

CHAPTER

18

INLAND
RAIL 

Cultural Heritage

GOWRIE TO HELIDON ENVIRONMENTAL IMPACT STATEMENT

ARTC

The Australian Government is delivering
Inland Rail through the Australian
Rail Track Corporation (ARTC), in
partnership with the private sector.

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18. Cultural Heritage

18.1 Summary

This cultural heritage assessment was prepared to address the Environmental Impact Statement (EIS) Terms of Reference (ToR) for the Gowrie to Helidon (G2H) Inland Rail Project (the Project). In response to consideration of key environmental constraints, the heritage assessment has targeted areas of Indigenous and non-Indigenous cultural heritage potential that fall within the proposed Project disturbance footprint and designated cultural heritage study area. It assesses the significance of cultural heritage within the cultural heritage study area and outlines proposed mitigation and management opportunities to inform the Project.

An assessment of non-Indigenous and Indigenous heritage values and impacts was undertaken by a team of appropriately qualified heritage specialists, using a combination of desktop and field assessments. The assessment targeted areas of cultural heritage potential that fall within the Project's disturbance footprint and designated cultural heritage study area (~50 metre (m) buffer around the Project disturbance footprint).

Indigenous cultural heritage potentially impacted by the Project will be identified, assessed and managed under Cultural Heritage Management Plans (CHMPs). CHMPs for the Project were developed between ARTC and the relevant Western Wakka Wakka People and the Yuggera Ugarapul People in 2018 (CLH017009) and approved under the *Aboriginal Cultural Heritage Act 2003* (ACH Act). Accordingly, ARTC satisfies Part 7 of the ACH Act and the relevant requirements under the ToR. The EIS defers to the CHMPs in all matters related to the management of Aboriginal cultural heritage.

The non-Indigenous assessment identified 17 heritages places relevant to the Project. This included five places of State significance, including the Main Range Railway (601480), which the Project traverses under (~100 m) at Ballard (i.e. the West Moreton System rail corridor) and 11 sites listed as locally significant under the relevant planning scheme, with the Project traversing one of these sites: the Bicentennial National Trail. The landscapes associated with the Great Dividing Range, which the Project passes through, are also listed on the non-statutory Register of National Estate.

The Project also traverses part of the Mount Lofty Rifle Range, which has also been identified as a locally significant heritage site, with the site yet to be ratified under the Toowoomba Regional Council (TRC) Planning Scheme.

Each of the registered sites (excluding the landscapes of the Great Dividing Range) were assessed in accordance with the *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (International Council on Monuments and Sites (ICOMOS), 2011) based on their value of place or sensitivity and the magnitude of change to the heritage values as a result of the Project (direct and indirect impacts). The assessment found that, with appropriate measures, the Project impacts are neutral (no impact) for 14 of the sites, and slight for the Main Range Railway (601480) and neutral/slight for the Bicentennial National Trail. The Mount Lofty Rifle Range impacts were also considered to be neutral.

The non-Indigenous heritage assessment also identified 36 Areas of Interest (AOI) within the cultural heritage study area, including the Bicentennial National Trail at Gittins Road, Withcott and a rail bridge on the Main Line at Mount Kynoch, which is part of the Main Range Railway (601480). In preparation for a targeted survey, the areas were ranked based on proximity, priority and heritage potential to inform the site inspections. Of the 36 sites, 30 sites were subject to a visual inspection, with the remaining six sites deemed a low priority (i.e. not assessed). The identification of potential AOI comprised a review of previous heritage assessments, analysis of historic aerials, topographic and cadastral maps and a search of the relevant heritage registers and planning schemes.

Of the 30 AOI that were inspected, the assessment found that 18 of the AOIs did not possess any historic structures, remains, or areas of archaeological potential. The significance of the remaining 12 AOIs, which possessed a range of heritage values, significance or potential, were assessed in accordance with the *Queensland Heritage Act 1992* (Qld) (QH Act) and *Assessing cultural heritage significance: Using the cultural heritage criteria* (Department of Environment, Heritage and Protection (DEHP) 2013b). The assessment determined that six of the AOIs are of local heritage significance (but currently unlisted) meaning that they have 'aesthetic, historic, scientific or social value for past, present or future generations'. The Bicentennial National Trail was also considered to be locally significant.

The sites were mostly related to early homesteads, single structures and rail infrastructure. Each of the six sites were assessed against the ICOMOS guidelines (2011). The assessment found that, with appropriate measures, the Project impacts could be reduced to neutral or slight for all six sites.

18.2 Scope of chapter

The purpose of this chapter is to identify the potential impacts of the Project on cultural heritage, and to develop appropriate mitigation measures to address the potential impacts. It summarises the detailed findings of the non-Indigenous assessment (refer Appendix S: Non-Indigenous Cultural Heritage).

Section 11 of the ToR for the Project states: *'The construction and operation of the Project should aim to ensure that the nature and scale of the Project does not compromise the cultural heritage significance of a heritage place or heritage area'*. The following information requirements are stipulated to ensure compliance with this aim.

In accordance with the requirements of the ToR and relevant legislation, this assessment:

- ▶ Identifies known and potential non-Indigenous cultural heritage values
- ▶ Assesses the significance of these values
- ▶ Assesses the Project's potential impacts on these values
- ▶ Proposes measures to manage or mitigate impacts on cultural heritage values
- ▶ Indigenous cultural heritage will be managed under the CHMPs (CLH017009) for the Project, which were developed in 2018 in consultation with the relevant Aboriginal Parties. These CHMPs have been approved under the ACH Act and meet all the requirements for the identification, assessment and management of Aboriginal/Indigenous heritage under the Project's ToR. As such, this EIS defers to the CHMPs in all matters related to the management of Aboriginal cultural heritage. CHMPs are a confidential agreement between the relevant Aboriginal Parties and ARTC and will not be released as part of the EIS.

18.2.1 Cultural heritage study area

The following definitions are applied throughout this assessment:

- ▶ Project disturbance footprint—the disturbance footprint encompasses the permanent disturbance footprint required for the Project, including the future rail corridor, the tunnel, changes to the road network and associated built infrastructure (e.g. intermediate tunnel ventilation building at Cranley) and the temporary disturbance footprint, which is the additional area required for construction only, including temporary access tracks, laydown areas, drainage structures, and erosion and sediment controls. The Project disturbance footprint aims to capture the extent of all ground-disturbing works for the Project.
- ▶ Cultural heritage study area—the area of impact assessment encompasses the Project disturbance footprint plus a 50 m buffer to capture indirect impacts on cultural heritage from factors such as increased dust, vibration, flooding, and visual/setting impacts (refer Figure 18.1).

To contextualise the heritage assessment process, register searches and analysis of historical mapping was undertaken over a wider area, comprising the disturbance footprint plus a minimum of 1 km on either side. In some areas, the maximum width of the EIS investigation corridor from the alignment centreline is 3.4 kilometres (km).

18.3 Terms of Reference Requirements

The ToR describe the matters that ARTC must address in the EIS for the Project. The matters relating to cultural heritage are contained in Table 18.1.

TABLE 18.1: TERMS OF REFERENCE REQUIREMENTS

Terms of Reference requirements		Addressed in chapter
Information requirements		
11.173	Unless section 86 of the <i>Aboriginal Cultural Heritage Act 2003</i> (ACH Act) applies, the proponent must develop a cultural heritage management plan (CHMP) in accordance with the requirements of Part 7 of the ACH Act. The EIS should provide details of the CHMP and any associated agreements that has been developed or reached or steps taken up to that point to develop or reach such a plan or agreement.	CHMPs for the Project have been developed with the Western Wakka Wakka People and Yuggera Ugarapul People and approved under the ACH Act (CLH017009). The details of this agreement are discussed in Sections 18.5.1, 18.6.1, 18.7.1, 18.8.2.1, 18.8.2.2, 18.9.1 and 18.10.1. Further discussion is also provided in Chapter 3: Project Approvals.

Terms of Reference requirements		Addressed in chapter
11.174	For non-indigenous historical heritage, undertake a study of, and describe, the known and potential historical cultural and landscape heritage values of the area potentially affected by the Project. Any such study should be conducted by an appropriately qualified cultural heritage practitioner. Provide strategies to mitigate and manage any negative impacts on non-indigenous cultural heritage values and enhance any positive impacts	<p>A non-Indigenous historical heritage assessment was undertaken for the Project, as outlined in this chapter and in Appendix S: Non-Indigenous Cultural Heritage.</p> <p>The assessment and the technical report in Appendix S: Non-Indigenous Cultural Heritage were led by a historical heritage specialist (refer Appendix E: Study Team. As part of the assessment and reporting, a number of mitigation strategies have been developed to manage negative impacts on non-Indigenous cultural values and recommendations on enhancement of identified historical heritage values.</p>
Native title		
11.80	Identify existing and potential Native Title rights and interests possibly impacted by the proposed Project and describe who those impacts will be managed	Native Title is outlined in Chapter 8: Land Use and Tenure.

18.4 Legislation, policies, standards and guidelines

The relevant Commonwealth, state and local government legislation, including planning schemes, policies, plans and guidelines that regulate and manage cultural heritage are outlined in Table 18.2.

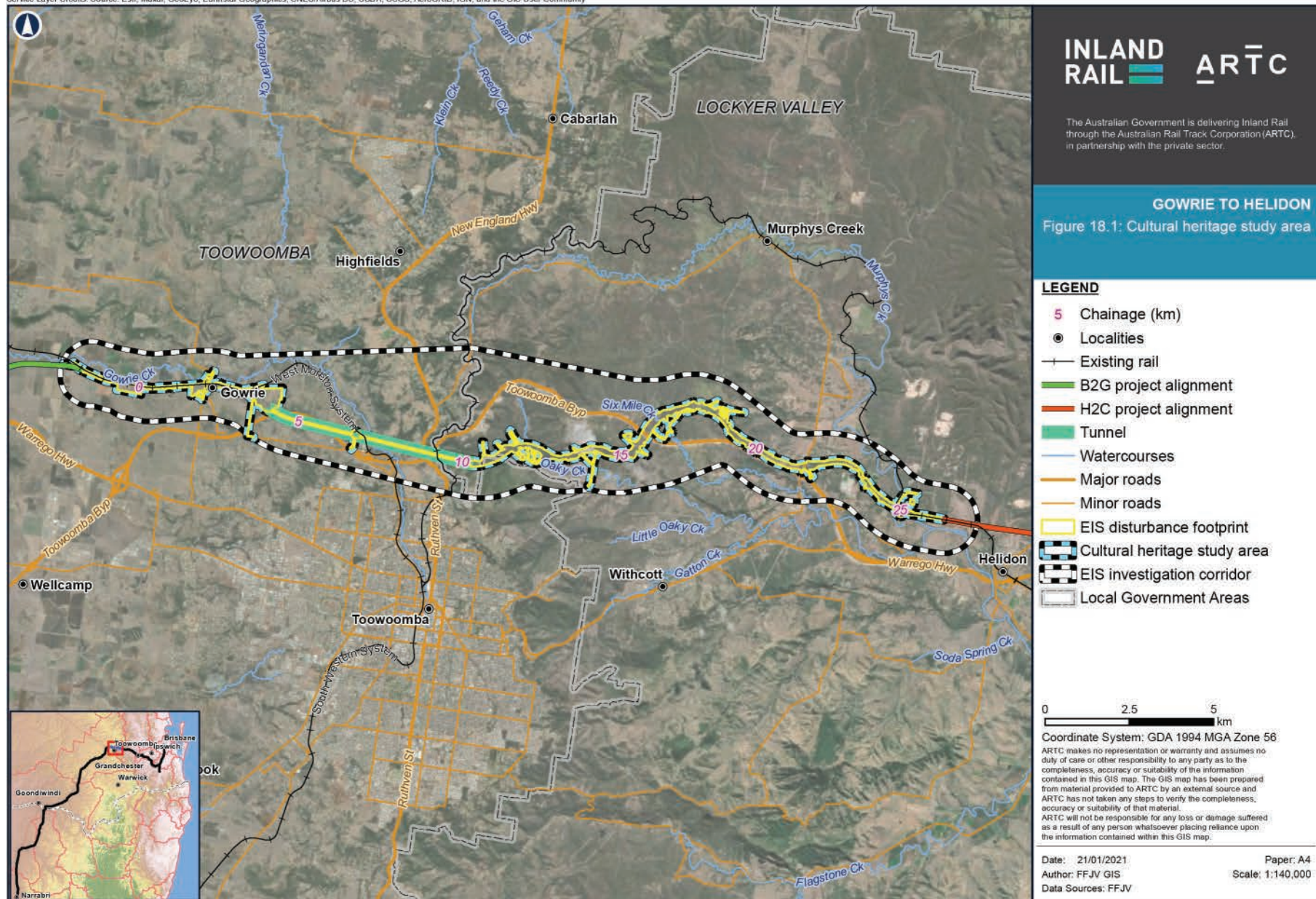
Further information on the legislative context of the Project is outlined in Chapter 3: Project Approvals.

TABLE 18.2: REGULATORY CONTEXT

Legislation, policy or guideline	Relevance to the Project
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth) (EPBC Act)	<p>Provides protection for items listed on the world, national and Commonwealth Heritage List. Under the EPBC Act, world heritage properties and national heritage places are identified as matters of national environmental significance. The Act dictates that actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the federal Minister for the Environment.</p> <p>Protection of World Heritage sites considered to possess universal values and are important to everyone, irrespective of where they are located.</p> <p>The National Heritage List includes natural, historic and Indigenous places of outstanding heritage value.</p> <p>Places listed on the Register of the National Estate (RNE) (non-statutory) can be protected under the EPBC Act if they are also included in another Commonwealth statutory heritage list or are owned or leased by the Commonwealth. There are three non-statutory heritage places located within the EIS investigation corridor.</p> <p>The Commonwealth Heritage List comprises natural, Indigenous and historic heritage places on Commonwealth lands. There are no places within the EIS investigation corridor listed on the Commonwealth Heritage List.</p> <p>The EPBC Act is relevant as the Project is declared a 'controlled action' under the EPBC Act (reference number EPBC 2017/7882). The EPBC Act provides a framework for consideration of impacts to heritage as part of Commonwealth or Commonwealth-supported activities. However, it should be noted that the controlling provision is 'threatened species and communities' as the Project was deemed unlikely to have a significant impact on heritage.</p>
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (Cth)	<p>Provides additional heritage protection where state-based protections are perceived to be inadequate.</p> <p>Allows for the Minister to make declarations for places and objects that are of particular significance to Aboriginal people.</p> <p>Provides protection provisions if Aboriginal communities feel that an area, object or class of objects are facing threats and/or desecration.</p> <p>This Act is relevant to the Project in providing a framework for ensuring adequate protection of Indigenous heritage beyond the relevant state legislation.</p>

Legislation, policy or guideline	Relevance to the Project
<i>Aboriginal Cultural Heritage Act 2003</i> (Qld)	<p>Principal piece of State legislation that protects Aboriginal cultural heritage. Seeks to provide effective recognition, protection and conservation of Aboriginal cultural heritage.</p> <p>Requires that every person who carries out an activity 'take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage (the cultural heritage duty of care)'.</p> <p>Establishes a database of reported Aboriginal cultural heritage places but does not guarantee that the 'information is up-to-date, comprehensive or otherwise accurate.</p> <p>Mandates the development and approval of a CHMP for any project requiring an EIS under the <i>State Development and Public Works Organisation Act 1971</i>.</p> <p>Confirms that acting under an approved CHMP will ensure compliance with the cultural heritage duty of care in relation to Aboriginal cultural heritage covered by the CHMP.</p> <p>The ACH Act is relevant to the Project in guiding the development of the CHMP and to address the Projects' duty of care requirements.</p> <p>The CHMPs with the relevant Aboriginal parties (CLH017009) have been approved under this Act.</p>
<i>Queensland Heritage Act 1992</i> (Qld) (QH Act)	<p>Principal piece of state legislation that protects non-Indigenous heritage and establishes the Queensland Heritage Council.</p> <p>Items of importance to the people of Queensland are nominated for State Heritage Listing, included on the Queensland Heritage Register and are protected under the Act.</p> <p>Allows for the protection of items of local heritage significance in a local government register.</p> <p>Protects historical archaeological discoveries that may be an important source of information about an aspect of Queensland's history.</p> <p>The QH Act is relevant to the Project in ensuring legislative compliance. There are five heritage items included on the Queensland Heritage Register located within the EIS investigation corridor. Two sites of local heritage significance under the relevant planning schemes have also been identified within the EIS investigation corridor.</p>
<p>Toowoomba Regional Planning Scheme 2012</p> <p>Gatton Planning Scheme 2007 (administered by Lockyer Valley Shire Council, 2007)</p>	<p>All local government planning schemes in Queensland are required to identify items of local significance and develop provisions for the management of such heritage.</p> <p>The Project passes through the Toowoomba and Lockyer Valley Local Government Areas (LGAs). There are 11 heritage items of local heritage significance listed across the two local government registers relevant to the Project.</p>
The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (ICOMOS Australia, 2013)	Internationally adopted standards for heritage conservation practice developed by Australia ICOMOS. Relevant to the Project in providing a framework and guidance on understanding and assessing cultural significance and Indigenous cultural heritage management.
Ask First: A guide to respecting Indigenous heritage places and values (Australian Heritage Commission, 2002a)	<p>Commonwealth-developed framework for the engagement and consultation of Aboriginal peoples.</p> <p>Relevant to the Project in providing a framework for guiding appropriate consultation with the relevant Aboriginal Party.</p>
Australian Natural Heritage Charter (Australian Heritage Commission, 2002b)	<p>Commonwealth developed charter for the identification, conservation, and protection of natural heritage values in Australia.</p> <p>Relevant to the Project in providing a guide for the appropriate management and protection of natural heritage values that may be identified.</p>
<i>Aboriginal Cultural Heritage Act 2003: Cultural Heritage Management Plan Guidelines</i> (Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP, 2005)	A guide issued to the Project to direct the proponent and outline the requirements for Indigenous and non-Indigenous cultural heritage.

Legislation, policy or guideline	Relevance to the Project
<i>Aboriginal Cultural Heritage Act 2003—Duty of Care Guidelines</i> (DATSIP, 2004)	<p>Section 23(1) of the ACH Act states that a person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage (the 'cultural heritage duty of care'). The guidelines were developed for identifying reasonable and practicable measures for ensuring activities are managed to avoid or minimise harm to Aboriginal cultural heritage.</p> <p>Relevant to the Project as potential areas of cultural heritage may be present and this guide will provide a framework for assisting in minimising harm to cultural heritage.</p>



18.5 Methodology

18.5.1 Indigenous heritage

The ToR requires that one or more CHMPs are developed with the relevant Aboriginal Parties for the Project and be approved by the Chief Executive of the Department of Seniors, Disability Services, Aboriginal and Torres Strait Islander Partnerships (DSDSATSIP) (formerly DATSIP).

This process was undertaken in 2018 by ARTC with the Yuggera Ugarapul People and the Western Wakka Wakka People in accordance with the requirements of Part 7 of the ACH Act, and the *Cultural Heritage Management Plan Guidelines* (DATSIP, 2005). The resulting CHMPs (CLH017009) entered into with the Aboriginal Parties will allow for the identification, assessment and management of Aboriginal cultural heritage in the plan area, as defined in the CHMP.

In preparation for these negotiations, ARTC searched the DSDSATSIP and Torres Strait Islander Cultural Heritage Database and Register to identify:

- ▶ Aboriginal Parties and Cultural Heritage Bodies for the study area
- ▶ Registered Aboriginal cultural heritage within the Project disturbance footprint plus a 200 m buffer.

In developing the CHMPs, ARTC engaged with the relevant Aboriginal Parties to establish methods for investigating Indigenous cultural heritage that may be affected by the Project. This work included implementing detailed surveys over the Project disturbance footprint to identify significant Aboriginal objects, significant Aboriginal areas or evidence of archaeological or historic significance of Aboriginal occupation of an area and the management of these values in accordance with the CHMPs.

18.5.2 Non-Indigenous heritage

The historical heritage assessment was informed by the legislative and ToR requirements for the Project, as well as the guideline *Assessing cultural heritage significance: Using the cultural heritage criteria* (DEHP, 2013b). This guideline provides a framework for identifying and managing historical significance under the QH Act. In keeping with this framework, the key elements of the assessment were:

- ▶ Background research
- ▶ Non-Indigenous cultural heritage inspection
- ▶ Significance assessment
- ▶ Impact assessment
- ▶ Management measures.

More detail on the methodology and results of the non-Indigenous heritage assessment is available in Appendix S: Non-Indigenous Cultural Heritage.

18.5.2.1 Background research

- ▶ Background research involved the following tasks:
- ▶ Review of the relevant Commonwealth, state and local heritage registers to identify previously registered heritage and archaeological sites, including:
 - ▶ World Heritage List, National Heritage List, Commonwealth Heritage List, Register of the National Estate (non-statutory)
 - ▶ Queensland State Heritage Register
 - ▶ Heritage registers of relevant local government planning schemes (Toowoomba Regional Planning Scheme and Gatton Shire Planning Scheme)
 - ▶ Queensland WWII Heritage Register (non-statutory)
- ▶ Collation and review of other relevant previous heritage assessments and documents held by state and national organisations, including the State Library of Queensland, Queensland State Archives and the National Archives of Australia
- ▶ Collation and review of other relevant previous heritage assessments and documents undertaken in the area

- ▶ Examination and review of current and historical mapping and aerials for the cultural heritage study area
- ▶ Consultation with relevant key stakeholders as required:
 - ▶ A request for information was submitted to Queensland Rail (QR) to identify potential cultural heritage values associated with the West Moreton System between Gowrie and Helidon
 - ▶ Consultation with the Bicentennial National Trail Trust representatives responsible for managing the section of the trail in the Withcott area.

18.5.2.2 Site inspections

Given the extent of the cultural heritage study area, it was neither practical nor desirable to inspect the entire study area. Instead, a targeted survey strategy was used, which focused on areas of highest heritage potential (refer Table 18.3 and Figure 18.2a-f. These AOI were identified during the background research, and included:

- ▶ Registered heritage places (statutory and non-statutory)
- ▶ Previously identified but unregistered places
- ▶ New places identified during historical research.

The areas were then ranked (high, medium and low priority) based on proximity, priority and heritage potential to inform the site inspections. Further details on this process is provided in Appendix S: Non-Indigenous Cultural Heritage.

Pedestrian inspections were conducted for each of the AOIs for which access was granted and any standing structures, significant views, garden plantings, surface archaeological deposits, or areas of subsurface archaeological potential were identified and recorded using a Global Positioning System (GPS), fieldnotes and photography on an iPad operating on the Fulcrum platform.

Those sites for which access was not granted were viewed from adjacent public areas and photographs taken if possible.

TABLE 18.3: GOWRIE TO HELIDON INSPECTION AREAS OF INTEREST

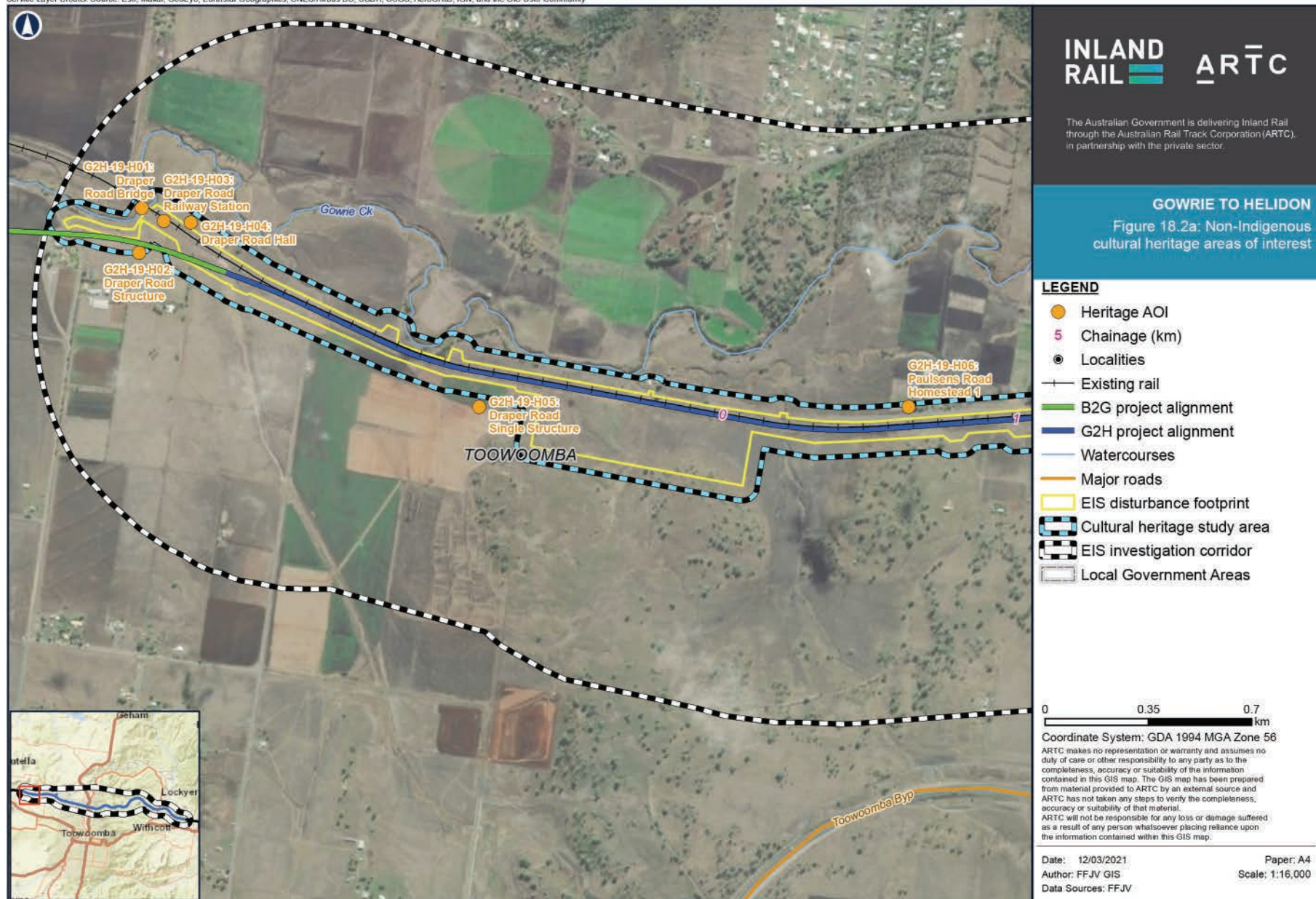
Inspection ID	Description	Lot/Plan	Inspected
G2H-19-H01	Bridge over Gowrie Creek, associated with the railway corridor	Adjacent to Draper Road, 71SP122172 and 10D3691	Yes
G2H-19-H02	Single structure	33SP312428	Yes
G2H-19-H03	Railway station	10D3691	Yes
G2H-19-H04	Hall	2RP838203	Yes
G2H-19-H05	Single structure	33SP312428	Yes
G2H-19-H06	Homestead	458A34873	Yes
G2H-19-H07	Homestead	45AG937	Yes
G2H-19-H08	Homestead	44RP216739	Yes
G2H-19-H09	Road bridge over Gowrie Creek	Adjacent to 40AG1255 and directly downstream of Old Homebush Road	Yes
G2H-19-H10	Mill/factory	14RP889026	Yes
G2H-19-H11	Road intersection	50RP889026	Yes
G2H-19-H12	Mill/factory	14RP889026	Yes
G2H-19-H13	Gowrie Junction Railway Station	2RP34879	Yes
G2H-19-H14	Single structure	307AG4196	Yes
G2H-19-H15	Single structure	201CP893797	Yes
G2H-19-H16	Two single structures	1RP205894, 42AG1509	Yes
G2H-19-H17	Single structure	1RP192838	Yes
G2H-19-H18	Single structure	5SP198121	Yes
G2H-19-H19	Single structure	11SP189518	Yes

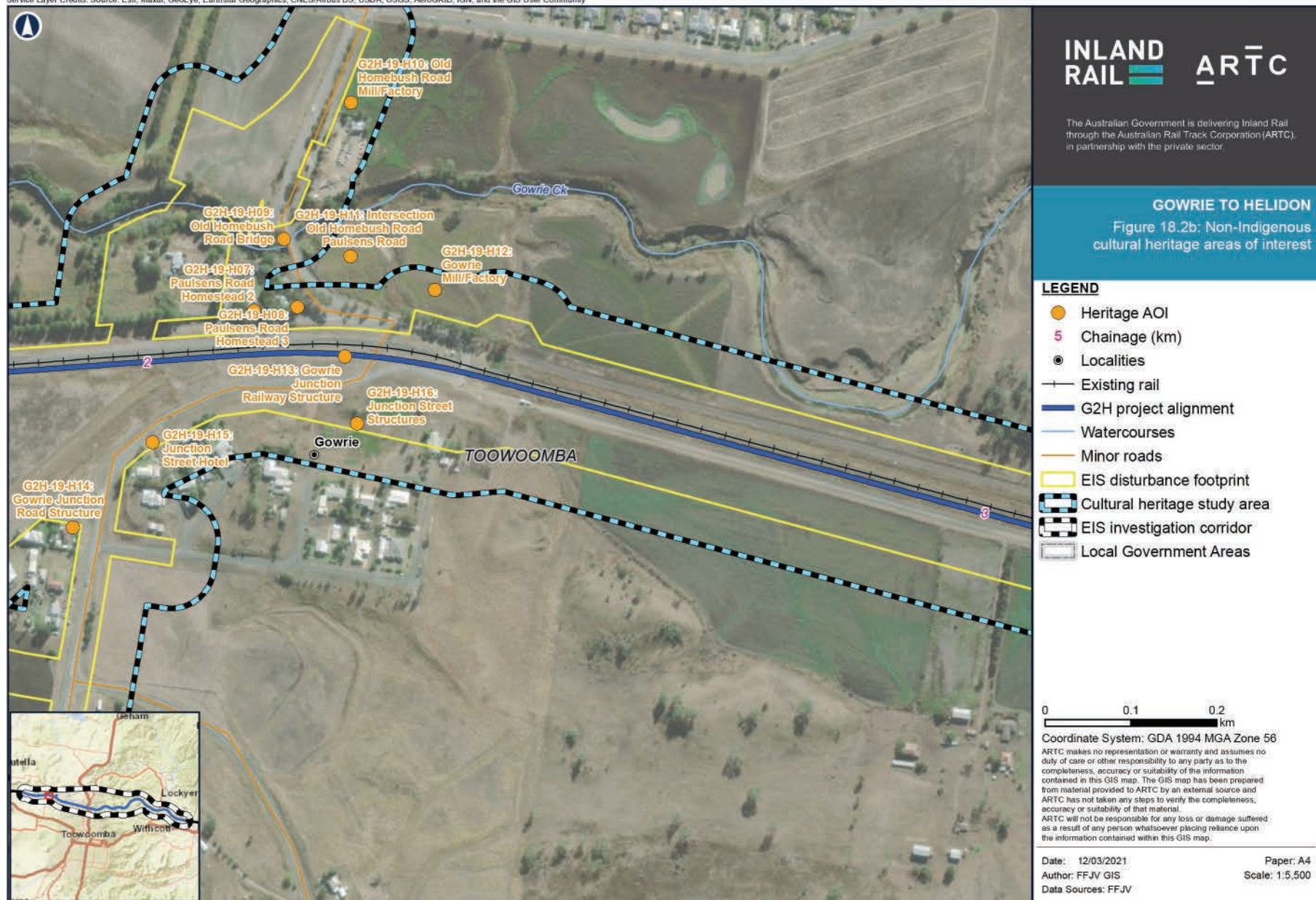
Inspection ID	Description	Lot/Plan	Inspected
G2H-19-H20	Single structure	2RP806906	Yes
G2H-19-H21	Single structure	4SP194139	No
G2H-19-H22	Rail bridge (Main Line at Mount Kynoch) (associated with the state-listed Main Range Railway (601480))	591SP117148	No
G2H-19-H23	Multiple structures	354CH312304	Yes
G2H-19-H24	House and windmill	320CH312556	Yes
G2H-19-H25	Bicentennial National Trail (locally listed)	Gittins Road, adjacent to 259CC317 and 17SP186715	Yes
G2H-19-H26	Multiple structures	11RP839411	Yes
G2H-19-H27	Single structure	13CH31259	Yes
G2H-19-H28	Single structure	87CA31624	No
G2H-19-H29	Railway siding North (Russell's Siding), Main Line at Helidon	452SP117138	No
G2H-19-H30	Railway culverts (Main Line at Helidon) (listed in Helidon to Calvert project (H2C-19-01))	452SP117138	Yes

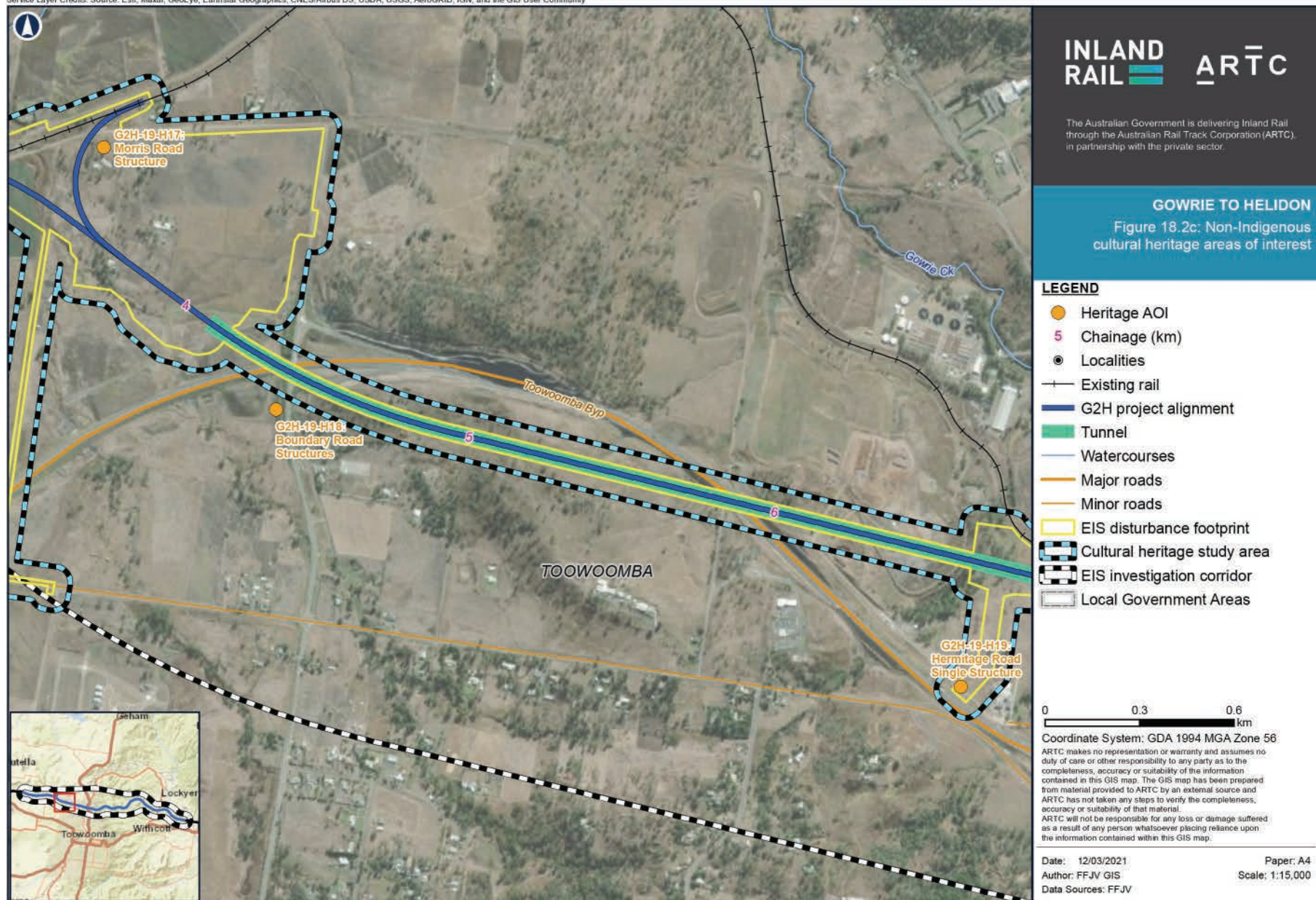
There were six AOIs that were not targeted during the visual inspection as they were considered to have a low-priority ranking see Table 18.4. These AOI are not considered further in this assessment due to having limited historic value and insufficient heritage significance to meet the threshold of local or state heritage listing. Further information on the priority hierarchy is provided in Appendix S: Non-Indigenous Cultural Heritage.

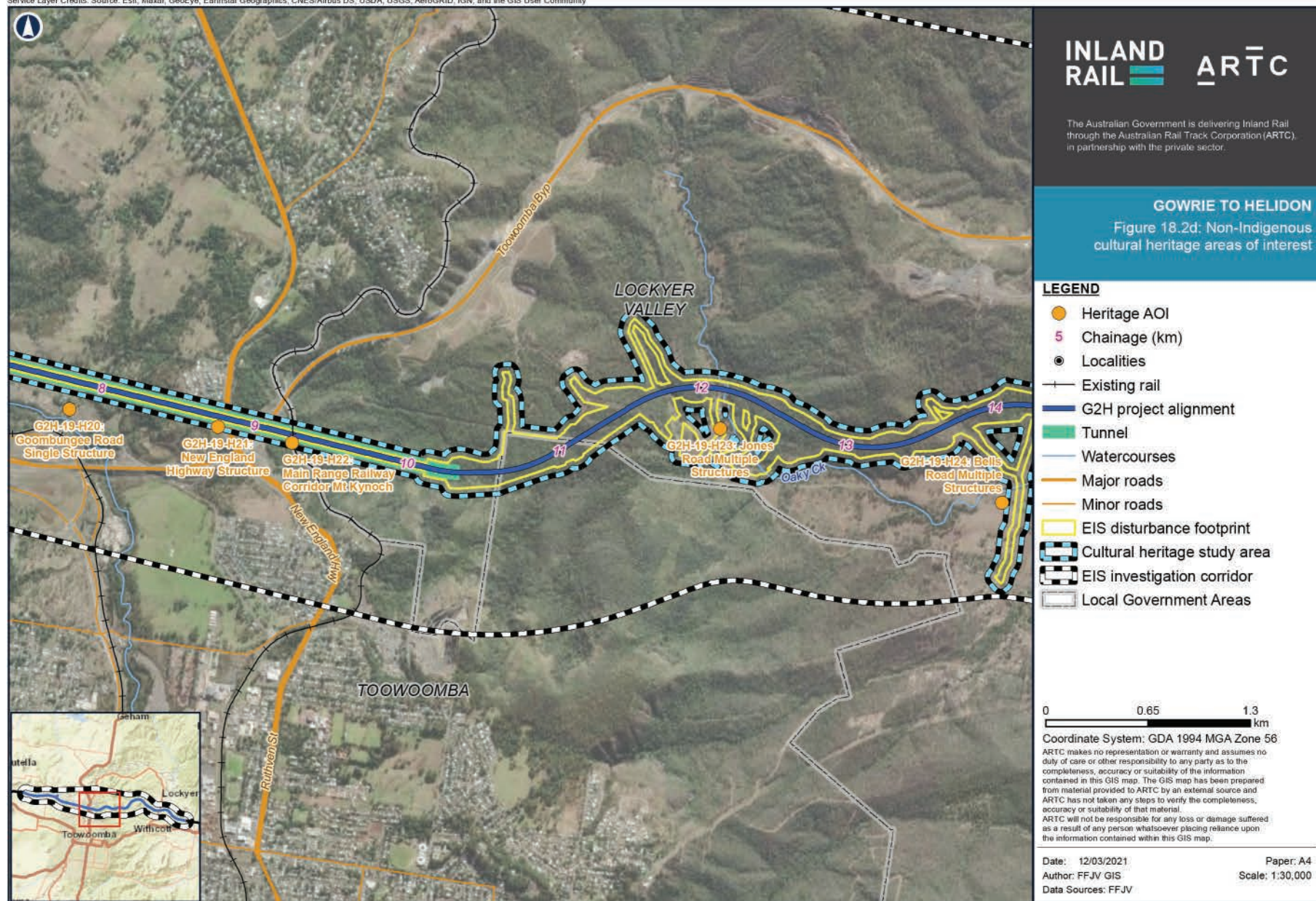
TABLE 18.4: AREAS OF INTEREST REMOVED FROM FURTHER ASSESSMENT

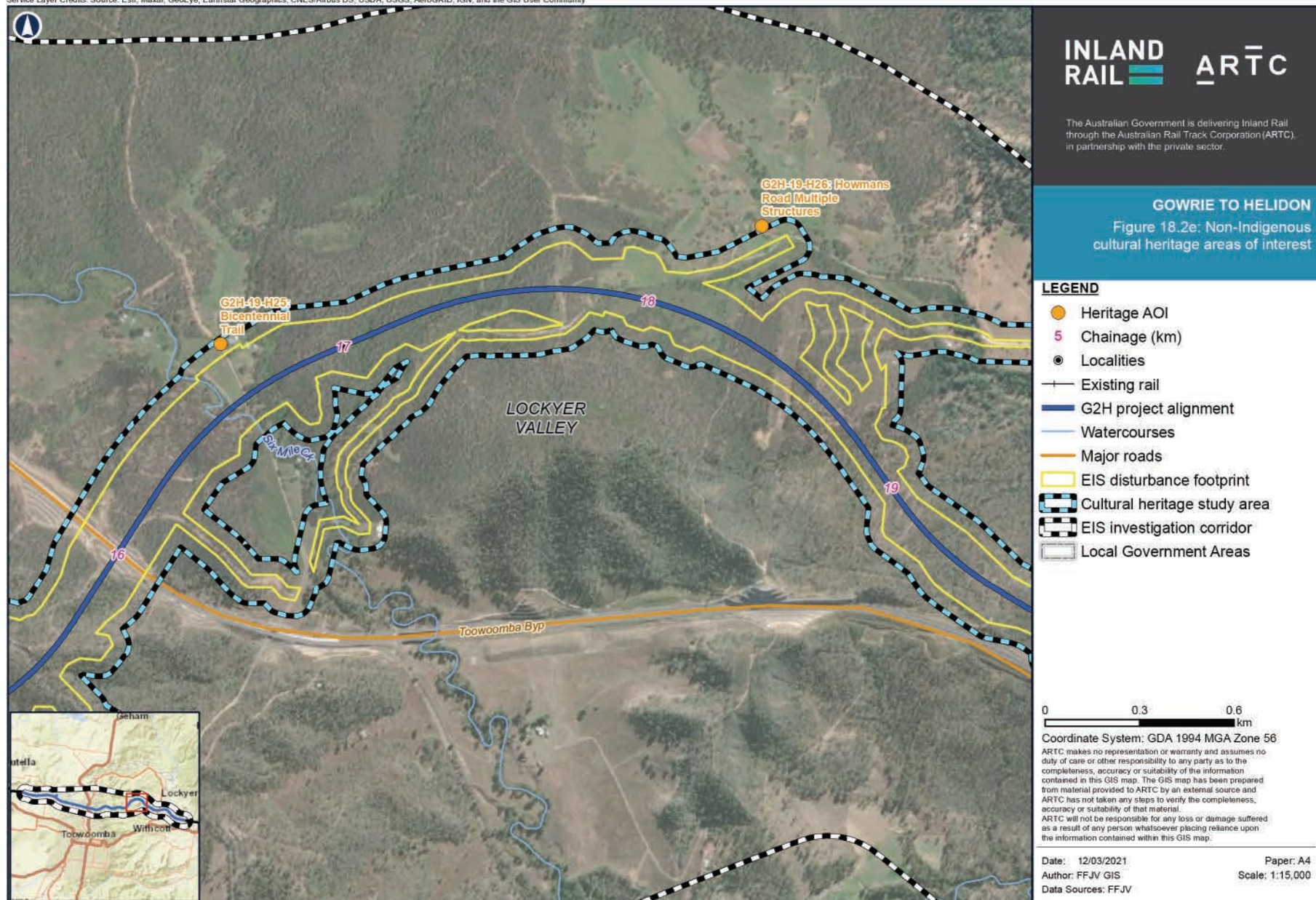
Description	Lot/Plan
Single structure	202G1861
Single structure	306AG4196
Single structure	50RP889026
Single structure	5SP194139, 4SP194139
Homestead	44RP216739
Homestead	45AG937



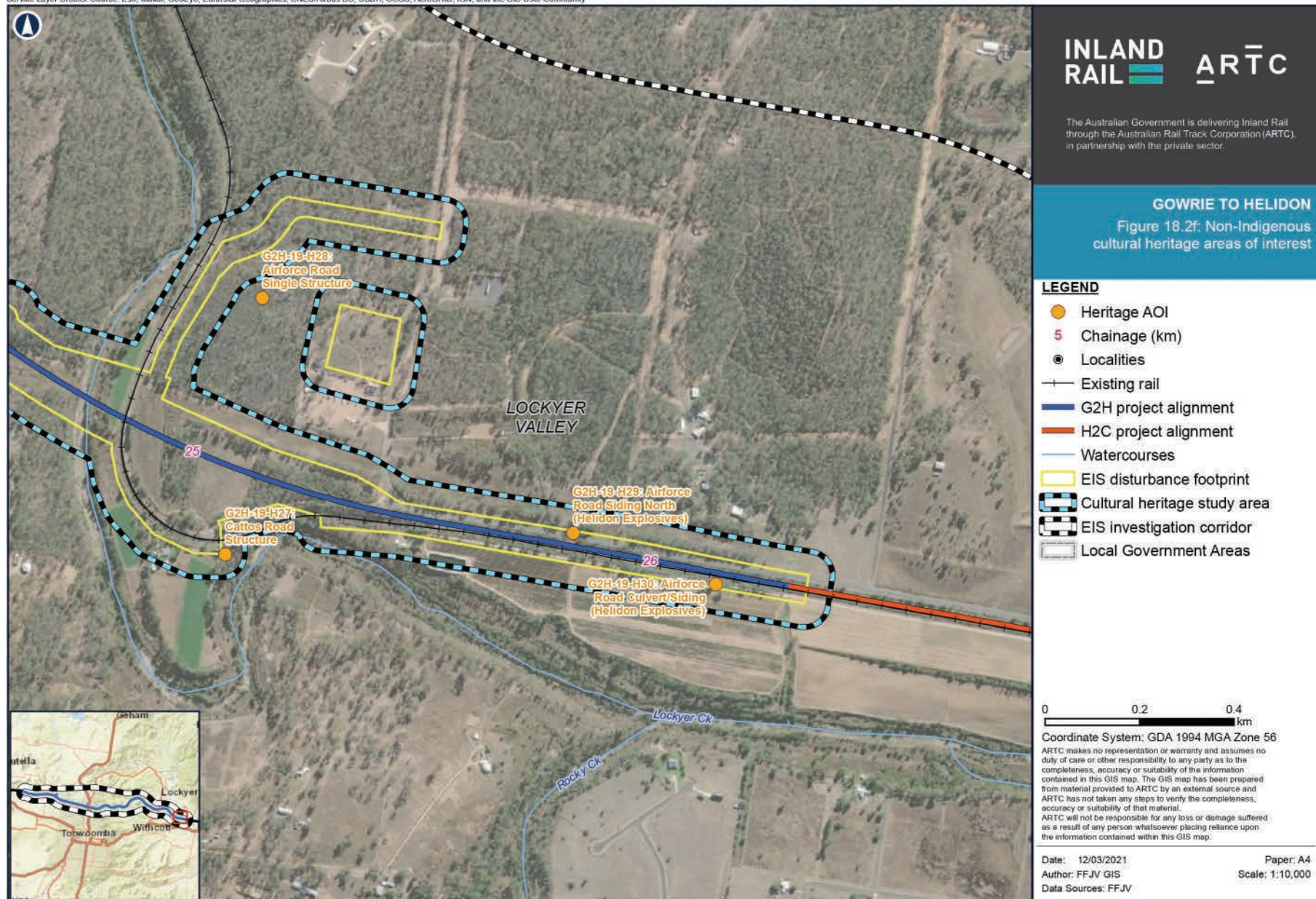








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18.5.2.3 Significance assessment

The significance of historical heritage places is assessed in accordance with the QH Act and *Assessing cultural heritage significance: Using the cultural heritage criteria* (DEHP, 2013b). In general, a place may be considered to be of heritage significance if it meets one or more of the following criteria as outlined in Table 18.5.

TABLE 18.5: QUEENSLAND STATE HERITAGE SIGNIFICANCE ASSESSMENT CRITERIA

Criterion	Description
A—historical	The place is important in demonstrating the evolution or pattern of history
B—rarity	The place demonstrates rare, uncommon or endangered aspects of cultural heritage
C—research	The place has potential to yield information that will contribute to an understanding of history
D—representativeness	The place is important in demonstrating the principal characteristics of a particular class of cultural places
E—aesthetic	The place is important because of its aesthetic significance
F—creative/technical	The place is important in demonstrating a high degree of creative or technical achievement at a particular period
G—social	The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
H—associational	The place has a special association with the life or work of a particular person, group or organisation of importance

These criteria may be fulfilled at a number of thresholds, ranging from world to local, depending on the importance of the place, and the contribution it makes to our understanding of the past (refer Table 18.6).

TABLE 18.6: LEVELS OF CULTURAL HERITAGE SIGNIFICANCE

Significance	Description
World	Heritage values contribute to our understanding of the pattern and evolution of world history and heritage and the place is considered to be of outstanding value to humanity
National	Heritage values make an outstanding contribution to our understanding of the pattern and evolution of Australia's history and heritage
State	Heritage values contribute to our understanding of the wider pattern and evolution of Queensland's history and heritage
Local	Heritage values contribute to our understanding of the pattern and evolution of local history and heritage

Source: DEHP, 2013b

18.5.2.4 Impact assessment

The potential impacts on the heritage values are assessed using criteria developed from the *Guidance on Heritage Impact Assessments for Cultural World Heritage Properties* (ICOMOS, 2011). This document was prepared by the ICOMOS, the peak professional body working for the conservation of cultural heritage places. It provides a comprehensive method for assessing impacts at all types of heritage places.

Under ICOMOS guidelines, cultural heritage places can be of differing levels of importance or significance: local, state, national and world (ICOMOS [Australia], 2013). Places of local significance are important only to their immediate community, places of state significance to the wider region, and places of national significance to the country as a whole. Places of world significance are important to all of humanity, possessing one or more outstanding universal values.

Places of differing heritage significance have differing sensitivity to impact. Places of World Heritage significance will be more vulnerable to change than a local heritage site, and aspects of a World Heritage place that represent Outstanding Universal Values are the most sensitive of all. The differing significance of a place's heritage values and their relative sensitivity to impact is summarised in Table 18.7.

TABLE 18.7: LEVELS OF CULTURAL HERITAGE SENSITIVITY

Sensitivity	Justification	Status
Extreme	Attributes which convey Outstanding Universal Values of World Heritage Place	Fulfil criteria for local, state, national and international listing
Very high	Exceptional, rare or outstanding attributes demonstrating important themes in national or international history and heritage	Fulfil criteria for local, state, national or potentially international listing
High	Attributes demonstrating important themes in state history and heritage	Fulfil criteria for local and state listing
Moderate	Attributes demonstrating important themes in local history and heritage	Fulfil criteria for local listing and may fulfil criteria for state listing
Low	Attributes demonstrating minor themes in local history and heritage	May fulfil criteria for local listing and does not fulfil criteria for state listing
Negligible	Attributes that have no heritage significance	Does not fulfil criteria for local or state listing

Source: ICOMOS, 2011

The degree of impact an activity will have on a heritage place is assessed in terms of the magnitude of change to the acknowledged heritage values of a place as summarised in Table 18.8. These impacts may be direct, such as the demolition of heritage buildings, or indirect, such as changes to the views or setting of a heritage place. In some cases, indirect impacts might also cause physical damage to a heritage place, such as excessive vibration causing structural damage, or excessive pollution causing damage to surface.

TABLE 18.8: DETERMINING MAGNITUDE OF CHANGE

Magnitude	Example criteria
Major	Change to all or most significant aspects of the place, such that its heritage values are substantially reduced or destroyed
Medium	Change to some significant aspects of the place, such that some of its heritage values are partially reduced
Low	Minor change to significant aspects of the place, such that some of its heritage values are slightly reduced
Negligible	Changes to insignificant aspects of the places, such that its heritage values are not reduced
No Change	No change

Source: ICOMOS, 2011

The final assessment of the significance of impact on a heritage place is informed by the cultural heritage sensitivity of the place, combined with the predicted magnitude of change, as outlined in Table 18.9. A prediction of impact significance can be made both before and after the implementation of identified mitigation measures, allowing the efficacy of the measures to be assessed and revealing residual impacts that need to be considered.

TABLE 18.9: ESTIMATING IMPACT SIGNIFICANCE

Significance of impact		Magnitude of change				
		Major	Medium	Low	Negligible	No change
Cultural heritage sensitivity	Extreme	Very large	Large/very large	Moderate/large	Slight	Neutral
	Very high	Very large	Large/very large	Moderate/large	Slight	Neutral
	High	Large/very large	Moderate/large	Slight/moderate	Slight	Neutral
	Moderate	Moderate/large	Moderate	Slight	Neutral/slight	Neutral
	Low	Slight/moderate	Slight	Neutral/slight	Neutral/slight	Neutral
	Negligible	Slight	Neutral/slight	Neutral/slight	Neutral	Neutral

Source: ICOMOS, 2011

18.6 Existing heritage conditions

This section includes a description of each relevant Indigenous and non-Indigenous value or condition, informed by desktop research and field investigations.

18.6.1 Indigenous cultural heritage

A search of the DATSIP (now DSDSATSIP) Database on 10 October 2019 (Search ID 60613) returned the following details of the Aboriginal Parties relevant to the Project, along with the executed CHMPs between the Aboriginal Parties and ARTC (refer Table 18.10 and Table 18.11).

TABLE 18.10: ABORIGINAL PARTIES RELEVANT TO THE PROJECT

QC ref number	QUD ref number	Name
QC2017/005	QUD213/2017	Yuggera Ugarapul People
QC1999/004 PRC	QUD6004/99	Western Wakka Wakka People

TABLE 18.11: CULTURAL HERITAGE MANAGEMENT PLANS WITH ARTC RELEVANT TO THE PROJECT

CHL number	Sponsor	Party	Approved
CLH017009	ARTC Inland Rail	Yuggera Ugarapul People	9 April 2018
CLH017009	ARTC Inland Rail	Western Wakka Wakka People	19 November 2018

Works being undertaken by or on behalf of ARTC for this Project will be subject to the CHMPs outlined in Table 18.11. Some land may already be subject to a CHMP (e.g. West Moreton System rail corridor or the Toowoomba Bypass); however, these CHMPs govern works being undertaken on behalf of the relevant sponsor within the respective plan area and as such will not apply to this Project.

The DATSIP (now DSDSATSIP) Database search also indicates that there are 770 reported Indigenous cultural heritage sites within the Project disturbance footprint plus a 200 m buffer (refer Table 18.12). The majority of these sites are the site type 'object collection', which appear to be salvaged artefacts making up 53.64 per cent of the total. The next largest site type is 'stone artefacts'—either isolated finds or clustered in scatters making up 33.51 per cent of the sites.

In addition, a search of the Colonial Frontier Massacres in Australia, 1788–1930 database developed by the University of Newcastle was undertaken. There are no known colonial frontier massacre sites (defined as the deliberate and unlawful killing of six or more defenceless people in one operation) in the vicinity of the Project. There is, however, a site on Sandy Creek north of the Warrego Highway at Grantham, approximately 8 km east of the Project.

TABLE 18.12: INDIGENOUS CULTURAL HERITAGE SITES REGISTERED WITH DATSIP WITHIN THE PROJECT DISTURBANCE FOOTPRINT 200 M BUFFER

Site type	Count	Percentage of the total
Object collection	413	53.64%
Artefact scatter	232	30.13%
Isolated find	26	3.38%
Scarred tree	21	2.73%
Scarred/Carved tree	16	2.08%
Aboriginal intangible place	14	1.82%
Earth feature	10	1.30%
Landscape feature	10	1.30%
Cultural site	5	0.65%
Stone feature	4	0.52%
Stone arrangements	4	0.52%
Grinding grooves	4	0.52%
Resource area	3	0.39%

Site type	Count	Percentage of the total
Pathways	2	0.26%
Burials	2	0.26%
Quarry	1	0.13%
Earthen arrangements	1	0.13%
Contact site	1	0.13%
Shell middens	1	0.13%

18.6.2 Non-Indigenous heritage

18.6.2.1 Register searches

A search of all relevant statutory and non-statutory heritage registers, including those associated with the local planning schemes in January 2021, identified 17 heritage places within proximity to the Project. A summary of the register searches is provided in Table 18.13 and illustrated in Figure 18.3.

Of the 17 heritage places, 3 are traversed by the Project disturbance footprint, with an additional 2 being within the cultural heritage study area. A description of each of the places, along with their relevance to the Project is provided in Table 18.14 to Table 18.16.

TABLE 18.13: SUMMARY OF REGISTER SEARCHES

Register	Other sites of relevance	Within cultural heritage study area
World Heritage List	None	None
National Heritage List	None	None
Commonwealth Heritage List	None	None
Register of the National Estate (non-statutory)	1 (within EIS investigation corridor)	2
State Heritage Register	4 (within EIS investigation corridor)	1
Cultural Heritage Information Management System (non-statutory)	None	None
Toowoomba Regional Planning Scheme 2012	1 (within EIS investigation corridor)	None
Gatton Shire Planning Scheme 2007	9 (outside of the EIS investigation corridor)	1
Queensland World War II Historic Places (non-statutory)	None	None

The Helidon Ammunition Store and Royal Australia Air Force No. 2 Replenishment Centre is listed under the Queensland World War II Historic Places register (non-statutory). This area is analogous with the Helidon Explosive Reserve, Air Force Road, Helidon at the eastern extent of the Project. This area was supported by road and rail, including the Russell Siding on the Main Line, which is an AOI (G2H-19-H29), refer Section 6 of Appendix S: Non-Indigenous Cultural Heritage.

TABLE 18.14: STATE HERITAGE PLACES WITHIN THE EIS INVESTIGATION CORRIDOR

Name	Description	Planning scheme	Location	Proximity to Project
Baillie Henderson Hospital (601161)	Hospital	Toowoomba	1 Hogg Street, Toowoomba	Within the EIS investigation corridor, approximately 1.5 km south of the intermediate ventilation shaft building at Cranley.
Swansons Rail Bridge (600871)	Railway infrastructure (bridge)	Toowoomba	6 km north of Toowoomba, Ballard; Blue Mountain Heights	Within the EIS investigation corridor, approximately 1 km north of the Project disturbance footprint (near the eastern tunnel portal).

Name	Description	Planning scheme	Location	Proximity to Project
Main Range Railway (601480)	Railway infrastructure (overbridge)	Toowoomba	Ruthven Street overbridge, Harlaxton	The Toowoomba Range Tunnel traverses beneath the Main Range Railway (i.e. West Moreton System rail corridor) within the vicinity of Mount Kynoch/Ballard.
Lockyer Creek Railway Bridge (600513)	Railway infrastructure (bridge)	Toowoomba	Toowoomba - Helidon Line, Lockyer Creek	Within EIS investigation corridor, approximately 800 m north-east of the Project disturbance footprint at Withcott Seedlings.
Harlaxton House (600839)	House	Toowoomba	6 Munro Street, Harlaxton	Within EIS investigation corridor, approximately 1.25 km south of the Project disturbance footprint (near the eastern tunnel portal).

TABLE 18.15: LOCAL HERITAGE PLACES RELEVANT TO THE PROJECT

Name	Description	Planning scheme	Location	Proximity to Project
254–272 New England Highway, Harlaxton	House	Toowoomba	3RP86589, 5RP98376, 6RP98376, 8RP117570	Within EIS investigation corridor, approximately 800 m south of the Project disturbance footprint (near the eastern tunnel portal).
Bicentennial National Trail	Track	Gatton	The trail is associated with Jones Road, Gittins Road and Stevens Road with the vicinity of the Project. 95CC385	The Project crosses over Gittins Road at Withcott, with this road and Jones Road also a proposed haulage route.
Gunn Street, Helidon	Ecclesiastical Buildings (church complex)	Gatton	3RP897079	Outside the EIS investigation corridor to the east (Helidon), approximately 1.4 km south-east of eastern extent of the Project disturbance footprint.
Gunn Street, Helidon	Ecclesiastical Buildings (convent)	Gatton	4RP897079	Outside the EIS investigation corridor to the east (Helidon), approximately 1.4 km south-east of the eastern extent of the Project disturbance footprint.
2 Arthur Street/1 Bowen Street, Helidon	House	Gatton	101H1261	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.
5 William Street, Helidon	House	Gatton	218-220 H1264	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.
14 William Street, Helidon	House	Gatton	1RP148530	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.
22 Wrights Road, Helidon	House	Gatton	2RP59783	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.

Name	Description	Planning scheme	Location	Proximity to Project
10 Wrights Road, Helidon	House	Gatton	1RP149759	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.
18 Wrights Road, Helidon	House	Gatton	1RP59783	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.
14 Russell Street, Helidon	House	Gatton	10SP112158	Outside the EIS investigation corridor to the east (Helidon), approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint.

TABLE 18.16: NON-STATUTORY HERITAGE PLACES WITHIN THE CULTURAL HERITAGE STUDY AREA

Place	Register	ID	Proximity to Project
Escarpment and Foothills of Great Dividing Range at Toowoomba, Warrego Highway	RNE	14286	The Project intersects the foothills of the Great Dividing Range west of Ballard
Main Range Railway [^]	RNE	19547	The Toowoomba Range Tunnel traverses beneath the Main Range Railway (i.e. West Moreton System rail corridor) within the vicinity of Mount Kynoch/Ballard
Swansons Rail Bridge	RNE	15971	Within the EIS investigation corridor, approximately 1 km north of the Project disturbance footprint (near the eastern tunnel portal).

Table note:

[^] Listed under the Queensland Heritage Register.

18.6.2.2 Previous heritage assessment

Indigenous surveys were undertaken as part of the Gowrie to Grandchester Study (Queensland Rail and Queensland Transport, 2013), with the Gowrie to Grandchester future state transport corridor alignment developed in consultation with the relevant Aboriginal parties. Further details on the evolution of the Gowrie to Grandchester future state transport corridor is provided in Section 2.7 of Chapter 2: Project Rationale.

A review of previous heritage studies of relevance to the cultural heritage study area, along with more general primary and secondary historical sources identified an additional area of local significance. This includes surveys undertaken for the Toowoomba Second Range Crossing, the upgrade to the Toowoomba Range rail tunnels and on behalf of Toowoomba Regional Council. Further information is provided in Appendix S: Non-Indigenous Cultural Heritage.

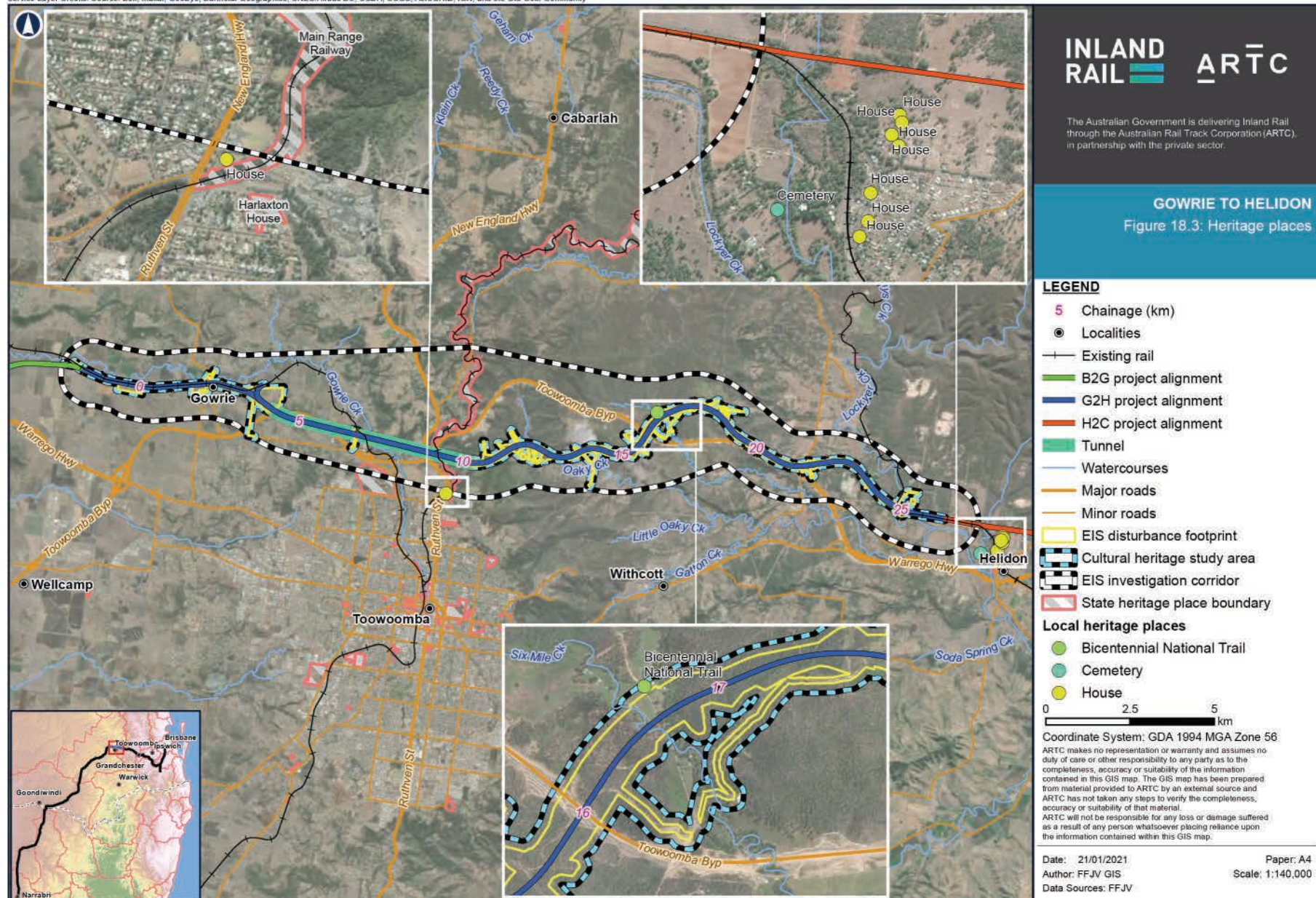
One of the reports identified a site of local significance, which was not as yet listed under the Toowoomba Regional Council Planning Scheme.

Everick Heritage Consultants were commissioned by Defence Housing Australia to undertake a historic significance assessment for the proposed residential development of the former rifle range located in Mount Lofty, Queensland. The assessment aimed to assess the potential heritage values associated with the Mount Lofty Rifle Range (1877–2011).

The Commonwealth developed rifle ranges across Australia in the efforts of creating a civilian-based reserve defence force. As such, 20 acres of the reserve were set aside for the Mount Lofty rifle range that was originally named the Toowoomba Rifle Range and operated periodically from 1878 until 2011. There are no surviving structures or buildings associated with the pre-Commonwealth use of the site. The current target trenches and target shutters present on the site are the result of the site upgrades in 1913.

The Project traverses the northern limits of the Mount Loft Rifle Range, approximately 200 m north of the known heritage elements. Consultation with relevant key stakeholders was also undertaken, including a request for information to QR to identify any heritage places on their internal registers. QR confirmed that two lots, Lot 591 SP117148 and Lot 452 SP117138 are listed on the Queensland Heritage Register, while no other heritage places were identified within the Project disturbance footprint.

Consultation with relevant key stakeholders was also undertaken, including a request for information to QR to identify any heritage places on their internal registers. QR confirmed that two lots, Lot 591 on SP117148 and Lot 452 on SP117138 are listed on the Queensland Heritage Register, while no other heritage places were identified within the Project disturbance footprint.



18.6.2.3 Site inspection results

Thirty AOI were inspected, and items of potential heritage significance were identified at 13 sites. The majority of these places are related to the local pastoral and dairy industries, railway structures and sidings and single structures (refer Table 18.17).

A full description of each area of interest (AOI) is provided in the Appendix S: Non-Indigenous Cultural Heritage.

TABLE 18.17: NON-INDIGENOUS SITE INSPECTION RESULTS

Site ID	Site name	Site description	Lot/Plan	Proximity to the Project
G2H-19-H01 [^]	Draper Road Bridge	The location of an AOI being the original Gowrie Creek railway bridge crossing that has since been demolished and replaced with a contemporary concrete pylon bridge. No original elements of the bridge remain; however, timber stumps associated with the original vehicle crossing may have been identified.	Adjacent to Draper Road, 71SP122172 and 10D3691	Within the Project disturbance footprint (upgrade an existing access road under the bridge)
G2H -19-H02 [^]	Draper Road structure	Location of an AOI referred to as a single structure on a 1943 topographic map. The site is situated to the south of Draper Road, on a flat approximately 100 m south of Gowrie Creek, Gowrie Junction. No evidence of a historic structure was found at this location.	33SP312428	Approximately 50 m from the Project disturbance footprint but no evidence exists
G2H -19-H03 [^]	Draper Road Railway Station (former)	Location of an AOI referred to as 'Tilgonda' Railway Station on a 1943 topographic map and identifiable on a 1958 aerial image. The site is located on a small rise directly north of the railway tracks and north of Draper Road. The site could not be inspected due to access constraints, however, there was no visible evidence of a railway station at this location.	10D3691	Within the Project disturbance footprint
G2H -19-H04 [^]	Draper Road Hall	Location of an AOI referred to as a 'Hall' on a 1943 topographic map. The site is located in the undulating paddock north of the railway tracks. The site could not be inspected due to access constraints, however, there was no visible evidence of a hall or structure at this location.	2RP838203	Approximately 50 m north of the Project disturbance footprint
G2H -19-H05	Draper Road single structure	Location of an AOI referred to as a single structure on a 1943 topographic map. This site is located on a gently undulating lot south of the railway tracks. No evidence of a dwelling was found at this site; however, an isolated glass bottle and two small glass fragments were identified and may mark the location of the former structure.	33SP312428	Approximately 200 m south of the Project disturbance footprint
G2H -19-H06 [^]	Paulsens Road Homestead 1	Location of an AOI referring to a homestead situated on a low-lying rural property, north of Paulsens Road, Gowrie Junction. The key elements of this site comprise a house and large shed located at the rear of the property. The house is located approximately 60 m north of the railway tracks.	458A34873	Approximately 50 m north of the Project disturbance footprint
G2H -19-H07 [^]	Paulsens Road Homestead 2	Location of an AOI referring to a house situated on small parcel of land on a flat located north of Paulsens Road, Gowrie Junction. The key element of this site is the house. This site is situated approximately 40 m west of Paulsens Homestead 3 (G2H-19-H08).	45AG937	Within 50 m east of the Project disturbance footprint (Gowrie Junction Road bridge)

Site ID	Site name	Site description	Lot/Plan	Proximity to the Project
G2H -19-H08^	Paulsens Road Homestead 3	Location of an AOI referring to a house situated on small parcel of land on a flat located north of Paulsens Road, Gowrie Junction. The key element of this site is the house. This site is situated approximately 40 m east of Paulsens Homestead 2 (G2H-19-H07).	44RP216739	Within 50 m north of the Project disturbance footprint
G2H -19-H09^	Old Homebush Road Bridge	Location of an AOI referred to as bridge on a 1944 topographic map and identifiable on a 1958 aerial image. This site is situated across Gowrie Creek, adjacent to Old Homebush Road, Gowrie Junction. Historic records detail the dilapidation of the original structure and its replacement in the early 1900s. No evidence of the original bridge was found at this location.	Old Homebush Road, adjacent to 40AG1255	Approximately 100 m upstream of the Project disturbance footprint (Gowrie Junction Road bridge)
G2H -19-H10	Old Homebush Road Mill/Factory	Location of an AOI referred to as 'Mill/Factory' on the 1944 topographic map and identifiable on a 1958 aerial image. The site is located on the low-lying flats approximately 80 m north of Gowrie Creek and adjacent to Old Homebush Road. Historic records indicate this was the location of the Gowrie Dairy Supply Ltd, which was established in 1907 and closed in 1924 after selling the assets. The site could not be inspected due to access constraints and the site is currently the location of a landscape supplies store. No historic evidence of the dairy factory was identified.	14RP889026	Adjacent to the east of the proposed Gowrie Junction Road realignment disturbance footprint
G2H -19-H11^	Intersection Old Homebush Road Paulsens Road	Location of an AOI on the low-lying flats approximately 60 m south of Gowrie Creek at the intersection adjacent to Old Homebush Road and Paulsens Road, Gowrie Junction. Historic records indication this was the location of Toowoomba-based Downs Co-operative Dairy Co. that opened in 1918 and closed in 1940, with the buildings and equipment being removed shortly afterwards. The site could not be inspected due to access constraints. No historic evidence of the former dairy factory was identified.	50RP889026	Approximately 50 m north of the Project disturbance footprint
G2H -19-H12^	Gowrie Mill/Factory	Location of an AOI referred to as 'Mill/Factory' on a 1944 topographic map. The site is located on the low-lying flats approximately 120 m south of Gowrie Creek and located at the intersection adjacent to Paulsens Road, Gowrie Junction. Communication with a local resident confirmed that this was once the site of a dairy and historic records indicate that while the original location of the dairy cannot be confirmed, this was possibly the location of Gowrie Junction Dairy & Ice Factory. The dairy was destroyed by a fire in 1898. The site could not be inspected due to access constraints. No historic evidence of the former dairy factory was identified.	14RP889026	Approximately 50 m north of the Project disturbance footprint

Site ID	Site name	Site description	Lot/Plan	Proximity to the Project
G2H-19-H13	Gowrie Junction Railway structure	Location of an AOI referred to as 'Gowrie Junction Railway Station' on a 1944 topographic map. This site is located on a flat approximately 15 m south of the Western Line railway tracks at Gowrie Junction. The key element of this site is the concrete structure identified adjacent to the main line. Inspection of this item was restricted due to railway access constraints and safety concerns.	2RP34879	Within the Project disturbance footprint
G2H-19-H14	Gowrie Junction Road structure	Location of an AOI referred to as a single structure on a 1944 topographic map and identifiable on a 1958 aerial image. This site is located at the base of the undulating plain approximately 30 m west of Gowrie Junction Road and approximately 50 m east of Krienke Road, Gowrie Junction. The site could not be inspected due to access constraints; however, a single storey raised timber house was identified on the lot.	307AG4196	Approximately 50 m south-east of the Project disturbance footprint, adjacent proposed road realignment/ bridge
G2H-19-H15	Junction Street Hotel	Location of an AOI referred to as a single structure on a 1944 topographic map and identifiable on a 1958 aerial image. Recent land modification works have altered the landform throughout this block. Contact with a local landholder and historic records indicate this was the site of a hotel. While no structural evidence of a historic hotel was identified, small glass and ceramic fragments were identified in the areas of exposure extending along the front of the property. These small finds are possibly attributed to the original hotel.	201CP893797	Within the Project disturbance footprint
G2H-19-H16	Junction Street structures	Location of an AOI referred to as two single structures on a 1944 topographic map and identifiable on a 1958 aerial image. The extent of this site was visually inspected and contact with a local landholder and historic records indicate this was the location of two railway houses. While no structures were identified, this site comprises large archaeological deposits and surface scatters of historic glass and ceramics, roof tiles, a post hole, bricks and other miscellaneous items that were identified on the ground surface.	1RP205894, 42AG1509	Within the Project disturbance footprint
G2H-19-H17^	Morris Road structure	Location of an AOI referred to as a single structure on a 1943 topographic map. The site could not be inspected due to access constraints. No evidence of the historic structure or other heritage items were identified during the survey.	1RP192838	Within the Project disturbance footprint
G2H-19-H18^	Boundary Road structures	Location of an AOI referred to as single structure on a 1944 topographic map and identifiable on a 1958 aerial image. The site could not be inspected due to access constraints. No evidence of the historic structure was identified which is likely due to recent ground disturbance with the construction of the Toowoomba Bypass within close proximity to the site.	5SP198121	Approximately 60 m south-west of the Project disturbance footprint and above the Toowoomba Range Tunnel

Site ID	Site name	Site description	Lot/Plan	Proximity to the Project
G2H-19-H19	Hermitage Road single structure	Location of an AOI referred to as single structure on a 1944 topographic map and identifiable on a 1958 aerial image. The site was inspected from a publicly accessible area due to access restriction. Few extant structures were identified including a windmill, timber shed and remnant timber posts.	11SP189518	Within the Project disturbance footprint for the intermediate ventilation shaft and associated infrastructure
G2H-19-H20^	Goombungee Road single structure	Location of an AOI referred to as a single structure on 1944 topographic map and identifiable on a 1951 aerial image. The site could not be inspected due to access constraints. No evidence of the historic structure or other heritage items were identified during the survey.	2RP806906	Approximately 50 m from the tunnel alignment above where the alignment will be within the underground tunnel
G2H-19-H21*	New England Highway structure	Location of an AOI referred to as a single structure on a 1944 topographic map and identifiable on a 1951 aerial image. This site was not inspected as it was unsafe to access due to the position of the property next to New England Highway and the construction of the Toowoomba Bypass. A drive-by inspection did not identify any obvious signs of a structure within the property.	4SP194139	Above the disturbance footprint where the alignment will be within the underground tunnel
G2H-19-H22*	Main Range Railway Bridge	Location of an AOI referred to as a bridge on 1944 topographic map. This site is associated with the Main Line, which is of State heritage significance (Main Range Railway (601480)). The site was not inspected due to access restrictions to the property as a result of nearby construction and road access permits associated with the construction of the Toowoomba Bypass. The site is likely part of the Main Range Railway listing as outlined in Section 18.6.2.1.	591SP117148	Above the disturbance footprint where the alignment will be within the underground tunnel
G2H-19-H23	Jones Road multiple structures	Location of an AOI referred to as a single structure on a 1944 topographic map and identifiable on a 1955 aerial image. This site was thoroughly inspected. This site comprises a house and assorted metal sheds, gardens and discarded farm equipment, however no historic structures were identified during the survey. This site does possess Indigenous archaeological significance with the identification of stone artefacts and possible sandstone rock overhangs that yield further archaeological potential.	354CH312304	Within the Project disturbance footprint
G2H-19-H24	Bells Road multiple structures	Location of an AOI referred to as single structure and windmill on 1936 topographic map and identifiable on a 1958 aerial image. This site was thoroughly inspected. The key elements within this site identified during the visual inspection were the timber dairy, stables, pump house and windmill.	320CH312556	Some elements within the Project disturbance footprint

Site ID	Site name	Site description	Lot/Plan	Proximity to the Project
G2H-19-H25	Bicentennial National Trail	Location of an AOI referred to as a track on a 1945 topographic map and identifiable on a 1933 aerial image. The Bicentennial National Trail is a locally listed item of heritage significance (refer Table 18.15). The Bicentennial National Trail intersects with the Project disturbance footprint along Gittins Road, Withcott. The listing relates to the trail length, alignment and surrounding landscape, rather than any physical historic fabric.	Gittins Road, adjacent to 259CC317 and 17SP186715	Within the Project disturbance footprint, however the Project alignment crosses Gittins Road and the Bicentennial Trail in viaduct (grade separated) section, so no permanent impact on use of the trail is expected
G2H-19-H26	Howmans Road Multiple Structures	Location of a site referred to as multiple structures on a 1936 topographic map and identifiable on a 1933 aerial image. The site was inspected and contact with the landholder indicated that the 'Crackington Farm' has been in operation from the early 1900s. The key elements within this site are the dairy, shed 1, shed 2, house 1 and house 2.	11RP839411	Approximately 400 m north of the Project disturbance footprint
G2H-19-H27	Cattos Road structure	Location of a site referred to as a single structure on a 1936 topographic map and identifiable on a 1933 aerial image. The site is located off Cattos Road, Helidon. This site was inspected from a publicly accessible area. The key element within this site is the timber shed and adjoining stables.	13CH31259	Within approximately 50 m of the Project disturbance footprint
G2H-19-H28*	Airforce Road single structure	Location of an AOI referred to as a single structure on a 1936 topographic map and identifiable on a 1948 aerial image. The site is located off Cattos Road, Helidon. Cattos Road was impassable in this section and a visual inspection of the property was not completed.	87CA31624	Approximately 60 m east of the Project disturbance footprint
G2H-19-H29^	Airforce Road siding north (Helidon Explosives)	Location of an AOI referred to as 'Russell's Siding' on a 1936 topographic map. The siding is associated with QR's existing Main Line at Helidon and was historically used to service the Helidon Ammunition Store and Royal Australian Air Force No. 2 Replenishment Centre, a Queensland World War II historic place. The northern portion of the siding was marked as an area of interest. The visual inspection was restricted due to safety concerns along Airforce Road and no evidence of historic structures or other heritage items were identified during the survey.	452SP117138	Within the Project disturbance footprint
G2H-19-H30	Airforce Road culvert/siding (H2C-19-01).	Location of a site referred to as a culvert on a 1936 topographic map. The southern portion of 'Russell's Siding' the siding was marked as an AOI. The siding was not identified during the survey; however, a culvert identified on a 1936 topographic map was inspected. This culvert has previously been identified in the cultural heritage survey for the Helidon to Calvert (H2C) project (H2C-19-01).	452SP117138	Within the Project disturbance footprint

Table notes:

^ following inspection the site was determined to have no or negligible heritage value (i.e. visual inspection did not confirm the presence of any historic structures, remains or areas of archaeological potential)

* Site was not accessed

As an outcome of the field inspections, 15 AOIs, including four AOIs within the Project disturbance footprint, were no longer considered relevant to the assessment. In these cases, the visual inspection did not confirm the presence of any historic structures, remains or areas of archaeological potential. In addition, three AOIs, including two AOIs above the Toowoomba Range Tunnel that have been identified in topographic maps and historic aerials were not inspected and as such have not been considered further. The historic research and review of previous studies did not reveal any further information, nor did it ascribe any importance to these areas. These areas were removed from the significance and impact assessments due to their limited historic value and inability to meet the threshold for heritage listing under the QLD heritage criteria (DEHP 2013).

18.6.2.4 Heritage significance

An assessment of significance is undertaken to explain why a particular site is important and to enable the appropriate site management and curtilage to be determined. Cultural significance is defined in the Burra Charter (ICOMOS (Australia), 2013) as meaning 'aesthetic, historic, scientific or social value for past, present or future generations' (Article 1.1). Cultural significance may be derived from a place's fabric, association with a person or event, or for its research potential. The significance of a place is not fixed for all time, and what is of significance to us now may change as similar items are located, more historical research is undertaken, and community tastes change. In Queensland, non-Indigenous heritage assessments are done in accordance with the criteria outlined in Section 18.5.2. The criteria are aligned with the value categories described in the Burra Charter. A full assessment of each AOI is provided in Appendix S: Non-Indigenous Cultural Heritage and a summary assessment indicating threshold significance is included below. A total of 30 non-Indigenous AOI were identified during background research and subsequently inspected. Assessment and analysis through visual inspection at each of these sites confirmed that 12 sites possessed a range of heritage values, significance or potential, while the remaining 18 sites did not possess any historic structures, remains or areas of archaeological potential.

In accordance with the QH Act and *Assessing cultural heritage significance: Using the cultural heritage criteria* (DEHP, 2013b) a significance assessment was conducted to assess the qualities and values of each 12 AOIs that possess non-Indigenous values to understand their importance and contribution to Queensland's heritage. In general, a place may be considered to be of heritage significance if it meets one or more of the following values or criteria: historical, rarity, research, representativeness, aesthetic, creative or technical, social or associational.

In addition to assessing the significance of each AOI, the DES thematic framework was used to assess whether the sites reflect any themes that are considered important in shaping the events, processes and trajectories of Queensland's history.

The heritage significance of the heritage elements recorded at each of these 12 AOIs using the methodology provided in Section 18.1.1.1 is summarised in Table 18.18. This assessment found that six of the AOI are of local heritage significance (but currently unlisted), while the five are not of local or state heritage significance and have not been considered further.

The Bicentennial National Trail is already of local heritage significance, with the assessment indicating that it might be of State significance due to the sites rarity. Refer Table 18.19 for the seven heritage sites identified during the visual inspection.

TABLE 18.18: SUMMARY ASSESSMENT INDICATING CULTURAL HERITAGE SIGNIFICANCE THRESHOLD

Site	A – historical	B – rarity	C – research	D – representativeness	E – aesthetic	F – creative/technical	G – social	H – associational
G2H -19-H05	Not met	Not met	Not met	Not met	Not met	Not met	Not met	Not met
G2H -19-H13	Local	Not met	Not met	Not met	Not met	Not met	Local	Not met
G2H-19-H14	Local	Not met	Not met	Not met	Not met	Not met	Not met	Not met
G2H-19-H15	Not met	Not met	Not met	Not met	Not met	Not met	Not met	Not met
G2H-19-H16	Local	Not met	Local	Not met	Not met	Not met	Not met	Not met
G2H-19-H19	Not met	Not met	Not met	Not met	Not met	Not met	Not met	Not met
G2H-19-H23	Not met	Not met	Not met	Not met	Not met	Not met	Not met	Not met
G2H-19-H24	Local	Not met	Local	Local	Not met	Not met	Not met	Not met
G2H-19-H25	Local	State	Not met	Not met	Not met	Not met	Not met	Local
G2H-19-H26	Local	Not met	Local	Local	Not met	Local	Not met	Not met
G2H-19-H27	Not met	Not met	Not met	Not met	Not met	Not met	Not met	Not met
G2H-19-H30	Local	Local	Local	Local	Local	Not met	Not met	Not met

Source: DEHP [2013]

TABLE 18.19: AREAS OF INTEREST OF POTENTIAL LOCAL HERITAGE SIGNIFICANCE RELEVANT TO THE PROJECT

G2H -19-H13 Railway Station (Gowrie Junction)



G2H-19-H14 Single structure



G2H-19-H16 Single structure



G2H-19-H24 House and windmill



G2H-19-H25 Bicentennial National Trail (locally listed)



G2H-19-H26 Multiple structures





18.7 Potential impacts

This section provides a discussion of the potential impacts that may occur to Indigenous and non-Indigenous heritage places or sites as a consequence of the Project activities, as described in Chapter 6: Project Description.

18.7.1 Indigenous heritage

The significance of Aboriginal cultural heritage will be identified, assessed and managed under the approved Project CHMPs (CLH017009). Noting that there are no known massacre sites within the Project disturbance footprint based on a relevant searches and survey works undertaken by the local Aboriginal parties to date.

18.7.2 Non-Indigenous heritage

18.7.2.1 Sensitivity

As outlined in Section 18.5.2.4, places of differing heritage significance have differing sensitivity to impact. In accordance ICOMOS (2011) shown in Table 18.6, the state significant places are considered to have a high sensitivity, while the locally listed places have a moderate sensitivity.

The findings indicate that of the initial 30 AOI, 18 do not possess any historic heritage values or historic archaeological potential. The remaining 12 AOI were assessed to determine the level of heritage significance in accordance with the QH Act and the Department of Environment and Science (DES) thematic framework. The assessment determined that seven of the initial 30 AOIs are considered to be of local heritage significance.

An assessment of the sensitivity of the seven AOIs of local significance within the cultural heritage study area accordance with the methodology provided in Section 18.5.2.4 is provided in Table 18.20. The sensitivity of each heritage place is partly a factor of the place's heritage significance: the more significant a place is, the more sensitive it will be to change.

TABLE 18.20: SENSITIVITY OF IDENTIFIED LOCAL HERITAGE SITES

Site ID	Description	Significance	Number of criteria met	Sensitivity
G2H-19-H13	Gowrie Junction Railway Station	Local	2	Moderate
G2H-19-H14	Single structure	Local	1	Low
G2H-19-H16	Two single structures	Local	2	Low
G2H-19-H24	House and windmill	Local	3	Moderate
G2H-19-H25	Bicentennial National Trail	Local	3	Moderate
G2H-19-H26	Multiple structures	Local	4	Moderate
G2H-19-H30	Railway culverts, Main Line at Helidon	Local	5	High

18.7.2.2 Potential impacts and magnitude of change

Potential impacts on cultural heritage can be divided into two main types—direct and indirect:

- ▶ Direct impacts occur if a cultural heritage place or site is located directly in a development area and/or would be physically impacted by development. Direct impacts include the demolition or substantial alteration of a building, or the disturbance of an archaeological site.
- ▶ Indirect impacts, alternatively, are those that alter the surrounding physical environment in such a way that a cultural heritage place or site is affected. Indirect impacts might include extra vibration from construction activities or subsequent traffic load, as well as additional water runoff or sediment deposition due to changing hydrology.

The effects of direct or indirect impacts are measured in terms of the extent to which they alter the heritage values of a cultural heritage place. Project activities that have the potential to impact heritage values are described in Chapter 6: Project Description.

Impacts to registered heritage values

A review of the impact to state- and locally listed heritage places was conducted as part of this impact assessment. The Project is likely to have a direct impact on one site of local heritage significance (Bicentennial National Trail (G2H-19-25)) and may also indirectly impact one site of State heritage significance (Main Range Railway (601480)) and one site of local heritage significance (Mount Lofty Rifle Range) with vibration during construction and/or operations. The results for the state heritage places are shown in Table 18.21, while the results for the locally listed species is shown in Table 18.22.

The other 14 registered sites are unlikely to be impacted by the Project due predominantly to their separation distance from the Project. These locally listed heritage places have not been considered any further in this assessment as it was determined that there is no risk of impact as a result of the Project.

As part of the EIS, consultation was undertaken to gain further insight into the potential impacts to the Bicentennial National Trail. The stakeholders for the Bicentennial National Trail were briefed in June 2020 regarding the Project to provide them with an opportunity to voice any concerns about the Project. Communication with the stakeholders for the Bicentennial National Trail will continue throughout the pre-construction and construction phases of the Project.

TABLE 18.21: STATE LISTED HERITAGE PLACES AND POTENTIAL RISK OF IMPACT FROM THE PROJECT

Site ID	Description	Potential impact	Likely magnitude of change
Baillie Henderson Hospital (601161)	State-listed heritage place located within the cultural heritage study area	Heritage place is located approximately 1 to 1.5 km south of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project including vibration during construction and operations. This is discussed further in the noise and vibration assessment in Chapter 15: Noise and Vibration.	No change
Swansons Rail Bridge (600871)	State-listed heritage place located within EIS investigation corridor	Heritage place located approximately 1 km north of the Project disturbance footprint (near the eastern tunnel portal).	No change
Main Range Railway (601480)	State-listed heritage place located within Project disturbance footprint	The Toowoomba Range Tunnel traverses beneath the Main Range Railway within the vicinity of Mount Kynoch/Ballard. Possible vibration impacts from earthworks; however, there is no anticipated exceedance of criteria resulting in structural damage due to tunnelling. There are no expected impacts to the Main Range Railway during the operation of the Project. This is discussed further in the noise and vibration assessment in Chapter 15: Noise and Vibration.	Negligible

Site ID	Description	Potential impact	Likely magnitude of change
Lockyer Creek Railway Bridge (600513)	State-listed heritage place located within EIS investigation corridor	Heritage place located approximately 800 m north-east of the Project disturbance footprint at Withcott Seedlings. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project, including impacts in relation to flooding.	No change
Harlaxton House (600839)	State-listed heritage place located within the cultural heritage study area	Heritage place located approximately 1.25 km south of the Project disturbance footprint (near the eastern tunnel portal). The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change

TABLE 18.22: LOCALLY LISTED HERITAGE PLACES AND POTENTIAL RISK OF IMPACT FROM THE PROJECT

Site ID	Description	Potential impact	Likely magnitude of change
254-272 New England Highway	Local heritage place located within the EIS investigation corridor	Heritage place located approximately 800 m—1 km south of the eastern tunnel portal.	No change
Mount Lofty Rifle Range	Awaiting registration as a local heritage place Heritage place located within the EIS investigation corridor	The Project traverses the northern limits of the Mount Lofty Rifle Range, approximately 200 m north of the known heritage elements. The Project will not impact the heritage elements; however, a small portion of the land will be directly impacted by construction works associated with the Project.	Negligible
Bicentennial National Trail G2H-19-H25	Local heritage place located within the Project disturbance footprint	Heritage place that will be intersected by the Project alignment at Gittins Road. Possible temporary vibration impact from earthworks, along with temporary access restrictions during construction.	Negligible
Gunn Street, Helidon (church complex)	Local heritage place located outside EIS investigation corridor	Heritage place located approximately 1.4 km south-east of eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
Gunn Street, Helidon (convent)	Local heritage place located outside EIS investigation corridor	Heritage place located approximately 1.4 km south-east of eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
2 Arthur Street/1 Bowen Street, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change

Site ID	Description	Potential impact	Likely magnitude of change
5 William Street, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1.1 km south-west of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
14 William Street, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1.1 km south west of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
22 Wrights Road, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1 km south-east of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
10 Wrights Road, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1 km south-east of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
18 Wrights Road, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1 km south-east of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change
14 Russell Street, Helidon (house)	Local heritage place located outside the EIS investigation corridor	Heritage place located approximately 1 km south east of the eastern extent of the Project disturbance footprint. The Project will not impact the heritage place. There are no anticipated direct or indirect impacts to the heritage place as a result of the Project.	No change

Impacts to potential local heritage sites

The heritage significance assessment (refer Section 18.6.2.4) identified six AOIs (excluding the Bicentennial National Trail) that have values of local cultural significance under the ICOMOs and DEHP guidelines.

Direct impacts to heritage are most likely to occur during site preparation as a part of the construction phase. At this time, clearing and stripping activities will require the demolition of heritage structures and the destruction of archaeological sites within the Project disturbance footprint. The four heritage places that are within the Project disturbance footprint are listed in Table 18.23 with the potential nature of impact and magnitude of change.

TABLE 18.23: POTENTIAL LOCAL HERITAGE PLACES AT RISK OF DIRECT IMPACT FROM THE PROJECT

Site ID	Description	Potential impact	Likely magnitude of change
G2H -19-H13	Gowrie Junction Railway Station	Removal of concrete structure and any archaeological deposits relating to the former railway station	Major
G2H-19-H16	Two single structures	Disturbance of entire site. Removal of archaeological deposits relating to the former land use (e.g. quarry and railway housing)	Major
G2H-19-H24	House and windmill	Access track through site will alter the layout of the area and possibly destroy any archaeological deposits associated with the site	Medium

Site ID	Description	Potential impact	Likely magnitude of change
G2H-19-H30	Railway culverts, Main Line at Helidon	Removal of site—potential removal of existing Queensland Rail below rail historical sandstone culvert structure if Queensland Rail West Moreton System rail corridor is to be upgraded	Major

Indirect impacts may occur during any phase of the Project, when pre-construction, construction, operation activities result in excessive dust, noise or vibration which damages heritage structures. Sites at risk of indirect impacts are listed in Table 18.24, with the potential nature of impact and magnitude of change.

As part of the EIS, a construction and operation noise and vibration assessment was conducted for the Project (refer Chapter 15: Noise and Vibration). The assessment identified potential areas in which heritage sites will be at risk of indirect impacts (i.e. excessive noise and/or vibration) associated with construction and operation activities, refer Table 18.24. Subsequent site-specific assessments will be undertaken to confirm the extent of the potential vibration impacts on heritage sites.

TABLE 18.24: POTENTIAL LOCAL HERITAGE PLACES AT RISK OF INDIRECT IMPACT FROM THE PROJECT

Site ID	Description	Potential impact	Likely magnitude of change
G2H-19-H14	Single structure	Vibration from earthworks, site set-up and roadworks may affect the foundations of the structure and lead to future superficial damage	Negligible
G2H-19-H26	Multiple structures	Vibration from earthworks, site set-up and roadworks may affect the foundations of the structure and lead to future superficial damage	Negligible
G2H-19-H30	Railway culverts, Main Line at Helidon	Possible vibration impact due to proximity to disturbance footprint. Extent of indirect impact is not known, and further detailed assessment will be required.	Unknown

18.8 Mitigation measures

The accepted methodology for mitigating impacts on heritage places is to avoid wherever possible, minimise as far as is practical, and then mitigate where avoidance and minimisation is not possible (ICOMOS, 2011). Noting that a heritage place, is a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions (ICOMOS (Australia), 2013).

This section described the measures that either have been, or will be, adopted by the Project to avoid, minimise or mitigate potential impacts on heritage places. In the case of local heritage places, it is recommended that regard be given to the provision of the local planning scheme where possible. Although the Project is exempt from such requirements, planning schemes do provide a benchmark of heritage protections expected by the local community.

18.8.1 Design considerations

Development of the design for the Project has progressed in parallel with the impact assessment process. As a consequence, design solutions for avoiding, minimising or mitigating impacts have been incorporated into the design as appropriate and where possible.

Mitigation measures and controls that have been factored into the design for the Project, relevant to cultural heritage are summarised in Table 18.25.

TABLE 18.25: INITIAL MITIGATION RELEVANT TO NON-INDIGENOUS CULTURAL HERITAGE

Aspect	Initial mitigation measures
All heritage	Project extents are minimised to avoid impacts to previously undisturbed areas as far as practicable. The Gowrie to Grandchester future state transport corridor was developed with consideration of Indigenous and non-Indigenous cultural heritage assessments, including field surveys. Refer to Chapter 2: Project Rationale for more details.
Tunnel and structures	Key design features of the Project such as the tunnel and viaducts will mitigate some of the surface disturbance impacts. For example, the viaduct over the Gittins Road will minimise impacts on the Bicentennial National Trail post-construction.

18.8.2 Proposed mitigation measures

To manage and mitigate project risks, mitigation measures have been proposed for implementation in future phases of Project delivery. These proposed mitigation measures have been identified to address Project specific issues and opportunities, and are detailed in the following sub-sections, separated into:

- ▶ Overarching mitigation measures (applicable to both Indigenous and non-Indigenous cultural heritage)
- ▶ Indigenous heritage.

18.8.2.1 Overarching mitigation measures

Proposed mitigation and management measures have been developed as part of the Project-wide response to Indigenous and non-Indigenous cultural heritage. These overarching measures are summarised in Table 18.26.

During operations, heritage places will be managed in accordance with ARTC's existing environmental management system, procedures and policies. This includes maintaining a register of heritage places within the railway corridor and where applicable implementing measures similar to those proposed for construction during maintenance works (refer Table 18.18).

TABLE 18.26: MITIGATION MEASURES—CULTURAL HERITAGE

Delivery phase	Aspect	Proposed mitigation measures
Detailed design	All heritage	Undertake initial consultation with relevant heritage asset owners about the Project alignment and proposed activities including level of risk to the identified heritage and, if relevant, develop site-specific management measures with the asset owner/ government agency. Design to avoid direct impacts to identified sites or items of Indigenous and non-Indigenous heritage significance, where practicable. Undertake additional non-Indigenous cultural heritage surveys targeting locations where access was constrained, or where values were of local significance. Where applicable, design to respond to the outcomes of any further cultural heritage surveys.
Pre-construction	All heritage	Construction planning will avoid directly impacting on identified sites or items of non-Indigenous heritage significance, where practicable. If items or sites cannot be avoided, photographic, or digital archival recording of the items or sites (e.g. former rail station sites and associated infrastructure, homestead or dairies) and other contextual locations or structures of heritage significance will occur in accordance with outcomes of any further cultural heritage surveys for the Project. Items and sites will be collected before construction in accordance with the Heritage Management Plan to be developed as part of the Construction Environmental Management Plan (CEMP). The Heritage Management Plan will detail mitigation and management measures to be implemented during construction in relation to cultural heritage. It will include specific reference to the CHMP and incorporate: <ul style="list-style-type: none"> ▶ Requirements for site induction, training, heritage monitors, inspections, audits, corrective actions, notification and classification of environmental incidents, record keeping, monitoring and performance objectives for handover on completion of construction ▶ Heritage management actions to be undertaken by suitably qualified persons

Delivery phase	Aspect	Proposed mitigation measures
Pre-construction [continued]	All heritage [continued]	<ul style="list-style-type: none"> ▶ Specific requirements for cultural heritage sites/items that cannot be avoided during construction, particularly the Bicentennial National Trail (G2H-19-H25), the Gowrie Junction Railway Station (G2H-19-H13), Junction Street structures (G2H-19-H14) and Helidon Dip Road culvert (G2H-19-H30) ▶ Unexpected finds procedure, including assessment by a suitably qualified person and notification obligations under the applicable legislation <p>Procedure for encountering potential burial sites or potential human skeletal material including notification obligations under applicable legislation.</p> <p>Any other requirements necessary to comply with conditions of approval, subsequent approvals, regulatory requirements or repair:</p> <ul style="list-style-type: none"> ▶ Any damage to heritage structures will be repaired in a way which conserves the heritage values of the place (see Burra Charter Article 1.4 (ICOMOS (Australia), 2013)) ▶ ARTC cultural heritage management plans or agreements. <p>Archaeological investigations will only be undertaken by archaeologists qualified and experienced in Indigenous and non-Indigenous (historic) heritage. Where necessary, works will be conducted in consultation with the relevant registered Aboriginal stakeholders in accordance with the CHMP in place between ARTC and relevant parties.</p>
	Vibration	<p>Building condition surveys will be undertaken at all vibration sensitive receptors identified during detailed design as being subject to potential vibration impacts, which may include structures of heritage value. Surveys will occur before and after undertaking vibration generating works (e.g. pile driving), with the potential for monitoring during the construction activities as per noise and vibration plans:</p> <ul style="list-style-type: none"> ▶ Tailor construction methodology to limit vibration impacts to heritage structures. For example, select plant and equipment with a preference for non-vibratory plan items near vibration sensitive receptors. ▶ Vibration at heritage places to be kept below 2 millimetres per second (mm/sec) where possible (in accordance with German Standard <i>DIN 4150: Part 3 1999 Structural Vibration in Buildings—Effects on Structures, 1999</i> (DIN 4150.3) (Deutsches Institut für Normung, 1999)) ▶ Pre-construction and post-construction condition dilapidation surveys to be undertaken at all heritage places at risk of vibration impact in consultation with a suitably qualified person (heritage practitioner) ▶ Vibration to be monitored at places where thresholds exceedances are possible ▶ Where vibration exceedances occur, change design/construction methodology where possible to reduce impact. <p>If impacts cannot be avoided, consultation with the relevant heritage asset owner/government agency will be undertaken to identify and implement appropriate mitigation measures prior to vibration generating activities commencing. The measures are to be included in the Heritage Management Plan.</p> <p>Before the commencement of Project works, further targeted assessments will be undertaken to determine whether the vibration impacts exceed the criterion at the following heritage sites (but not limited to) and whether subsequent vibration monitoring is required:</p> <ul style="list-style-type: none"> ▶ Main Range Railway (601480) ▶ Mount Lofty Rifle Range ▶ Bicentennial National Trail ▶ Gowrie Junction Road structure (G2H-19-H14) ▶ Howmans Road multiple structures (G2H-19-H26) ▶ Helidon Dip Road culvert (G2H-19-H30).

Delivery phase	Aspect	Proposed mitigation measures
Pre-construction [continued]	Non-indigenous heritage	<p>If impacts cannot be avoided (e.g. G2H-19-H13), the following pre-construction measures may be implemented:</p> <ul style="list-style-type: none"> ▶ Archival recording <ul style="list-style-type: none"> ▶ Undertake archival photographic recording in accordance with <i>Archival Recording of Heritage Places</i> (DEHP, 2013a) ▶ Copies of archival records to be lodged with the John Oxley Library, and local libraries or historical societies as appropriate. ▶ Repair <ul style="list-style-type: none"> ▶ Any damage to heritage structures will be repaired in a way which conserves the heritage values of the place (see Burra Charter Article 1.4 (ICOMOS (Australia), 2013)). ▶ Relocation <ul style="list-style-type: none"> ▶ Relocation of heritage items is generally undesirable, as setting forms an intrinsic part of heritage value (ICOMOS (Australia), 2013) ▶ However, if impacts cannot be managed in any other way, it may be appropriate to relocate buildings or items of moveable heritage to another location, such as a local historical society.
	Built heritage	
	Non-Indigenous archaeological heritage	
		<p>If impacts to non-Indigenous cultural heritage places cannot be avoided, the following pre-construction measures may be implemented by suitably qualified historical archaeologists:</p> <ul style="list-style-type: none"> ▶ Archaeological survey <ul style="list-style-type: none"> ▶ Undertake archaeological survey to map all elements of heritage sites and identify areas of possible subsurface deposit. ▶ Archaeological excavation <ul style="list-style-type: none"> ▶ If warranted by results of archaeological survey, undertake a two-stage archaeological excavation: <ul style="list-style-type: none"> – Stage 1—test excavation to confirm subsurface deposit – Stage 2—salvage excavation of subsurface deposits (if required) – Stage 3—prepare and finalise post excavation report and analysis. ▶ Archaeological surface collection <ul style="list-style-type: none"> ▶ Collect archaeological artefacts on the ground surface ▶ Depending on nature of site may be undertaken in conjunction with, or in place of, excavation. ▶ Archaeological monitoring <ul style="list-style-type: none"> ▶ If warranted by results of archaeological survey, archaeologists will monitor ground breaking works to identify any subsurface deposits. ▶ Archaeological chance finds <p>In the case of unexpected archaeological finds, the appropriate protocols will be included in the Heritage Management Plan and will be followed.</p>
	Indigenous heritage	<p>Cultural heritage to be managed in accordance with CHMPs. This might include:</p> <ul style="list-style-type: none"> ▶ Undertaking comprehensive cultural heritage surveys for both early works and project activities with the Traditional Owners ▶ Undertaking archaeological survey (including excavations where necessary) ▶ Generating survey reports to provide detailed assessment and management recommendations ▶ Assessing significance of any cultural heritage. ▶ Recording (where project activities may have a direct impact on cultural heritage values). <p>Archaeological investigations will only be undertaken by archaeologists qualified and experienced in Aboriginal heritage, in consultation with the Aboriginal Parties, in accordance with the CHMPs.</p>

Delivery phase	Aspect	Proposed mitigation measures
Construction and Commissioning	All heritage	<p>Where impacts can be avoided to known Indigenous or non-Indigenous heritage, appropriate precautionary measures, such as informing relevant staff and contractors of the nature and location of the items and need to avoid impacts, detailing location on site maps, along with temporary protective fencing and signage will be implemented for those sites within close proximity of the area of works.</p> <p>Works will not be performed on potential heritage items without required approvals and appropriate management plans in place.</p> <p>Temporary protective barricading will be installed around heritage places or artefacts that are located within the Project disturbance footprint and will be retained.</p> <p>If a suspected Aboriginal or historic heritage item or site is identified, any works that may impact the item or site will stop, and the unexpected finds procedure in the Heritage Management Sub-plan will be followed. Any responses to chance finds will only be undertaken by archaeologists qualified and experienced in the relevant discipline.</p> <p>In the event of the discovery of potential human remains, all work in the area will cease and the relevant statutory process for the notification and management of human remains will be instigated, in accordance with the Heritage Management Plan and other relevant plans.</p>
	Non-Indigenous built heritage	<p>Vibration monitoring will be undertaken at vibration sensitive receptors where the potential for building/structural damage risk is identified during the detailed design phase or as part of pre-construction building surveys. Vibration monitoring will be undertaken by a suitably qualified person, in accordance with relevant standards and guidelines. Where monitoring is required to occur at a heritage structure, placement of equipment will be carried out on advice from a suitably qualified person (heritage practitioner).</p> <p>Where vibration exceedances occur, the design/construction methodology will be changed, where possible, to reduce impact. This may include the use of rock saws instead of blasting, damped tips on rock-breakers, and/or avoiding dynamic compaction when piling.</p> <p>Any damage that occurs at heritage places as a result of vibration or other Project activity will be repaired in accordance with Burra Charter principles (Article 1.4)</p>
	Indigenous heritage	<p>Cultural heritage will be managed through the approved CHMP (CLH017009), in accordance with the ACH Act, which includes the following management measures:</p> <ul style="list-style-type: none"> ▶ A cultural heritage induction for ARTC staff, including contractors and subconsultants ▶ Developing a cultural heritage awareness program ▶ Provisions for managing unexpected finds of cultural material/sites (including burials). <p>In accordance with the CHMP, impacts on previously unregistered and unassessed items or places of cultural heritage significance will be mitigated by:</p> <ul style="list-style-type: none"> ▶ Undertaking comprehensive cultural heritage surveys for both early works and Project activities with the Traditional Owners ▶ Undertaking archaeological survey (including excavations where necessary) ▶ Generating survey reports to provide detailed assessment and management recommendations ▶ Assessing significance of any cultural heritage. ▶ Recording (where Project activities may have a direct impact on cultural heritage values) ▶ Establishment of buffer zones ▶ Monitoring (during Project activities to ensure impacts to known cultural heritage are appropriately mitigated).

Delivery phase	Aspect	Proposed mitigation measures
Construction and Commissioning [continued]	Non-indigenous archaeological heritage	<ul style="list-style-type: none"> ▶ Archaeological monitoring <ul style="list-style-type: none"> ▶ If warranted by results of archaeological survey, archaeologists will monitor ground breaking works to identify any subsurface deposits. ▶ Archaeological chance finds <p>In the case of unexpected archaeological finds, the appropriate protocols will be included in the Heritage Management Plan and will be followed.</p>
Operation	All heritage	<p>Maintain a register of all known cultural heritage sites within the railway corridor and where applicable directly adjacent. Noting that the following sites are likely to be applicable to operations:</p> <ul style="list-style-type: none"> ▶ Main Range Railway (601480) ▶ Mount Lofty Rifle Range ▶ Bicentennial National Trail ▶ Gowrie Junction Road structure (G2H-19-H14) ▶ Howmans Road multiple structures (G2H-19-H26) ▶ Helidon Dip Road culvert (G2H-19-H30). <p>Establish protocols as part of the existing management systems to ensure that works within proximity to these sensitive receptors have the relevant internal approvals and mitigation measures in place. For example:</p> <ul style="list-style-type: none"> ▶ Potential for vibration impacts to heritage sites to be assessed prior to the undertaking of maintenance activities that have potential to result in vibratory impacts ▶ Pre- and post-condition structural surveys will be undertaken at all heritage buildings and structures when maintenance activities may result in exceedance of the structural damage vibration criteria relevant to the site (refer Chapter 15: Noise and Vibration) ▶ If impacts cannot be avoided, the following measures may be implemented: <ul style="list-style-type: none"> ▶ Archival recording ▶ Relocation ▶ Archaeological monitoring ▶ Repair.

18.8.2.2 Indigenous heritage

In addition to the mitigation measures in Table 18.27, impacts to Aboriginal cultural heritage will be identified, assessed and managed under the relevant CHMPs (CLH017009).

Aboriginal cultural heritage will be protected and managed through agreed mitigation strategies following the Project Activity Assessments (by way of survey). This survey, which has commenced, will be undertaken with the relevant Aboriginal Parties in line with the terms and conditions of the CHMPs during detailed design and construction phases of the Project.

Where any identified cultural heritage item or place cannot be avoided the measures and procedures identified in Table 18.27 will apply.

TABLE 18.27: INDIGENOUS CULTURAL HERITAGE MITIGATION MEASURES

Timing	Mitigation and management measures
Pre-construction and construction	<p>Cultural heritage will be managed through CHMPs (CLH017009), in accordance with the ACH Act, which includes the following management measures:</p> <ul style="list-style-type: none">▶ A cultural heritage induction for ARTC staff, including contractors and sub-consultants▶ Developing a cultural heritage awareness program▶ Provisions for managing unexpected finds of cultural material/sites (including burials). <p>In accordance with the CHMPs, impacts on previously unregistered and unassessed items or places of cultural heritage significance will be mitigated by:</p> <ul style="list-style-type: none">▶ Undertaking comprehensive cultural heritage surveys for both early works and Project activities▶ Provisions for managing unexpected finds of cultural material/sites (including burials)▶ Undertaking archaeological survey (including excavations where necessary)▶ Generating survey reports to provide detailed assessment and management recommendations▶ Assessing significance of any cultural heritage.▶ Recording (where Project activities may have a direct impact on cultural heritage values)▶ Establishment of buffer zones▶ Monitoring (during Project activities to ensure impacts to known cultural heritage are appropriately mitigated).
Operation and Maintenance	<p>Cultural heritage will be managed through CHMPs (CLH017009), in accordance with the ACH Act, which includes the following management measures:</p> <ul style="list-style-type: none">▶ A cultural heritage induction for ARTC staff, including contractors and subconsultants▶ Developing a cultural heritage awareness program.▶ Where possible, all surface disturbance associated with maintenance activities (such as regrading of access tracks or rail maintenance access roads) will be contained to areas which have been previously surveyed for cultural heritage▶ Where works are to occur beyond the surveyed Project disturbance footprint, amendments to the CHMPs may be sought and an assessment will be conducted in accordance with the requirements of the CHMPs and the ACH Act.

18.9 Heritage impact assessment

18.9.1 Indigenous cultural heritage

The significance of Aboriginal cultural heritage will be identified, assessed and managed under the approved Project CHMPs (CLH017009). The Project components will be positioned, where possible and practicable, to avoid any known restricted area identified during the Project Activity Assessments (by way of survey), provided ARTC, acting reasonably, considers it to be practical, having regard to relevant considerations including: the significance of the cultural heritage item (as assessed during the Project Activity Assessment or otherwise); engineering constraints; and the requirement of ARTC to deliver the Project in a timely and cost-effective manner having regard for all environmental and social considerations including cultural heritage.

ARTC will change the location of its early works or ancillary work areas to avoid any restricted area identified during the Cultural Heritage Project Activity Assessment under the CHMPs. It is recognised that this is more likely to be practical for early works, such as geotechnical investigations, or for locating ancillary works, rather than for the Project infrastructure works.

ARTC will erect appropriate temporary barriers and signage to ensure that the Project will not impact on a restricted area during these works. Where ARTC, acting reasonably, considers it impractical to change the location of early works, ancillary work areas or Project activities to avoid any restricted area, the appropriate management measures set out in Table 18.27 will be undertaken.

18.9.2 Non-Indigenous heritage

An assessment of the initial and residual significance of potential impacts to heritage sites is in Table 18.28 and Table 18.29 using sensitivity (refer Table 18.7), magnitude (refer Table 18.8) and significance (refer Table 18.9) criteria outlined in Section 18.5.2.4 and established in Section 18.7.2.

An initial assessment of significance assumes that initial mitigation measures factored into the Project design have been implemented. Additional mitigation and management measures within Table 18.26 and Table 18.27, were then applied to reduce the significance of potential impacts. The residual significance was then assessed and compared to the initial significance to gauge the effectiveness of the proposed additional mitigation measures.

TABLE 18.28: ASSESSMENT OF SIGNIFICANCE OF UNMITIGATED AND MITIGATED IMPACTS TO LISTED HERITAGE PLACES

ID	Description	Initial significance			Proposed mitigation	Residual significance	
		Sensitivity	Magnitude	Significance		Magnitude of change after mitigation	Significance of impact after mitigation
Baillie Henderson Hospital (601161)	State-listed heritage place located within the cultural heritage study area	High	No change	Neutral	► No mitigation measures required	Negligible	Neutral
Swansons Rail Bridge (600871)	State-listed heritage place located within EIS investigation corridor	High	No change	Neutral	► No mitigation measures required	No change	Neutral
Main Range Railway (601480)	State-listed heritage place located within disturbance footprint	High	Negligible	Slight	<ul style="list-style-type: none"> ► Consultation with QR and DES during detailed design to identify any specific design requirements, treatments or approvals ► Confirm via additional modelling during detailed design if vibration is likely to impact on the structure as a result of the tunnelling methodology. If impacts are predicted, develop additional mitigation measures in consultation with QR and DES 	Negligible	Slight
Lockyer Creek Railway Bridge (600513)	State-listed heritage place located within EIS investigation corridor	High	No change	Neutral	► No mitigation measures required	No change	Neutral
Harlaxton House (600839)	State-listed heritage place located within the cultural heritage study area	High	No change	Neutral	► No mitigation measures required	No change	Neutral
G2H-19-H25 Bicentennial National Trail	Local heritage place located within the disturbance footprint	Moderate	Negligible	Neutral/slight	<ul style="list-style-type: none"> ► Rehabilitation of Gittins Road reserve, including where applicable reinstatement of the pavement ► Traffic control including pedestrian and horse traffic measures will consider the areas heritage values 	Negligible	Neutral/slight

ID	Description	Initial significance			Proposed mitigation	Residual significance	
		Sensitivity	Magnitude	Significance		Magnitude of change after mitigation	Significance of impact after mitigation
Mount Lofty Rifle Range	Awaiting registration as a local heritage place Heritage place located within the EIS investigation corridor	Moderate	Negligible	Neutral/slight	► Tailor construction methodology to reduce impacts to heritage site	No change	Neutral

TABLE 18.29: ASSESSMENT OF SIGNIFICANCE OF UNMITIGATED AND MITIGATED IMPACTS FROM THE PROJECT ON THE AOIS

ID	Description	Initial significance			Proposed mitigation	Residual significance	
		Sensitivity	Magnitude	Significance		Magnitude of change after mitigation	Significance of impact after mitigation
G2H -19-H13	Railway Station (Gowrie Junction)	Moderate	Major	Moderate/large	► Avoid site ► If site avoidance is not possible: ► Digital archival recording of archaeological surface finds ► Further site-specific assessment required to determine the extent of vibration impact to the site. If vibration impact exceed criterion: ► Pre-construction and post-construction condition dilapidation surveys to be undertaken in consultation with a suitably qualified person (heritage practitioner)	Low	Slight
G2H-19-H14	Single structure	Low	Low	Neutral/slight	► Tailor construction methodology to reduce dust impacts to heritage site.	Negligible	Neutral/slight

ID	Description	Initial significance			Proposed mitigation	Residual significance	
		Sensitivity	Magnitude	Significance		Magnitude of change after mitigation	Significance of impact after mitigation
G2H-19-H16	Single structure	Low	Major	Slight/moderate	<ul style="list-style-type: none"> ▶ Avoid site ▶ Further site-specific assessment required to determine the extent of vibration impact to the site. If vibration impacts exceed criterion: <ul style="list-style-type: none"> ▶ Pre-construction and post-construction condition dilapidation surveys to be undertaken in consultation with a suitably qualified person (heritage practitioner) ▶ Implement protocols for responding to unexpected heritage finds ▶ If avoidance is not possible: <ul style="list-style-type: none"> ▶ Archaeological surface collection 	Low	Neutral/slight
G2H-19-H24	House and windmill	Moderate	Medium	Moderate	<ul style="list-style-type: none"> ▶ Tailor construction methodology to reduce impacts to heritage site ▶ Digital archival recording 	Low	Slight
G2H-19-H26	Multiple structures	Moderate	Negligible	Neutral/slight	<ul style="list-style-type: none"> ▶ Avoid site ▶ Digital archival recording Implement protocols for responding to unexpected heritage finds ▶ If avoidance is not possible: <ul style="list-style-type: none"> ▶ Archaeological survey ▶ Archaeological excavation. 	No change	Neutral

ID	Description	Initial significance			Proposed mitigation	Residual significance	
		Sensitivity	Magnitude	Significance		Magnitude of change after mitigation	Significance of impact after mitigation
G2H-19-H30	Railway culverts, Main Line at Helidon	High	Major	Large/ very large	<ul style="list-style-type: none"> ▶ Consultation with QR and potentially Lockyer Valley Regional Council during detailed design to identify any specific design requirements and/or treatments ▶ Avoid site where practicable, including erection of signage and barriers during construction works within the existing rail corridor ▶ Digital archival recording ▶ Further site-specific assessments required to determine the extent of vibration impacts to the site. If vibration impacts exceed criterion: ▶ Pre-construction and post-construction condition dilapidation surveys to be undertaken in consultation with a suitably qualified person (heritage practitioner) 	Negligible	Slight

18.10 Cumulative impacts

18.10.1 Indigenous heritage

The potential for impacts to Aboriginal cultural heritage, including cumulative impacts, will be identified, assessed and managed under the approved Project CHMPs (CLH017009).

18.10.2 Non-Indigenous heritage

The potential for cumulative impacts emerges when concurrent or consecutive activities bring about incremental change to heritage places and values. These changes may not be captured in an assessment for any single project, and instead need to be considered on a wider physical and temporal scale (ICOMOS 2011).

It should be noted that the results of cumulative impact assessments undertaken for cultural heritage sites and places must be interpreted with caution, not least because they are based (in part) on heritage datasets that are inevitably incomplete and contain various inconsistencies and errors. Godwin (2011), in particular, has questioned the value of cumulative impact assessments to cultural heritage management in Australia, arguing that the 'fundamentals' necessary for undertaking such assessments simply do not exist. The 'fundamentals' Godwin is referring are robust regional and national data sets for measuring proposed impacts and the determination of acceptable scientific and cultural impact thresholds.

In the case of this Project, the other projects most relevant to the cumulative impact assessment are considered to be the two adjoining Inland Rail projects—B2G and H2C—and the InterLinkSQ area. Details of these projects is in Chapter 22: Cumulative Impacts.

The Project is adjoined by B2G in the west and H2C in the east. Of the two adjoining projects, B2G is largely comprised of greenfield development and overlaps with the Project in a greenfield area. Conversely, H2C is predominantly a brownfield development. The areas of overlapping boundaries are expected to be constructed primarily within previously disturbed land that is currently rail corridor, access tracks or immediately adjacent, within pre-disturbed areas. An investigation of the cumulative impacts of the Project in relation to the adjoining B2G and H2C projects highlights how the Project does not largely contribute to the overall impact to heritage sites within the broader context of the Inland Rail Program. The analysis suggested that the three adjoining projects will have a similar extent of impact to each other.

Overall, it was determined that the projects would result in the loss of non-Indigenous cultural heritage sites, which was considered to be of medium significance.

18.11 Conclusion

This chapter addresses the Indigenous and non-Indigenous cultural heritage values of the Project, outlining the Project's existing environment, potential impacts, potential mitigation measures and provides a significance impact assessment.

In accordance with the Part 7 of the ACH Act, Indigenous cultural heritage values and Project impacts to these values will be managed under approved CHMPs (CLH017009), with the Yuggera Ugarapul People and Western Wakka Wakka People.

The assessment of non-Indigenous heritage values and impacts was undertaken by a team of appropriately qualified heritage specialists. A search of local, state and national heritage registers, along with a review of cultural heritage assessments relevant to the Project identified 17 heritage places of relevance to the Project, including 4 places within the Project disturbance footprint. This includes one site of state significance located above the Toowoomba Range Tunnel, two sites of local significance and one site listed on the RNE. Project impacts on the three listed heritage sites (excludes the site listed only on the RNE) were assessed using ICOMOS guidelines (2011) both before and after the implementation of mitigation measures (refer Table 18.30).

In addition, analysis of historical mapping and archival research, identified an initial 36 areas of cultural heritage potential within the cultural heritage study area. Of these, 30 sites were identified as areas of cultural heritage potential. The 30 sites were inspected, with 18 of the AOIs not possessing any historic structures, remains or areas of archaeological potential.

Of the remaining 12 sites with potential heritage values, an assessment of heritage significance against the DES thematic framework found that 6 AOIs met the local heritage selection criteria.

Potential Project impacts on the 6 potential heritage sites were assessed using ICOMOS guidelines (2011) both before and after the implementation of mitigation measures (refer Table 18.31).

The impact assessment found that, with appropriate mitigation and management measures (e.g. refinement of design to minimise impact during detailed design and digital archival recording where the impacts cannot be avoided), Project impacts could be reduced to neutral or slight for all heritage places of relevance to the Project identified during this assessment.

TABLE 18.30: NON-INDIGENOUS CULTURAL HERITAGE SUMMARY SIGNIFICANCE AND IMPACT ASSESSMENT FOR STATE AND LOCAL HERITAGE PLACES

Site ID	Description	Cultural heritage significance	Significance of impact before mitigation	Significance of impact after mitigation
Main Range Railway (601480)	State listed heritage place located within Project disturbance footprint	State	Slight	Slight
Bicentennial National Trail (G2H-19-H25)	Local heritage place located within Project disturbance footprint	Local	Neutral/slight	Neutral/slight
Mount Lofly Rifle Range	Awaiting registration as a local heritage place Heritage place located within the EIS investigation corridor	Local	Neutral/slight	Neutral

TABLE 18.31: NON-INDIGENOUS CULTURAL HERITAGE SUMMARY SIGNIFICANCE AND IMPACT ASSESSMENT

Site ID	Description	Cultural heritage significance	Significance of impact before mitigation	Significance of impact after mitigation
G2H -19-H13	Railway Station (Gowrie Junction)	Local	Moderate/large	Slight
G2H-19-H14	Single structure	Local	Neutral/slight	Neutral/slight
G2H-19-H16	Single structure	Local	Slight/moderate	Neutral/slight
G2H-19-H24	House and windmill	Local	Moderate	Slight
G2H-19-H26	Multiple structures	Local	Neutral/slight	Neutral
G2H-19-H30	Railway culverts, Main Line at Helidon	Local	Large/very large	Slight