the Research Design
- A summary of excavation results taking into account the analysis of artefacts (comparing fabric type, functional attributes, usage, chronology, distribution and associations), and
- A synthesis of findings and interpretation in the wider context and in light of relevant themes.

(2) A project archive containing:

- Copies of final excavation records (trench notebooks, context sheets etc)
- Plans and Section drawings
- Photographs of the excavation
- Selected artefact drawings and / or photographs
- Notes pertaining to site interpretation and analysis
- Artefacts catalogue
- Other relevant primary material
- Appropriate digital copies of documentation, and
- An index of all material provided.

Note 1: The historical archaeologist will need to be endorsed by the Heritage Council and will also be required to consult with the Heritage Council at all stages of the project design and implementation.

Note 2: The contractual parties must discuss and agree on the commencement and completion of the excavation, and the methods of payment.

Note 3: Although this Practice Notes deals with historic heritage only, the potential to encounter Aboriginal sites within a project area should be discussed with the Tasmanian Aboriginal Heritage Office, DTAE and the Tasmanian Aboriginal Land and Sea Council (TALSC). The *Aboriginal Relics Act 1975*, states in III(9) that: '(1) except in accordance with the terms of a permit granted by the Director, no person (a) shall destroy, damage, disfigure, conceal, uncover, expose, excavate, or otherwise interfere with a protected object…..(2) Except in accordance with the terms of a permit granted by the Minister on the recommendation of the Director, no person shall remove a protected object from a protected site'.

5 Professional Standards

ALL proposals outlining any suggested archaeological work will require the explicit written approval of the Heritage Council.

Any archaeological monitoring, recording or excavations etc must be conducted by a professional historical archaeologist, with procedures and documentation carried out ethically, following the Australia ICOMOS Burra Charter, 1999, of industry 'best practice' and the Australian Archaeological Association's (AAA) Code of Ethics.

The Burra Charter advocates a cautious approach to change; 'do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained'.

The AAA Code of Ethics charges archaeologists with an obligation to manage archaeological sites and materials in a manner which conserves the archaeological and cultural heritage values of the sites and materials.

The Heritage Council also places a strong ethical and practical obligation on archaeologists to contribute, where applicable, to community involvement in archaeological work programs and to provide source material that will assist in delivering a public benefit arising from any program of work (see Part 8).

Ultimate responsibility to deliver high-quality interpretation and community involvement as part of the heritage management / Works Application process rests with the owner / developer.

Copies of all archaeological / assessment reports are to be lodged with the Heritage Council for endorsement and or information as specified in the conditions of approval.

While ownership of copyright should be confirmed in writing between the relevant parties, the archaeological consultant and the Heritage Council will retain unrestricted rights to use the project results, data and records in perpetuity.

6 The Collection, Storage and Curation of Excavated Finds

The Heritage Council will require all materials and documentation derived from an archaeological project to be suitably curated upon completion. Materials are to be appropriately conserved and retained on conclusion of the project.

Photo courtesy PAHSMA (2004)

7 Dealing With Unexpected Discoveries

Any unexpected archaeological features and/or deposits revealed during works, must be reported to the Heritage Council. Works must cease and advice must be sought from the Heritage Council or the Aboriginal Heritage Office, as appropriate, on how best to proceed.

Possible outcomes may necessitate:

a. An amendment to the design of the development
b. Carrying out of archaeological excavations prior to the re-commencement of works
c. Archaeological monitoring and recording during works
d. Preparation (and implementation) of a strategy to ensure communication of the new information to the community, or
e. A combination of the above.

8 Making New Found Information Available To The Community

Making new found information available to the community increases public awareness of archaeology within Tasmania and promotes the importance of conserving Tasmania's historical archaeological heritage.

Archaeological sites can also have broader social values and community contexts. For example, 'hands on' experiences can provide communities with an opportunity to connect directly with their history and heritage. Related public tours, community participation programs, published books, media releases etc can also form part of the social context of an archaeological site.

The Heritage Council may require, as part of the Works Application process, proposals for communicating new found information to the community.

8.1 Options for communicating new found information

The Heritage Council may recommend new found information to be communicated through:

a. Organised tours
b. Structured schools programs
c. Participation by undergraduates
d. Community on site (trench side) talks with archaeologists on hand to talk about the excavation, the discoveries made and the role of an archaeological team in 'writing history'
e. Incorporation of archaeological features as visible features in new development (where enduring conservation *in situ* can be achieved)
f. Public lectures, exhibits and displays
g. Initial media launch and press conference
h. Continual media updates (television, radio and print media)
i. Documentary film
j. Installation of site based passive, or preferably, interactive interpretation (sign boards, interactive touch screens, small display of artefacts provided they are appropriately referenced within any wider collection under curation)
k. Print Publications
l. Electronic publications through Heritage Tasmania's website.

The Heritage Council may provide guidance in the above processes.

Tasmanian Heritage Council

Practice Note No 13

THE APPROVAL PROCESS FOR HISTORIC PLANTINGS

If you have a planting that may be important or that is on a heritage listed property, you may need approval to replant, remove or significantly prune it.

ASSESSING THE HERITAGE SIGNIFICANCE OF A PLANTING

Section 16 of the *Historic Cultural Heritage Act, 1995* lists seven criteria that are used for assessing heritage significance.

A planting is likely to be of heritage significance if it satisfies any one of the following criteria:

(a) it is important in Tasmania's history (the planting would need to be at least 50 or more years old);

(b) it is rare, uncommon or endangered;

(c) it may reveal information important to Tasmania's history;

(d) it may demonstrate the characteristics of a particular style or fashion (such as for historic windbreaks, boundary markers, a particular garden style such as 'picturesque', or 'gardenesque', etc.)

(e) it is particularly creative or technically adept (this criterion is not likely to be satisfied by historic planting);

(f) it has social, cultural or spiritual meaning for any group or community (perhaps a social landmark); or

(g) it has a special association with an individual or group important to Tasmania's history (such as commemorative planting).

To be of heritage significance a planting only has to satisfy one of the above assessment criteria. Usually the plantings will be of community value as a landmark or for the contribution they make to the setting of a significant place. Plantings may also have important associations with an important person or place.

Any mature plant, tree, shrub, avenue, hedgerow, group planting, landscape planting, memorial planting, rare species or cultural landscape can be of cultural heritage significance.

Because of the fashion in the 19th and early 20th centuries, historic planting was more commonly introduced species. However, native plantings can also have historic heritage significance, particularly where they have landmark qualities or contribute to views to and from heritage places valued by communities. Plantings can be on public or private land.

The heritage significance of the planting may already be recognised by being on the Tasmanian Heritage Register or the National Trust Significant Tree Register.

The planting may be significant in its own right, or part of a heritage property listing, which normally covers the whole of the property title. If a mature tree is on this title, the Heritage Council will make a decision on its significance when considering proposed works.

Approval process if the planting is not deemed to be of heritage significance

If a mature tree of plant is not considered to be of heritage significance by the Heritage Council then you can proceed with works provided there are no requirements by your local council or other statutory authority.

If you are proposing to remove a tree from a heritage listed property then you need to put this in writing to the Heritage Council and if it determines that the tree is of no heritage significance an 'exclusion' from a Works Application will be issued.

When in doubt it is best to lodge a Works Application (see box)

Approval process for works to significant plants

The required approval process depends on the proposed works.

Normal maintenance: If the works are only normal maintenance like pruning or hedge trimming, which will not have an adverse effect on the health of the planting then **approval from the Heritage Council is not required**.

Substantial Maintenance: If the proposed works are substantial, for example removal or major pruning that may shorten the life of the planting, then approval from **the Heritage Council is required, and a formal Works Application must be completed** (see box).

For guidance on the appropriate maintenance of historic plantings, refer to Practice Note 14 *Long term maintenance of Historic Planting.*

Refer to *Australian Standard AS4373* for information on pruning.

Arborist/Arboculturalist Report

To assist the Heritage Council in making its decision, it is preferred that an arborist's report be attached to the Application. The report should include the following information:

- *Determine its heritage significance*: See above. As a minimum, criteria (b) and (d) should be considered in the report. If the consultant is aware of the applicability of other criteria they should be included.
- *Health:* What is the current condition of the planting? What factors are affecting its condition? Can any of these factors be controlled to improve its condition?
- *Life expectancy:* How old is the planting? What is the normal life expectancy of this species? What is the likely remaining life of this particular planting under its current circumstances? By varying any environmental factors, can the anticipated life expectancy be increased?
- *Hazards:* Does the planting provide a real hazard to people or building? Can that hazard be reduced in a manner which does not require removal of the planting?
- *Impact of the development:* What impact will proposed development (where applicable) have on the planting? What modifications would be required of the proposed development to prevent its impact on the planting?
- *Replanting:* Is replanting of the same species appropriate?

URGENT SAFETY ISSUES

If, in the opinion of an arborist or arboculturalist, a tree (whether it is of heritage significance or not) presents an urgent safety problem, then the Heritage Council will issue an exclusion from the need for a works application.

Heritage Council considerations

The Heritage Council will approve an application for removal or substantial pruning of significant plantings if the applicant properly demonstrates that there is:

- a compelling safety problem (either to the people or to buildings);
- damage is being caused to a nearby building;
- the planting has reached the end of its life; or
- There is no prudent and feasible alternative to its removal.

Where a mature planting is of such prominence that it may be of special landmark value to the community, the Heritage Council will require the public advertising of the works to test the community's view.

If you are in doubt about whether or not a works application is necessary, please contact the Heritage Office.

THE WORKS APPLICATION

A Works Application can be collected from your local council offices or downloaded at www.heritage.tas.gov.au

Please complete the form and lodge it with your council.

They will advertise the works in your local newspaper. This gives other members of the public the opportunity to make submissions on the proposed works to the Heritage Council.

The Heritage Council is required to make a decision on the application within 42 days.

Local government approvals

It is possible that a separate approval is required by the local planning scheme administered by your local council.

MAINTAINING HISTORIC PLANTINGS

For guidance on appropriate maintenance of historic planting refer to ***Practice Note 14: Maintaining Historic Plantings***.

Refer to *Australian Standard AS4373* for information on pruning. A professional should be used to carry out any maintenance pruning. Pruning should be in favour of the tree and its processes.

For further information contact
TASMANIAN HERITAGE COUNCIL
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WEB: www.heritage.tas.gov.au

Tasmanian Heritage Council

Practice Note No 14

MAINTAINING HISTORIC PLANTINGS

WHAT IS A HISTORIC PLANTING?

Any mature plant, tree, shrub, avenue, hedgerow, group planting, landscape planting, memorial planting, rare species or cultural landscape can be of natural or cultural heritage significance.

It can be on public or private land.

The planting may be significant in its own right, be listed in the Tasmanian Heritage Register or the National Trust Significant Tree Register. Alternatively, it may be part of a heritage property listing, which covers the whole title of that property. If a historic planting such as a group of trees, single mature tree, hedge or garden plot falls on this title then a decision should be made about its significance before major works or removal is considered.

Because of fashions in the 19th and early 20th centuries, historic plantings are more commonly introduced than native. Native plantings can, however, have historic heritage significance, particularly where they have landmark qualities or contribute to views to and from heritage places valued by communities.

For further information contact
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TEL: 1300 850 332 (local call cost) | 6233 2037
FAX: 6233 3186
EMAIL: enquiries@heritage.tas.gov.au
WEB: www.heritage.tas.gov.au

Or contact The Australian Garden History Society, Royal Tasmanian Botanical Garden, National Trust of Australia (Tasmania),] nurseries dedicated to the propagation and selling of early plant varieties, or your local landscape architect, horticulturalist or arborists.

WHAT IS A CULTURAL LANDSCAPE?

A cultural landscape is a landscape that results from the interaction of plants, animals and people over time.[1] Cultural landscapes fall into three main categories:[2]

- a designed landscape that is created intentionally by people, eg gardens, cemeteries, parks, and may also extend to landscape elements such as individual, groups or avenues of trees[3]
- an organically evolved landscape demonstrating layers of changing land use and occupation.[4] Many of Tasmania's landscapes fall into this category, with numerous layers of Aboriginal and European land use
- associative cultural landscapes, which appear to be natural and show no obvious evidence of human occupation or use, but have been shaped by ancient land management practices (such as: seasonal hunting and burning) developed and applied by humans.

More information can be found in the Tasmanian Heritage Council's Brochure on Cultural Landscapes.

[1] Rackham Oliver (2001) *Lecture at Clarendon House, Tasmania*, 24th July 2001, unpublished papers, Tasmanian Heritage Council.
[2] UNESCO (1999) Operational Guidelines in Macinnes L (ed.) *ICOMOS UK Gardens and Landscapes Committee - Assessing Cultural Landscapes: Progress and Potential: Proceedings of a Seminar held in Longmore House, Edinburgh, February 1998,* p.1.
[3] Heritage Victoria (1997) *Protecting Historic Designed Landscapes*. Published by Heritage Victoria, Melbourne.
[4] Read Stuart M (2000) *Statement of Evidence*, Land and Environment Court of New South Wales, No. 10331 of 1999. Winten Property Group (Applicant) v Campbelltown City Council (Respondent) p.6.

What is a historic garden?

Gardens tend to be designed cultural landscapes. The heritage value will include its overall plan, views and vistas and the individual elements within it such as paths, fences, built structures, individual trees, collections, avenues and water. The plantings may be a rare or good example of a particular design, eg gardenesque, picturesque. A garden can be part of a wider cultural landscape.

What are the pressures for change to heritage plantings?

Historic plants, gardens and landscapes are in a continuous process of change, growth and decay and need to be managed with this in mind.

External pressures like changes to the local environment or insensitive building developments can have an impact on the environment in which a plant grows. Storm damage, bush fires, drought and vandalism can damage the planting and its environment. In cases of natural disasters professional advice should be sought for possible rehabilitation before deciding to remove the plant.

Disease, inappropriate pruning and old age affect the plant directly.

Trends and fashion can affect the character of an historic planting and its setting. The use of professionals for condition assessments is recommended.

Approvals to change / remove historic plantings

Approval to change or remove historic plantings may be required where the plant is protected by listing on the Tasmanian Heritage Register.

For more information see Tasmanian Heritage Council's Practice Note 13 on the approval process for historic plantings.

What are the alternatives to removal or replacement?

Conservation measures: Managing and protecting a historic planting and its environment can be achieved by, for example, site planning, fencing, traffic restrictions, soil aeration, weeding, and tree surgery.

Maintenance: To achieve good maintenance you must understand what is significant about the planting and work to conserve those values.

Maintenance should benefit the plant's health, respecting the original intent behind the planting scheme. Plants change seasonally, can become diseased and will ultimately die. They need attention according to circumstance, location and other variables. Maintenance includes gardening, mowing, weeding and planting renewal, pruning[5], hedge trimming and tree surgery which are all vital to a garden or cultural landscape's welfare and generally will not require a works application.

Selective removal: In certain circumstances, and on professional advice, it may be appropriate to remove plantings of lower significance to save plantings of higher significance.

An arboriculture survey may determine that a hazard can be removed, or that pruning or surgery may restore a plant's health.

When and why would I remove a plant?

The Tasmanian Heritage Council will only approve removal of a historic planting protected by a listing on the Tasmanian Heritage Register where it can be shown there is no prudent and feasible alternative to its removal. In many cases the Heritage Council may also require a replacement planting.

In terms of safety, if the planting is considered to be a hazard, dying or dead, then it should be assessed by a qualified arborist. They will advise as to whether the planting can be restored, or hazards to its growth removed.

[5] Refer to **Australian Standard AS4373** for information on pruning. A professional should be used to carry out any maintenance pruning of a significant planting. Pruning should be in the favour of the significant planting and its processes.

WHAT SHOULD I REPLANT WITH?

Replanting depends on the degree of intactness of the planting and its setting. You need to assess whether a gap formed as the result of removal will make a significant impact and also the best time of year in which to replant.

Replanting cannot have an instant impact in terms of maturity. It may take 10-20 years to regain the height of an existing plant. One option might be to plant a young or advanced plant adjacent to the old one before it is removed or to stagger the replanting and to soften the impact. Another option is to replace the whole group of plantings at the same time, rather than one by one. In gardens you need to understand the significance of the planting and its setting will help in determining how and when to replant.

Various factors should be assessed when choosing a replacement:

The significance of the planting and its setting needs to be understood before taking action to conserve its significance.

Form and character: The overall form and character of the plantings and the pattern of planting should be retained wherever possible. The replacements do not necessarily have to be the same species as long as they reflect the original design or cultural pattern.

Species: Carefully consider the choice of species. There is often a good case for growing cuttings from the original material.

Advanced plantings: Mature trees are often important in defining the historic garden or landscape. Mature trees planted in order to retain the height of a border or avenue will have a limited life, and in many cases it is better to plant young trees, which will invigorate the landscape and extend its life considerably.

Replanting conditions: Make sure that there is adequate space around the roots of the new planting, that it will receive the required light, and other advantageous conditions.

Space above the ground: Many conifers when mature need a lot of space in which to spread. Provide sensible distances from other plants, fences and buildings.

Views and vistas may have been altered or obscured over the years due to the maturing of plantings or inappropriately placed new ones. Any replacement plantings should attempt to retain significant views and vistas. Thinning or pruning may be necessary from time to time to reinstate views and vistas.

STEPS FOR REPLACMENT

1. **Seek advice from a qualified arborist**, botanist, horticulturist or landscape architect prior to any work to determine the health and life expectancy of the planting, advice on replacement plantings, and other issues to take into consideration.
2. **Research the historical background and past alterations** to the planting, garden and/or landscape to make sure you understand its heritage significance, including in the case of designed plantings the original intent.
3. **Stabilise any plantings that are a hazard.** The whole area around the planting needs to be made safe until partial or whole removal can take place. An arborist can advise whether the hazard can be removed by pruning or lopping and the historic plant saved.
4. **Apply for approval** where major works, removal or replacement are being proposed from the Tasmanian Heritage Council and/or other statutory body as required, ideally attaching an arborist's or horticulturalist's report.
5. **Record any plantings** that are to be removed, so that the form, date and action is available to inform future changes.
6. **A conservation plan** written by a landscape conservation expert is recommended for any extensive work, removal and replacement within a highly significant cultural landscape or garden.

ILLEGAL PLANTINGS

Some historic plantings that have been introduced to Australia are now considered to be weeds or invasive species, visit: http://www.dpiwe.tas.gov.au for a list of these or contact Heritage Tasmania.

In certain situations some species, such as hawthorn hedges, are recognised as historic plantings. These should be properly maintained so that they do not become pests. When replacement plantings are required there may be new hybrids that do not self-sow.

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