

Non-Indigenous Cultural Heritage Management Plan

Cross River Rail Project – Tunnel, Stations and Development
Package (TSD)

| REV | DATE | PREPARED BY NAME & SIGNATURE | REVIEWED BY NAME & SIGNATURE | APPROVED BY NAME & SIGNATURE | REMARKS |
|-----|------|------------------------------------|------------------------------------|------------------------------------|---------|
| | | | | | |

Document number: CRRTSD-EN-ENMP-CBGU-000009

Revision date: 14/09/2020

Revision: 3

Compliance Matrix

Table 1 Compliance matrix

| CRRDA REFERENCE | REQUIREMENT | ADDRESSED IN SECTION |
|--|---|---|
| Coordinator-General's change report Appendix 1 – Part C – Condition 11 and 12 | | |
| Condition 11 | <p>G. During construction monitor and report on noise and vibration in accordance with the NVMP, a sub-plan of the CEMP</p> <p>H. Project Works must aim to achieve the construction vibration goals in Table 3</p> <p>(i) Where vibration protection criteria are available for sensitive building contents, predictive modelling must take into account the manufacturer's specifications for tolerance to vibration. To the extent reasonable and practicable, those specifications apply in lieu of the construction vibration goals in Table 3. Where predictive modelling indicates the specified criteria would not be achieved by the Project Works, such works may proceed only in accordance with specific mitigation measures agreed with the potentially Directly Affected Persons.</p> <p>(ii) Where vibration protection criteria are available for sensitive building contents, predictive modelling must take into account the manufacturer's specifications for tolerance to vibration. To the extent reasonable and practicable, those specifications apply in lieu of the construction vibration goals in Table 3. Where predictive modelling indicates the specified criteria would not be achieved by the Project Works, such works may proceed only in accordance with specific mitigation measures agreed with the potentially Directly Affected Persons.</p> <p>(iii) Where mitigation measures need to be adopted with respect to heritage listed places, consultation with the relevant agency must occur</p> | This Plan, Community and Stakeholder Engagement Plan and the Noise and Vibration Management Plan |
| Condition 12 | <p>A. Prior to the commencement of Project Works, predictive modelling must be undertaken of potential ground movement that may be caused by the Project Works. Such predictive modelling must ascertain the potential for damage due to ground movement being caused to property by Project Works.</p> <p>B. Where predictive modelling indicates the Project Works would lead to impacts above the vibration goals for cosmetic damage in Table 3. the proponent must prepare and submit a property damage sub-plan, prior to the commencement of such works, as part of the Construction Environmental Management Plan. The property damage sub-plan must set out the procedure for:</p> <p>I. advance communication with potentially Directly Affected Persons;</p> <p>II. procedures for building condition surveys both in advance of and following Project Works, including provision for consultation with property owners and occupants;</p> <p>III. monitoring to be undertaken for potential impacts to property; and</p> <p>IV. mitigation measures.</p> <p>(i) Where a post-construction building condition survey identifies that property damage has occurred as a consequence of the Project Works, such damage must be repaired as soon as practicable by the Proponent at no cost to the property owners. Such repairs must be undertaken in consultation with the property owners and occupants and must return the premises at least to the condition existing prior to commencement of Project Works. The Proponent must agree the timing, method and extent of works required with the affected landowner and must gain</p> | This Plan |

| CRRDA REFERENCE | REQUIREMENT | ADDRESSED IN SECTION |
|--------------------|--|----------------------|
| | permission to undertake such reparation works prior to their commencement. | |

Details of Revision Amendments

Document Control

The CBGU Project Director is responsible for ensuring that this Plan is reviewed and approved. The Project Environment & Sustainability Manager is responsible for updating this Plan to reflect changes to the Project, legal and other requirements, as required.

Amendments

Any revisions or amendments must be approved by the CBGU Project Director or the Delivery Authority before being distributed / implemented.

Distribution and Authorisation

The CBGU Project Director is responsible for the distribution of this Plan. The controlled master version of this document is available for distribution as appropriate and maintained on TeamBinder. All circulated hard copies of this document are deemed to be uncontrolled.

All personnel employed on the Project will perform their duties in accordance with the requirements of this Plan, supporting management plans, and related procedures.

Table of Contents

| | | |
|-------|---|----|
| 1 | Introduction | 1 |
| 1.1 | Background | 1 |
| 1.2 | Context | 1 |
| 1.3 | Objectives | 1 |
| 1.4 | Legislative Framework | 2 |
| 1.4.1 | Commonwealth Legislation | 2 |
| 1.4.2 | State Legislation | 2 |
| 1.4.3 | Local Legislation | 2 |
| 1.4.4 | Approvals, Permits, and Licences | 2 |
| 1.4.5 | Guidelines and Standards | 2 |
| 2.1 | Environmental Outcomes | 3 |
| 2.2 | Performance Criteria | 3 |
| 2.3 | Archaeological Management Plan | 3 |
| 3 | Impacts and Mitigation Measures | 5 |
| 3.1 | Impacts | 5 |
| 3.1.1 | General Impacts | 5 |
| 3.1.2 | Specific Impacts | 5 |
| 3.2 | Mitigation Measures | 8 |
| 3.2.1 | General Mitigation Measures | 8 |
| 3.2.2 | Specific Mitigation Measures | 9 |
| 4.1 | Roles and Responsibilities | 16 |
| 4.2 | Induction and Training | 16 |
| 4.2.1 | Environmental (Cultural Heritage) Induction | 16 |
| 4.3 | Communication | 16 |
| 4.3.1 | Incident Notification | 16 |
| 4.3.2 | Incident Types | 16 |
| 4.3.3 | Incident Prevention Management | 16 |
| 4.3.4 | Incident Investigation | 17 |
| 4.3.5 | Complaint Management | 17 |
| 5 | Inspections, Monitoring, Auditing and Reporting | 18 |
| 5.1 | Monitoring | 18 |
| 5.1.1 | Performance Monitoring | 18 |
| 5.1.2 | Auditing | 18 |
| 5.1.3 | Corrective Actions | 18 |
| 5.2 | Reporting | 19 |
| 5.2.1 | Environmental Reporting | 19 |
| 5.3 | Documentation and Communication | 19 |

| | | |
|-------|------------------------|----|
| 5.3.1 | Document Control | 19 |
| 5.3.2 | Review..... | 19 |
| 5.3.3 | Communication | 20 |

Table of Tables

| | | |
|---------|---|-----|
| Table 1 | Compliance matrix..... | i |
| Table 2 | Referenced Documents | vi |
| Table 3 | Terms | vii |
| Table 4 | Environmental approvals, permits and licences | 2 |

Referenced Documents

The following provides a list of referenced documents either as a sub-plan to this plan or referenced from.

Table 2 *Referenced Documents*

| Document Number | Document Name | Location of Controlled Version |
|-----------------------------------|---|--------------------------------|
| Referenced Project Plans include: | | |
| CRRTSD-EN-MPL-CBGU-000019 | Construction Environment Management Plan | TeamBinder |
| CRRTSD-CU-MPL-CBGU-000018 | Communications and Stakeholder Engagement Management Plan | TeamBinder |
| CRRTSD-EN-ENMP-CBGU-000001 | Air Quality Management Plan | TeamBinder |
| CRRTSD-EN-ENMP-CBGU-000013 | Noise and Vibration Management Plan | TeamBinder |
| CRRTSD-EN-ENMP-CBGU-000014 | Land Management Plan | TeamBinder |

Note: this Management Plan may not contain the current version of the document listed above. Refer to the 'location of controlled version' for the most current version.

Glossary of Terms

Table 3 Terms

| Acronym | Definition |
|---------------------------|--|
| All Staff | Means all employees, contractors and sub-contractors involved in the Project Works |
| AMP | Archaeological Management Plan |
| CBD | Central Business District |
| CEMP | The Project's Construction Environmental Management Plan |
| CG | Coordinator-General |
| CGCR | Coordinator-General's Change Report |
| CGER | Coordinator-General's Evaluation Report |
| COEMP | The Project's Commissioning Environmental Management Plan |
| Contractor | The Contractors appointed to design, construct and commission the Project |
| Coordinator-General | The corporation sole preserved, continued and constituted under section 8 of the SDPWO |
| CRR | Cross River Rail |
| CSEP | Community and Stakeholder Engagement Plan |
| DES | Department of Environment and Science |
| Directly Affected Persons | An entity being either the owner or occupant of premises for which predictive modelling or monitoring indicates the Project impacts would be above the performance criteria in the Imposed Conditions |
| EIS | Environmental Impact Statement |
| EMP | Environmental Management Plan (refers to the OEMP, CEMP, COEMP including any Project sub-plans) |
| EMS | Environmental Management System |
| Environmental Monitor | The Environmental Monitor engaged in accordance with Imposed Condition 7 |
| GHG | Greenhouse gas |
| ISCA | Infrastructure Sustainability Council of Australia |
| Imposed condition/s | A condition/s imposed by the Coordinator-General under section 54B of the SDPWO Act for the Project A condition/s imposed by the Coordinator-General under section 54B of the SDPWO Act for the Project |
| LMP | Land Management Plan |
| MRTS51 | MRTS51 Environmental Management – TMR Specification |
| NICHMP | Non-Indigenous Cultural Heritage Management Plan |
| NVMP | Noise and Vibration Management Plan |
| OEMP | The Project's Outline Environmental Management Plan |

| Acronym | Definition |
|-----------------------------|---|
| Outline CEMP | The Project's Outline Construction Environmental Management Plan |
| Outline COEMP | The Project's Outline Commissioning Environmental Management Plan |
| Predictive Modelling | Means the use of appropriate analytical scenario testing, whether or not by numerical measurements, undertaken prior to the commencement of Project Works |
| PPE | Personal Protective Equipment |
| Project | The Cross River Rail Project |
| Project Works | As defined in the Imposed Conditions |
| Proponent | The Authority |
| QA | Quality Assurance |
| Rail Infrastructure Manager | <p>A person who has effective management and control of rail infrastructure or proposed rail infrastructure, whether or not the person –</p> <p>owns or will own the rail infrastructure; or</p> <p>has or will have a statutory or contractual right to use the rail infrastructure or to control, or provide, access to it.</p> |
| Rail Transport Operator | A rail infrastructure manager or rolling stock operator, or a person or organisation which is both |
| SDPWO Act | <i>State Development and Public Works Organisation Act 1971</i> |
| SEMS | Queensland Rail's Safety and Environment Management System |
| Sub-plan | Any sub-plan to an EMP |
| The Authority | The Cross River Rail Delivery Authority |
| TMR | Queensland Department of Transport and Main Roads |

1 Introduction

1.1 Background

The Design and Construction Joint Venture comprising of CPB Contractors Pty Ltd, BAM International Australia Pty Ltd, Ghella Pty Ltd and UGL Engineering Pty Ltd (CBGU D&C JV or CBGU) is responsible for delivering the Cross River Rail (CRR) Project (the Project) on behalf of the Cross River Rail Delivery Authority (the Authority).

This Non-Indigenous Cultural Heritage Management Plan should be read in conjunction with the Project's overarching Construction Environment Management Plan (CEMP).

The CEMP provides specific details regarding the background of the Project, the scope of the Project and the staging and timing of key milestones associated with the construction of the Project.

1.2 Context

This Construction Non-Indigenous Cultural Heritage Management Plan (NICHMP) forms part of the Construction Environmental Management Plan (CEMP) developed for the Project. It represents the requirement for a NICHMP for the Project as identified by the Coordinator-General. The NICHMP describes how CBGU will manage cultural heritage and minimise impacts to non-Indigenous heritage places and values during construction of the Project.

1.3 Objectives

The objective of this NICHMP is to ensure that construction activities are managed to maintain non-indigenous heritage values of sites, places and values within and adjacent to construction worksites.

This NICHMP has been developed to achieve the environmental and heritage outcomes for places of National, State and local heritage significance. Management measures and monitoring requirements are to be implemented to achieve the environmental outcomes and performance criteria nominated in this plan. This plan seeks delivery of heritage performance through the following objectives:

- Apply opportunities to preserve, restore and enhance heritage values at the stations and surrounding development interfaces with the Project
- The Project design, construction and operation minimises the impact on historically significant buildings and artefacts and where reasonable and practicable, avoids or minimises the direct impact on heritage values of such places
- Minimise the impact of noise and vibration and other activities during the construction phase which could cause damage to heritage values within and surrounding the Project
- To verify predicted impacts to heritage values by ongoing monitoring during construction and operation to identify deflections from the predictions to enable early modification of construction methods to avoid unintended impacts
- Project delivered with minimal need to undertake ratification and repair works from Project caused heritage impacts and opportunities to restore and enhance existing heritage sites are embraced.

1.4 Legislative Framework

1.4.1 Commonwealth Legislation

Commonwealth legislation that is likely to be relevant to the Project includes:

- *Environment Protection and Biodiversity Conservation Act 1999.*

1.4.2 State Legislation

State legislation (and associated regulations) likely to be relevant to the Project includes:

- *Cross River Rail Delivery Authority Act 2016*
- *Economic Development Act 2012*
- *Queensland Heritage Act 1992*
- *Planning Act 2016*

1.4.3 Local Legislation

Local legislation that is likely to be relevant to the Project includes:

- *Brisbane City Plan 2014.*

1.4.4 Approvals, Permits, and Licences

CBGU will obtain licences, permits and approvals as required by law and maintain them as required throughout the delivery phase of the project. No condition of the Infrastructure Approval removes the obligation for CBGU to obtain, renew or comply with such necessary licences, permits or approvals.

Approvals relating to management of non-indigenous cultural heritage that are expected to be required for the Project are identified in Table 4 below.

Table 4 Environmental approvals, permits and licences

| Approval / Permit / Licence | Regulatory Authority | Responsibility |
|--|-------------------------------------|----------------|
| Exemption Certification required for development by the State on a Queensland Heritage Place (s71) | Department of Environment & Science | CBGU |

1.4.5 Guidelines and Standards

Project works must be undertaken in accordance with specific guidelines and standards. Guidelines and standards related to the management of cultural heritage that must be met include (but are not limited to):

- *Queensland Heritage Act 1992:* [Archaeological Investigations](#)
- *Queensland Heritage Act 1992:* [Archival Recording of heritage places](#)
- *Queensland Heritage Act 1992:* [Developing Heritage Places](#)
- *Queensland Heritage Act 1992:* [State Development Assessment Provisions](#)
- *Queensland Heritage Act 1992:* [Assessing Cultural Heritage Significance](#)
- *EPBC:* [Defence Heritage Toolkit](#)
- *Australia ICOMOS:* [Burra Charter, 2013 and Practice Notes](#)

2 Required Outcomes

The following environmental and heritage outcomes as identified in the Outline NICHMP must be achieved throughout construction of the Project.

2.1 Environmental Outcomes

The following environmental outcomes in relation to non-indigenous heritage are to be achieved:

- Construction activities are managed to maintain cultural heritage values of identified places of historical value, within and adjacent to the construction worksites and along both the surface rail and tunnel alignments.
- Construction activities are managed to maintain scientific values of any archaeological places uncovered during Project works.
- New infrastructure is sympathetic in design to the aesthetic significance of cultural heritage places in the vicinity.

2.2 Performance Criteria

The following performance criteria must be achieved throughout construction:

- Construction activities do not adversely impact on places of historical heritage value directly, or indirectly through excessive dust deposition, excessive vibration, or excessive settlement.
- A Heritage Management Plan (HMP) is prepared and endorsed for all places of state or local historical heritage significance likely to be impacted by works prior to these works commencing. An overarching management plan is prepared in respect of places of local heritage value.
- Any archaeological places newly discovered and uncovered are appropriately managed.
- All personnel involved in, or supervising construction works have completed either the TMR Cultural Heritage Induction or another cultural heritage induction course.

2.3 Archaeological Management Plan

The Project has an AMP endorsed by the State of Queensland (represented by DES). The AMP was prepared by the CRRDA and is effective across the life of the Project. All contractor works are to be undertaken in a manner to comply with the AMP.

The AMP defines key policies, standards, mitigation measures and procedures for the archaeological requirements of the Project. These include:

- In accordance with the *Burra Charter* and associated archaeological practice notes, archaeological investigation is to be considered a suitable management and conservation approach especially where impacts for the Cross River Rail Project cannot be otherwise avoided.
- A preference for the in-situ conservation and retention of significant archaeological features, where practicable exists.

- Consultation and communication with key stakeholders, in particular, the Department of Environment and Science as the regulator of the *Queensland Heritage Act 1992* and the Queensland Heritage Council (where relevant) is required.
- Archaeological investigations are always to be conducted by appropriately qualified persons, to standards and methods defined in the AMP, and with respect to the identified research frameworks and questions defined in the AMP.
- Significance is always to be used to inform decision making, including selection of appropriate archaeological investigation methods, strategies, and in-situ conservation requirements.
- Unexpected finds (archaeological discoveries) are to be managed through the processes identified in the AMP to ensure compliance with heritage legislation. This includes implementation of an agreed assessment process to enable a suitably qualified archaeologist to determine whether a discovery is or is not of State significance. Discoveries that are determined to be:
 - not of State significance will be recorded following the standard recording procedures outlined in the AMP so works can proceed as expediently as possible following their discovery and significance assessment.
 - Of potential State significance are still to be reported to DES following the standard Section 89 of the *Queensland Heritage Act 1992* processes. Due to the potential implications of an extended stop works on project delivery, DES have noted the need for an expedited timeframe (10 business days from receipt) for a response to any such discovery notifications.
- All archaeological discoveries are to be included in periodic reporting to the DES as per the processes established in the AMP, further detail is located in section 5.2 of this plan.
- The interpretation and communication of the importance of any significant archaeological findings is an essential and important outcome for the Project.
- The management policies, processes and standards identified in this Plan must be integrated with other Project management systems and processes to ensure archaeological issues are adequately managed.

3 Impacts and Mitigation Measures

3.1 Impacts

The delivery of the CRR may have impacts on State and local heritage places and the archaeological potential of some areas identified in the CRR AMP.

Impacts may be either direct, indirect or inadvertent:

- Direct impacts include physical impacts to the significant fabric of places through construction works (e.g. demolition, alteration) and detrimental changes to significance views and settings of such places.
- Indirect impacts include the results of vibration, settlement or subsidence on the physical fabric of heritage places.
- Inadvertent impacts include accidental and unplanned damage to heritage places.

3.1.1 General Impacts

General impacts to non-indigenous cultural heritage that may occur as a result of the Project's construction are detailed below.

- Indirect impacts to heritage values, caused through the generation of vibration and ground settlement which create building and or structure damage, or through dust, noise or visual impacts created from the surrounding land use.
- Excavation induced settlement, groundwater drawdown induced settlement and local ground relaxation effects around structures at tunnel declines. Excavation-induced ground movements could occur during the construction phase, but drawdown induced settlement could commence in the construction phase and continue into the operational phase for a number of years.
- Impacts to the visual setting of known heritage places due to the introduction of unsympathetic built form in their proximity on completion.
- Impacts to the archaeological record of early Brisbane due to the unexpected discovery of archaeological features and artefacts during ground excavation works during the Project.

3.1.2 Specific Impacts

3.1.2.1 Northern Portal to Roma Street Station

- The far northern extent of the Project tunnel works will occur within the local heritage boundary for Victoria Park (i.e. those portion of the rail corridor within the BCC Heritage Register only).
- The tunnel crosses beneath the sections of the Roma Street Railway Station local heritage listing near the corner of College Road and Countess Streets (BCC Heritage Register).
- The tunnel passes directly beneath Hardgrave Park, a local heritage listing bounded by Countess, Swan Streets and Petrie Terrace (BCC Heritage Register).
- The tunnel passes within 20m of several heritage places in this area:
 - Brisbane Grammar School, 24 Gregory Terrace, Spring Hill (QHR600124), 20m.

- Brisbane Girls Grammar School, 70 Gregory Terrace, Spring Hill (BCC Heritage Register), 10m.
- Kelvin Grove Fig Tree and Air Raid Shelter (QHR602196), 10m.
- Florence House, 256 Petrie Terrace, Petrie Terrace (BCC Heritage Register) – 1874 terrace house, 15m.
- Illawarra Buildings, 244 Petrie Terrace, Petrie Terrace (BCC Heritage Register) – set of 1886-87 terrace houses, 15m.
- O’Keefe’s Buildings, 226 Petrie Terrace, Petrie Terrace (BCC Heritage Register) – set of 1881 terrace houses, <10m.
- Victoria Barracks, 83 – 129 Petrie Terrace, Petrie Terrace (Commonwealth Heritage List) - <5m.

3.1.2.2 Roma Street Station

- Tunnelling beneath Roma Street Station (QHR601208) may result in maximum surface settlement from 20-25 mm to 0-50 mm and therefore result in impacts to significant fabric. Use of drill and blast construction methodologies at Roma Street Station could result in an exceedance of the cultural heritage vibration goal of 2mm continuous / 10mm transient.
- The redevelopment of the station precinct area around the Queensland heritage-listed Roma Street Station may impact on physical fabric and aspects of aesthetic significance as defined in the QHR entry.
- Works for the redevelopment of the Brisbane Transit Centre, including new station cavern excavations, would occur within 20m of the former Royal Bank of Queensland building (BCC Heritage Register) at 458 George Street, Brisbane.

3.1.2.3 Albert Street

- The tunnel would pass beneath:
 - Brisbane Dental Hospital and College (QHR601909), corner Albert and Turbot Streets.
 - Albert Street Uniting Church (QHR600066), corner Albert and Ann Streets.
 - King George Square (BCC Heritage Register)
 - Former Queensland Deposit Bank (BCC Heritage Register) located at 245 Albert Street, Brisbane.
 - William Cairncross Building (BCC Heritage Register) located at 188-196 Albert Street, Brisbane.
 - Former Beak House (BCC Heritage Register), 127 Albert Street, Brisbane.
 - Perry House (QHR600103), located at 167 Albert Street, Brisbane.
 - Parts of the Early Streets of Brisbane (QHR645611), including small areas near the corner of:
 - Adelaide and Albert Streets,
 - Burnett Lane and Albert Street,
 - Elizabeth and Albert Streets,
 - Charlotte and Albert Streets, and
 - Alice and Albert Streets.

- City Botanic Gardens (QHR600067), located off Alice Street, Brisbane.
- The Project's tunnels would pass within 20m of the following heritage places:
 - Albert Street Uniting Church (QHR600066), <5m.
 - Former Gaujard and Elson Building (BCC Heritage Register), <5m.
 - Brisbane City Hall (QHR600065), <10m.
 - Sportsgirl (QHR600139), 120 Queen Street, Brisbane, <20m.
- Surface works, including alterations to the road and footpath pavements, around the Albert Street station entrances could potentially disturb archeologically significant items.

3.1.2.4 Woolloongabba

The Project tunnel would pass beneath the following heritage places:

- Kangaroo Point Cliffs (QHR602400).
- Rinston (BCC Heritage Register), 56 Llewellyn Street, Kangaroo Point.
- St Joseph's Church, School & Presbytery (BCC Heritage Register), 36 Leopard Street, Kangaroo Point.
- Railway Hotel (Recovery Hotel), (BCC Heritage Register), 735 Stanley Street, Woolloongabba

The Project tunnels would pass within 20m of the following heritage places:

- R.A.O.B Lodge Hall (BCC Heritage Register), 5 Hubert Street, Woolloongabba, <5m.
- Wilbar (BCC Heritage Register), 52 Hawthorne Street, Woolloongabba, 20m.

Project works beneath Stanley Street, east of the tunnel alignment, will also occur within immediate proximity of the following heritage places:

- Woolloongabba Post Office (former), (QHR600357), 765 Stanley Street, Woolloongabba, being located to the south of the proposed works area <5m.
- BAFS Dispensary Building (BCC Heritage Register), 767 Stanley Street, Woolloongabba, being located to the southeast of the proposed works area <5m.

Construction for the temporary works area and future Woolloongabba Station cavity will occur within zone of archaeological potential 12 and 13 as identified in the Project AMP. These works may result in impacts to the archaeological potential of these zones.

3.1.2.5 Boggo Road Station

The Project works for the Boggo Road Station cavity, the tunnels and surface infrastructure will occur partially within:

- Boggo Road Gaol: No.2 Division – State Prison for Womens (BCC Heritage Register only), 21 Boggo Road, Dutton Park.

The project works will be approximately 80m east of the Boggo Road Gaol No.2 Division and Remnant No.1 Division (QHR601033) and Dutton Park State School (QHR650087).

3.2 Mitigation Measures

The following mitigation measures, developed in accordance with Section 4.2 of the Outline Non-Indigenous Cultural Heritage Management Plan (September 2019) within the Outline Construction Environment Management Plan may be implemented to achieve the nominated environmental and heritage outcomes and performance criteria. Additional or different mitigation measures may be applied to achieve the environmental outcomes and performance criteria.

3.2.1 General Mitigation Measures

- Where predictive modelling indicates ground-borne vibration or settlement would present a risk to heritage places, building condition surveys of each building of Commonwealth or State heritage significance prior to and upon completion of the works. Building condition surveys would be undertaken to identify and document pre and post-construction conditions. Necessary building condition surveys are to be undertaken by a person suitably qualified in condition assessments of heritage buildings (Outline NICHMP).
- Where places of historical cultural heritage value are likely to be impacted by construction works – a Heritage Management Plan will be prepared to guide and manage construction and to ensure the identified values of such places are maintained (Outline NICHMP).
- For State or local heritage places impacted by the Project, Heritage Management Plans are to be prepared prior to construction activities commencing (Outline NICHMP).
- Preparation of Heritage Management Plans is to be informed by a condition survey report and by predictive modelling of criteria relevant to each place (e.g. vibration, settlement) and is to include mitigation measures to achieve the environmental outcomes in relation to heritage values for each place (Outline NICHMP).
- Implementation of the Project AMP, for mitigation, conservation and protection of archaeological sites prior to and during construction (Outline NICHMP).
- Cultural heritage awareness training will be included in employee induction processes, to ensure workers are aware of heritage places in the vicinity of proposed works and proposed management procedures (Outline NICHMP).
- Condition surveys must be conducted of each Local Heritage Place impacted by the Project (as per CG Imposed Conditions). Surveys are only required to the extent the place is the subject of development, prior to any construction works commencing which may impact on the cultural heritage values of that place.
- Where harm to historical heritage values cannot be reasonably or practically avoided, undertake archival recording of cultural heritage values with the advice of an appropriately qualified heritage consultant (Outline NICHMP).
- Where harm to historic heritage values cannot be reasonably avoided, adaptive re-use options must be explored where this is practical (Outline NICHMP).
- Archaeological test pitting is to be conducted in places of high to outstanding archaeological potential prior to construction activities involving surface ground disturbance commencing, including parts of

Albert Street and Charlotte Street. The results of these test pits will inform management responses (Outline NICHMP).

- An overarching procedure is defined in the Project AMP. Additional protocols are defined in Archaeological Research Designs prepared for each station precinct. These protocols shall be implemented for unexpected archaeological finds.
- Archival recording should be carried out in accordance the Department of Environment and Science's guideline on Archival Recording of Heritage Places (Outline NICHMP).
- To protect places of historical heritage from excessive dust deposition, vibration and settlement, construction works are to be undertaken in accordance with the Air Quality Management Plan – (AQMP), Noise and Vibration Management Plan (NVMP), and Land Management Plan (LMP) (Outline NICHMP).

3.2.2 Specific Mitigation Measures

3.2.2.1 Northern Portal to Roma Street Station

Direct impacts to heritage places are anticipated.

Indirect impacts due to settlement and vibration are possible, though unlikely, where their location is above or in areas adjacent to deep tunnelling works areas.

3.2.2.1.1 Settlement and Vibration

During design and pre-construction stages, additional settlement modelling is to be undertaken to refine understanding of settlement and vibration impacts to:

- Victoria Park - local heritage listing areas only, this includes a section of the rail corridor.
- Brisbane Grammar School - local heritage listing areas only
- Hardgrave Park, 155 Petrie Terrace, Petrie Terrace

If the tunnel alignment changes, the impacts of settlement and monitoring will need to be reassessed for:

- Florence House, 256 Petrie Terrace, Petrie Terrace
- Illawarra Buildings, 244 Petrie Terrace, Petrie Terrace
- O'Keefe's Buildings, 226 Petrie Terrace, Petrie Terrace

Where settlement and/or vibration exceeds accepted tolerances for heritage places, pre-condition surveys and a settlement and vibration monitoring program is to be implemented at the affected place.

Consultation may be required with owners, including Brisbane City Council and Brisbane Grammar School, as per the Project's Outline Land Management Plan.

3.2.2.1.2 Archaeology

There are no zones of archaeological potential defined for the Northern Portal area. However, AMP unexpected finds protocols remain in effect for the life of the project works.

3.2.2.1.3 Design

No specific design requirements are identified.

3.2.2.1.4 Specific Management Plans

Victoria Barracks, 83 – 129 Petrie Terrace, Petrie Terrace, is a Commonwealth Heritage Listed place within close proximity to the tunnel alignment. No direct or indirect impacts are anticipated. EPBC Referral Decision (2017/7961) further indicated that the Project did not represent a controlled action. If the tunnel alignment changes to intersect the CHL boundary for Victoria Park, a new EPBC Referral may be required including a specific HMP.

3.2.2.2 Roma Street Station

Direct impacts to heritage places are anticipated.

Indirect impacts due to settlement and vibration are possible, though unlikely, where their location is above or in areas adjacent to deep tunnelling works areas.

Continuous monitoring devices are to be located at the following places within the Roma Street Station precinct:

- Roma Street Railway Station (QHR601280).

3.2.2.2.1 Settlement and Vibration

During design and pre-construction stages, additional settlement modelling is to be undertaken to refine understanding of settlement and vibration impacts to:

Heritage places within the alignment:

- Roma Street Railway Station (QHR601280),

Heritage places within proximity to the alignment:

- Former Royal Bank of Queensland building, 458 George Street, Brisbane.

Once final settlement modelling is completed, heritage impacts to these places are to be re-evaluated.

Where settlement and/or vibration exceeds accepted tolerances for heritage places, pre-condition surveys and a settlement and vibration monitoring program is to be implemented at the affected place.

Consultation may be required with owners, including Queensland Rail (Roma Street Railway Station) and former Royal Queensland Bank building per the Project's Outline Land Management Plan.

3.2.2.2.2 Archaeology

The endorsed AMP requires preparation of a Detailed Archaeological Assessment and Archaeological Research Design for a Zone of Archaeological Potential 7 as identified in that plan. Invasive archaeological investigations may be required following completion of those documents.

AMP unexpected finds protocols remain in effect for the life of the project works. Additional site-specific discovery protocols and procedures for any identified zones of archaeological potential will be defined with the Archaeological Research Design.

3.2.2.2.3 Design

Heritage input is required throughout the lifecycle of the precinct design for the Roma Street Station Precinct to ensure overall design considers potential impacts to the heritage significance of the Roma Street Railway Station (QHR601280) and incorporates design measures that avoid or mitigate direct and indirect impacts.

This would include design changes to positively impact the heritage-listed station by opening the visual line of sight through the station plaza (RfPC4).

3.2.2.4 Specific Management Plans

A HMP is to be prepared for Roma Street Railway Station (QHR601280).

Mitigation measures for local heritage places identified in 3.1.2. above are to be addressed in the overarching management plan for local heritage places.

3.2.2.3 Albert Street

Direct impacts to heritage places are anticipated.

Indirect impacts due to settlement and vibration are possible, though unlikely, where their location is above or in areas adjacent to deep tunnelling works areas.

3.2.2.3.1 Settlement and Vibration

During design and pre-construction stages, additional settlement modelling is to be undertaken to refine understanding of settlement and vibration impacts to heritage places within and in close proximity to the alignment.

Heritage places within the tunnel alignment:

- King George Square (BCC Heritage Register) has been identified as having a low risk of significant settlement effects, with a maximum ground movement of 10mm (2mm of continuous or transient vibration is the trigger for heritage places to require pre-condition survey and monitoring program).
- the Former Queensland Deposit Bank (BCC Heritage Register) located at 245 Albert Street, Brisbane.
- Myer Store (BCC Heritage Register area only), 110 Queen Street, Brisbane.
- Perry House (QHR600103), located at 167 Albert Street, Brisbane.
- William Cairncross Building (BCC Heritage Register) – 188 Albert Street, Brisbane.
- Brisbane Botanical Gardens (QHR600067) – 147 Alice Street – immediately above tunnel alignment.
- Beatrice Lane (BCC Heritage Register) – 131A Margaret Street – partially within alignment.

Heritage places within proximity to the alignment:

- The Project's tunnels would pass within 20m of the following heritage places:
 - Albert Street Uniting Church (QHR600066), <5m.
 - Brisbane City Hall (QHR600065), <10m. This property is identified as having a low risk of significant effects from vibration and settlement, with an estimated maximum ground movement of 10mm (2mm of continuous or transient vibration is the trigger for heritage places to require pre-condition survey and monitoring program).
 - Sportsgirl (QHR600139), 120 Queen Street, Brisbane, <20m.

Tunnelling will occur beneath parts of the archaeological State heritage place, the Early Streets of Brisbane (QHR645611). Impacts are not expected to any archaeological potential of this listing by deep tunnelling works. An Exemption Certificate, however, will be required.

Where results of vibration and settlement modelling, and heritage impact re-evaluation, show exceedances to accepted levels for heritage places, HMPs may also be required for any State and local heritage places impacted.

Where settlement and/or vibration exceeds accepted tolerances for heritage places, pre-condition surveys and a settlement and vibration monitoring program is to be implemented at the affected place.

Consultation may be required with heritage place owners, including Brisbane City Council, about potential settlement impacts, as per the Project's Outline Land Management Plan.

3.2.2.3.2 Archaeology

The endorsed AMP requires preparation of a Detailed Archaeological Assessment and Archaeological Research Design for two Zones of Archaeological Potential 1 and 2 as identified in that plan. Invasive archaeological investigations may be required following completion of those documents.

All works within the Early Streets of Brisbane (QHR645611) will require preparation of an Archaeological Research Design and statutory approval under an Exemption Certificate under the *Queensland Heritage Act 1992*. Invasive archaeological investigations may be required following completion of those documents.

AMP unexpected finds protocols remain in effect for the life of the project works. Additional site-specific discovery protocols and procedures for any identified zones of archaeological potential will be defined with the Archaeological Research Design.

3.2.2.3.3 Design

Incorporate 'innovation in design' to facilitate the inclusion of any significant archaeological discoveries at the Albert Street construction sites into an interpretative display or program at the new Albert Street Station.

3.2.2.3.4 Specific Management Plans

Mitigation measures for local heritage places identified in 3.1.2. above are to be addressed in the overarching management plan for local heritage places.

No direct impacts by tunnelling are expected to local or State heritage places along Albert Street. Indirect impacts are possible though will be determined in settlement and/or vibration modelling during design. If exceedances are noted at any local or State heritage place, HMPs must be prepared for those places.

Other project impacts to the Early Streets of Brisbane (QHR645611) are anticipated to be minor. This includes geotechnical investigations. The Project AMP is in place. Therefore a place specific HMP for the Early Streets of Brisbane should only be required if impacts are greater than minor and cannot be accommodated under an Exemption Certificate.

3.2.2.4 Woolloongabba

No direct impacts heritage places are anticipated.

Indirect impacts from settlement and/or vibration to heritage places are possible, though considered unlikely, where their location is above or in areas adjacent to deep tunnelling works areas.

Project works will occur within an AMP identified Zone of Archaeological Potential.

3.2.2.4.1 Settlement and Vibration

During design and pre-construction stages, additional settlement modelling is to be undertaken to refine understanding of settlement and vibration impacts to heritage places within and in close proximity to the alignment.

Heritage places within the tunnel alignment:

- Kangaroo Point Cliffs (QHR602400).
- Rineston (BCC Heritage Register), 56 Llewellyn Street, Kangaroo Point.
- St Joseph's Church, School & Presbytery (BCC Heritage Register), 36 Leopard Street, Kangaroo Point.
- Railway Hotel (Recovery Hotel), (BCC Heritage Register), 735 Stanley Street, Woolloongabba

The Project tunnels would pass within 20m of the following heritage places:

- R.A.O.B Lodge Hall (BCC Heritage Register), 5 Hubert Street, Woolloongabba.
- Wilbar (BCC Heritage Register), 52 Hawthorne Street, Woolloongabba.

Project works beneath Stanley Street, east of the tunnel alignment, will also occur within immediate proximity of the following heritage places:

- Woolloongabba Post Office (former), (QHR600357), 765 Stanley Street, Woolloongabba, being located to the south of the proposed works area.
- BAFS Dispensary Building (BCC Heritage Register), 767 Stanley Street, Woolloongabba, being located to the southeast of the proposed works area.

Once final modelling is completed, heritage impacts to these places are to be re-evaluated.

Consultation may be required with owners of these places about potential settlement impacts, as per the Project's Outline Land Management Plan.

3.2.2.4.2 Archaeology

The endorsed AMP requires preparation of a Detailed Archaeological Assessment and Archaeological Research Design for Zone of Archaeological Potential 12 and 13 as identified in that plan. Invasive archaeological investigations may be required following completion of those documents.

AMP unexpected finds protocols remain in effect for the life of the project works. Additional site-specific discovery protocols and procedures for any identified zones of archaeological potential will be defined with the Archaeological Research Design.

3.2.2.4.3 Design

Potential for adverse impacts to one archaeological discovery of State heritage significance within the Woolloongabba Station Precinct (40ft Turntable). Heritage input is therefore required throughout the lifecycle of the precinct design (including temporary and permanent works designs) to ensure overall design considers potential impacts, meets DES expectations on management, and incorporates design measures that avoid or mitigate direct and indirect impacts.

3.2.2.4.4 Specific Management Plans

Mitigation measures for local heritage places identified in 3.1.2. above are to be addressed in the overarching management plan for local heritage places.

No direct impacts by tunnelling are expected to local or State heritage places at Woolloongabba. Indirect impacts are possible though will be determined in settlement and/or vibration modelling during design. If exceedances are noted at any local or State heritage place, HMPs must be prepared for those places.

3.2.2.5 Boggo Road Station

No direct impacts to heritage places are anticipated.

Indirect impacts to State or local heritage places from settlement and/or vibration are very unlikely due to distances from project works areas.

Project works will occur within an AMP identified Zone of Archaeological Potential.

3.2.2.5.1 Settlement and Vibration

During design and pre-construction stages, additional settlement modelling is to be undertaken to refine understanding of settlement and vibration impacts to heritage places within and in close proximity to the alignment. While the distance between Boggo Road Gaol No.2 Division and Remnant No.1 Division (QHR601033) and the new Boggo Road Station are sufficient, indirect impacts of these works, including vibration need to be revised if alignments change in the future.

Consultation may be required with owners of Boggo Road Gaol about potential settlement impacts, as per the Project's Outline Land Management Plan.

3.2.2.5.2 Archaeology

The endorsed AMP requires preparation of a Detailed Archaeological Assessment and Archaeological Research Design for Zones of Archaeological Potential 4 as identified in that plan. Invasive archaeological investigations may be required following completion of those documents.

AMP unexpected finds protocols remain in effect for the life of the project works. Additional site-specific discovery protocols and procedures for any identified zones of archaeological potential will be defined with the Archaeological Research Design.

3.2.2.5.3 Design

Potential for adverse visual impacts due to inconsistent structural and design form of new station at Boggo Road may represent an indirect impact of the project on Boggo Road Gaol Divisions 1 and 2 (QHR601033). Heritage input is therefore required throughout the lifecycle of the precinct design to ensure overall design considers potential impacts to the heritage significance of Boggo Road Gaol and incorporates design measures that avoid or mitigate such impacts.

3.2.2.5.4 Specific Management Plans

Mitigation measures for local heritage places identified in 3.1.2. above are to be addressed in the overarching management plan for local heritage places.

Direct impacts are expected to areas located within the BCC Heritage Register boundary for Boggo Road Gaol only. As no physical impacts to the extant gaol fabric are to occur under the proposed works, a specific HMP for that local heritage place is not to be prepared. Any impacts to the former gaol are likely to be limited to

the exposure of archaeological remnants of the former gaol – particularly later phases of its constructure in the 20th century. Therefore, management and mitigation of these impacts is to be addressed in the Detailed Archaeological Assessment and Archaeological Research Design for Boggo Road as identified above in Section 3.2.2.5.3.

Indirect impacts to the extant former gaol buildings are possible though very unlikely. If settlement and/or vibration modelling during design identifies exceedances of accepted tolerance for heritage places, a revision of management requirements will be required.

3.2.2.6 Dutton Park

No direct impacts to heritage places are anticipated.

Indirect impacts to nearby heritage places by settlement and/or vibration are highly unlikely due to distances from project works.

3.2.2.6.1 Settlement and Vibration

During design and pre-construction stages, additional settlement and vibration modelling is to be undertaken to refine understanding of settlement and vibration impacts to:

- South Brisbane Cemetery at Dutton Park (QHR602406) – c.200m distant.

Once final modelling is completed, heritage impacts to these places are to be re-evaluated.

Where settlement and/or vibration exceeds accepted tolerances for heritage places, pre-condition surveys and a settlement and vibration monitoring program is to be implemented at the affected place.

If impacts are identified, consultation may be required with owners of heritage places, including Brisbane City Council, about potential settlement impacts to the cemetery, as per the Project's Outline Land Management Plan.

3.2.2.6.2 Archaeology

There are no zones of archaeological potential defined in the Project AMP for Dutton Park. However, AMP unexpected finds protocols remain in effect for the life of the project works.

3.2.2.6.3 Design

No design requirements have been identified.

3.2.2.6.4 Specific Management Plans

No HMPs are required as no impacts are anticipated to heritage places at Dutton Park.

4 Compliance Management

4.1 Roles and Responsibilities

The organisational responsibilities and accountabilities in relation to environmental management throughout Project construction works are outlined in the overarching CEMP.

4.2 Induction and Training

4.2.1 Environmental (Cultural Heritage) Induction

All CBGU staff, subcontractors and visitors to worksites must attend general induction training that covers non-Indigenous cultural heritage requirements, site-wide controls and site-specific and work specific risks and mitigation measures. Further details regarding induction requirements have been outlined in the overarching CEMP.

4.3 Communication

Communication strategies including internal communication, external and Government Authority consultation, and stakeholder and community liaison must be undertaken in accordance with the CEMP and the CSEP.

4.3.1 Incident Notification

The immediate response to all incidents is to make the area safe and undertake measures to prevent further environmental harm. The Environment and Sustainability Manager and Project Director should be notified immediately in the event of a significant environmental incident.

Further details regarding Incident Notification, have been outlined in the overarching CEMP.

4.3.2 Incident Types

Incidents include, but are not limited to:

- Any breach of the legislation or an approval or permit condition
- Unauthorised damage to a heritage place or item.
- Failure to follow Unexpected Finds procedures.

4.3.3 Incident Prevention Management

Key effective incident prevention is undertaken by continual environmental inspections and monitoring. During construction works the following preventative strategies will be implemented by the CBGU or its representative:

- Daily identification of non-Indigenous cultural heritage constraints and requirements at toolbox talks.
- Daily informal visual inspections of active work sites where non-Indigenous cultural heritage constraints are being managed.
- Completion of the Project's Environmental Checklist.

- Timely close out of corrective actions as identified in the Project's Environmental Checklist
- Audits and/or reviews of processes and procedures as identified in the CEMP.

Preventative or corrective actions will be identified in response to an environmental incident, during daily visual inspections or through the Project's Environmental Checklist.

4.3.4 Incident Investigation

The Incident Investigation process has been specified in the overarching CEMP.

4.3.5 Complaint Management

All complaints are to be dealt with in accordance with the complaints management procedure outlined in the CEMP.

Validated complaints about erosion and sediment must be addressed as soon as practicable after the complaint has been made and in accordance with the complaints management procedure outlined in the CSEP and/or CEP. Should there be an absence of monitoring data to confirm or refute the complaint, a visual inspection must be undertaken and the findings reported to both the Environmental Monitor and the complainant. The Environmental Monitor may require a site-specific monitoring campaign to inform the development of additional mitigation measures.

5 Inspections, Monitoring, Auditing and Reporting

This section outlines the compliance processes that have been adopted by CBGU to ensure compliance with the Coordinator-General Conditions and any other legislative requirements. The section below details specific requirements relating to Inspections, monitoring, auditing requirements have not been outlined in the overarching CEMP.

5.1 Monitoring

5.1.1 Performance Monitoring

Monitoring will be undertaken at various sensitive receptors to validate the impacts predicted for the Project and to measure the effectiveness of environmental controls and implementation of this CHMP. The monitoring also helps in addressing any potential Community Complaints that may be made. The monitoring requirements specific to non-indigenous cultural heritage are outlined below.

- Monitoring is to be conducted for historical heritage places identified in a Heritage Management Plan as being at risk of damage during construction, in accordance with the approved management plan.
- Based on the results of test pitting, archaeological monitoring may be employed where necessary during ground disturbance works in places of high to outstanding archaeological potential (alternatively, the test pits may indicate that open area archaeological excavation is the appropriate management response).
- Routine daily site observations are to include assessment of effectiveness of any exclusion fencing or signage protecting cultural heritage values.

5.1.2 Auditing

Audits will be undertaken to assess the effectiveness of environmental controls, compliance with this NICHMP, compliance with Environmental Design Requirements, and other relevant permits, approvals, and guidelines. There will be a monthly internal audit undertaken by the Contractor, who is to report findings to the Environmental Monitor and the Authority. This includes reporting on compliance with the CEMP and the Imposed Conditions. Specific audit requirements are included in the CEMP

5.1.3 Corrective Actions

Corrective actions must be undertaken where monitoring or validated complaints indicate the environmental outcomes or Imposed Conditions are not achieved in relation to particular works, either because the performance criteria have not been met, or mitigation measures have not been implemented. Where corrective actions become necessary, the works that do not achieve the environmental outcomes or meet the Imposed Conditions must cease until the corrective actions have been developed and implemented.

The process for developing and implementing Correction Actions has been specified within the overarching CEMP.

5.2 Reporting

5.2.1 Environmental Reporting

Details regarding reporting, including provision of interim and detail reports have been provided in the overarching CEMP.

A report containing the below requirements from the Outline NICHMP will also be prepared as and when required:

- Archaeological discoveries are to be immediately reported to the relevant worksite supervisor, who is to inform the Project's cultural heritage coordinator. The Project AMP unexpected finds protocol is to be followed and finds of potential state significance are to be reported to DES by the Project's cultural heritage coordinator.
- Reporting of any cultural heritage finds and inspections of cultural heritage protection measures are to be included in the monthly construction compliance report, along with any complaints or incidents relating to cultural heritage issues.
- On completion of any heritage works required for compliance with this plan, a report of the works undertaken must be prepared.
- On completion of construction works, a report is to be prepared on any archaeological places or objects exposed or recovered as per the Project AMP requirements.

During project works, a quarterly report summarising all archaeological discoveries made during the operation of the Project AMP, will be provided to the CRRDA who will subsequently provide it to DES as per the requirements of the AMP.

5.3 Documentation and Communication

Records in relation to cultural heritage must be maintained in accordance with these requirements.

5.3.1 Document Control

Document control requirements have been specifically addressed within the overarching CEMP.

5.3.2 Review

In accordance with the General Requirements of the CEMP this construction NICHMP must also be updated and revised as required.

Revisions shall be reviewed and approved prior to issue. Updates to this NICHMP are numbered consecutively and issued to holders of controlled copies

Revisions to this NICHMP may also be required during the Project to reflect changing circumstances or identified deficiencies. Revisions may result from:

- Management Review
- Audit (either internal or by external parties)
- Complaints or non-conformance reports
- Changes to the Company's standard system.

5.3.3 Communication

All internal and external communication with all stakeholders including the public, Coordinator-General, government agencies and the Delivery Authority must be done in accordance with the requirements of the CEMP.