

## 5.0 Heritage Impact and Risk Assessment

The purpose of this section of the HHMP is to identify the potential impacts, general risks and threats to heritage items and their values within the road corridor and to provide general management recommendations on how to mitigate these risks.

### 5.1 Heritage Items within the Road Corridor and Impacts

**Table 5.1** provides a summary of proposed and potential impacts to known heritage items within the road corridor for the Hunter Expressway.

Table 5.1 - Heritage Items within the Hunter Expressway Road Corridor and Proposed Impacts

Chainage within the Hunter Expressway Road Corridor	Site Name	Item	Site Grid Co-ordinates Easting and Northing (MGA)	Will this site/item be impacted by the Hunter Expressway?	Is this site/item within the road corridor for the Hunter Expressway?	Proposed impacts
235 to 415 metres	Minmi Creek	Fan Shaft (Mining Shaft)	368882, 6360309	Yes, filled over	Yes	Burial of the fan shaft as part of construction works. No proposed direct impact to the fan shaft.
		Weir 1	368850,6360305	No to be protected.	Yes	This item will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> .
		Weir 2	368835,6360356	No to be protected	Yes	This item will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> .
		Stone Wall	368850,6360274	No to be protected	Yes	This item will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> .
		Remains of a metal pipe	368868, 6360343	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
		Remains of a cast iron pipe/joint	368874, 6360303	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
		Sandstone slab with slots	368867, 6360296	Yes	Yes	This item will be directly impacted by the Hunter Expressway.

Table 5.1 - Heritage Items within the Hunter Expressway Road Corridor and Proposed Impacts (cont)

Chainage within the Hunter Expressway Road Corridor	Site Name	Item	Site Grid Co-ordinates Easting and Northing (MGA)	Will this site/item be impacted by the Hunter Expressway?	Is this site/item within the road corridor for the Hunter Expressway?	Proposed impacts
1290 to 1440 metres	Richmond Vale Railway	End of southwest cutting and Rail Tunnel 134	366926, 6361146	Yes, Tunnel is to be protected	Yes	The Tunnel will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> . This item may be at risk by potential vibration from ground disturbing works. The cutting and the earth above the Tunnel will be directly impacted by the Hunter Expressway. These potential impacts and their mitigation are discussed further in <b>Section 7.0</b> .
3595 to 4595 metres	Burrenjam Dam	Burrenjam Dam	366765, 6361170	No	Yes	This item will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> .
J	Jewboy Bushrangers Cave	Jewboy Bushrangers Cave	366564.2, 6361222.8	No	Yes	This item will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> .

Table 5.1 - Heritage Items within the Hunter Expressway Road Corridor and Proposed Impacts (cont)

Chainage within the Hunter Expressway Road Corridor	Site Name	Item	Site Grid Co-ordinates Easting and Northing (MGA)	Will this site/item be impacted by the Hunter Expressway?	Is this site/item within the road corridor for the Hunter Expressway?	Proposed impacts
27250 to 28250 metres	Ruin of Farmstead – 'Invertay'	Dairy slab and associated features	350121, 6378439 350069, 6378419 350124, 6378454 350130, 6378466 350109, 6378488 350149, 6378467 350139, 6378424 350133, 6378419	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
		Concrete slab – Remains of a cattle crush	350083, 6378410	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
		Residue of farm out-buildings	350110, 6378483 350125, 6378417	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
		Remains of yards or piggery	350123, 6378405	Yes	Yes	This item will be directly impacted by the Hunter Expressway.

Table 5.1 - Heritage Items within the Hunter Expressway Road Corridor and Proposed Impacts (cont)

Chainage within the Hunter Expressway Road Corridor	Site Name	Item	Site Grid Co-ordinates Easting and Northing (MGA)	Will this site/item be impacted by the Hunter Expressway?	Is this site/item within the road corridor for the Hunter Expressway?	Proposed impacts
		Avenue of trees and associated features	350175, 6378422 350138, 6378425	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
	Remains of a post and rail fence	Remains of a post and rail fence	351331 to 351511 6377417 to 6377393	Yes	Yes	This item will be directly impacted by the Hunter Expressway.
Main	Northern Railway Features	Historic 3 brick and sandstone culverts	345798, 6384600	No	Yes	This item will not be directly impacted by the Hunter Expressway and will be conserved and managed <i>in situ</i> . This item may be at risk by potential vibration from ground disturbing works. These potential impacts and their mitigation are discussed further in <b>Section 7.0</b> .
His	torical bottle dump identified within the Black Creek 1 salvage excavation	Bottle dump	343204.874 6385649.484	Yes	Yes	This site has already been salvaged as part of Aboriginal archaeological investigations. An exception for the salvage was endorsed by the Heritage Branch, DoP.

Table 5.1 - Heritage Items within the Hunter Expressway Road Corridor and Proposed Impacts (cont)

Chainage within the Hunter Expressway Road Corridor	Site Name	Item	Site Grid Co-ordinates Easting and Northing (MGA)	Will this site/item be impacted by the Hunter Expressway?	Is this site/item within the road corridor for the Hunter Expressway?	Proposed impacts
15775 to 15750 metres	South Maitland Railway	Elements within road corridor (refer to <b>Section 4.1.2</b> )		Yes	Yes	This item will be directly impacted by the Hunter Expressway. An exception for disturbance to the South Maitland Railway elements within the Hunter Expressway road corridor has been endorsed by the Heritage Branch, DoP.
U	Identified site	Concrete Footings	355889, 6371969	No	Yes	This item will not be directly impacted by the Hunter Expressway and will be protected and managed <i>in situ</i> .

**Table 5.2** provides a summary of proposed and potential impacts to known heritage items outside of the road corridor but within close vicinity to the Hunter Expressway.

**Table 5.2 - Heritage Items outside the Hunter Expressway Road Corridor but within Vicinity to Proposed Works**

Within vicinity to Chainage of the Hunter Expressway Road Corridor	Site Name	Item	Site Grid Co-ordinates Easting and Northing (MGA)	Will this site/item be impacted by the Hunter Expressway?	Is this site/item within the road corridor for the Hunter Expressway?	Proposed impacts
10640 to 10740 metres	Old Timber Church	Old Timber Church	362316, 6367112	No	No	This item is outside the Hunter Expressway road corridor and is not within land owned by the RTA. It is close to proposed works and will be protected and managed under the HHMP during construction works.
27250 metres	Greta Army Camp	Firing Range Stop Butt	348940, 6379542	No	No	This item is outside the Hunter Expressway road corridor and is not within land owned by the RTA. It is close to proposed works and will be protected and managed under the HHMP during construction works.

**Table 5.2 - Heritage Items outside the Hunter Expressway Road Corridor but within vicinity to Proposed Works (cont)**

<b>Within vicinity to Chainage of the Hunter Expressway Road Corridor</b>	<b>Site Name</b>	<b>Item</b>	<b>Site Grid Co-ordinates Easting and Northing (MGA)</b>	<b>Will this site/item be impacted by the Hunter Expressway?</b>	<b>Is this site/item within the road corridor for the Hunter Expressway?</b>	<b>Proposed impacts</b>
R	Richmond Vale Railway	Rail Tunnel 139	365629, 6361815	No, vibration monitoring to be done	No	This item is outside the Hunter Expressway road corridor and is not within land owned by the RTA. It is close to proposed works and may be at risk by potential vibration from ground disturbing works. This item will be protected and managed under the HHMP during construction works.
27250 to 28250 metres	Ruin of Farmstead – 'Invertay'	The remains of a homestead and related features	350115, 6378502	No	No	This item is outside the Hunter Expressway road corridor and is not within land owned by the RTA. It is close to proposed works and will be protected and managed under the HHMP during construction works.



**Table 5.2 - Heritage Items outside the Hunter Expressway Road Corridor but within vicinity to Proposed Works (cont)**

<b>Within vicinity to Chainage of the Hunter Expressway Road Corridor</b>	<b>Site Name</b>	<b>Item</b>	<b>Site Grid Co-ordinates Easting and Northing (MGA)</b>	<b>Will this site/item be impacted by the Hunter Expressway?</b>	<b>Is this site/item within the road corridor for the Hunter Expressway?</b>	<b>Proposed impacts</b>
30200 metres	Old Shop, Camp Road	Old Shop, Camp Road	3846424, 6380920	No	No	This item is outside the Hunter Expressway road corridor and is not within land owned by the RTA. It is close to proposed works and will be protected and managed under the HHMP during construction works.
31850 metres	Illalong Quarries	Illalong Quarries	384363, 6381702 384331, 6381651	No	No	These items were assessed as having no heritage values (Umwelt 2009a). These items are outside the Hunter Expressway road corridor and not within land owned by the RTA. These items are not considered heritage items and will not be protected during proposed works.

## 5.2 General Risks and Threats to Heritage Significance

The following general risks and threats to heritage items and values within the road corridor were identified and are explained in each section below.

**Accidental impact during construction.** The key issue is the potential accidental impact of heritage items that are outside the proposed road corridor but within the fenced 150 metre corridor to be used during the construction period. This risk would also be substantially increased if information regarding the location and status of identified heritage items were not communicated to site planners and site construction workers.

**Indirect impact to heritage items due to vibration from construction works.** The key issue is indirect impact to heritage items to be conserved within the road corridor or within its vicinity from vibration during construction works. This risk is particularly an issue for the two weirs and the stone wall at Minmi Creek, sandstone culvert of the Main Northern Railway, Jewboy Bushrangers Cave and Richmond Vale Railway Tunnels 134 and 139. This risk would also be substantially increased if information regarding the location and status of identified heritage items were not communicated to site planners and site construction workers and if input and advice from a qualified heritage consultant is not provided regarding these items.

**Loss of knowledge within the RTA regarding the location of heritage items after the construction is completed for the project.** This risk is pertinent for the fan shaft which is proposed to be buried by fill prior to the bridge construction within the Minmi Creek area of the project. Burial of the shaft may lead to a loss of knowledge over the passage of time regarding this item's location once the project is completed.

**Encroachment of Vegetation.** In cases such as the stone wall and the walls of Weir 1 and Weir 2 there is a major risk of losing the definition of these items through the encroachment of vegetation. Lack of definition of sites may lead to the potential risk that they are not adequately fenced for their protection and may be potentially impacted during construction works.

**Access/visibility.** The approved Hunter Expressway will provide greater visibility and access to certain heritage items to be conserved *in situ* within the road corridor, increasing the risk of vandalism and degradation of the items by the public. This risk is noted in particular to the heritage items located in the Minmi area.

### 5.2.1 Planning and Long Term Risks

All heritage items identified within the proposed road corridor will be destroyed by construction activities unless they have been highlighted for conservation *in situ*. Items which will be conserved *in situ* include the fan shaft, Weir 1, Weir 2, the stone wall, Richmond Vale Railway Tunnels, brick and sandstone culverts associated with the Main Northern Railway, Burrenjam Dam and Jewboy Bushrangers Cave. These items are at risk from issues arising from more frequent access and visibility of these items to the public such as vandalism and the future degradation of the original setting of these items due to future road construction.

The fan shaft is proposed to be buried as part of the construction works for the Minmi Creek section of the proposed road corridor. The burial of this item may lead to the long term loss of knowledge of its location and its potential destruction at a later time.

### 5.3 Risk Factors and their Mitigation

This section summarises potential risks, the results of these risks and their possible mitigation in a table format.

**Table 5.3 - Summary of Risks and their Mitigation**

Risks	Result	Potential Mitigation
HHMP is not implemented.	Legislative non-compliance, potential personal and corporate penalties. Loss of heritage items and destruction of sites.	RTA project manager ensure that the HHMP is reviewed by all relevant RTA planners and staff. RTA, Environmental Management Representative (EMR) and Contractor Representative ensure HHMP's management strategies are implemented.
Contractors and site workers are not briefed on HHMP	Legislative non-compliance, potential personal and corporate penalties. Loss of heritage items and destruction of sites.	Ensure the HHMP includes details for training and inductions to assist RTA project and Contract Representative. EMR ensures the RTA and Contractor Representative comply with the HHMP.
Accidental impact during construction.	Legislative non-compliance, potential personal and corporate penalties. Loss of heritage items and destruction of sites.	Ensure the HHMP includes details for training and inductions to assist RTA project and Contract Representative. RTA and Contract Representative ensure that all site workers and planners are appropriately inducted and aware of the location of heritage items/sites and the provisions of Section 139 and 146 of the <i>Heritage Act, 1977</i> . RTA and Contractor Representative ensure that all heritage items/sites are fenced off, protected, appropriately signed and mapped on plans provided to site workers and site planners, prior to the commencement of ground disturbing works. EMR ensures the RTA and Contractor Representative comply with the HHMP.
Indirect impact to heritage sites due to vibration from construction works.	Legislative non-compliance, potential personal and corporate penalties. Loss of heritage items and destruction of sites.	RTA ensure that all heritage items/sites which are within the Hunter Expressway road corridor and are to be conserved <i>in situ</i> are listed on the RTA's Section 170 register. RTA to ensure that construction methods will not indirectly impact heritage items. The RTA must ensure that a qualified vibration consultant assesses the potential risks of vibration to heritage items that may be at risk prior to the commencement of construction. Any protective measures for heritage sites recommended by a qualified vibration consultant should be included into the Construction Environmental Management Plan. RTA ensure that these sites are monitored as part of the Construction Environmental Management Plan and as part of internal reporting processes. EMR ensures the RTA and Contractor Representative comply with the HHMP.

**Table 5.3 - Summary of Risks and their Mitigation (cont)**

<b>Risks</b>	<b>Result</b>	<b>Potential Mitigation</b>
Loss of knowledge within the RTA regarding the location of heritage items after the construction is completed for the project.	Legislative non-compliance, potential personal and corporate penalties. Loss of heritage items and destruction of sites.	RTA ensures that all heritage items/sites which are within the proposed road corridor and are to be conserved <i>in situ</i> are listed on the RTA's Section 170 register. RTA ensure that these sites are monitored as part of the internal Environmental Management Plan and as part of internal reporting processes.
Encroachment of vegetation.	Loss of heritage items and destruction of sites.	RTA include the location of relevant heritage items and their management into their Environmental Management Plan and Flora and Fauna Management Sub-Plan and other planning to ensure vegetation encroachment is not an issue prior to fencing. RTA ensures that a qualified heritage consultant is involved in the fencing of sites to be conserved <i>in situ</i> in the road corridor. The qualified heritage consultant will ensure the extent of the item is adequately protected and within the fenced area.
Vandalism and degradation of the original context of heritage sites/items that are to be conserved <i>in situ</i> .	Degradation of heritage items/sites.	RTA ensures that all heritage items/sites which are within the proposed road corridor and are to be conserved <i>in situ</i> are listed on the RTA's Section 170 register. RTA ensures that all sites to be conserved <i>in situ</i> are fenced and signed appropriately to assist with their protection. The fan shaft which will be buried within the road corridor cannot be fenced but will be signed appropriately to ensure its protection. RTA ensures that these sites (the fan shaft's buried location will only be monitored) are monitored as part of the Construction Environmental Management Plan and internal reporting and auditing processes. The Urban Design Team involved in the Hunter Expressway project should take into account the heritage values of the Minmi Creek area and incorporate a historical and Aboriginal interpretative theme into the design. Existing native trees and the natural setting of areas such as Minmi Creek should be retained as much as possible to preserve the original setting of these heritage items.

## 6.0 Implementation of the HHMP

This section provides a discussion of current ownership and the roles and responsibilities for management of heritage items and values as detailed in **Section 4.0** within the road corridor of the Hunter Expressway.

### 6.1 Current Ownership

All land within the Hunter Expressway road corridor (includes the proposed road corridor and 75 metres each side of the centre line of this corridor) is owned by the RTA. All sites in **Table 4.1** are owned by the RTA as they are within the road corridor.

All sites within **Table 4.2** are outside the Hunter Expressway road corridor and are not owned by the RTA.

### 6.2 Roles and Responsibilities

This HHMP will primarily be implemented by the:

- RTA General Manager;
- RTA Project Manager;
- Senior Environmental Officer (RTA),
- RTA Heritage Officer;
- the Contractor Representative; and
- the Environmental Management Representative (DoP appointed).

An archaeologist or qualified heritage consultant, a vibration consultant and a structural engineer would be engaged by the RTA or the Contractor as required (refer to **Table 6.1**). The Environmental Management Representative (EMR) would be responsible for ensuring that the RTA and the Contractor Representative implements the HHMP. The RTA is primarily responsible for funding the implementation of the HHMP.

**Table 6.1 - Roles and Responsibilities**

Title	Company	Roles and Responsibilities
General Manager	RTA	Responsible for providing adequate resources for the implementation of this HHMP.
Project Manager	RTA	Responsible for coordinating the overall implementation of this HHMP, and for the periodic review/revision of this HHMP as required.

**Table 6.1 - Roles and Responsibilities (cont)**

<b>Title</b>	<b>Company</b>	<b>Roles and Responsibilities</b>
Senior Environmental Officer	RTA	<p>Responsible for ensuring that the Contractor coordinates the day to day implementation of this HHMP, and for the periodic review/revision of this HHMP as required.</p> <p>Responsible for ensuring heritage items are fenced off (if referred to in the HHMP as necessary) prior to the commencement of ground disturbing works.</p> <p>Responsible for liaison with the Contractor for the co-ordination and management of the qualified heritage and vibration consultant as required.</p> <p>Will liaise with the Contractor and ensure that the qualified heritage consultant, vibration consultant and structural engineer involved in monitoring of the historical heritage sites is appropriately qualified to undertake the task.</p>
Contractor Representative	Contractor to be announced	<p>Responsible for ensuring that the HHMP is included in the Construction Environmental Management Plan.</p> <p>Responsible for the day to day implementation of this HHMP during construction works for the Hunter Expressway.</p> <p>Responsible for the co-ordination and management of the qualified heritage consultant, vibration consultant and structural engineer as required.</p> <p>Will ensure that the appropriately qualified heritage consultant, vibration consultant and structural engineer involved in management of historical heritage sites are appropriately qualified to undertake the task.</p>
Environmental Management Representative	Independent representative of Department of Planning (DoP)	<p>Environmental Management Representative (EMR) will be responsible for ensuring that the Conditions of Approval are met by the Contractor and the RTA. The EMR will be responsible for ensuring that the HHMP is implemented by the Contractor and the RTA.</p> <p>EMR reviews all Construction Environment Management Plans.</p> <p>The EMR reports to the DoP.</p>
Environmental Officer (Heritage)	RTA	<p>Responsible for the review of the HHMP and any revisions to the HHMP.</p> <p>Responsible for consultation with the Heritage Branch, DoP, if called upon by RTA Senior Environmental Officer.</p> <p>Responsible for the registration of heritage items within the road corridor into the Section 170 heritage register for the RTA and keeping these records current.</p>

**Table 6.1 - Roles and Responsibilities (cont)**

<b>Title</b>	<b>Company</b>	<b>Roles and Responsibilities</b>
Qualified heritage consultant (as required)	Suitably qualified person approved by the RTA Senior Environmental Officer and appointed by RTA/Contractor.	Responsible for management of issues related to values of historical heritage sites as set out in <b>Section 7.0</b> and <b>8.0</b> of this report, as required by the RTA/Contractor.
Qualified vibration consultant and structural engineer (as required)	Suitably qualified person approved by the RTA Senior Environmental Officer and appointed by RTA/Contractor.	Responsible for management of issues related to values of historical heritage sites susceptible to vibration as detailed in <b>Section 7.0</b> and <b>8.0</b> of this report, as required by the RTA/Contractor.